Service Quality within Process Competencies: Producing Solutions in an Industrial Electrical and Electronics Company

Thesis submitted in accordance with the requirements of the University of Liverpool for the degree of Doctor of Business Administration

by Louis L. Grice

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Author's Declaration

I declare that this thesis titled *Service Quality within Process Competencies: Producing Solutions in an Industrial Electrical and Electronics Company* represents original research, composed by myself as the sole author. This research has not been submitted, in whole or in part, in any previous application for a degree. Except where stated otherwise by reference or acknowledgment, the work presented is entirely my own. I received no direct funding for this research. However, partial tuition reimbursement is a benefit provided by Phoenix Contact USA to employees pursuing higher education. As an employee of Phoenix Contact USA, I received partial tuition reimbursement in pursuit of my DBA degree from the University of Liverpool.

Signature: Louis L. Grice

Abstract

Title: Service Quality within Process Competencies: Producing Solutions in an Industrial Electrical and Electronics Company

Author: Louis L. Grice, University of Liverpool

Phoenix Contact is a global manufacturer of industrial electrical and electronic equipment headquartered in Germany. As complement to its mass production of electrical and electronic products, the company has adopted a servitization strategy. The company follows this strategic mandate within its US organization by infusing service into its operations to provision solutions that combine products and services. Servitization studies suggests that relational processes happening between networks of people support the servitization of manufacturing firms, and that solutions take shape as employees use their service capabilities to co-create solutions. Solutions may therefore be reframed as relational processes - integrating services and products to produce solutions by blending what gets done (the solution outcome) with how it gets done (the solutions process). However, in the movement from mass-produced products to solutions, conversations with the President and the Director of Organizational Development (DOD) of Phoenix Contact USA revealed a problematic image of relationships between cross-functioning employees. While charged and working to produce solutions, cross-functioning employees complained and blamed one another for poor performance and broken promises in meeting customers' unique solutions needs.

By applying a practice-based approach, this research addressed a workplace-based issue involving the conflictual experiences of a group of cross-functioning employees challenged by their provision of solutions with one another. A novel blend of phenomenology and action research served as methodologies to delve into and eventually use the experiences of internal stakeholders as actionable knowledge to intervene in the group's relational issues. To understand solutions as relational processes, anecdotes that expressed the experiences of internal stakeholders were collected from in-depth interviews and used as data for analysis. Analysis of interview transcripts then surfaced insights related to the research question: What are the relational processes and corresponding quality measures that enable the process of servitization for internal stakeholders?

Co-participatory analysis using matrix and thematic methods with the DOD eventually confirmed a common and significant sense of twenty-three relational processes corresponding with thirteen quality measures. Thematic analysis revealed relational processes grouped into two themes: 1) *Processes Conducive of Solutions (Leading Solutions)*, and 2) *Processes for Provisioning Solutions (Doing Solutions)*. Qualities gathered into three perspectives taken by internal stakeholders to

detect them: 1) *Conducting business through solutions*, 2) *Solutions' provision with internal stakeholders*, and 3) *Confidence and certainty*. Findings suggest that *Confidence and certainty* bridged the other two perspectives.

Once gathered into themes, the findings also contributed actionable knowledge, useful for intervention. In co-participation with the DOD, intervention unfolded with the quarrelsome group of cross-functioning internal stakeholders charged with provisioning solutions together. Findings were framed as internal stakeholders' own experiences and made explicit as topics for dialog. Used in a workshop setting, findings prompted dialog and bolstered understanding among internal stakeholders. As benefit, this research helped the group couple and clarify linkages between solutions that combine products and services with the ways solutions are provisioned internally through relational processes and corresponding qualities. Internal stakeholders used the findings to pinpoint purposeful yet problematic relational processes happening between themselves, devise action plans, and create a revised business model to improve quality measures perceived in these relational processes.

Dedication

To my parents, Gene and Wilma. From rough beginnings, you created a vision for your children's education – born of your love for us and for knowledge as empowering.

Acknowledgements

My appreciation and thankfulness extend to many:

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To Phoenix Contact USA, a company comprised of individuals that believe in themselves and that support the potential of one another.

To my wife and children, Janet, Lauren and William. I consider my time spent in this endeavour as your time invested in tolerance, love and support of me.

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Abbreviations

AR	Action Research
BMC	Business Model Canvas
BPM	Business Process Management
BU	Business Unit
CEO	Chief Executive Officer
CRM	Customer Relationship Management
D&M	Development and Manufacturing
DOD	Director of Organizational Development
HQ	Headquarters
HR	Human Resources
IAR	Insider Action Research
ISO	International Standards Organization
KPI	Key Performance Indicator
PCB	Printed Circuit Board
PLC	Programmable Logic Controller
S-D	Service Dominant
US(A)	United States (of America)
VP	Vice President

CHAPTER 1 INTRODUCTION

1.1 Servitization Within Manufacturing Firms

Manufacturing firms transform by adopting service-led competitive strategies and following a path of servitization, "the innovation of an organization's capabilities and processes to shift from selling products to selling integrated products and services that deliver value in use" (Baines, Lightfoot, Benedettini, *et al.*, 2009, p. 563). Solutions offering value in use emerge as suppliers offer services that effectively and efficiently integrate their products into customers' working processes (Oliva and Kallenberg, 2003). To integrate solutions, organizations develop flexible back-offices consisting of internal capabilities providers that organize themselves around customers' needs (Davies, Brady and Hobday, 2006). However, challenges to the development of integrated solutions include cooperation between internal business departments as well as employee mindsets that must overcome narrow visions of traditional products or services (Davies, Brady and Hobday, 2006; Windahl and Lakemond, 2006). Employees undergo high demands for cross-functional cooperation to successfully integrate solutions, and employee views of service must change from merely support or stand-alone, after-sales offerings to "an integrated part of the total offering" (Windahl and Lakemond, 2006, p. 806). For employees and managers, success measures also change by subtly blending transaction-oriented product sales with subjectively assessed attributes like relationship development skills (Baines, Lightfoot, Peppard, *et al.*, 2009). Such changes prompt management challenges associated with "the development of more relational approaches which value a social dimension as a means of governing business exchange, and are often predicated on greater levels of trust" (Lightfoot, Baines and Smart, 2013, p. 1425).

Thus, servitization at the organizational level also implies employees' adaptation to servitized product offerings, including skills built around dialog to strengthen personal relationships, influence business decisions and reach business agreements (Vandermerwe and Rada, 1988; Edvardsson, Holmlund and Strandvik, 2008). In companies undergoing servitization, service quality gains prominence among employees as company operations integrate to ensure continuous improvement and responsiveness to customer demands (Baines and Lightfoot, 2014). However, employee-employee interactions through internal service determine the effect of employee-customer interactions on customer outcomes (Schneider, White and Paul, 1998; Ehrhart *et al.*, 2011). Further, from the standpoint of employees, service delivery draws from their competences to produce the desired characteristics of service quality (Gallouj and Savona, 2009). To address changing competencies linked to service quality improvements, companies adopt structured approaches to identify the "soft" qualities required to develop relationships, then use these requirements as a basis for discussions about mishaps or changes that affect service objectives, personnel or decision-making (Szmigin, 1993). To differentiate hard from soft, the literature describes how hard elements of service quality derive from customers' perceptions of facilities, equipment, communication materials and other "tangibles" (Zeithaml, Parasuraman and Berry, 1990, p. 69). Soft elements of service quality derive from perceptions about the attitudes and behaviour of servicing personnel as well as the quality perceived in service encounters – the actual processes of delivering service (LeBlanc and Nguyen, 1988).

1.2 Study Background: Servitization within Phoenix Contact

Headquartered in Germany, Phoenix Contact is manufacturer of electrical and electronic products, automation equipment and software. Various international subsidiaries are responsible for nurturing customer relationships by stocking, marketing, selling, and servicing products within their national borders. The US Subsidiary was established in 1981 to perform these processes and services. Beyond inventory, product-oriented services include technical and customer services. These services address diverse customer issues with products, including selection, applications, trouble-shooting, pricing and logistics.

Over time, strategy changed to transform the company into a global manufacturer. Within the US market, enactment of this strategy began in 2005 with the establishment of the Development and Manufacturing (D&M) Company as a sister company to the US Subsidiary. As a localized, US-based provider of engineering and manufacturing services, the D&M Company enacted its US manufacturing strategy by concentrating upon mass-produced products. The D&M Company sells its US developed products through the US Subsidiary. Through this arrangement, the US Subsidiary is considered a customer of the D&M Company. Phoenix Contact USA serves as a holding company consisting of the US Subsidiary and the D&M Company (figure 1).

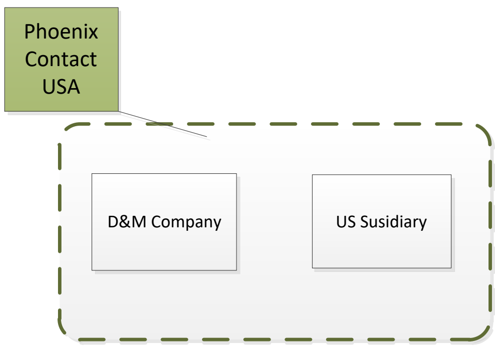

Figure 1
Phoenix Contact USA

Both the US Subsidiary and D&M Company have executive vice presidents, each of whom report to the President of Phoenix Contact USA. Both companies are located on the same campus in Harrisburg, Pennsylvania (see Appendix G).

However, within Phoenix Contact's German headquarters, a maturing sense of servitization developed and paralleled plans to produce solutions consisting of products and services. Servitization frequently occurs through strategic and marketing drivers, including product differentiation and customer relationships (Baines, Lightfoot, Benedettini, *et al.*, 2009). For stakeholders at Phoenix Contact, public claims of *who we are* shifted to promote the company as strong partner "synonymous with future-oriented components, systems, and solutions in the fields of electrical engineering, electronics, and automation" (Phoenix Contact, no date c). At the level of the US Subsidiary and the D&M Company, these claims coincided with a 2011 mandate from the German headquarters to produce solutions together on behalf of US customers.

1.3 Solutions Prompt Change in Processes and Relationships

For Phoenix Contact USA, processes and relationships connect internal stakeholders to one another and to customers. Between the US Subsidiary and the D&M Company, internal stakeholders maintain working and cross-functioning relationships with one another. Further, written process documents capture knowledge in terms of how work is structured then ordered step-wise to flow between internal stakeholders in the US Subsidiary and the D&M Company. Written processes order the tasks necessary to assure quality in the development, production, marketing and selling of mass-produced products. Written processes are also intertwined with quality measures and document the decision-making that ensures quality. Quality measures are applied to various process outputs to ensure that the outputs meet specified quality levels. Together, written processes and quality measures form the company's approach to business process management (BPM) and certification to ISO standards as "proof that you can fully rely on our products" (Phoenix Contact, no date a).

During the development of mass-produced products, quality is derived from intermediate process outputs arising from the steps and stages within product development processes. To ensure quality during product development, intermediate steps link to product testing procedures, design and production feasibility as well as projected production volumes. This process is applied to help internal stakeholders and managers in the D&M Company keep strict development calendars and make go/no-go decisions in the progress of current product developments and investments in innovation. In post development production, product quality measures address material tolerances and functional performance.

Products manufactured by the D&M Company are sold to the US Subsidiary through an internal transfer price mechanism. However, a new product launch process captures the steps necessary for the successful transition and introduction of new products to customers in the US market. This process helps the D&M Company and the US Subsidiary structure their relationships and interactions with each other as it addresses technical and customer service training linked to the features, benefits, transfer prices, and applications of new, mass-produced products. Thereafter, the US Subsidiary uses this process to structure its interactions and relationships with customers of mass-produced products through stocking agreements, promotions, preparation of sales channels, market pricing and revenue targets (figure 2).

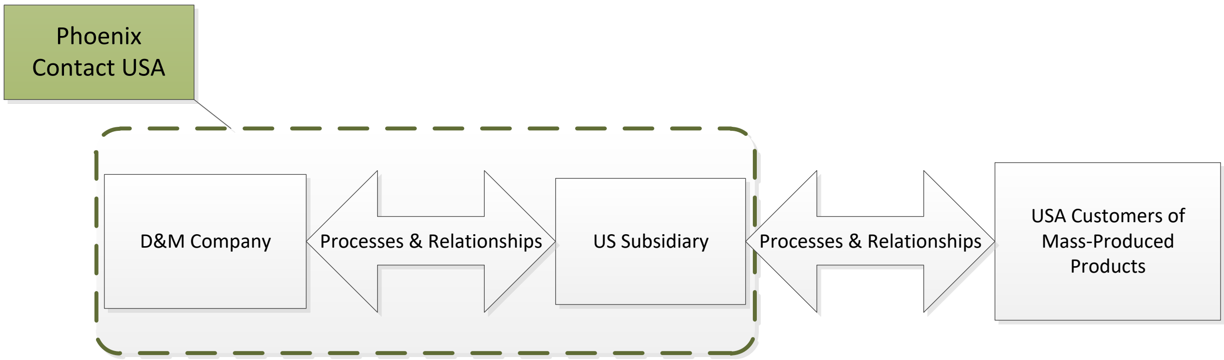

Figure 2
Flow of Product Processes and Relationships Between the US Subsidiary and the D&M Company

In the context of mass-produced products, there are also some inbound communications from customers, including quality issues. Quality issues with products made by the D&M Company are collected by the US Subsidiary as feedback from dispersed US customers across the broad, US market served by these products. Discrete quality issues then trickle back to engineers and managers in the D&M Company.

Within Phoenix Contact USA, contrasts surfaced between product and solutions-oriented processes and relationships while enacting the mandate to produce solutions. The literature describes how companies should consider the customer interface as a principal category for their design of servitized product systems (Baines, Lightfoot, Peppard, *et al.*, 2009). When bundled with the sale of products, services often involve complex customer-supplier relationships (Araujo and Spring, 2006). Within Phoenix Contact USA, internal stakeholders from the D&M Company and the US Subsidiary designed new, written processes to guide the development of solutions. These new processes drew upon the steps and stages of processes used for quality development of mass-produced products. However, in contrast to mass-produced products, written solutions processes acknowledged customers as an integral part of solutions development through the outside-in flow of communications to the D&M Company as well as the US Subsidiary. Communications are inwardly established once marketing and sales stakeholders in the US Subsidiary initiate interactions between prospective solutions customers and the engineering/manufacturing stakeholders in the D&M Company. Through their interactions with customers, internal stakeholders in the US Subsidiary and D&M Company then work to understand how products and services offered by Phoenix Contact may form solutions that address customer-specific problems (figure 3).

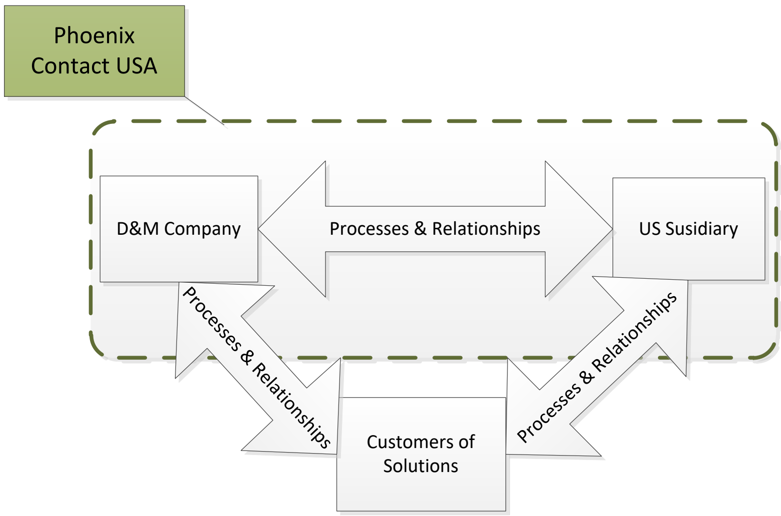

Figure 3
Processes and Relationships in Solutions Context

1.4 The Issues Behind this Servitization Study

Evidence of issues with the solutions business at Phoenix Contact USA surfaced from discussions with the President as well as internal stakeholders charged with uncovering solutions opportunities, provisioning solutions, and growing the solutions business. These discussions revealed the perceived difficulties with solutions in terms of employee interactions. The President described how dissatisfied internal stakeholders from the US Subsidiary and D&M Company issued complaints about one another. According to the President, these complaints surfaced in his one-on-one interactions with individual internal stakeholders. However, while the complaints flowed from individuals, the President aggregated complaints at the company level. He described how complaints flowed from individuals within the D&M Company as well as the US Subsidiary about one another. Complaints often settled on the inability of stakeholders from one company to meet the needs of complaining stakeholders in another company. From the President's perspective, complaints varied across a range of confusing issues including responsiveness to inquiries, on-time delivery and reliable sales volume agreements. While generally positive about the Phoenix Contact

USA's culture supporting collaboration, the President's sense of issues eventually centred upon internal stakeholders working with one another to serve customers' solutions needs. From the President's perspective, employees worked cross-functionally across companies to address customers' needs with mass-produced products as well as solutions. This prompted the President to wonder aloud about building capabilities within the cross-functioning solutions groups to address issues and conflicts arising within the groups.

While considering how to build such capabilities, the President made connections to the Human Resources (HR) department within Phoenix Contact USA. We discussed the role HR played in developing individual and group capabilities through various activities, including training sessions and workshops. One training session held prior to this study emerged as relevant in discussions with the President. While focused on customer service personnel, this training session highlighted the importance of delivering quality service to customers (Zeithaml, Parasuraman and Berry, 1990). As part of her role within HR, the Director of Organizational Development (DOD) facilitated this training session. In this training, quality service was envisioned flowing outbound to customers from customer service employees belonging to the US Subsidiary.

Motivated by this training, discussions with the President turned to service operations goals and importance of service quality within the solutions business. Inquiry explored whether complaints from US Subsidiary stakeholders originated with poor service quality they perceived as "customers" buying products from the D&M Company. However, these discussions about the flow of services in the solutions business also prompted a reconsideration of the customer-supplier relationship between the two internal companies. This "customer-supplier" context seemed to change as internal stakeholders from both companies produced solutions together on behalf of customers. From our discussions, this also changed the sense of service quality received by the US Subsidiary as a customer of the D&M Company. Unlike mass-produced products, solutions no longer flowed strictly outbound from the D&M Company to the US Subsidiary then on customers, and no longer aligned with the customer-supplier relationship model that worked with mass-produced products (figure 2 vs. figure 3). In contrast to products, both companies worked together to serve solutions customers with direct, cross-functional interactions between internal stakeholders as well as customer interactions involving internal stakeholders from both companies.

With service quality in mind, discussions with the President prior to the study also confirmed the linkage of quality to company processes. From the President's perspective, this quality-via-process linkage was long established in the company culture and reinforced by the company's maintenance of ISO 9001 certification (Phoenix Contact, no date a). However, as expressed by the President, issues with solutions seemed to emerge from interactions among internal stakeholders rather than written processes and quality controls applied to produce solutions as products. In the President's view, quality applied to both solutions and mass-produced products as physical outputs that produced revenue. Unlike the relationships among employees and processes supporting the development and sales of mass-produced products, the President suggested that solutions processes were out of sync and that internal stakeholders were discontented with one another. From the President's perspective, internal stakeholders seemed unable to move solutions harmoniously from sales opportunities through development to revenue. In contrast to mass-produced products, solutions seemed to accompany many disagreements and strong opinions among internal stakeholders about their mutual accountabilities and needs from one another. According to the President, the finger-pointing and blaming he witnessed in conversations among managers and employees were symptomatic of relational problems between internal stakeholders provisioning solutions.

1.5 Motivations for the Study

The President served as an important stakeholder and motivator in this study. He is responsible for the alignment and resonance of Phoenix Contact USA with the mission, vision and culture principles provided by the German headquarters (figure 4). From the President's perspective, a successfully run solutions business meant hitting revenue targets in a friendly environment with few complaints among internal stakeholders. In conversation, he was explicit about his personal belief in the uniqueness and power of this friendly business approach and corporate principle under "Trusting Partnership" (see figure 4).

While strategy and culture are encompassed by the President's responsibilities, discussions with the President also clarified his concerns for the company viewed as a

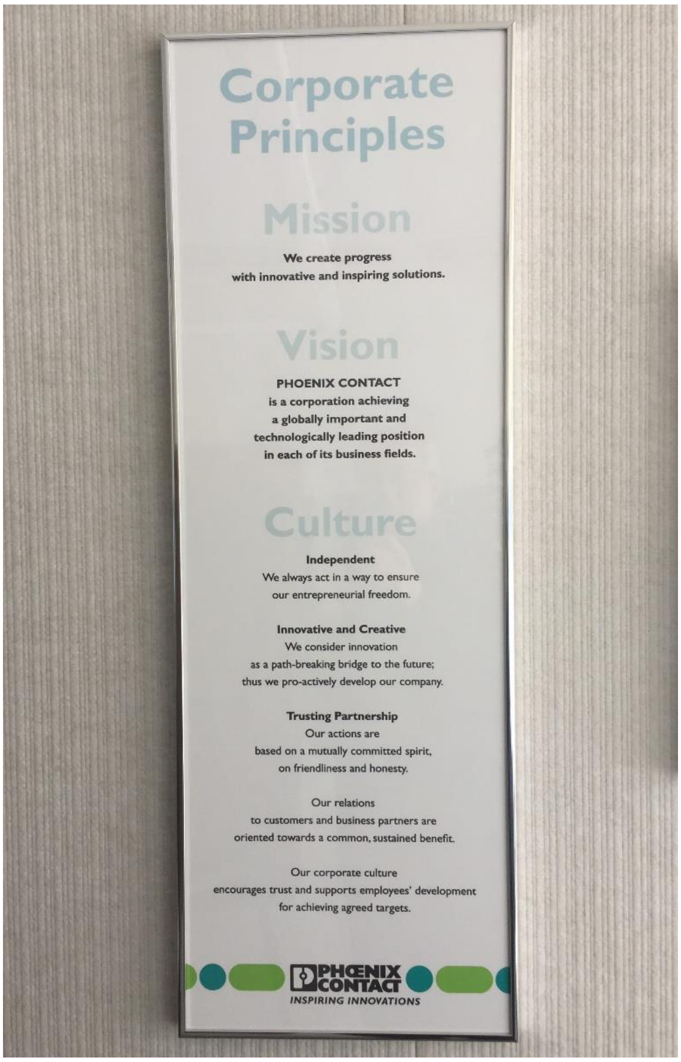

Figure 4
Corporate Principles of Phoenix Contact

human system. As a human system, internal stakeholders expressed to the President their discontentment with one another while producing solutions. This concerned the President and prompted him to express his views of how the company ought to run as a human system. For the President, cultural norms embracing friendliness and trusting partnership seemed misaligned to the production of solutions. From the President's view, the conflict arising among internal stakeholders suggested a conflictual dynamic between the solutions strategy and the corporate principles.

Research into the dynamics of strategy may study the complexities of evaluating corporate outcomes against corporate words – the lived out statements of the organization's driving forces (Coghlan and Rashford, 2006). Questions asked to capture the processes within human systems include, "What do we want to be good at (corporate words)?" and, "How do we assess how we are doing (evaluating corporate outcomes)?" (Coghlan and Brannick, 2014, p. 101). From the culture statement, "Trusting Partnership" (i.e. what the company wants to be good at) is enabled by a criteria or quality of interaction as a corporate principle: "Our actions are based on…friendliness" (figure 4). However, the President was clear about his dissatisfaction with the discontentment expressed by internal stakeholders. To him the conflict between internal solutions stakeholders ran contrary to the company's culture statement. The President's view suggested that internal stakeholders' interactions to produce solutions were decoupled from the processes they applied or qualities they used to assess how they "lived out" the company's cultural ideals.

The President's concerns incorporated other driving forces to motivate this research. These driving forces included: 1) the processes that inform quality, 2) stakeholder competencies that serve within quality processes, and 3) quality measures as a means for discussing, evaluating and managing an evolving sense of quality and service through solutions. In contrast to development schedules created and controlled internally for mass-produced products, customers' demands for solutions to their specific problems drive development schedules. Customers also want competency and care applied to their problems, and are steady in their demands whether or not company processes or competencies are fit to satisfy them. This shed a different light on measures applied internally to perceive quality or work with it. Within the solutions business at Phoenix Contact, quality concerning "what" is produced as finished solution products has expanded to encompass "how" solutions are produced as a service among internal stakeholders. Yet, rather than trusting partnership or friendliness in creating solutions together, a sense of conflict appears as internal stakeholders struggle to find their fit with one another in a solutions-provisioning context. Evidence of this struggle appeared in stressed discussions as internal stakeholders interacted with one another then evaluated and managed these interactions by complaining to the President. As reflected in President's comments, complaints among internal stakeholders about one another suggested that relationships and processes had changed or needed to change to provision unique customer solutions while still attending to quality and aligning with culture.

While enacting their roles and responsibilities to provision solutions together through relationships and processes, internal stakeholders' complaints and voiced frustrations suggested that they had difficulty "living out" a culture of friendliness and trusting partnership. Yet, as part of provisioning solutions, internal stakeholders made no references to processes they used to manage their complaints. Instead, finger-pointing and blaming ensued. For the President, this suggested that the ways of producing solutions within existing relationships and processes among internal stakeholders ran outside the bounds of the company's cultural principles. Quality measures or processes internal stakeholders applied in managing their relationships were either unknown, inactive or both. This study was motivated to overcome this gap in knowledge and knowhow.

1.6 Locating Inquiry for the Study

Inquiry within this study was facilitated by linking it to processes and quality as driving forces and social objects within Phoenix Contact USA. Solutions introduce and link customers to the "back-office" of internal stakeholders fulfilling engineering roles in the D&M Company. Solutions specifications are developed in partnership with customers as internal stakeholders in both the US Subsidiary and the D&M Company work with one another to provision customers' solutions. To produce quality solutions as outputs, written solutions processes were designed to guide the activities of internal stakeholders by prescribing steps and stages of activities dedicated to specifying and provisioning solutions. However, complaints surface while plodding step-by-step through solutions processes otherwise intended to produce quality solutions outputs. Among the complaints heard by the President, it was notable that issues expressed by internal stakeholders linked to service quality dimensions like *responsiveness* and *reliability* (Zeithaml, Parasuraman and Berry, 1990). Yet, when compared to the relatively harmonious relationships that supported the quality provision of mass-produced products, relationships supporting solutions seemed to deteriorate between internal stakeholders. In contrast to solutions viewed as combinations of products and services (Galbraith, 2002; Davies, Brady and Hobday, 2006; Sawhney, 2006), the literature reframes solutions as relational processes that link suppliers to customers (Tuli, Kohli and Bharadwaj, 2007). For the President, written processes were evidence of the company-level capabilities needed to guide the quality development of solutions for customers of Phoenix Contact USA. However, the President's view also suggested that the quality corresponding with relational processes among internal stakeholder employees had changed as they produced solutions together.

Considering how quality is perceived, shortfalls in service quality may be attributed to perceptual gaps that arise between internal stakeholders "within-company" (Zeithaml, Parasuraman and Berry, 1990, p. 75). Within Phoenix Contact, the adage, "If you don't measure it, you can't improve it", reflects the company's quality mindset and describes our common sense of measurable quality linked to processes. This suggested that, without quality measures, or methods for determining and applying measures for evaluation, internal stakeholders were subject to perceptual gaps about quality linked to relational processes and had no means or basis for managing their interactions through relational processes. Further, while nescient about relational processes enacted among themselves, internal stakeholders' discussions produced few insights to link their relational processes to solutions, or improve their competencies linked to relational processes. Therefore, within this study, an exploration of these issues was guided by the question:

> What are the relational processes and corresponding quality measures that enable the process of servitization for internal stakeholders?

In March 2016, discussions with the President secured agreement that the topic of solutions processes and relationships between internal stakeholders in the D&M Company and the US Subsidiary represented an appropriate research issue. This agreement provided the political support and offered gravity to the study as well as findings used later with internal stakeholders. Issues intersecting with internal stakeholders' processes and relationships would set a premise and locus for active inquiry in this study (figure 5).

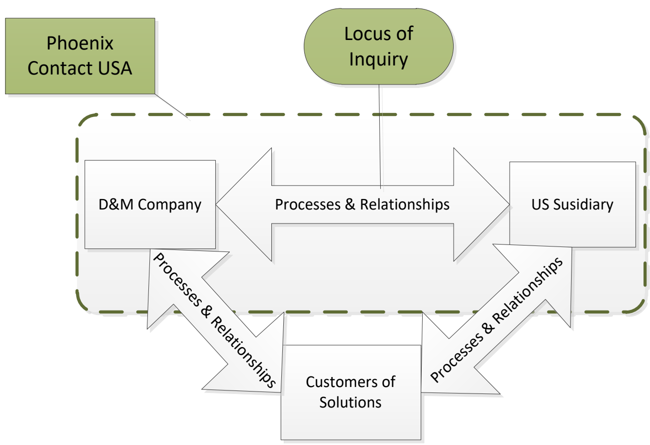

Figure 5
Locus of Inquiry for this Research

1.7 Research Aims and Objectives

Reflection on the changes taking place within Phoenix Contact USA reveals an image of servitization defined as “the innovation of an organisation’s capabilities and processes to shift from selling products to selling integrated products and services that deliver value in use” (Baines, Lightfoot, Benedettini, et al., 2009, p. 563). However, servitization scholars note how companies apply servitization along a product-service continuum that ranges from traditional manufacturers applying services as product add-ons, through full service providers were services form the main part of their value creation process (Oliva and Kallenberg, 2003; Gebauer and Friedli, 2005; Neu and Brown, 2005; Gebauer, Bravo-Sanchez and Fleisch, 2007). Within this continuum, companies have to look at their unique challenges and opportunities at different levels of “service infusion” and take action to define their positions (Gebauer, Bravo-Sanchez and Fleisch, 2007; Kowalkowski *et al.*, 2012). Servitization scholars define service infusion as “an organization-wide embracement of a basic set of relatively enduring organizational policies, practices and procedures intended to support and reward service-giving behaviours" (Lytle, Hom and Mokwa, 1998, p. 459; Kowalkowski, Witell and Gustafsson, 2013, p. 19). This study relies upon this definition of service infusion to frame Phoenix Contact’s challenges holistically in its servitization to produce solutions; both as an organization and through the individual behaviours and practices of internal stakeholders that are informed and influenced by organizational policies and procedures.

This organizational and individual view of challenges faced in servitization also supported a more robust account of the workplace-based issue at the core of the study. For the study, inquiry and action were taken from the researcher’s perspective as an executive insider - both working with the President to address the organizational and cultural issues perceived within and across the holdings company, as well as intervening with internal stakeholders challenged by their joint production of solutions. Thus, concepts and findings expressed in the literature helped the researcher reflect upon the contexture of servitization to reveal issues and insights about the organization’s transformation, including its management, employees and processes. As a lens, the literature was used first to “zoom out” and view issues intertwined with the servitization of manufacturing firms holistically. Next, concepts judged transferable from the literature were used to help the researcher “zoom in” to frame and link the issue at hand to learnings garnered from the literature. Language and ideas discovered in literature were used for this task of framing and linking. Servitization studies brought the company’s strategy of organizational transformation into focus, helping the insider-researcher recognize and coalesce preunderstandings and reflections about the issue unfolding and affecting the work-lives of internal stakeholders. This process helped transmute literature findings into actionable insights that were eventually used to address the troublesome processes and relationships witnessed between internal, solutions-producing/cross-functioning internal stakeholders.

Thus, within the contexture of the company's servitization strategy to produce solutions, this study aimed to explore then address a workplace-based issue involving cross-functioning employees' processes and competencies for managing and addressing their problematic relationships while provisioning product-service solutions. It aimed to do so by supporting policies and fostering the values, capabilities, practices and procedures intended to support service behaviours within groups of solutions-producing internal stakeholders. To better understand and follow this aim, two questions were pursued in this study. For understanding, the researcher sought answers to the "What?" question guiding the research. However, organization change often means that individual employees have to change what they do as well as how they do it (Coghlan and Brannick, 2014). Therefore, the "What?" question used to create knowledge about relational processes and corresponding quality measures paired with a question concerning the enablement of internal stakeholders with this knowledge while enacting the change suggested by the company's servitization through solutions. When coupled with intervention, the second question pursued answers to a "How?" question, namely: How is new knowledge derived from the study transformed into actionable knowledge for internal stakeholders? This second question was intended as inquiry to test the new knowledge as actionable and useful for internal stakeholders in their engagement with, and management of, the relational issues that arise in their joint provision of solutions. Therefore, in consideration of the understanding sought as well as the action undertaken in this study, the researcher applied the following objectives to direct energy and guide action during the research:

- Identify the relational processes that internal stakeholders use with one another in their provision of solutions
- Identify quality measures that internal stakeholders perceive while engaged in relational processes with one another to provision solutions
- Express the correspondences between relational processes and quality measures as well as linkages between distinct relational processes and between distinct quality measures
- Apply study findings through intervention with a group of internal solutions stakeholders to address issues in their joint provision of solutions

1.8 Theoretical and Methodological Considerations

Different theories have been used to describe servitization (Windahl and Lakemond, 2010; Gebauer *et al.*, 2012). Within the servitization community, authors intent on organizing and connecting scholars as well as knowledge stocks have produced meta-analyses of the literature and revealed fluidity in the theoretical underpinnings of servitization. Kowalkowski *et al.* (2017) describes how much of the research "still lacks a strong theoretical foundation, and substantial theoretical extensions are rare" (p. 2). Similarly, the narrow range of theories applied to servitization research prompts Rabetino *et al.* (2018) to conclude that most scholarly articles build from the blended arguments of earlier servitization research rather than building-up from a grounded theoretical framework.

For this study, theoretical considerations accounted for the role of the researcher as an insider applying action research. Action research brings together reflection, action, theory and practice in co-participation with others to pursue practical solutions to the pressing concerns of people as well as the flourishing of people (Reason and Bradbury, 2001). Action researchers thus enter research as praxis and come to theory as a way of justifying what is known to them as correct to begin with "to legitimize a politically informed and effective form of knowledge generated through experience" (Brydon-Miller, Greenwood and Maguire, 2003, p. 15). Nonetheless, insider action researchers also engage and actively manage their preunderstanding about personal experience and knowledge of their own systems, their jobs, the organization's everyday life, jargon, and phenomena that occupy colleagues' minds (Coghlan and Brannick, 2014). Therefore, theoretical frameworks considered for this practice-based study were evaluated through the lens of practicality and usefulness from the perspective of the researcher as both a scholar and reflective practitioner. Theories were evaluated first for the ways by which they proved useful according to the experiences of the community of servitization scholars within the literature, then by comparing these uses to the researcher's reflections upon the aims of the research to address the workplace-based issue at hand. Theory was then used to frame the issue, thereby helping the researcher give voice to the issue according to his preunderstandings and reflections upon the issue.

Among the theories in play in the various streams of servitization research, recent meta-analyses reveal how scholars have drawn upon network actor theory (Rabetino *et al.*, 2018; Raddats *et al.*, 2019). Case studies shed light on how manufacturers develop capabilities through networks that would otherwise be difficult to develop alone (Raddats *et al.*, 2019). Within the network actor theoretical framework, studies recognize that networks of actors combine capabilities to co-create value, often through the creation of new, relational capabilities developed between actors (Gebauer, Paiola and Saccani, 2013; Kreye, Roehrich and Lewis, 2015). These studies also highlight the development of partnership among actors in the value chain (Barquet *et al.*, 2013; Ferreira *et al.*, 2013). However, rather than inquiring into the behaviours and interactions of employees as individual actors, these studies suggest that network actor theory serves to frame capabilities developed by firms interacting with one another. Thus, while the themes of partnership and relational capability development resonate with aims of this study, network actor theory was not considered as applicable to the issue at hand. Rather, the literature suggests that scholars have found network actor theory useful for studying inter- rather than intra-firm servitization issues.

In contrast, servitization studies have explored the usefulness of strategy based upon the fit of organizational designs to their environment by using contingency theory as a conceptual framework (Gebauer, 2007; Rabetino *et al.*, 2018). These explorations include the appropriate design, effectiveness and influence of organizational parts, including functional departments and work teams (Neu and Brown, 2005). In one such study, Galbraith (2002) argues for front-end, customer-facing units to be separated from back-end, product and technology-oriented units to support integrated solutions. Windahl and Lakemond (2006) note how such structures follow the classic contingency theory proposition that companies operating in more dynamic environments should aim for greater differentiation between organizational units. However, while such structures may make it possible for companies infusing services to break with their traditional, product-centric cultures, effectiveness depends upon differentiation being followed by greater emphasis on organizational integration (Windahl and Lakemond, 2006). Within a solutions producing context, Miller et al. (2002, p. 9) argue that "the natural interdependencies between client and capability interests require judicious and constructive collaboration between front and back [office units]. This demands strong leadership and a vibrant collaborative infrastructure". Further, the optimal alignment of strategy and organizational design does not address how firms "determine when, why and how to respond to…changes in their environment or internal process" (Gebauer, 2007, p. 63). For this study, the President's expression of cultural issues centred on the complaints of internal stakeholders producing solutions versus products while operating in different units - the US Subsidiary and D&M Company. This inter-unit aspect of the issue suggested contingency theory as means to exploring and addressing inter-unit issues. However, the weaknesses of contingency theory for answering why and how firms respond to changes in internal processes, or how to foster integration within the organization, eventually eliminated it from consideration as a conceptual framework.

Among theories, service dominant (S-D) logic has helped scaffold servitization studies and has gained scholarly adherents in the solution business community (Rabetino *et al.*, 2018). S-D logic may be used as a service thinking framework as it accounts for micro- and macro-level contexts that, while functionally enabling individuals' capabilities to serve, are also perceived by individual actors (Lusch, Vargo and O'Brien, 2007; Chandler and Vargo, 2011) Thus, S-D logic accounts for holistic views of value co-created by actors at multiple levels of analysis (including organizational, unit level and individual employees) that integrate resources while operating within ecosystems and connected by institutional logics and mutual value creation (Akaka and Vargo, 2014). From the perspective of employees, S-D logic acknowledges the relational, micro-activity of service-for-service exchanges among individuals that places "activities driven by specialized knowledge and skills" (Lusch and Vargo, 2006, p. 54) at the centre of exchange. This contrasts to exchange-based goods-dominant logic where units of output are emphasized in exchange processes involving transactions (Lusch and Vargo, 2006b; Lightfoot, Baines and Smart, 2013; Rabetino *et al.*, 2018).

Just as the memory of practice may inform new practice, theory offers a mirror that may be used for reflection and critical inquiry into memory and associated practices (Jenlink, 2009). Thus, the applicability of S-D logic for this research surfaced as a matter of scholarly reflection and a sense of its usefulness perceived by the researcher. For the research, S-D logic was used to begin building a theoretical scaffold that framed an approach to problematic relational exchanges between internal stakeholders. However, these relational exchanges also seemed symptomatic and linked to broader happenings within the organization. Solutions were at the core of new service demands infused into the organizational ecosystem as Phoenix Contact USA responded to the headquarters mandate to produce solutions. Difficult relations between internal stakeholders unfolded within the micro-context and micro-processes used by individual, cross-functioning stakeholders at Phoenix Contact USA to produce solutions through their exchange of knowledge and skills. Nonetheless, while happening at the level of employees to co-create value through solutions, troublesome interactions also prompted expressions of discontent to, and eventually by, the President. In the expressed concerns of the President, employee complaints ran contrary to the organizational (macro-level) cultural drivers overseen and fostered by the President. Just as S-D logic recognizes service as happening within an ecosystem, both influenced and influence by multiple embedded contexts, it also prompted a sense of practical flexibility for addressing a workplace-based issue in the multi-contextual considerations of the researcher as scholar, practitioner, insider and executive partner to the President.

However, in appreciation of the flexible application of theory within servitization scholarship, this research draws upon the insights of scholars that apply different theoretical lenses to understand servitization. This research did so to address practical issues arising from stakeholders "living out" a servitization strategy through their experiences of provisioning solutions, and includes expressions of how the researcher's reflections connected to continuous organizational change and teleological theory as useful for addressing the issue at hand. Recent studies have framed servitization as incremental, cumulative and evolutionary for organizations (Kowalkowski *et al.*, 2012) and as change processes undertaken to reach a strategic goal within organizations (Lienert, 2015). Teleological theory has been used to understand the interacting influences of strategy as planned change within organizations and link them to: 1) the everyday experiences of employees (Bess, 2015), 2) the cycles goal planning, implementation, evaluation and learning of employees as the motor of organizational change (Van De Ven and Poole, 1995), and 3) the managerial actions of change orchestration undertaken to reach strategic change goals (Sune and Gibb, 2015). Reflections upon these theoretical insights aided me as executive, insider and action researcher to gather a sense of how organizational change through servitization may be fostered through personal, managerial action blended with the interplay of internal employee stakeholders in organizational change.

Methodology-wise, servitization scholars have expressed a research need for more prescriptive approaches such as action research (AR) to help organizations transform through servitization (Baines, Lightfoot, Benedettini, *et al.*, 2009). Qualitative studies, some of which apply AR, have since come to dominate servitization-related research (Rabetino *et al.*, 2018). Participants' voices may be heard through AR by exercising their right and obligation to participate in the process of knowledge generation (Greenwood and Levin, 2007). Servitization studies may draw upon AR to ensure that other methodologies may be applied in practice, and for testing frameworks and tools in a variety of organizational situations (Dimache and Roche, 2013). However, insider action research (IAR) projects cannot be classified as a single methodology and may include a range of methods and approaches to inquiry (Reason and Bradbury, 2001; Roth, Shani and Leary, 2007). Through a practical lens, purposive adaptation of projects in AR is meant to enhance co-generative learning while in the process of research (Greenwood and Levin, 2007). As a company insider, this study applied AR as my approach to the company's servitization challenges and to give voice to internal stakeholders as the experiencers of relationships and processes in their joint provision of solutions. The value of this research arises from new, actionable knowledge derived from internal stakeholders' expressions about their experiences through one-on-one interviews. To be practical and useful, this study acknowledged and leveraged processes as an important part of company context by making explicit the relational processes and quality measures woven into internal stakeholders' experiences.

As researcher and scholar-practitioner, I approached this study from my perspective as an insider and leader of customer-facing service departments within the US Subsidiary. From this first-person perspective, I observed dissatisfactions voiced by internal stakeholders in both the US Subsidiary and the D&M Company frustrated with one another while producing solutions. My place in this research surfaces through the application of AR as intervention intended to change this unsatisfactory situation (Brydon-Miller, Greenwood and Maguire, 2003; Greenwood and Levin, 2007; Coghlan and Brannick, 2014). Further, as scholar-practitioner, my approach is motivated by theory made alive through praxis. As part of reflective practice (Duberley and Johnson, 2003; Bell and Bryman, 2007; Brannick and Coghlan, 2007; Jenlink, 2009), I sought to apply insights derived from theory by allowing them to inform my practical approach to problems encountered in this study, thereby crossing the "theory-practice divide" (Lee and Greenley, 2010, p. 5). Paired with the President's motivations to address the relational issues among internal solutions stakeholders, this crossing resonates with the intent of my AR engagement.

1.9 Blended Contributions to Theory and Practice

This research aims at a range of contributions to our understanding of servitization concept and its underlying theories through a lived-experience lens and practice-oriented approach facilitated by a carefully designed action research methodology. A model was derived from field examination of lived experiences to produce novel mappings of relational processes and corresponding quality measures as actionable knowledge for intervention within in a servitization context. While the literature offers limited insights on the relational aspects and processes within servitization, this research offers new insights on how these aspects may be better understood through the lens of quality and quality measures (from a relational point of view) to explain how a transformation through servitization may tackle obstacles and lead to success.

As a researcher and company leader, this AR addressed my company's operational challenges associated with servitization, and faced by internal stakeholders facilitating the servitization of Phoenix Contact USA through the provision of solutions. In my reflections upon their experiences, internal stakeholders have practical issues interacting through relational processes. Internal stakeholders' solutions provisioning context is informed by written processes. However, quality measures and their evaluation seem to have changed implicitly for internal stakeholders while pursuing solutions and partnership through relational processes. Written processes and interwoven competencies helped frame the context and inform the approach to the company's solutions and quality strategy, but seemed inadequate for capturing relational processes or evaluating qualities perceived in relational processes as part of an evolving human system. Meanwhile, internal stakeholders are challenged to reach common ground through dialog on the ways and means of measuring and managing their solutions-driven interactions. Considering the solutions context within Phoenix Contact USA, making relational processes and quality measures explicit contributes knowledge to inform stakeholders' actions as they "live out" a culture that values trusting partnership and friendliness. Solutions introduced something different and additive to our formerly and exclusively product-oriented development and manufacturing strategies. The value of this research to practice emerges while offering internal stakeholders voice, meaning and access to changing processes and quality as a part of a servitization strategy. It does so through an evolving sense of processes and quality applied to partnership while provisioning solutions.

Within servitization studies, common research themes concern the challenges that face manufacturers moving into services, including human factors (Baines, Lightfoot, Benedettini, *et al.*, 2009). Within human factors, servitization requires changes to attitudes and long-standing practices to address challenges that emerge as traditional manufacturers determine how to transition through servitized organizational strategy (Vandermerwe and Rada, 1988; Baines, Lightfoot, Benedettini, *et al.*, 2009). Yet, little research attention is paid to the transformation of existing organizational processes at the level of internal resources and their configuration to deliver servitized offerings (Heineke and Davis, 2007; Baines, Lightfoot, Peppard, *et al.*, 2009). Among research communities interested in the servitization of manufacturing, vigorous research activities address questions linked to managing servitized operations (Lightfoot, Baines and Smart, 2013). This study offers insights appealing to the community of servitization researchers interested in servitized operations happening through internal stakeholders. While limited to a single company, it sheds light on the relational processes and qualities used by the "human factors" charged with making servitization operational by producing solutions.

1.10 Thesis Structure

Following this introduction, chapter 2 progresses with a review of literature explored at the outset of the study with the intent to exploit it. The literature is used opportunistically for reflection upon the issues faced by the company. The end of Chapter 2 places terminology and insights surfacing from the literature immediately into context with the issues addressed through this IAR through a detailed reflection by me as the insider-researcher. Within chapter 3, methodological, ethical and analytical approaches to the research are covered in detail as well as my philosophical leanings. Chapter 3 also attends to the ethics that accompany the flow of methods applied in the study.

Thereafter, chapter 4 sheds light on how interview insights were condensed and made ready for action through thematic and matrix analysis applied in partnership with the DOD, and the subsequent positioning of this new knowledge for action approved by the President. Chapter 5 captures the intervention narrative of new knowledge put into action through workshops. Workshops were facilitated by leveraging partnership with the DOD to intervene with a group of cross-functioning internal stakeholders charged with producing solutions together.

Chapter 6 discusses findings in consideration of qualitative methods applied throughout this research for the production of actionable knowledge. As part of research implications, chapter 6 also records the contributions this research makes to processes for understanding and addressing servitization-related issues, and to theories and arguments in the extant literature that informed this research. Future research opportunities are also discussed. Chapter 7 offers a summary of the study's objectives, the methodologies applied to reach these objectives as well as limitations emerging from the research approach and methods. Conclusions and reflections on learning and experience taken as primary within this research are also discussed, and, consistent with the principles guiding AR, are presented as relevant and interesting for third-person audiences (Coghlan and Brannick, 2014) concerned with the practical issues surrounding servitization.

CHAPTER 2 LITERATURE REVIEW

2.1 Context Guiding the Selection of Literature

In the pursuit of insider action research, Coghlan and Brannick (2014) note the efficacy of using literature at the outset as both an object of and grounds for critique. This dual purpose of the literature applies to both workplace-based issues and research that intends contribution to both scholarship and practice. For this research, exploration of the literature helped form a theoretical mirror for me as insider-researcher and executive. In the mirror, I familiarized myself with theory and arguments from the literature, and surfaced plausible insights into the problematic solutions context at Phoenix Contact USA. Exploration was pursued pragmatically with an eye toward elements of the literature that, 1) resonated with my experiences as a company insider and executive, and 2) informed my scholar-practitioner's understanding and approach to issues faced by the company. Therefore, exploitation of the literature fulfilled a scaffolding strategy applied to a scholarly-practitioner's project – using action research to address a workplace-based problem. Per Tenkasi and Hay (2004), scaffolding strategies within AR unfold at the origins of a project by creating and using theory- and practice-based platforms to complement subsequent project actions and stages. To create these platforms, my approach to the literature involved an exploration of topics that, through reflection, surfaced actionable insights or a sense of exploitable elements attuned to both scholarship and the situation at work.

Amid the servitization of Phoenix Contact USA, mature product development capabilities and newer solutions-development capabilities are linked to processes as part of the company's approach to Business Process Management (BPM). Solutions business is implemented through solutions development processes that span across organizational functions. To classify organizational capabilities, Day's (1994) framework links organizational capabilities to processes that work from outside-in the organization or span across the organization. Viewed "outside-in", Phoenix Contact USA's customer-specific solutions development process suggests a customer linking capability within Day's (1994) framework, and resonates with Day's (1994) call for research on how customer linking capabilities integrate with processes that span across organizational functions. With spanning processes open to inquiry, the literature informed an exploration of how services within solutions link to processes spanning between internal stakeholders. Further, the business process management literature was explored to evaluate how BPM might foster or suppress servitization. For clarity, the definition of internal stakeholder is taken in its primary sense to mean employees that are in an influential relationship with the company, both influencing it and influenced by it (Kaler, 2002; Thorpe and Holt, 2008).

Considering a conversion from theoretical rigor to practical relevance, the literature revealed some pragmatic sense to the contrast between goods- and service-dominant logic. S-D logic may be applied as a framework for service thinking and its roll amid trade and competition (Lusch, Vargo and O'Brien, 2007). Views on S-D logic also inspired some exploration of theories consistent with it; namely, resource advantage theory and core competency theory (Vargo and Lusch, 2004). The company's problematic, real world transition to solutions merited an exploration of servitization and service infusion as constructs and arguments informed by S-D logic (Baines, Lightfoot, Benedettini, *et al.*, 2009; Baines, Lightfoot, Peppard, *et al.*, 2009; Lightfoot, Baines and Smart, 2013). As a supplement to explorations of S-D logic, the service systems literature shed light on both large and small systems that encompass and connect individual stakeholders working together to co-create value (Spohrer and Maglio, 2008; Vargo and Lusch, 2008).

As part of its servitization strategy, the company's context, culture and practices are changing with solutions and associated services unfolding together as novel market offerings. Considering changing practices and context, the literature was also explored holistically for knowledge informing how these organizational changes may influence and be influenced by internal resources and stakeholders - including employees, managers and executives. This exploration shed light on conflicts linked to changes in the interworking of employees asked to provision solutions. This exploration was also critical as it informed my approach to action as insider, scholar-practitioner and executive partner with the President and other high-level stakeholders in charge of servitization strategy and service climate. The servitization, solutions and service climate literature were explored through a strategic lens with the intent to inform a theory-based scaffold for practical intervention into the issues experienced by internal stakeholders. The executive and managerial insights offered by the literature also informed the practicalities of working through cross-functional issues experienced by company leaders as well as employees within a servitization context.

Research touching on the internal struggles accompanying solutions production and cross-functional operations also benefited from an exploration of value co-creation and service innovation literature. With solutions viewed as valued market offerings, this literature offered insight into the movement from transactional product-based to relational, service-based interactions and processes induced by the provision of solutions. Further, the relative novelty of solutions development within the company prompted an exploration of contrasts to product development processes. The remaining topics for exploration were inspired by the company's mindset linking process with quality. My preunderstanding of this perspective prompted inquiry into an academic sense of quality derived from, and unfolding within, a solutions and services context.

2.2 Definitions and Key Concepts

There is a pragmatic sense to the literature as it fosters understanding and informs language applied to the meaning structures emerging from work experience (Easterby-Smith, Thorpe and Jackson, 2012). To pursue better informed meaning structures, language in this thesis (i.e. terms, phrases and definitions) was adopted from the literature if it was pragmatic and useful to do so. Definitions and terminology linked to key concepts within the literature where then used in the conceptual development that informed action taken to address the workplace-based issue at the core of this thesis.

2.2.1 Service as Process

In light of the servitization of Phoenix Contact USA, exploration of the literature began with the language the literature applies to the meaning structures emerging from servitization and service business. The service literature has leveraged the sense of product to define service as an intangible product that a supplier may market to a customer (Vandermerwe and Rada, 1988; Parasuraman, 1998). However, service has also been defined as a series of activities and thus basically a process (Shostack, 1982; Weitlaner and Kohlbacher, 2015). Servitization perspectives evolve from more traditional views otherwise differentiating products and services (Lightfoot, Baines and Smart, 2013). Similar to process views of service, the literature suggests that process viewed as a series of activities is useful for understanding servitization contexts. For example, in their analysis of servitization as an organizational change process, Baines *et al.* (2017) draw upon Pettigrew's (1997) and Van De Ven's (1992) definition of process as a sequence of individual as well as collective events, actions and activities that unfold over time and in context.

Service concepts from the literature also help clarify the meaning of service at the level of individual service stakeholders, typically characterized as suppliers' servicing employees and service customers. Two key concepts that support the meaning of service transacted between service stakeholders (i.e. customers and suppliers) include: 1) the manner of service performance, known as the delivery process, and 2) the service outcome (Parasuraman, 1987; Zeithaml, Parasuraman and Berry, 1990). However, within organizations, the literature suggests that the process view of service is subdivided into service operations and customer service processes involving human interaction. Service operations activities are the steps taken by suppliers to turn inputs into outputs, whereas customer service activities are interactions between service buyers and suppliers (Secomandi and

Snelders, 2011). Within organizations and among employees, the perception of what counts as service process also depends upon established practices and rules governing an industrial system's production and exchange (Araujo and Spring, 2006). For example, in the design of services affecting employees, a service process may refer to the technical characteristics and back-office activities and behaviours among employees that do not involve direct customer contact (Gallouj and Weinstein, 1997; Secomandi and Snelders, 2011).

2.2.2 Internal Service

Parasuraman (1998) suggested that the meaning of "customer service" in business-to-business markets is an issue worth investigating as it has typically been limited to specific functions with readily-quantifiable attributes and measures. However, the service literature expands the limited sense of customer service by suggesting that while employees serve customers they also serve one another internally, within company operations. Internal service reflects employees' perceptions of their units being well served by other units in ways that facilitate service delivery to customers (Schneider, White and Paul, 1998). As employees are called upon to provide service to one another, the effectiveness of internal transactions across units influences the provision of customer value (Mills and Ungson, 2001; Ehrhart *et al.*, 2011). Among employees, internal service is a capability grounded in resources such as timely access to shared information (Ehrhart *et al.*, 2011). However, perceptions about what counts as internal service also seem dependent upon established norms. Vargo and Lusch (2008) suggest that skills, knowledge and resources exchanged internally, within organizations, may only be classified residually as service. In light of internal service perceived by internal service stakeholders about one another, the S-D logic perspective suggests that, as part of their interactions, internal stakeholders may be unmindful of exchange or discount the sense of resources.

2.2.3 Service Resources, Competencies and Capabilities

A resource may be a tangible or intangible entity enabling a firm to effectively and/or efficiently produce a valued market offering (Madhavaram and Hunt, 2008). Resources are all processes, capabilities, assets, attributes, information or knowledge enabling and controlled by the organization for the conception and implementation of strategies to enhance efficiency and effectiveness (Barney, 1991). However, the service literature suggests resources as antecedent to service in that they enable the rendering of service. Through a service lens, resources are described as bundles of potential service as they may be defined independent of their use (Penrose, 1959 cited in Araujo and Spring, 2006). S-D logic also acknowledges the potentiality of resources such that “resources are not, they become” (Vargo and Lusch, 2004, p. 2). From this perspective, potential resources may be initially perceived as resistances (Zimmerman, 1951 cited in Akaka and Vargo, 2014). This perception depends upon context and the unique phenomenological viewpoint of stakeholders (Akaka and Vargo, 2014). S-D logic also suggests that resources “become” in connections stakeholders make through their interactions. Resources connect stakeholders as they interact with one another to gain access to resources and are considered valuable through this connection (Chandler and Vargo, 2011).

A nuanced sense of resource meaning emerges in the contrast between operand and operant resources. Operand resources are those upon which an operation or an act is performed in order to produce an effect (Vargo and Lusch, 2004). Examples include matter that can be transformed, manufactured products, or static and finite factors of production converted into outputs or goods. Alternately, operant resources are continuous and dynamic, producing effects by acting upon either operand or operant resources (Vargo and Lusch, 2004; Lusch, Vargo and O’Brien, 2007). As they may be invisible or intangible and consist of competences (including physical skills, mental skills, or knowledge), S-D logic advocates seeing operant resources as capable, coproducing and collaborative stakeholders (Lusch, Vargo and O’Brien, 2007). Operant resources also comprise organizational, social, learning, or economic processes as well as technologies that increase the value of operand resources and generate additional operant resources (Vargo and Lusch, 2004; Lusch, Vargo and O’Brien, 2007). For this study, internal stakeholders are taken as operant resources that, while capable of perceiving resistances, may also be generative of additional operant resources through interactions. However, this position does not assume that internal stakeholders similarly regard one another as operant resources.

At the firm level, the literature suggests that both competencies and capabilities share commonalities with resources. Capabilities encompass tangible and intangible resources, including skills, procedures, processes, knowledge and experiences that combine coherently and synergistically for efficient and effective market offerings (Day, 1994; Madhavaram and Hunt, 2008). As competencies and capabilities bear similar, linked conceptualizations within the services and marketing literature, Madhavaram and Hunt (2008) claim that they equate to one another. However, Day (1994) explains how capabilities unfold through the exercise of processes. For clarity, this research will draw upon competencies to mean individuals’ understanding, emotional commitment and skills acquired while leveraging processes (Garvin, 1995). Capabilities may then be viewed as the enactment of competencies through reliable processes (Garvin, 1995).

2.2.4 Stakeholder-Oriented Service Process

As stakeholder action, service may be viewed as one person attending to another (Levitt, 1976) or a process of doing something for someone (Lusch and Vargo, 2006a). The BPM literature offers views on processes intermingling with services and service stakeholders. From the perspective of BPM practiced within Phoenix Contact USA, this literature also sheds light on how services introduced by solutions business resonate with BPM. Within service companies, BPM scholars suggest a stakeholder-centred view by sorting individual and collective processes into: 1) direction-setting processes to manage change within an organization and the behaviour of managers involved in planning, 2) managerial processes comprising decision-making and communication activities, 3) operational processes concerning the way work gets done within an organization to produce services, and 4) support processes that enable operational processes through employees (Armistead and Machin, 1998). Both BPM and servitization literatures suggest that in work contexts involving organizational transitions, employees affect one another through behavioural processes. In organizational transitions to BPM, behavioural processes employing soft skills, communication and team play form underlying and recurrent behavioural patterns that are displayed by most organizational stakeholders and affect how employees participate in new, cross-functioning processes (Garvin, 1995). In servitization, behavioural processes play a critical role as they impact decision-making and the character of activities within organizations by shaping organizational structure and operation (Gebauer and Friedli, 2005). However, while informing servitization, S-D logic offers an augmented view of behavioural processes. It does so by acknowledging the agency of service stakeholders in their behaviour. S-D logic suggests that stakeholders interact with one another purposefully through effectual processes that integrate the knowledge of actors – who they are, what they know, who they know – and other resources through collaboration and exchange to co-create value (Vargo and Lusch, 2014). Collaboration is taken here to mean stakeholders actively encouraging and soliciting feedback from one another about their needs and concerns (Raelin, 2003). Collaboration and exchange, in turn, prompt the emergence of new structures and ideas for value creation (Akaka and Vargo, 2014; Vargo and Lusch, 2014).

2.2.5 Service as Stakeholders' Experience

Servitization scholars affirm the importance of service stakeholders by noting how processes are integrated into stakeholder touch-points and weave together people, information and infrastructure necessary for service delivery (Baines and Lightfoot, 2014). This woven together sense of service processes and stakeholders appears in definitions of service that integrate stakeholders with service processes. For example, service definitions extend a stakeholder-integrated sense of service by noting how that which is service, the essence of service, is identical to employees delivering service (Edvardsson, Larsson and Setterlind, 1997; Kandampully, 1998). Alternately, the sense of service envelops all stakeholders as service is substantively identical to both the producers and consumers of it (Gallouj and Weinstein, 1997). This sense of stakeholder identity with service resonates with S-D logic's view of what stakeholders exchange and integrate with one another – the knowledge of who they are and what they know (Vargo and Lusch, 2014). However, service definitions shed additional light on the stakes held and affected by stakeholders while engaged in service processes with one another. These definitions position service as stakeholders' experiences, or in a dynamic sense as processes affecting the experiences of stakeholders. Viewed as an experience, a service is perishable, intangible and coproduced with a client to transform or change the condition or state of a client (Chesbrough and Spohrer, 2006; Spohrer and Maglio, 2008). Perhaps more broadly, services are processes "which effect transformations in the state of material goods, people themselves, or symbolic material (information)" (Miles, 1993, p. 656). Services therefore manifest through the effects they produce over time (Gallouj and Weinstein, 1997). While centred upon service stakeholders, these insights suggest service as a transformative process encompassing the experience of connected, interacting stakeholders.

2.2.6 Service within Solutions

The S-D logic literature also suggests that processes involving stakeholder interaction are central to the development of solutions. From a customer-supplier perspective, services are processes using resources in direct interactions such that solutions are found to customers' problems (Grönroos, 2000 cited in Lusch and Vargo, 2006). Stakeholder interactions are important to define the customization or integration of goods and services necessary to achieve customers' desired solutions outcomes (Miller *et al.*, 2002; Vargo and Lusch, 2004; Davies, Brady and Hobday, 2006). While also referring to it as the span-of-process, Baines and Lightfoot (2014) help clarify the meaning of solutions integration from a servitization perspective as micro-level interactions that encompass business activities or functions.

The predominant definition of solutions describes them as product-service bundles meeting specific customer needs and having higher value creation potential than standalone parts (Davies, Brady and Hobday, 2007; Tuli, Kohli and Bharadwaj, 2007; Nordin and Kowalkowski, 2010; Hakanen and Jaakkola, 2012). In contrast, the literature also suggests that the meaning of solutions derives from the perspectives and knowledge of solutions stakeholders. For example, solutions represent limited forms of outsourcing for customers or an alternative to rapidly commoditizing products for suppliers (Galbraith, 2002). While solutions are predominantly understood as product-service bundles, Windahl and Lakemond (2006) add knowledge to these bundles as it is applied to create specific outcomes that fulfil customers' needs. Similarly, solutions are conceptualized as summations of value created as suppliers customize products and services to address customers' specific contexts and needs (Sawhney, 2006). Sawhney's (2006) summations encompass product and service value as well as product-service integration value achieved through suppliers' operations.

The importance of customers-supplier interactions within solutions contexts has prompted some researchers to propose mindset or paradigm shifts about the meaning of processes linked to solutions. In contrast to product mindsets emphasizing product launches or broad reach advertising campaigns, a solutions mindset emphasizes deep and ongoing customer engagement (Sawhney, 2006). In their analysis of solutions, Tuli, Kohli and Bharadwaj (2007) conclude that solutions are usefully viewed as a set of relational processes between customers and suppliers that are purposefully engaged to address customers' needs. Customers' solutions needs include the definition of their requirements, customization and integration of goods/services, deployment, and post-deployment support (Tuli, Kohli and Bharadwaj, 2007). While this research draws upon the sense of solutions as product-service bundles to explore the implications of services introduced by solutions, it relies on the sense of relational processes as the means stakeholders use to address one another's needs in a solution-provisioning context.

2.3 Stakeholders' Perceptions About Service and Service Benefits

From an S-D logic perspective, Lusch, Vargo and O'Brien (2007) suggest that stakeholders' understanding and reasoning about service requires that they have knowledge of service beneficiaries and how they benefit from service. As a way of service reasoning, "S-D logic is based on an understanding of the interwoven fabric of individuals…brought together into networks…specializing in and exchanging the application of their competences for the applied competences they need for their own well-being" (Lusch, Vargo and O'Brien, 2007, p. 5). Through an S-D logic lens, service is the application of knowledge and skills through deeds, processes and performances as benefit for another entity or to the entity itself (Vargo and Lusch, 2004, 2008; Lusch and Vargo, 2006a).

The sense of benefit linked to service was recognized by Shostack (1982) as something perceived about service results. Among perceived results possible, the literature has also highlighted service quality as a result benefitting all service stakeholders. For example, suppliers and customers alike benefit from quality perceived in service encounters (Zeithaml, Parasuraman and Berry, 1990). In service encounters, service quality is a phenomenon perceived by service beneficiaries (i.e.

customers) about the attitudes and behaviour of serving personnel, or about service processes such as buying a service (LeBlanc and Nguyen, 1988; Zeithaml, Parasuraman and Berry, 1990; Szmigin, 1993). Similarly, internal service quality accounts for employees' evaluations of service received from other employees, or employees' satisfaction with their employee-employee service encounters (Hallowell, Schlesinger and Zornitsky, 1996; Schneider, White and Paul, 1998; Ehrhart *et al.*, 2011).

The services literature also draws upon stakeholder perceptions to link service quality to value. For example, quantitative studies in banking services confirm that perceived service quality is positively related to perceived service value (Pisnik, Dlačić and Milfelner, 2016). In their consideration of value, there seems to be consensus among service scholars that value and value creation may be studied as single universal concepts or from the perspectives of particular value sources (Lepak, Smith and Taylor, 2007). Value may therefore be considered from the perspectives of service customers as well as providers (Payne, Storbacka and Frow, 2008). Similar to individual perspectives on service quality, the experience of value may be considered a subjective phenomenon that appears within the broader life-world context of service stakeholders (Helkkula, Kelleher and Pihlstrom, 2012). From an employee perspective, the literature suggests clear relationships between employees' perceptions of service quality and employee satisfaction through factors such as teamwork and managerial interest in employees' well-being (Heskett *et al.*, 2008). Analysis supports teamwork occurring among individuals and between departments when necessary as an component of internal service quality, and internal service quality as strongly linked to employee's service capability and job satisfaction (Hallowell, Schlesinger and Zornitsky, 1996). According to Heskett *et al.* (2008), managers armed with this information may examine policies concerning these factors as they are highly valued among employees.

2.3.1 Evaluating Service Perceptions

The literature also suggests that service experience, quality or value may be made measurable if first subdivided into several components (i.e. dimensions) then be applied through measuring techniques and instruments. Examples include multi-item scales like EXQ to measure customers' service experience (Klaus and Maklan, 2012), PERVAL applied to measure perceived value (Sweeney and Soutar, 2001), or VALEX as a phenomenological and inductive value measurement technique for interpreting the socially constructed and subjective sense of value experiences (Helkkula, Kelleher and Pihlstrom, 2012). Service quality is represented by criteria or dimensions used to evaluate service encounters that happen interpersonally, between individual service stakeholders (Zeithaml, Parasuraman and Berry, 1990; Svensson, 2001). In consumer service contexts, Zeithaml, Parasuraman and Berry (1990) posited that service quality consisted of several dimensions (i.e.

assurance, *empathy*, *reliability, responsiveness* and *tangibles*), and that these dimensions were applicable as measures of service quality through a survey instrument (i.e. SERVQUAL). In light of S-D logic views on service as the exchange of knowledge (Chandler and Vargo, 2011), it is notable that, in Zeithaml, Parasuraman and Berry's (1990) account, the *assurance* dimension encompasses employee knowledge as well as an ability to convey trust.

Similar dimensionality surfaces when considering solutions reframed as relational processes (Tuli, Kohli and Bharadwaj, 2007) and quality linked to relationships. For example, while relationship quality is composed of several dimensions (Hennig-Thurau, Gwinner and Gremler, 2002), the marketing literature agrees to a combination of *trust*, *satisfaction* and *commitment* as dimensions of relationship quality (De Wulf, Odekerken-Schroder and Iacobucci, 2001; Hennig-Thurau, Gwinner and Gremler, 2002; Ulaga and Eggert, 2006). Further, within buyer-seller business relationships, *trust* and *commitment* stand out as relational variables that are antecedent to value creation (López Sánchez, Santos Vijande and Trespalacios Gutiérrez, 2010). This suggests that quality linked to services and relationships may be usefully viewed as a construct of several, measurable elements (i.e. criteria, dimensions or components) that are perceived subjectively and emerge over time at the level of individual stakeholders.

2.3.2 Service Perceptions Within an Organization

The literature suggests that linkages between quality and service also link organizational effectiveness to value. Quinn and Rohrbaugh's (1983) study on different models of organizational effectiveness suggest quality may be an important element in every model. From a customer perspective, quality has evolved from merely value-added to a service promise that is beyond compromise and synonymous with an organization's core service (Kandampully, 1998). However, the sense of organization paired with value is augmented by S-D logic as it emphasizes linkages among individuals that form organizations and connect organizations to one another through value creation. Through an S-D logic lens, stakeholders operate within service ecosystems defined as "relatively self-contained, self-adjusting systems of resource integrating actors connected by shared institutional logics and mutual value creation through service exchange" (Vargo and Lusch, 2011b cited in Akaka and Vargo, 2014, p. 368). Or, perhaps more expressively:

> "[A] spontaneously sensing and responding spatial and temporal structure of largely loosely coupled value proposing social and economic actors' interactions through institutions and technology, to (1) co-produce service offerings; (2) exchange service offerings; and (3) co-create value" (Lusch, Vargo and Tanniru, 2010, p. 31).

From an S-D logic perspective, actors are resources within a particular context whereby one actor's competencies and connectedness to resources may act as a resource to other actors (Chandler and Vargo, 2011). This suggests that service co-produced and exchanged to co-create value is linked to internal stakeholders as the actors engaged in these service processes as well as the contexts or organizational structures in which they operate.

2.4 Servitization and Organizational Culture

The literature also suggests that the sense of service introduced by companies in pursuit of servitization strategy involves the confluence of company culture and employees - the actors exchanging resources to produce valued services. A firm's strategy dictates a set of critical tasks or objectives that must be accomplished through a congruence of people, structure and culture (O'Reilly, 2008). Thus, servitization scholars have called attention to the organizational challenges prompted by the process of servitization and used the term "culture" to capture the intangible challenges associated with it (Oliva and Kallenberg, 2003; Brax, 2005; Gebauer and Friedli, 2005; Baines, Lightfoot, Benedettini, *et al.*, 2009; Dubruc, Peillon and Farah, 2014; Lienert, 2015). Organizational culture may be viewed as a pattern of norm-producing beliefs and expectations shared by an organization's members that powerfully shape the behaviour of individuals and groups (Schwartz and Davis, 1981). As expectations about appropriate or inappropriate attitudes and behaviours, culture may be pervasive yet unnoticed as a normative order that help actors interpret and evaluate events (O'Reilly, 2008). Among the challenges associated with servitization, the literature suggests culture has the potential to inhibit servitization and links this inhibition to the roles and influences of employees as agents for transformation. Inhibition manifests on both managerial and employee levels in the form of inherited cultural habits that must be overcome as a prerequisite to servitization (Gebauer and Friedli, 2005). From this perspective, servitization may be challenged by the consistency and coherence that form the basis of culture as it "fosters self-reinforcing loops, rooted in control structures, shared mindsets and search for best practices with limited opportunities and incentives to take alternative courses of actions" (Lienert, 2015, p. 354).

While normative, scholars have suggested that culture can be leveraged during organizational transformation using mechanisms like participation and consistent messages from co-workers. As noted by O'Reilly (2008) "…when people are new to the situation, they often look to others for explanations of what to do and how to interpret events" (p. 96). However, amid transformation implied by servitization, the literature suggests that cultures may also encompass developmental mechanisms. From this perspective, culture may be reconsidered conceptually as both normative and as a flexible "toolkit" of concepts and actions applicable by individual agents involved process of servitization to change the pathways of their organizations (Lienert, 2015). Agents may then benefit from this combined view of culture as it fosters understanding about the inhibiting impact of a pre-existing, product-dominant culture (Elfving *et al.*, 2014) as well as opportunities offered by culture in support of the change processes toward a strategic goal like servitization (Lienert, 2015). This goal-oriented sense of servitization within cultural contexts is consistent with a teleological view of organizational change. Teleology stresses the purposiveness of agents as motors for change as well as the functions and usefulness of an organization's cultural environment to both constrain and enable agents' learning and actions undertaken to achieve their purposes (Van De Ven and Poole, 1995). Similarly, scholars have come to view culture linked to transformation via servitization by accounting for "an organisation's learned way of responding to perceived changes in demands on the core tasks when aiming at developing service business" (Nuutinen and Lappalainen, 2012, p. 140). From this perspective, the cultural prerequisite to servitization may also be reconceptualised as an acceptance of transformation as a learning process (Dubruc, Peillon and Farah, 2014).

2.4.1 Servitization and Cultural Values

For employees, the literature suggests that cultural sensibility linked to servitization manifests through service capability and values experienced within the work community (Nuutinen and Lappalainen, 2012). However, the literature offers additional insights regarding the influence of culture upon the service capabilities and values experienced by employees as teammates and how these elements manifest in servitization contexts. For example, Raja *et al.'s* (2018) case analysis of servitization reveals how teams are required for the engagement of different internal actors that become responsible for project delivery and for jointly co-creating value. According to Raja *et al.* (2018), this team engagement corresponds to teams engaged as necessary for the production of solutions (Windahl and Lakemond, 2006; Nordin and Kowalkowski, 2010; Jaakkola and Hakanen, 2013). Similarly, S-D logic posits that cultural values such as teamwork and relationship integrity are essential for value co-creation to occur (Abela and Murphy, 2008). This sense of teamwork as a value held by individuals and organizations is also evident in definitions of teamwork. One such definition acknowledges how: 1) team production requires several cooperating resources to produce outputs exceeding the sum of separable outputs from each cooperating resource, and 2) all resources used do not belong to one person (Conner and Prahalad, 1996). Further, when considering servitization as strategy, the literature confirms the importance of values shared among employees and their organizations for strategy implementation. An appropriate culture is required for successful strategy implementation as organizational norms help employees execute strategies (O'Reilly, 2008).

The BPM literature also suggests a mutually supportive interplay between strategy and cultural values shared among employees, teams and their organizations. As business processes cut across functional boundaries and must therefore be operated by employees in teams to realize customer requirements, process-oriented organizations need cultures that value teamwork (Hammer, 2007; Schmiedel, vom Brocke and Recker, 2013; Weitlaner and Kohlbacher, 2015). However, the BPM literature also suggests that this sense of mutual support between strategy, culture and teamwork is particularly relevant in change contexts involving shifts to new processes. A culture based on teamwork, willingness to change and personal accountability accompanies the process approach (Weitlaner and Kohlbacher, 2015). Further, to make new processes work, Hammer (2007) suggests that companies must: 1) reform organizational cultures to emphasize teamwork and personal accountability, 2) redefine responsibilities so that stakeholders oversee processes as well as activities and work to develop one another, and 3) help cross-functional processes work smoothly rather than simply supporting departments.

These considerations intersect with the sense of Phoenix Contact as a process-valuing and process-oriented company (Phoenix Contact, no date a) that is augmenting its strategic approach through servitization via solutions. It also informs the difficulties experienced and expressed by troubled internal stakeholders as they struggle to implement strategy through cross-functioning teamwork and processes. Considering how new processes change through servitization, the literature suggests that organizations, their cultures and employees may fail or mature over time. When firms change strategies, they may fail because the underlying shared values do not support the new approach (O'Reilly, 2008). Alternatively, as they mature through processes, companies move culture-wise from teamwork as project focused, occasional and atypical to the common use of cross-functional project teams and teamwork becoming norms among process performers (Hammer, 2007). Beyond the establishment of written process documents, this suggests that enabling organizational change through strategy and process changes may be fostered by cultural values over time among stakeholders as the performers of processes.

2.5 Managing Servitization as Organizational Change

The management of servitization at the organizational level is also informed by the S-D logic perspective on dynamic forces and sensitivity to change within service ecosystems. Akin to service ecosystems that dynamically sense and respond as structures to co-create value, the servitization literature suggests that organizations innovate and shift their processes and capabilities to develop integrated products and services that provide value in use (Baines, Lightfoot, Benedettini, *et al.*, 2009). However, this sense-and-respond perspective on value co-creation and organizational change contrasts with the way value and change is viewed through a BPM lens. For change projects involving business processes, value is identified and made explicit at the *outset* to provide common understanding among employees of what is important and to clarify required organizational capabilities (Schmiedel, vom Brocke and Recker, 2013). Rather than being understood at the outset, process changes amid servitization contexts suggest continuous changes that tend to be ongoing, evolving and cumulative for organizations. As part of sevitization, the process of change in organizations' service offerings happens incrementally and cumulatively, and can be attributed to deliberate evolution as well as path-dependence and incumbent organizational inertia (Kowalkowski *et al.*, 2012). This suggests that changes occurring through servitization are consistent with continuous change "situated and grounded in continuing updates of work processes and social practices" (Weick and Quinn, 1999, p. 375), and aligned with teleological views that assume organizations and their employees are purposeful and adaptive while pursuing and proceeding towards change goals (Van De Ven and Poole, 1995).

Managerial motivation and role understanding also weighs on decisions to invest in resources necessary for servitization via changes in organizational structures and processes (Gebauer and Fleisch, 2007). This suggests that managing employees as organizational stakeholders in servitization - the actors within a developing service ecosystem and performers of business processes - involves the intertwined dynamics of change, culture and value as part of managing solutions development processes. However, instead of being identified and made explicit at the outset of servitization, these insights also suggest that an informed expression of the value derived from processes may also occur through processes happening cumulatively over time.

2.5.1 Management Biases amid Servitization and Solutions

While solutions may be reframed as relational processes engaged by solutions stakeholders (Tuli, Kohli and Bharadwaj, 2007), unique customer problems are also contextualized, non-routine problems resolved through stakeholder competencies that are either applied or augmented while developing solutions (Gallouj and Weinstein, 1997; Kowalkowski *et al.*, 2012). S-D logic offers perspective on how competencies might be applied or augmented through effectual processes – the processes stakeholders use to integrate one another's knowledge. Contextualized problems often surface needs for innovation and for creating value through effectual processes and market approaches wherein managers embrace uncertainty and support change to foster systems viability (Vargo and Lusch, 2014). However, a paradox emerges by considering servitization and solutions as organizational strategy and whether managers readily develop processes that embrace uncertainty and context. For example, while the dominant discourse in management favours certainty and control, the strategic management literature advises caution in the face of uncertainty and when associating processes with cause and effect predictability (Stacey, 2011). Similarly, S-D logic suggests that biases favouring predictive processes and deterministic approaches to value creation and decision-making may seek the limits of efficiency but lose sight of dynamic and contextualized problems (Vargo and Lusch, 2014).

Comparable views emerge concerning culture as type of social control system designed by managers to monitor outcomes or the behaviour of employees. While the design of such formal control systems work by measuring either outcomes or behaviour (O'Reilly, 2008), they also produce cultural artefacts, including frameworks, cognitive norms, language and symbol systems that enable actions for the realization of certain outcomes (Tenkasi and Hay, 2004). Within Phoenix Contact USA, the written processes used to guide the production solutions outcomes also provide examples of artefacts used to monitor and control production steps and stages (Phoenix Contact, no date a). Yet, within formal systems, employees may experience a sense of external constraint, which is binding and unsatisfying (O'Reilly, 2008). Within such a system, the literature suggests conflict can arise from pressures toward sub-optimization wherein functionally interdependent organizational subunits may also have different sets of active goals or preferences for the orderings of the same set of goals (Pondy, 1967). This suggests that internal stakeholders may or may not associate uncertainty harmoniously with written processes used to create value through solutions as common goals to contextual problems. Furthermore, managerial biases favouring predictability or efficiency may support the development and sense of control or constraints offered by written solutions processes.

From the perspective of teamwork as a cultural value supporting business process management, external customer requirements need to be translated into internal cross-functional teamwork to fulfil these needs (Schmiedel, vom Brocke and Recker, 2013). Yet, the combined knowledge base of teams is inevitably fluid and may be situated in a particular cultural-historical context (Anning *et al.*, 2010). For example, corporate growth contributes to the relevance of documented processes as companies capture knowledge to manage structural complexity and keep track of responsibilities and relationships - hence formalizing business processes that cross departmental borders so that "process performers become aware of their work's recipients and activities' position in the business process" (Weitlaner and Kohlbacher, 2015, p. 55). As Phoenix Contact has grown as a manufacturer of mass-produced products, the steps and stages of written processes suggest a contribution to this structured, relational context of work recipients and their activity positions. However, this suggests that managers might also overlook the inherent uncertainty of solutions as well as the interrelational or effectual processes needed to address contextual problems needing solutions. Further, issues may arise if individuals fulfilling positions align with functions viewed as independent rather than interdependent. Autonomy needs within functions may prompt conflict if one party seeks to exercise control over some activity that another party regards as his own province or seeks to insulate itself from such control (Pondy, 1967). Nonetheless, as practices shift, the knowledge base of teams must change in response to new demands on the systems, structures as well as individuals that join or leave teams (Anning *et al.*, 2010). Thus, non-routine or unpredictable situations can only be dealt with by developing cultures as systems "in which common agreements exist among people about what constitutes appropriate attitudes and behaviour" (O'Reilly, 2008, p. 87).

The literature also suggests that an approach to this managerial problem emerges from revised managerial perspective on the linkages between strategy, value and competencies. Akin to the shifting mindsets accompanying solutions, Normann and Ramirez (1993) posited a new logic of value as a dialog between customers and competencies wherein a company's key strategic task becomes the ongoing integration of its competencies and customers. Servitization studies shed light on this constantly unfolding dialog as traditional manufacturers move their position in the value-chain from the provision of products to the supply of desired outcomes (Lightfoot, Baines and Smart, 2013). Beyond efficiency in servitization contexts, the literature suggests that desired outcomes may include ongoing, effective operations for all stakeholders. For example, in servitized manufacturing firms, service applied to an installed base of products is not limited to finished product-service bundles but may encompass all that is required for end-users' desired functionality (Oliva and Kallenberg, 2003). Similarly, the literature suggests that solutions represent outcomes as well as how outcomes come to pass as part of an ongoing functionality enabled by co-creation. Among suppliers, value emerges from solutions as combinations of process outcomes as well as unfolding process experiences, relationships and knowledge - the "how" of solutions and value co-creation (Davies, Brady and Hobday, 2006; Tuli, Kohli and Bharadwaj, 2007; Cova and Salle, 2008). The co-creation construct serves as a point of convergence and reference that unites solutions as ongoing resource integrations and exchanges (Tuli, Kohli and Bharadwaj, 2007; Hakanen and Jaakkola, 2012) as well as value and stakeholder interactions (Spohrer *et al.*, 2007; Vargo and Lusch, 2008; Frow *et al.*, 2015).

The Nordic School also addresses this sense of service as ongoing, co-creative interactivity. As a requirement of co-creation, it emphasizes a merging of value processes such that they may influence one another, as well as the integration of resources and capabilities to coordinate and co-create service experiences (Grönroos and Voima, 2013; Jaakkola, Helkkula and Aarikka-Stenroos, 2015).

However, while the co-creation of value or service experiences weaves together several prerequisite and concomitant resources, the literature suggests that these resources may be perceived or understood to various degrees within an organization and among its internal stakeholders. Beyond resources obviously exchanged and integrated, value co-creation may also include resources typically classified as endogenous or as part of an uncontrollable, external environment (Lusch, Vargo and O'Brien, 2007).

2.5.2 Managing Servitization as Culture and Climate

The co-participative/co-creative sense of value creation also suggests a challenge for managers' understandings concerning their roles, responsibilities and relational interactions that inform and are informed by the design of cultures as behaviour and outcome control systems. As their organizations undertake servitization, managers need to understand the multiple and complex contexts within which their employees are organized and operate (Raja *et al.*, 2018). However, as noted by O'Reilly (2008), cultures only work when those being monitored believe that managers are paying attention and care about the results. Considering the cultural context of this research, Phoenix Contact changed by adding solutions to the routines and processes supporting the mass-production of products. The company values documented processes and their application through BPM. Tasks are undertaken stepwise to completion according to process documents that, when finished, represent significant and well-monitored outcomes for the company. Thereafter, stakeholders' application of steps and stages within documented processes suggests a culturally accepted means of monitoring the timely output of mass-produced products. In pursuit of its servitization strategy, the company transformed by adding the non-routine provision of solutions to its operations. To fit the culture of the company, written processes were developed to accommodate this change by documenting solutions-production knowhow in a way that matched the product-oriented norms of the company. However, cultures serve not only as a schemes of expression that constrain what people do, but also a schemes of interpretation that constrain how the doing is evaluated (Weick and Quinn, 1999). Further, behaviour or outcomes may be inadequately monitored, especially in non-routine situations that require initiative, flexibility and innovation (O'Reilly, 2008). From a managerial perspective, this suggests that the routines first applied to document processes, then used to monitor the steps and stages of production within these processes, might also be challenged by the non-routine encountered when providing solutions, or by an overabundance of care given to behaviour and outcomes aligned to the development of mass-produced products.

In contrast to monitoring hard outcomes, teleological views on change suggest monitoring progress that happens through interaction, the construction of envisioned end states, and actions taken to reach them (Van De Ven and Poole, 1995). However, the literature suggests tension between what exists in terms of stated principles, values and documented processes versus monitoring what is new and changing amid servitization. Transition to servitization is described as a significant managerial challenge "as services require organizational principles…and processes new to the product manufacturer" (Oliva, Gebauer and Brann, 2012, p. 310). Yet, these new services should match with "organizational…processes and resources of the manufacturing firm" (Gebauer *et al.*, 2012, p. 128). The service literature suggests that this paradox may be resolved by differentiating between organizational culture and climate to augment behaviours and capabilities, using tension to prompt progress while monitoring change aligned with existing values. A firm's culture describes the norms and values that firm managers and employees believe are present, while the firm's climate illustrates how the firm operationalizes the culture in the everyday behaviours of employees (Deshpande and Webster Jr., 1989). According to Morgan *et al.* (2014), if managers have successfully developed a culture within the firm, then a climate should be present to reinforce the values and beliefs of that culture. However, managers within servitized product manufacturing firms may also develop service climate to compete through service and pursue competitive advantage over more traditional, product-oriented firms (Lusch, Vargo and O'Brien, 2007; Morgan *et al.*, 2014).

The service climate literature suggests that the value organizations and managers place on service influences employees' sense of developing service and supportive capabilities. Service climate is a reflection of service as a strategic imperative and an organizational orientation toward service which influences stakeholder perceptions and motivation concerning service behaviour and quality (Ehrhart *et al.*, 2011). Further, managers may actively consider and develop service environments. Managers may develop service climate and bolster relational quality among employees by integrating cross-functionally, shaping interpersonal skills and raising the importance of intangibles (Bowen, Siehl and Schneider, 1989). Empirical analysis also reveals how internal service provides capacity for delivering what is motivated by service climate (Ehrhart *et al.*, 2011). It's notable that internal service quality is supported by several components that contribute to the servicing capability of employees such as procedures, policies, teamwork, management, goal alignment, and training (Hallowell, Schlesinger and Zornitsky, 1996). Further, when developing services, critical interpersonal skills combine efforts to reduce conflicts and power struggles while attending to competencies that embrace envisioning, enabling, energizing, coordinating and communicating (Nijssen *et al.*, 2006).

Similar views emerge by considering solutions that introduce service into the organization viewed as a system to create products-service bundles. Suppliers pursuing servitization strategies must consider the customer interface and relations in their design of their servitized product systems (Baines, Lightfoot, Peppard, *et al.*, 2009). However, from a supplier's organizational perspective of cross-functional work, the literature reveals several factors affecting solution development. Solutions involve complex internal interaction processes that require competencies and structures as internal solutions stakeholders involve, convince and earn the commitment of other actors (Windahl and Lakemond, 2006). Solutions co-creation factors include a complementarity and common understanding of resources, trusting relationships, and open sharing of information (Hakanen and Jaakkola, 2012). With an emphasis on trust, the construction of solutions' meaning also derives from a common sense of value and its co-creation (Spohrer and Maglio, 2008). The meaning of co-created value extends to the co-creating function, the solution development process, and the co-creation experience of solutions stakeholders (Cova and Salle, 2008; Hakanen and Jaakkola, 2012). Trust and rapport support this co-creation as well as the perceived value in cooperation, commitment to common goals, and the clarity of tasks and roles (Hakanen and Jaakkola, 2012). However, the literature also suggests that managers and other stakeholders alike have a role to play in the ongoing development of understanding about this support and rapport. Actors within service systems may evolve into interdependent entities among whom it is important to understand the evolution of trust as well as the mechanisms for supporting or enforcing it (Spohrer and Maglio, 2008).

2.5.3 Managing Processes Within a Service System

Within organizations, the literature suggests that systematic views among employees may be restrained by management that favours compartmentalized daily operations and discounts more systematic understandings. Resource-based theory posits that organizations form in preference for directing specialized knowledge or competence rather than transferring it via learning (Demsetz, 1988; Conner and Prahalad, 1996). Management organized around compartmentalized tasks may then focus on fixing localized problems while finding it difficult to deal with problems otherwise addressed systematically (Lusch, Vargo and O'Brien, 2007). Among localized problems, the services literature also suggests that efficiency concerns take precedence in managerial decision-making. S-D logic acknowledges how management biases that favour manufacturing efficiency may pursue value creation through predictive processes, but links these processes to entrenched, well understood and established solutions as special cases (Vargo and Lusch, 2014). This suggests that, rather than impractically excluding them, S-D logic encompasses the predictive steps and stages codified through written solutions development processes as special cases. However, service-systems theory notes how managerial perspectives and concerns favouring efficiency tend to drive overspecialization whereas sustainability and effectiveness concerns push for more general competencies (Spohrer *et al.*, 2007).

The BPM literature suggests that BPM approaches help overcome inflexibilities otherwise associated with more traditional, functional and hierarchical approaches to changes in procedures or corporate environments (Hájková, 2012). Rather than functional boundaries, BPM values resonate with innovation that embraces a fundamental renewal of processes and responsibility associated with inner engagement, customer-orientation and teamwork (Schmiedel, vom Brocke and Recker, 2013). Effectively leveraging processes for strategic advantage means that flexible, changing process objectives flow through a constant process of adjustment and evolve according to customer needs (Garvin, 1995). However, Kowalkowski *et al.'s* (2012) analysis reveals how attempts at understanding and implementing servitization strategies may be limited to policies or processes that are only incrementally different from those that already exist. This sense of incremental change also resonates with written processes that, while intended to enable the provision solutions, may also be considered frameworks or cognitive norms as cultural artefacts within Phoenix Contact USA (Phoenix Contact, no date a). As noted previously, the written processes that circumscribe the steps and decisions internal stakeholders take to provision solutions are iterations of processes previously used to develop mass-produced products. However, as established practices within service ecosystems, processes may simultaneously enable or restrain activities while influencing the sense of value surfacing from service interactions (Akaka and Vargo, 2014).

Systematic views on service suggest an interactive and interdependent nature for service versus disconnected parts and pieces (Shostack, 1987). Through the lens of S-D logic, macro service systems emerge from micro service phenomena (Lusch and Vargo, 2006a). In the systematic view offered by service systems theory, technology serves as one of these phenomena through the admixture of service and sociotechnical systems. Sociotechnical systems are those wherein "technical capacity to exchange timely, accurate information among multiple participants increases organizational capacity to solve shared problems that require action" (Comfort *et al.*, 2001, p. 145). While service systems form a special type of sociotechnical system, they also highlight trust among stakeholders and focus on constructing meaning around the sense of value (Spohrer and Maglio, 2008).

The literature also suggests that servitization through solutions offerings prompts an entanglement of people, technology, and processes that make it difficult to distinguish between them and their influences upon one another. Amid services, difficulty arises when trying to separate people and process technology (as resources within sociotechnical systems) from the exchange of knowledge and skills that form pure services such as engineering (Gallouj and Weinstein, 1997; Secomandi and Snelders, 2011). In the servitization of manufacturing firms, growth in service-related aspects of solutions may intermingle with technology and be driven by technology while firms struggle to keep pace with it (Kowalkowski *et al.*, 2012). However, from the perspective of service generating benefits, the literature suggests that benefits emerge as something more important than the supporting technology (Levitt, 1983; Davies, Brady and Hobday, 2007). While these views suggest linkages of benefits to supporting technologies, they also suggest challenges isolating or compartmentalizing these as service issues when internal stakeholders, technology and processes work as resources that interact cross-functionally with one another to provision solutions.

2.5.4 Managing Service Development Integral to Servitization and Solutions

While supported by BPM, an understanding of innovation that embraces a fundamental renewal of processes, inner engagement and teamwork is augmented by considering innovation and development issues within service and solutions contexts. The antecedents for service development within manufacturing firms suggest a corresponding configuration of processes, measurement and human resources management (Neu and Brown, 2005; Gebauer, 2007). Rather than disregarding or ignoring them, this suggests that service and process development that supports servitization also encompasses the development of internal stakeholders. However, Nijssen *et al.* (2006) notes how inertia tends to weigh more heavily on service compared to product development. The literature suggests that organizations may adopt an instrumental focus when developing service processes as they would for processes created for product development. By taking this perspective in a service development context, organizations may work from method to desired results without fostering sufficient levels of understanding within corporate strategy or cooperation across functions (Jevnaker, Tellefsen and Lüders, 2015). However, the literature also suggests why the creation of development/innovation processes may be challenging and how this limited services understanding may affect the behaviour of stakeholders responsible for developing service processes as technology. At the firm level, technological innovations may use process capabilities to recombine and integrate knowledge from different domains, but these processes remain dependent upon experience already accumulated by the company (Michelino *et al.*, 2015). Further, cognitive models of innovation describe how technologists evaluate the problems they face in the present by considering how present problems relate to similar problems faced in the past (Nightingale, 1998). Akin to culture, this suggests that the cognitive models stakeholders apply to product and process development may influence the direction, approach and behaviours used to develop the services needed to fulfil a servitization strategy. Considering the former product-only orientation of Phoenix Contact, and the instrumentality of processes used to guide the mass-production of products, this also suggests that internal stakeholders may have been unheedful of themselves as intertwined with service development.

BPM scholars recognize how behavioural processes may be implicit, and that the tensions linked to behavioural processes may affect a process-oriented approach to organizational change. Insights from Garvin (1995) reveal how internal behavioural processes may operate without employees necessarily being conscious of them, or work despite organizational structure. However, similar concerns arise by considering the meaning of “processes” and behaviours guided by them. Some of the most important aspects of culture may be unconscious and organizations may be unaware of important forces influencing actions through employees’ basic, taken-for-granted assumptions (Pauchant and Mitroff, 1988). From this perspective, process documentation and the resultant hardcopy of process documents suggest cultural forces that guide action to produce cultural artefacts. Nonetheless, culture may also play a role in the iterative, continuous change suggested by servitization. According to Weick and Quinn (1999), “culture is important in continuous change because it holds the multiple changes together, gives legitimacy to nonconforming actions that improve adaptation and adaptability, and embeds the know-how of adaptation into norms and values” (p. 378). Norms can function by facilitating the introduction of new ways of doing things and to help people implement them (O’Reilly, 2008). Thus, culture serves as a vehicle that preserves the knowhow of adaptation and knowledge codified into a patterns or recipes for handling situations that may, with time and routine, become tacit and taken-for-granted schemas to drive action (Weick and Quinn, 1999). For example, when people share the expectation that it is not only permissible, but also desirable to challenge the status quo, the likelihood of innovation is increased (O’Reilly, 2008). This suggests that the meaning and action encompassing process-based approaches to change may also be adaptable to include a reconsideration of behavioural processes.

The literature suggests that the status quo and routine of services is also challenged by needs for adaptation and innovation, and differentiates the behavioural processes behind routine versus non-routine services. Non-routine services delivered to resolve unique customer problems often require a willing flexibility within companies and among employees (Parasuraman,1987). The literature also suggests that differences in routine product development versus non-routine service development affects the servitization of product manufacturing firms offering solutions to unique customer problems. For example, services like engineering applied through rote processes to product development bear few analogies to consultation services created ad hoc through diagnosis and judgment (Shostack, 1982). Yet, in servitization contexts, qualitative analysis reveals how customer service often lacks suitable development processes, and that merely adjusting product development processes often results in unused models (Gremyr, Löfberg and Witell, 2010). Service development can be integrated with product development, but service development processes also require an inherent flexibility to deal with the conflicting mode or trajectory of product development processes (Gremyr *et al.*, 2014). Service innovation and development require approaches that account for relationships and the development of new resources (Akaka and Vargo, 2014).

The processes behind service innovation defined as "devices to treat knowledge to produce more knowledge" (Gallouj and Savona, 2009, p. 160) accounts for service innovation as a cognitive exercise intent on developing knowledge. Similarly, in solutions contexts, innovation may be practiced ad hoc and consist of "creating and utilising synergies out of available knowledge and experience accumulated in the course of past practice in order to create original solutions…new knowledge and higher-value knowledge" (Gadrey and Gallouj, 1998, p. 8). As noted by Landry (1995), it is only by producing knowledge that a problem can be resolved (i.e. solutions found). This suggests that the knowledge generated as unique customer problems are resolved with solutions resonates with the sense of knowledge generated through service innovation. However, service innovation happens through the interactions of individuals as well as organizations, driven by joint creation, the co-creation of value within the firms' network (Perks, Gruber and Edvardsson, 2012; Frow *et al.*, 2015). While driven to co-create value through solutions and service innovation, this suggests that knowledge generated about stakeholder interactions may also be shared among stakeholders.

Considering Barney's (1991) perspective on knowledge as a resource, this suggests that solutions creation and service innovation might also be reasonably viewed as the development of knowledge resources. Through an S-D logic lens, these views resonate with operant resource development as interaction and knowledge exchange are the means by which operant resources are developed (Lusch, Vargo and O'Brien, 2007). Further, by considering knowledge as an element of competency, processes applied as "devices" for purposively growing knowledge (Gallouj and Savona, 2009) point toward service innovation as a stakeholder capability – a capability combining competency with processes (Garvin, 1995). From a teleological perspective, the literature suggests that capability development also encompasses managers as active, operant resources in organizational change. Managers' capability to orchestrate change by identifying, building and arranging a firm's resources and capabilities involves the addition of new knowledge and mindsets as a resource (Sune and Gibb, 2015). For all stakeholders to capably deal with and respond to unique solutions opportunities requiring service and product integrations, these insights suggest that managers and employees alike might develop and share in knowledge about their interactions to better respond cross-functionally to solutions opportunities.

2.6 Managing Conflict Prompted by Service and Solutions Development

However, service variance and complexity caused by integrating customer needs to develop solutions may also make service development conflictual internally, and underlying service processes difficult to measure (Syson and Perks, 2004; Ettlie and Rosenthal, 2011). As noted by Pondy (1967), conflict episodes involve dynamic relations between the latent conditions of the organizational environment (i.e. culture) that influence the affective states, perceptions and behaviours of individuals involved in conflict. Conflict is thus a key variable in the feedback loops that characterize organizational behaviour (Pondy, 1967). Teams within manufacturers transforming through servitization may also experience conflict and corresponding affective, emotional states. Amid servitization, case analyses reveal that cross-functioning teams experience conflict and tension stemming from a lack of understanding and communication across functions (Raja *et al.*, 2018). This suggests that manufacturers engaged in servitization may also regard tension stemming from conflict amid cross-functioning teams as internal feedback. To address cross-functional service issues prompted as firms strive to benefit customers with solutions, research reveals how efforts placed into proficient service development may have positive performance impacts upon communication across functional areas (de Brentani, 1995). In solutions development, integration involves services and products working well together through design, selection and modification (Tuli, Kohli and Bharadwaj, 2007). However, to develop solutions, requirements definition processes involve interactions to delineate current and future needs that inform services development according evolving solutions expectations (Tuli, Kohli and Bharadwaj, 2007). Further, instead of linear, functional responsibilities, contributions to effective solutions derive from employees and other resources that exhibit flexibility like the ability to contribute to constantly forming teams (Galbraith, 2002).

As discussed, cultural norms may serve as guidance regarding the behaviours and routines of organizational stakeholders, and may do so unconsciously. However, culture may also have a role to play in overcoming the inertia of routines and managing the shift to more flexible behaviours that accommodate evolving expectations. More important norms often exist around issues such as quality, flexibility and how to deal with conflict (O'Reilly, 2008). If the parties to conflict are flexible in their demands and desires, the conflict is likely to be perceived as a transient disturbance (Pondy, 1967). However, the functions and effects of conflict must be evaluated relative to the set of values held by the organization and "intra-individual conflict is of concern only in so far as it has implications for organizational performance" (Pondy, 1967, p. 308). These views suggest alignment with BPM values held and applied by Phoenix Contact in its process-led approach to change through servitization. From a BPM perspective, only organizations whose cultures value willingness to change, teamwork and personal accountability find it possible to move forward with process-led change projects (Hammer, 2007). This suggests that BPM values operating within organizations that are transforming through servitization aligns with continuous change and organizations that value improvisation - the processes by which variable inputs to groups of actors induce continuing modification of work practices and ways of relating (Weick and Quinn, 1999).

As part of BPM, teamwork refers to the positive attitude toward cross-functional collaboration and the acceptance that cross-functioning business processes must be performed by employees sharing these values (Hammer, 2007; Schmiedel, vom Brocke and Recker, 2013). Nonetheless, coordination between team members may be more challenging when they possess different areas of expertise or experience (Tannenbaum and Salas, 2020) and organizations must have ways of governing change initiatives if they don't want conflict to bog them down (Hammer, 2007). The literature also suggests that the ad hoc nature of developing solutions to unique customer problems may cultivate a challenging context for teamwork among team members. Joined-up, team-working can be viewed as fluctuating working context and fluid practices where knowing and learning are characterized by tensions and conflicting beliefs (Anning *et al.*, 2010). Yet, the reliance that team members have upon on one another suggests that learning teamwork behaviours matters in their effective coordination with one another and in handling conflict - either competitively (individual vs. individual) or collaboratively (seeking mutual needs, concerns, and the best ideas) (Raelin, 2003; Tannenbaum and Salas, 2020). From a management perspective, this suggests that appeals to values like quality, teamwork, flexibility and willingness to change may help facilitate servitization among teams of internal stakeholders responsible for provisioning solutions. However, it also acknowledges the potential for conflict as feedback among internal stakeholders with disparate experiences that serve as cross-functioning team members. Facilitating the change implied by servitization may also require the invocation of culturally accepted means of dealing with conflict among team members.

2.6.1 Servitization, Solutions and Service Quality Measures

Value created from solutions offerings derive from processes of co-creation or "interactive processes where…actors jointly create the solution offering by integrating resources" (Hakanen and Jaakkola, 2012, p. 595). Solutions and value co-creation parallel one another as they are co-produced through shared inventiveness, problem solving or co-design among a network of partners (Lusch and Vargo, 2006a; Hakanen and Jaakkola, 2012). Such co-creation perspectives align with solutions reframed as relational processes shared among customers and suppliers (Vargo and Lusch, 2004; Tuli, Kohli and Bharadwaj, 2007). However, despite managerial interest in value co-creation and its potential benefits, Frow et al.'s (2015) analysis reveals how companies may lack measures or structured processes to manage, identify and engage in value co-creation opportunities.

Approaches to developing structure around value processes emerge by considering solutions teleologically as ongoing, purposeful processes of co-creation toward solutions versus solutions envisioned as finished outputs. Through the lens of S-D logic, solutions are viewed as ongoing relational processes to define, meet and support customers' evolving needs (Tuli, Kohli and Bharadwaj, 2007). Service-dominant views also link relational and value developments by examining value co-creation through an effectuation and heuristic decision-making lens (Vargo and Lusch, 2014). From this perspective, value co-creation may conceptualized as "value in the experience" (Helkkula, Kelleher and Pihlstrom, 2012, p. 59) of co-creating it and part of the lived experience of value creation among service stakeholders.

While transforming through servitization, service operations may adopt alternate success measures oriented toward orders won through relationships and associated with more subjectively assessed attributes like responsiveness (Baines, Lightfoot, Peppard, *et al.*, 2009). While responsiveness has been recognized as a dimension characterizing service quality (Zeithaml, Parasuraman and Berry, 1990), appropriate measurement systems still represent a significant challenge for quality process improvement in services (Weitlaner and Kohlbacher, 2015). An approach to developing measures emerges by considering the linkages between service quality and value. Analytical findings confirm perceived service quality as positively related to perceived service value (Pisnik, Dlačić and Milfelner, 2016) and relational variables as antecedents to value creation within business relationships (López Sánchez, Santos Vijande and Trespalacios Gutiérrez, 2010).

As noted, the literature suggests that both relational and service quality share common dimensions such as *trust* and *satisfaction* (Hallowell, Schlesinger and Zornitsky, 1996; Schneider, White and Paul, 1998; De Wulf, Odekerken-Schroder and Iacobucci, 2001; Hennig-Thurau, Gwinner and Gremler, 2002; Ulaga and Eggert, 2006; Ehrhart *et al.*, 2011). Further, service quality may be seen as a phenomenon that contributes to the strength of interpersonal and intra-organizational service encounters as well as the development of business relationships (Svensson, 2001). However, analyses of companies undergoing servitization suggest that employees' sense of service quality is developed rather than known at the outset of servitization. As employees develop appropriate criteria and make subjective judgements of performance, quality in service operations may be measured with dimensions linked to the transition toward service orientation (Baines, Lightfoot, Peppard, *et al.*, 2009; Gremyr, Löfberg and Witell, 2010). Across departments and functions within manufacturing firms, the literature also suggests that roles and responsibilities linked to quality may change with rising demands for internal coordination and collaborative relationships. Such roles may take on responsibilities reflecting service quality in the form of responsiveness, functional coordination and trust building (Day, 1994). Within servitization strategy, this subjectively developed sense of service quality also applies to managers' decision-making that supports operational service quality through the adaptation of relevant organizational arrangements or structures (Gebauer, 2007). However, within servitized operations, the literature suggests that the interrelatedness of service behaviour, processes and relationships may obscure measures applied to evaluate service value or quality among stakeholders. Baines and Lightfoot (2014) note how relationships concomitant with advanced service offerings are "fostered by people and the processes that guide their behaviour" (p. 21) and may be viewed as enablers of service delivery rather than features of the service offerings.

In contrast to narrow, functional performance goals, Hammer (2007) suggests that solutions may be viewed as broad, commonly held and co-developed outcomes with corresponding performance measures. However, in the servitization of manufacturing firms, the contrast between, and conversion to, solution- versus product-oriented service measures may also prompt operational difficulties. The literature illuminates these difficulties in the differentiation between service processes focused upon products versus service processes that foster relationships. Similar to the conflicts in product versus service development, Oliva and Kallenberg (2003) suggest that product-oriented versus relational service processes may be orthogonal developments with few synergies in infrastructure or capabilities. However, the service literature also contrasts this orthogonal/oppositional sense of service processes by reframing operational process improvement as orthogonal to service development. Through balanced exploitation and exploration, quantitative analysis reveals an emergent ambidexterity as these otherwise orthogonal processes stimulate and enhance one another, possibly through knowledge spillovers (Blindenbach-Driessen and van den Ende, 2014). This suggest that, although coexisting operational processes and service development processes may cause friction internally, some accord can be found through knowledge shared between stakeholders engaged in both kinds of processes.

In their analysis of how firms are organizing to address solutions, Davies, Brady and Hobday (2007) reveal substantial efforts to integrate customer-facing service components into company operations, including guarantees of systems responsiveness and reliability. To foster responsiveness and continuous improvement in product designs, the literature also reveals how servitized manufacturers integrate internally and across functions to retain responsive design and production capabilities (Baines and Lightfoot, 2014). While these insights echo the sense of *responsiveness* and *reliability* as dimensions of measurable service quality (Zeithaml, Parasuraman and Berry, 1990), they also suggest a corresponding evolution in measures attuned to stakeholders' needs, or perhaps an appreciation for flexibility in measures used for evaluation as solutions processes unfold through time.

This flexible equilibrium between operational process improvement and service development also reveals itself through the contrast of hard, formalized, and structural organizational elements (i.e. written processes) when compared to stakeholder behaviour and values envisioned as soft, non-structural factors (Homburg, Fassnacht and Guenther, 2003). While adding complexity, such hard and soft concepts also help shape a managerial and strategic sense of service skills among employees. For example, considering soft service factors, the literature reveals their influence upon service quality while linked to relationships as well as the implementation of service-oriented strategy (Szmigin, 1993; Homburg, Fassnacht and Guenther, 2003). The strategic perspective is important because servitization strategies and corresponding relationships transform over time (Vandermerwe and Rada, 1988; Mathieu, 2001; Gremyr, Löfberg and Witell, 2010). According to Szmigin (1993), both hard and soft service quality must run well to overcome or "allow" the errors that will happen from time to time. This perspective suggests that hard, outcome-based as well as soft service and quality elements ought to be managed for the success of relationships changing through servitization. Pinpointing the balance between hard and soft service quality requirements helps align stakeholder interests and produces more relational benefits when derived from a structured system to track changes, compare perceptions, and close perceptual gaps (Szmigin, 1993). However, considering servitization, case findings suggest that as the complexity and temporality of servitized offerings increase within manufacturers, the capabilities among cross-functioning teams of internal stakeholders also become more complex and prompt questions about the skills and competences required to manage the dynamics of such diverse teams (Raja *et al.*, 2018).

2.6.2 Managing Teamwork, Learning and Knowledge Exchange

While the organizational and cultural sense of teamwork informs values and behaviours of employees, clues concerning the skills and competencies linked to the management of teams emerge by considering the quality of purposeful, employee-employee interactions among professional, cross-functioning team members. As discussed, internal service quality not only contributes to the sense of satisfaction experienced by employees in their interactions with one another, but also links their service capability through teamwork (Hallowell, Schlesinger and Zornitsky, 1996; Schneider, White and Paul, 1998; Ehrhart *et al.*, 2011). However, while the literature suggests that both BPM and SD-logic support the cultural sense of teamwork and relational integrity as a value (Hammer, 2007; Abela and Murphy, 2008; Schmiedel, vom Brocke and Recker, 2013), S-D logic advances the development of value and operant resources through acts of co-creation experienced through service interactions (Helkkula, Kelleher and Pihlstrom, 2012; Vargo and Lusch, 2014). Service interactions, in turn may be modelled as knowledge-for-knowledge exchanges among actors, the beneficiaries as well as operant resources developed by these exchanges (Lusch, Vargo and O'Brien, 2007; Akaka and Vargo, 2014).

The sense of development through knowledge exchange resonates with service development modelled as devices that treat knowledge to create new knowledge (Gallouj and Savona, 2009). Teleological and continuous views of transformation echo an understanding of individual learning and knowledge development as essential for organizational change (Van De Ven and Poole, 1995; Weick and Quinn, 1999). However, knowledge development and exchange also aligns with the sense of servitization strategy purposefully pursued through the provision of product-service solutions to unique customer problems. Solutions are co-created along with new knowledge and competencies among individual stakeholders within cross-functioning teams (Landry, 1995; Gadrey and Gallouj, 1998; Perks, Gruber and Edvardsson, 2012; Raja *et al.*, 2018). Nonetheless, while teamwork offers opportunities for the knowledge of individual stakeholders to be distributed across a team, much of it may remain tacit, "expressed only by implication in what professionals actually do" (Anning *et al.*, 2010, p. 76).

2.6.3 Managing Knowledge Gaps About Service and Solutions Responsibilities

The literature suggests that an ability to track change and compare perceptions about business relationships is important as the status of relationships may progress or retreat again and again over time. At the firm level, Edvardsson, Holmlund and Strandvik's (2008) case analyses reveal how the forces that affect relational status work over time; either converting and speeding-up, or inhibiting organizations reaching agreement and relationship. Converters represent favourable experience evolving over time by consistently demonstrating quality as well as growing trust in competence. Yet, according to Edvardsson, Holmlund and Strandvik (2008), quality classifications, relational processes, and where relational processes lead may be obscure. Gallouj and Savona (2009) note how the difficulty of ascertaining quality in services complicates the notion of process-oriented service transactions that depend upon a degree of stakeholder participation and cooperation. However, research suggests that service quality measures offer a lens into stakeholders' perceptions about their service experiences. For example, positive customer perceptions of trust and satisfaction are both linked to outcome- and process-related industrial service quality (Homburg and Garbe, 1999).

With solutions viewed as relational processes, inquiry and discovery surface as important acts of participation for both suppliers and customers (Tuli, Kohli and Bharadwaj, 2007). Interaction and dialog are required to understand solutions needs and value processes that might otherwise be implicit, or that the stakeholders themselves may be unable to describe explicitly (Nordin and Kowalkowski, 2010; Aarikka-Stenroos and Jaakkola, 2012; Hakanen and Jaakkola, 2012). However, the literature suggests that stakeholders' decision-making may suffer without clear understanding of their responsibilities regarding interaction and dialog. For example, unclear responsibilities regarding participation in the definition of solutions' content, including services, may impede decisions regarding the scope of solutions offerings (Windahl and Lakemond, 2006; Tuli, Kohli and Bharadwaj, 2007; Hakanen and Jaakkola, 2012).

2.7 Helping Stakeholders Learn About Service and Solutions Relationships

Case studies reveal how solutions suppliers purposefully develop working methods and common practices that favour learning processes (Håkansson, Havila and Pedersen, 1999; Cova and Salle, 2008). Processes may be used as a lens through which a clear picture of customer-satisfying offerings connect with stakeholders' knowledge and understanding of context and the relationships between processes (Weitlaner and Kohlbacher, 2015). As something more than guides to methods and practices, organizations may form working context for more effective service operations by leveraging training and incentives as tools to make service processes more effective (Garvin, 1995). Skill-wise, process performers may then mature from problem-solving and process improvement to teamwork and self-management with behaviours moving from allegiance to their function to enabling other people who execute the process to do their work effectively (Hammer, 2007).

Industrial service and servitization scholars support this line of thinking while prioritizing the skills development of internal stakeholders. For example, Gounaris and Venetis (2002) place priority on systematizing the quality of service delivery and outcomes by monitoring and focusing on stakeholder training, skills and expertise to enhance the soft elements of quality. Likewise, servitization requires diverting valuable resources from traditional manufacturing toward the creation of new competencies and human capital (Oliva, Gebauer and Brann, 2012; Raja *et al.*, 2018). As part of servitization, supportive skill sets like flexibility and relationship building link to desired behaviours like preparation for variable work hours or readiness for meaningful conversations (Baines and Lightfoot, 2013). Meaningful conversations suggest a consistency with optimized service innovation processes that depend upon the inquiry of different actors as well as activities that foster exposing and expression among actors (Jevnaker, Tellefsen and Lüders, 2015) .

The literature also describes the organizational context matured through these stakeholder developments. While in transition through servitization, processes and relationships eventually become technologies and practices, integrated into multiple touch points as enablers of customer responsiveness wherein "conditions leading to actions are predetermined rather than negotiated" (Baines and Lightfoot, 2014, p. 25). Managerial perspectives on such predetermined conditions may also envision services holistically such that service prerequisites are that which is provided by the organization instead of the service itself (Edvardsson and Olsson, 1996). Process-oriented manufacturers and service providers alike share in a prerequisite that all stakeholders have adequate understanding about the importance of processes within their organizations as well as process knowledge – their knowledge about organizational procedures and coherences (Weitlaner and Kohlbacher, 2015). However, predetermined conditions, prerequisites and enablers to service and relationships contrasts with the sense of adhering to prearranged, codified steps and stages within documented processes. As enablers and conditions, an image of continuous change within an organization is sustained by processes "built around the ideas of improvisation, translation, and learning" (Weick and Quinn, 1999, p. 375). Through a teleological lens, this suggests that processes may both form and be engaged as the perquisites (the ongoing functions that must be fulfilled, the components that must be continuously built, etc.) for attaining a goal (Van De Ven and Poole, 1995).

However, the literature also expresses challenges to the establishment of prerequisites and conditions for service. Such issues seem collocated with managerial sunk-cost biases or biases that favour predictive processes and deterministic approaches to value creation and decision-making. For example, Armistead and Machin's (1998) analysis of internal customer-supplier relationships reveals how managers link problems of forecasting demands across functional work areas to gaps in genuinely useful measurements or specifications. In terms of sunken costs, the literature exposes implications and advises caution as managers make decisions about tangible structural changes in accompaniment to servitization. Critically, overemphasis on tangible characteristics may combine with sunken cost biases to prompt insufficient, first-order changes (fighting structural symptoms) versus necessary, second-order changes and learning to overcome structural problems and resource constraints (Gebauer and Friedli, 2005). Nonetheless, the S-D logic suggests that second-order problems accompany business decisions made to pursue solutions opportunities. From an S-D logic perspective, "the business of business is the ongoing discovery of solutions to contextually changing human problems and the occasional institutionalization of these solutions" (Vargo and Lusch, 2014, p. 242).

Similar discovery processes accommodate the learning of employees involved with teams. While they may rarely articulate it, the theories and understandings underpinning the practices of employees are developed over years of encountering recurring kinds of problems and deploying particular kinds of actions (Anning *et al.*, 2010). However, the most universally applicable and consistently important teamwork behaviours exhibited by employees link to adapting as team members by first recognizing when adaptation is needed, then making adjustments to address needs and learning the from experience (Tannenbaum and Salas, 2020). As individuals and team members, employees' theories are refined in real-time and through reflection when the unexpected happens and prompts them to take stock, rethink plans and try new approaches (Anning *et al.*, 2010; Tannenbaum and Salas, 2020). From this perspective, the literature suggests that adaptations happening among teams and individual team members in their experiences of addressing unexpected situations are similar to provisioning non-routine services or solutions to unique customer problems. Adaptations may be triggered by an event in real-time when the team experiences a non-routine "happening" and needs to make a quick, on-the-fly adjustment (Tannenbaum and Salas, 2020). However, as individual team members confront new and unfamiliar problems, then learn and reflect upon what was learned, they may adapt and strengthen this learning by accommodating new insights into their theories and understandings about work and sharing insights across the team (Anning *et al.*, 2010). Within the team, adaptations also occur through reflection and are driven by the recognition of gaps or awareness that the team may be able to do something better than they have in the past by introducing an innovation or changing how the team works together (Tannenbaum and Salas, 2020).

When addressing change by developing service, requirements should be specified regarding employees by adapting routines and technology to human logic and functioning (Edvardsson, Larsson and Setterlind, 1997). As part of human logic and functioning, the services literature acknowledges emotions and the lived experience of service that extends "beyond the current context of service use to also include past and future experiences and…broader life-world contexts" (Helkkula, Kelleher and Pihlstrom, 2012, p. 59). For example, as part of these experiences and contexts, Kandampully (1998) links technology and the human element to service process and innovation in order to produce delight and surprise. In servitization contexts, qualitative studies reveal how manufacturers emphasize emotional measures through exhibits or value demonstrations intended to assure stakeholders of efficiencies, expertise and capabilities (Baines and Lightfoot, 2014). Similarly, in solutions integration contexts, the literature recommends that companies demonstrate key competencies that include internal, operational services (Davies, Brady and Hobday, 2006).

In her study of industrial service development scenarios, de Brentani (1995) indicates a very high attribute mean value for the quality of service experience associated with the success linked to improving service experience. The dimensions of service quality experience in de Bretani's (1995) research included service speed, efficiency and reliability. The literature also suggests that these quality measures manifest in the experience of service stakeholders over time. Exhibitions of competence through impressions of reliability become a comparative necessity for service stakeholders (Edvardsson, Holmlund and Strandvik, 2008, p. 344). Alternately, trust is influenced over time by the quality of relational interactions and immediate outcomes, growing the potential for these outcomes to serve as cues that communicate capabilities (Gounaris and Venetis, 2002). Considering internal service relationships, service quality is typically seen as an important element for the development of service encounters as quality deficiencies may prompt disturbances in future encounters (Svensson, 2001). Combined, these insights suggest that a sense of quality may inform the internal service processes flowing between solutions stakeholders at Phoenix Contact while they provision solutions; between stakeholders in the US Subsidiary and the D&M Company. However, unlike products, useful measures contributing to this revised sense of quality may be lacking, therefore not adapted to internal service developing in response to solutions demands.

2.7.1 Making Service Tangible for Learning

Although much of the service literature emphasizes the intangibility of service, there are also accompanying insights on the experience of service being made possible through what is made tangible to service experiencers (Levitt, 1981; Shostack, 1984; Zeithaml, Parasuraman and Berry, 1990; Secomandi and Snelders, 2011). The concept of tangible interface or point of contact between service stakeholders has been used as a way of expressing stakeholder involvement in the provision of service (Gallouj and Weinstein, 1997). Secomandi and Snelders (2011) claim service design as equivalent to the design of its material interface. Akin to the interface concept, tangible here is taken to mean that which can be experienced through the senses - seen, heard and felt. However, the literature also notes how the knowledge of services' performance only emerges once they are put to work (Levitt, 1981; Araujo and Spring, 2006). Further, behavioural processes linked to internal service may be obscured from management view because of their routine nature, or may go awry as managers avoid blame and use processes to cover for broken yet unrealistic promises (Day, 1994). This suggests that knowledge of service processes experienced among internal stakeholders (including managers) may be formed in-the-moment, yet obscure or ambiguous in working lives of these stakeholders. Nevertheless, as noted earlier, process knowledge is a prerequisite for stakeholders in process-oriented companies (Weitlaner and Kohlbacher, 2015). Beyond just tasks performed or process inputs and outputs, this includes knowledge of process relationships as a means of changing stakeholders' thinking (Hammer, 2007; Weitlaner and Kohlbacher, 2015).

Considering how to make relational processes for internal stakeholders tangible, process documentation offers a means of knowledge transfer about processes to process performers on both macro- and micro-levels (Weitlaner and Kohlbacher, 2015). Considering service quality, early service literature suggested that setting tolerances and standards establishes a basis for measuring performance as well as managing the quality and rational distribution of a service process (Shostack, 1982). More recent arguments favour internal performance measurement initiatives relating to work applied during services. Such initiatives include quality measures introduced to enhance organizational capacity to circumscribe and segregate internal activities amid disaggregated structures (Zenger and Hesterly, 1997). Similar insights surface for companies undergoing servitization. Internal to company operations, monitoring systems assessing the effectiveness and efficiency of service delivery offer a sense of direction, success or failure by creating a "transparency of numbers" (Oliva and Kallenberg, 2003, p. 166). The literature also suggests clarifying service transfers among employees by specifying and objectifying the properties of services for their transaction and trade in internal relationships (Araujo and Spring, 2006). As noted, such actions may be predicated upon intangible services made tangible through metaphors or surrogates for tangibility (Levitt, 1981), or by analysing tangible clues for their service impact (Shostack, 1982).

2.7.2 Fostering Learning about Servitization, Service Processes and Quality

As companies transition through servitization from product- to service-orientation, workers learn how to sell services, deliver quality service, value services, and how to convince others as to their value (Gebauer and Friedli, 2005). However, from resource-based theory, employees sustain change by accommodating learning as an ongoing practice and responsibility; acquiring and applying future knowledge in response to internal and external developments (Conner and Prahalad, 1996). S-D logic suggests that ongoing learning also applies to servitization through service processes developed and used as technology to co-create value. With service processes viewed as technology, "value co-creation continues through both the design and use phases of technology and service innovation is driven by iterative processes of collaboration and learning…and unique perspectives of how to apply and integrate resources" (Akaka and Vargo, 2014, p. 381). Such unique perspectives account for the views of all service stakeholders, both service providers and beneficiaries alike (Akaka and Vargo, 2014). Among internal stakeholders benefitting from the quality of internal service processes, this suggest that these processes may be useful in-the-moment for getting work done to produce quality service and for learning what or how to change to sustain quality service.

The literature also suggests that service development progresses through stages. For example, Gallouj and Savona (2009) reveal how service innovation addressing efficiency concerns may be followed by innovations for improving service quality through selective standardization. Frow *et al.* (2015) suggest that service development is fostered through collaboration by following strategies that allow co-creation itself to evolve. Co-creative evolution unfolds while influencing and intermingling with co-evolving structures, designs and engagement platforms (Frow *et al.*, 2015). Considering service development, the encouragement of cross-functional communication and information shared from customers increases idea-generating capabilities and nurtures continuous innovation (Gebauer, 2007). Early service literature recommended research pathways that considered how effective or inadequate communication processes among different levels and functional areas within supplier organizations impact service expectations (Parasuraman, 1998).

However, regarding communications and interfaces between internal stakeholders, the literature reveals issues with speech and language used to discuss services supporting products versus services combined *with* products to form solutions. If based upon traditional product-oriented services, terms used to support services within solutions relationships may lack clarity and accuracy in comparison to stakeholder expectations (Mathieu, 2001). The distinct discourses or language of cross-functioning professionals may also form stumbling block as it may exclude others from aspects of team discussions and decision-making (Anning *et al.*, 2010). In pursuit of clarity, existing inadequate terminology may also prompt the development of new terms as language and conceptual framework for understanding services amid solutions, and to reinforce communications and relationships (Mathieu, 2001). As action researchers build theory- and practice-based platforms to complement subsequent project actions and stages (Tenkasi and Hay, 2004), this suggests that solutions reframed as "relational processes" (Tuli, Kohli and Bharadwaj, 2007) may augment the sense of written processes the company uses to produce solutions.

As noted earlier, the literature helps by expressing useful terms and language and articulating various dimensions used to characterize and express service quality, relational quality or value. The literature also suggests models that illustrate how these characterizations are perceived, understood and managed by stakeholders. For example, training, benchmarking or gap analysis are processes suggested for reconciling stakeholders' perceptual differences about dimensions (Zeithaml, Parasuraman and Berry, 1990; Sweeney and Soutar, 2001; Klaus and Maklan, 2012). In the case of service quality, reconciliation happens by: 1) identifying gaps in understanding between internal service stakeholders (i.e. managers and employees) concerning expected and enacted service (i.e. service delivery) along service quality dimensions, then 2) merging these differences by setting service specifications, having face-to-face discussions, and engaging in skills-training (Zeithaml, Parasuraman and Berry, 1990). However, in terms of creating actionable knowledge, the literature also suggests that researchers begin their analyses by first discovering and distilling the most meaningful dimensions of quality and value from stakeholders involved in their studies. For example, concerning service quality measures, research suggests the influence of operational context makes quality measures specific rather than all-embracing in business-to-business contexts (Zolkiewski *et al.*, 2007). Similarly, Boyt and Harvey (1997) claim that intricate, complex services - where services are essential to the unfolding of solutions - require a personal touch. This unique aspect of service characterization and dimensionality also links to service development in unique contexts. Expressed measures and processes, as applied technology, may or may not prompt innovation because a technology must be appreciated as useful, therefore valuable, within a particular context (Akaka and Vargo, 2014).

2.7.3 Using Conflict as Learning Catalyst

A useful definition of conflict accounts for behaviours perceived in the minds of actors as frustrating the goal or goals of some other conflict participant or participants (Pondy, 1967). Within a team, conflict may begin as one or more team members perceive that their interests or points of view concerning tasks (work content and outcomes) are being opposed by another team member (Tannenbaum and Salas, 2020). However, *teamwork* is best perceived not as focusing on particular actors, but instead as a combination of situation-specific, object-orientated and distributed activities (Anning *et al.*, 2010). As objects, the literature suggests common goals determinedly pursued together by teams offers a means of influencing the perceptions of individual team members. Common goals are fundamental to task completion in teams (Jehn, 1997). Yet, goal divergence may be considered a source of conflict when two parties who must cooperate on some joint activity are unable to reach a consensus on concerted action (Pondy, 1967). Team members may largely agree about individual and group goals yet still find themselves in conflict about means even when ends are shared (Jehn, 1997).

However, conflict may be functional or dysfunctional for individuals and organizations, and behaviours should only be defined as conflictful if some all participants perceive it as being so (Pondy, 1967). For example, teams without task conflict may miss new ways to enhance their performance, while high levels of task conflict may interfere with task completion (Jehn, 1997). Here, the literature suggests that a portion of conflict's functionality links to working with it for the improvement of team outcomes versus individual outcomes based on interpersonal competition. Within teams, moderate levels of task conflict may be constructive as they stimulate discussion of ideas that help them perform better (Jehn, 1995, 1997). From the perspective of individual team members, team outcomes are more likely to improve if conflict is approached collaboratively and open-mindedly with intentions set upon letting the best ideas win (Tannenbaum and Salas, 2020). In terms of functionality for managers and team members alike, task conflict may improve decision-making outcomes and group productivity by increasing decision quality through incorporating constructive criticism (Jehn, 1997).

For managers, managing team conflict consists of dealing with conflicting points of view as well as team members' emotions and taking action to maintain morale (Tannenbaum and Salas, 2020). As noted, conflicting interests may emerge concerning tasks – the work content and outcomes. The literature suggests that individual team members may also be at odds concerning processes. Process conflict can emerge through team members' opposing points of view about the way work is ordered and who gets assigned certain tasks (Tannenbaum and Salas, 2020). However, in dealing with conflict, management techniques aimed at improving interpersonal relations may model conflict as team members' perceptions arising from misunderstandings of each other's true positions, and, therefore, may approach resolution through improved interpersonal communication (Pondy, 1967). Here, the literature suggests a divergence in the meaning of "process" used to differentiate conflict types (i.e. "task" versus "process" conflict) versus "processes" used to approach conflict. As approaches to conflict, "processes" may also account for mutual engagements that bring mutual accountability and shared repertoires "characterized by participation in joint activities and their reification into objects which are external manifestations of their ways of working together" (Anning *et al.*, 2010, p. 83). Akin to the documentation of processes, such reification steps may be taken to capture shared discourse and tools (Anning *et al.*, 2010). As discussed, the service literature suggests objectifying service properties by making them tangible through metaphor and language to enable the expression of stakeholder involvement in the transaction and trade of internal service (Levitt, 1976; Gallouj and Weinstein, 1997; Araujo and Spring, 2006). Similarly, the reification of "ways of working together" into objects suggests a way of addressing conflict prompted by service development within organizations otherwise used to developing products (Syson and Perks, 2004; Ettlie and Rosenthal, 2011). As shared repertoires, stakeholders' relational processes (Tuli, Kohli and Bharadwaj, 2007) may benefit if these processes are reified or transformed from abstract perceptions to concrete objects of discourse to help provision solutions and deal with concomitant conflicts.

The literature also suggests that conflict may be functionally managed through knowledge exchange among team members brought together to pursue goals associated with implementing organizational change. Teams carry with them cultural histories that encompass individuals and organizations, and all this changes as knowledge is shared in the formal contexts of planned, joint activities of teams of professional employees (Anning *et al.*, 2010). Cultural norms such as teamwork, flexibility and trust as well as managerial emphases on timeliness and quality may exist to promote innovation and change (O'Reilly, 2008). However, among teams, the recognition and articulation of conflicts is seen as an essential element in managing change (Anning *et al.*, 2010), and teams use members' capabilities and prior knowledge better when conflict is task focused rather than when conflict is absent (Jehn, 1997). Through a functional lens, conflict may then serve as a catalyst for learning (Anning *et al.*, 2010). In managing organizational change, teleological models view development as emergent through purposeful social construction among individual team members that engage in cycles of goal formulation, implementation, evaluation and goal modification based upon what was learned (Van De Ven and Poole, 1995). Management-wise, this suggests that conflict may be made purposeful through acts of bringing together team members to express, learn and share knowledge as they work through change and deal with conflict.

The shift towards integrated services has emphasised the importance of knowledge distributed across groups of people through formal mechanisms (Anning *et al.*, 2010). Further, in managing conflict, establishing ways and means of openly identifying and discussing concerns and conflict, constructively challenging the feasibility of solutions, and integrating ideas can boost performance and outcomes (Tannenbaum and Salas, 2020). Here, the literature suggests formal ways of exchanging knowledge based on prearranged team meetings, training events or workshops (Anning *et al.*, 2010). Such settings enable the emergence of training as colleagues working together on joint activities (Anning *et al.*, 2010) and allow teams to make ongoing adjustments through event-and reflection-driven learning adaptations (Tannenbaum and Salas, 2020). Workshops may be used to promote psychological safety and teach behaviours that encourage team members' shared acceptance of interpersonal risks to normalize speaking up "without being punished, ostracized, or embarrassed" (Tannenbaum and Salas, 2020, p. 70). Per Anning *et al.* (2010), service providers should be involved in cycles of reflection on workplace happenings to expand their understandings and refine their practice. Further, teams that overtly reflect on their work processes in challenging work environments may achieve higher levels of innovation (Tannenbaum and Salas, 2020). These views suggest that the teamwork necessary to provision solutions through ad hoc innovation may also benefit from workshops dedicated to team members' reflections upon teamwork. Further, considering employees as team members and internal service providers to one another, these views suggest the efficacy of workshops to enable employees' expression, reflection and joint evaluation of the internal service quality they perceive in their processes of interacting with one another.

2.8 Reflections on How the Literature Informs the Research and Action

The literature sheds light on the internal tensions expressed while the services accompanying solutions add friction to conventional, product-oriented processes. While written processes acknowledge that customers' needs drive the creation of solutions as hard products, solutions are provisioned by employees at Phoenix Contact USA. Internal stakeholders from both the D&M Company and the US Subsidiary serve the solutions needs of customers through their interactions with one another as well as through their interface with customers. However, beyond customers' needs, the notion of internal service suggests expanded capabilities and responsibilities from employees to employees through service processes.

Examined through the lens of internal service, my insights reveal that internal stakeholders serve one another cross-functionally to provision solution. Internal stakeholders are charged with operationalizing the company's servitization strategy by provisioning solutions to customers' unique, non-routine problems, but may have discounted knock-on changes to internal service processes. While routines were disrupted by solutions, stakeholders seem to have trouble acknowledging or managing revisions to routine internal service processes otherwise used to develop mass-produced products. However, as a contrast to the written process documents linked to the company's pursuit of BPM, the literature also suggests that solutions may be reframed as relational processes. While the literature emphasizes relational processes at the firm level, between suppliers and customers, these insights also offer nuanced perspectives on relationships shared and nurtured by internal stakeholders as they also serve one another across units.

The company has undertaken servitization as a change in strategy to incorporate solutions along with mass-produced products. However, the literature suggests that companies fit for change derives from assumptions made about cultural elements that include the nature of human relationships and what is considered to be the "right" way for people to relate to each other - competitively or cooperatively; individualistically or collaboratively in groups and teams (Pauchant and Mitroff, 1988). Further, if knowledge is distributed across a group of employees in a team, "the knowledge will be dictated by the nature of the teamwork, its location and history" (Anning *et al.*, 2010, p. 79). From a BPM perspective, my experience and reflections upon the company's written processes as cultural artefacts reveal no evidence of relational processes or teamwork as documented or explicit process knowledge. Written solutions processes say little about soft quality measures (e.g. responsiveness, trust, reliability, etc.) applied to measure internal service quality or processes and behaviours as "relational" and developed among internal stakeholders to foster teamwork. Further, the structure and tempo applied to written process improvements seems disjointed from the daily realities of service, relational processes or teamwork in solutions. Annual, cyclical reviews of written processes seem out of sync with the ad hoc creativity linked to service and resolution of client-specific problems (Shostack, 1982; Gadrey and Gallouj, 1998).

For Phoenix Contact USA, development and quality of mass-produced products are made clear by drawing upon valued resources that include specifications, measures and tolerances appearing alongside stage-gates, steps and production schedules within written processes. As processes progress from stage to stage, internal stakeholders use measures to evaluate whether they are developing products according to their quality specifications. However, written product-development processes also help internal stakeholders understand how they interrelate with one another. Internal stakeholders perform specialized activities codified within written processes and take measures (i.e. development target dates, mechanical tolerances, parts per million defects, etc.) as quality checks specified in the product development process. These activities follow an internally developed schedule and sequence within the written process steps and are typically associated with specific roles, competencies and measures.

Nonetheless, while solutions development processes derive from older, product development processes, problems arise when attending to outside-in customer demands that accompany customer-specific solutions. For manufacturing firms undergoing servitization, the literature sheds additional light on these issues by exposing a split nature for services, differentiating, 1) service operations versus customer service, 2) service developments that support products versus customers, and 3) hard versus soft elements of service. Akin to written processes applied to product development, the literature suggests that service operations may proceed step-wise, converting inputs into outputs. In service operations, stakeholders take steps to turn inputs into outputs; in customer service, stakeholders interact with one another (Secomandi and Snelders, 2011). However, while service operations may adopt the sense of steps as useful for process development, contrasts emerge in the approach to customer service development. Customer service may lack suitable development processes, and simply adjusting product development processes frequently results in models that prove impractical (Gremyr, Löfberg and Witell, 2010). Further, the hard and soft elements of service described by Szmigin (1993) differentiates between hard strategies, structures or systems versus the soft skills or style embodied by staff. This suggests that the softer, human-centred aspects of customer service may be viewed in contrast to the operational sense of service, converting inputs to output. Further, the soft side of service and service development may be obscured by the company's approach to process development – the production of written processes as hard, documented evidence of process knowledge. Once produced in hardcopy, written processes seem to maintain hard sensibilities. For example, within Phoenix Contact, "customer" services supporting mass-produced products develop post hoc, after product development, so that internal stakeholders may focus their learning on new products and how to support them. This seems to foster an internal sense of "customer" service innovation as something closely associated with the support of new mass-produced products. Learning processes supporting "customer" service development/innovation focus upon on transferring knowledge about products – how they work, how they are configured, how they are priced - rather than the softer, relational elements of service.

The enablement of service via relationships and relationships via people and behaviour-guiding processes opens an enhanced line of inquiry into process development. Through a relational lens, new insights emerge in the contrast of product versus solutions development. Relational processes seem to add something different to solutions work that pairs the variability and uniqueness of each customer's problem with the evolving design, selection and modification phases required to reach solutions. Internal stakeholders, as the competent enactors of design, selection and modification processes while provisioning solutions are intertwined in relational processes with customers and each other. In contrast to prescribed stages of mass-produced product and product-focused service development, the literature suggests that an ad hoc sense of development applies to solutions. For working well together, the solutions literature suggests that stakeholders ought to be flexible and responsive actors while applying their competencies through processes, and measuring the service quality suggested by flexibility and responsiveness. Yet, as knowledge and resources are exchanged across functions and units through relational processes to produce product-service solutions within the company, there are few explicit measures or dimensions to help evaluate relational or service quality. For internal solutions stakeholders at Phoenix Contact USA, the troubles with responsible yet flexible interactions between individual internal stakeholders in different units seems to unfold within contextualized and shifting service demands brought on by solutions. These demands, in turn, are brought on by the demand for a broader, organizational solutions integration capability.

From an S-D logic perspective, measures and processes suggest a contribution of knowledge as an operant resource that might enable internal stakeholders to act upon product quality issues. Explicit and specified quality measures prescribed by written processes enable quality management as stakeholders are prompted to spot product quality issues when measures fall outside of specified tolerances, then take corrective action. However, in their experience of servitization, internal stakeholders lack an explicit, measured understanding of quality phenomena linked to relational processes that accompany solutions. Within the transitioning solutions context at Phoenix Contact USA, a mutual understanding of relational processes and corresponding quality measures seems to resist being fully part of, or accompanying to some degree, internal stakeholders' experience of this transition. A confusing and unfamiliar sense of how quality linked to relational processes might be measured and discussed internally also seems to be part of addressing unique customer solutions as they unfold through time. In other words, relational processes and linked quality measures represent change to the existing understandings about the ways and means (i.e. the current cultural norms) supporting well established, product-oriented quality currently coupled to written processes - the cultural artefacts documenting stakeholders' process-oriented understandings. However, enhancing cultural sensibilities may also change climate by uncovering tacit stocks of knowledge, surfacing particulars, and deconstructing organizational language paradigms (Weick and Quinn, 1999). The focal concern of this AR addresses the need to identify relational processes and their corresponding quality measures, and, subsequently, apply them as new, actionable knowledge through interaction among internal stakeholders as well as the formal system of the company (e.g. written documents).

From the literature, enhancements of measured service quality are achieved through a managed improvement of dynamic, relational, interactive processes in service encounters between stakeholders (Svensson, 2001). In the development of integrated solutions, qualitative analysis reveals how success depends upon relationship strength between stakeholders and impact upon pre-existing internal processes and activities (Windahl and Lakemond, 2006). However, within process improvement and associated metrics, there seems to be a constant tension between the needs for flexibility versus the constraints of processes and resources spent capturing measures

(Weitlaner and Kohlbacher, 2015). This suggests that, from the perspective of internal stakeholders involved in relational processes, measures like trust or responsiveness may be useful, or constraining, or a mixture of both. S-D logic offers a critical insight for understanding this dynamic tension concerning resources spent to capture measures, or measures viewed as resources that are useful for management. Viewed through an S-D lens, available internal resources may be seen as resistances until resources are integrated with other resources in the organization (Lusch, Vargo and O'Brien, 2007).

Additional reflections prompt insights from my combined perspective as a company leader and researcher. The literature bolsters a critical comparison of fundamental renewal applied to processes and responsibilities for inner engagement and teamwork through BPM (Schmiedel, vom Brocke and Recker, 2013) versus the ways internal stakeholders live out the company's espoused values - values embracing processes, innovation and partnership (Phoenix Contact, no date a, no date b) in interactions to provision solutions. Similar, literature-based reflections shed critical light on the management of service climate by integrating cross-functionally, shaping interpersonal skills and raising the importance of intangibles (Bowen, Siehl and Schneider, 1989). These views concerning cross-functional integration, skills, intangibles and relations inform my sense of intervention as an executive and scholar-practitioner in this action research. Considering the potential for reorienting service climate to mirror the company's servitization strategy, perspectives also converge to help frame how internal stakeholders' processes may change through servitization. When considered strategically, the literature reveals a longer-term perspective for facilitating servitization through organizational change. Yet, this organizational change is enacted and experienced by internal stakeholders. Concerning Phoenix Contact's solutions management approach, this suggests that the managerial timing of process and competence development is also open to critical inquiry.

Reflections on my executive role also inform my play in servitization and our solutions strategy as well as the contributions I make to a service climate supportive of solutions. My insights shed critical light on how relational solutions processes may affect internal stakeholders' competences as well as management of these competencies intertwined with measures that touch upon service quality as a part of solutions. Reflecting upon service in solutions, service definitions suggest internal stakeholders form the essence of service (Edvardsson, Larsson and Setterlind, 1997; Kandampully, 1998). In an insider action research context that acknowledges my role as scholar-practitioner, these insights inform my approach to surfacing knowledge about internal stakeholders' experience of solutions to inform our solutions competencies.

My critical reflections also inform my sense of action as an executive and scholar-practitioner. Both resources and the motivation to commit resources appear critical in the company's push toward solutions. Through AR, I intend to scaffold my intervention by envisioning internal stakeholders through the lens of S-D logic, framing us as operant resources. Framed as operant resources, internal stakeholders may be dynamically involved, offering their voices to simultaneously affect and be affected by the company's transition through servitization. However, in this dynamic, some competencies seem obscure. At the level of stakeholders, development of solutions-oriented competencies is informed by solutions co-creation among networks. Convincing, involving and earning the commitment of other actors are complex interaction processes that require competencies among internal solutions stakeholders (Windahl and Lakemond, 2006). As part of our solutions and partnership context, such competencies may be taken as the skills, knowledge and tools for understanding and using the relational processes accompanying solutions as well as distinct quality measures perceived in these processes. Outside of the blame and finger-pointing, there seems to be little sense or expression of relational processes or perceived quality among internal stakeholders as their internal service experiences unfold in the provisioning of solutions. Gaps in the perceived versus desired quality of internal service relationships may appear, but the dimensions or measures of this quality seem obscure and unmanaged.

The company's written processes evince an accepted approach to reasoning and thinking about both products *and* solutions, despite the likeness of these processes to predictable and efficient "special cases" as suggested S-D logic. Yet, relational processes and quality measures surfaced through research may be useful among internal stakeholders across units as terms and topics for evaluation and feedback. While used for feedback, the literature suggests that relational processes and quality measures may serve as a technology to prompt double-loop learning and second-order change. Amid servitization strategy, overcoming resource constraints and structural problems depends upon second-order changes and learning (Gebauer and Friedli, 2005). Across units within firms, learning involves searching for feedback and deriving inferences about cause-effect relationships that may lead to confirmation of existing models of reasoning (single-loop learning), or disconfirmation and eventual replacement of models (double-loop learning) (Volberda and Lewin, 2003). The capability of reflecting effectively on actions and motivations involves the adoption of double-loop learning, and double-loop feedback and learning correlates with strategy, structure, and goals (Barton, Stephens and Haslett, 2009). Further, to sustain change as operant resources, employees must accommodate learning and using future knowledge to respond to internal developments (Conner and Prahalad, 1996; Lusch, Vargo and O'Brien, 2007).

The intervention proposed by this action research addresses how knowledge of relational processes and quality measures associated with solutions may be made explicit and tangible, thus comprehensible and actionable. Such understanding delves into the relational processes that enable the provision of solutions and the quality measures internal stakeholders may use to discuss their internal service experiences. In addition, as co-participants in action research, colleagues at work hold responsibility for, and may benefit from, learning as a research outcome. For learning and intervention, relational processes along with quality measures may apply as new technologies or operant resources for evaluating and enabling future experiences with solutions. The question explored for understanding in this action research is intended to enable learning and intervention as the company undergoes servitization through solutions:

> What are the relational processes and corresponding quality measures that enable the process of servitization for internal stakeholders?

For the sake of developing new knowledge, the question guiding this action research solidified as my reading and reflection informed the sense of how process and quality problems are intertwined with the services introduced by solutions. Through reflection, the theory presented in the reading helped scaffold my research, complementing my problematization of, and approach to, a workplace-based issue at the centre of this AR. The extent to which quality measures are intertwined with contextual and customer-specific solutions development through relational processes, as well as the usefulness of this knowledge, is open to inquiry and action.

CHAPTER 3 RESEARCH DESIGN AND METHODOLOGY

3.1 Research Paradigm

This research begins with my pre-understanding of change happening at my employer, Phoenix Contact USA, and my place as an insider, executive and manager among fellow stakeholders at work. Context for this research also encompasses my role as scholar among a community of fellow, interested scholars. The research journey is therefore aligned with my intent to address the interests of several parties. For employees (including myself), this research was intended to surface actionable knowledge to address workplace-based issues linked to the provision of solutions. These issues intertwined with our experiences as internal stakeholders and implementers of the company's servitization strategy. For scholars and interested third-parties, this research is offered: 1) as findings and insights rigorously produced in the conceptual light shed by the literature, and 2) to shed additional light upon servitization as change affecting a company's internal stakeholders charged with producing solutions. Steps taken in my journey to produce this thesis and actionable knowledge in answer the research question reflects change in the company that affected my work-life and experience as scholar-practitioner as well as the work lives and experiences of fellow employees.

While solutions involve the interaction of many internal stakeholders, insights from the literature blend with my acceptance of internal stakeholders' individual experiences of their involvement. Nonetheless, stakeholders reference things held in common like processes and measures. Processes and measures are used, in turn, for discussing a culturally supported sense of quality. As a company insider, my reflections on issues surrounding processes and measures derive from perspectives akin to critical realism. This ontology recognizes that, although influenced by human activity, some things may exist and reflect reality somewhat independently, and that "knowledge entails *both* social construction and the transactions of human knowers with an independent reality" (Johnson and Duberley, 2000, p. 150). Through the lens of critical realism, processes and measures may be pliable through language, but not infinitely so. While the ontological orientations of critical realism align with these personal sensibilities, it also features *empirical* and *actual* domains resonating with this study. In critical realism, the *empirical* domain encompasses experiences and perceptions, yet co-exists with an *actual* domain of actions taking place regardless of being observed or detected (Bhaskar, 2008; Easterby-Smith, Thorpe and Jackson, 2012).

Through stakeholders' many diverse expressions of solutions experience, the question guiding this research is intended to surface relational processes and quality measures that may be otherwise undiscerned or underappreciated. However, critical realism also acknowledges the role of discourse to influence how reality is apprehended and, by implication, thought and behaviour (Bhaskar, 2008). A central issue of critical realism is the active role of human agents, but with reference to their interactions with an external reality that may facilitate or constrain human action (Johnson and Duberley, 2000). Once discerned, relational processes and quality measures may become useful as elements of discourse or referents useful for influencing how internal stakeholders may apprehend reality and by implication their thinking and behaviour. Alternately, framed as social objects, processes and measures may serve as the proper objects of study and discourse. Social objects, as generalized tendencies particularized in the specific situations and moments in which actors find themselves, may also prompt imperfect interaction processes since they exist only in human experience (Stacey, 2011). For my research, this perspective suggests a pragmatic argument commensurate with critical realism whereby truth may be “out there”, but lacking the necessary linguistic means, we may otherwise have no way of apprehending or taking action upon it. As social objects and common referents, an expression of relational processes and quality measures may offer such linguistic means to discussing solutions related issues.

Pragmatic-critical realism also posits knowledge as enabling, giving those with knowledge a capability or “an ability to anticipate the consequences of manipulating things in the world” (Johnson and Duberley, 2000, p. 159). A capability for anticipating consequences aligns with the purpose and pragmatic intervention proposed by this action research. Informed by my work-life experience, various processes and quality measures are useful for discussion and for sharing knowledge among internal stakeholders. As terms and language, processes and quality measures serve as common referents and linguistic tools that enable discussion. However, the relevance of critical realism within management research orients to the production of knowledge that is relevant to understanding *and* improving the world by some criteria, and the acknowledgement of stakeholders in the production and consumption of this improvement (Burgoyne cited Thorpe and Holt, 2008). While processes and quality measures serve as common referents, they can also be added to discussion or changed through a process of joint discussion and judgement about anticipated consequences. Once judged, internal stakeholders may agree to take action and pursue the anticipated consequences. Once in place, the adequacy of any particular process may also come into question, prompting discussion about it and manipulation of it if it fails to do what is expected. Similarly, as quality measures are put into use, they may be perceived as changeable consequences. As consequences, measured qualities may be changeable through more viable interactions or the manipulation of processes. As action, this manipulation may lead to further consequences. In other words, what can be measured can be managed. For this study, the exploration and discovery of relational processes and quality measures as new, actionable knowledge is intended to enable internal stakeholders to anticipate the consequences of manipulating their own relational processes and evaluating the qualities linked to them.

3.2 Insider Research Context and Methods

While enabling my research for this thesis and interested scholars, methods also enabled action as change through intervention into a workplace-based issue. This issue linked to the interactions of internal stakeholders charged with implementing the company's sevitization strategy through solutions. Researchers contemplating the use of action research adopt it through endeavours aimed at processes of change and improvement by bringing theory and practice together (Easterby-Smith, Thorpe and Jackson, 2012). As engaged and informed insiders, action researchers also account for their pre-understanding of the research topic and setting. Insider action research (IAR) is therefore viewed as a holistic and contextually bound process wherein the inquiry processes and mechanisms are likely influenced by a pre-understanding of the business and its dynamics (Roth, Shani and Leary, 2007). As methodology, IAR involves change experiments on real organizational problems and intends a simultaneous contribution of basic knowledge for the academy as well as actionable knowledge for the organization and social action in everyday life (Björkman and Sundgren, 2005).

However, as a stream of collaborative research, IAR cannot be classified as one single methodology and may include a range of inquiry approaches and methods (Reason and Bradbury, 2001). Rather, action researchers follow where problems take them while learning theories, methods and processes as needed along the way (Brydon-Miller, Greenwood and Maguire, 2003). This action research pursued actionable knowledge for intervention by first seeking a method to answer the research question: What are the relational processes and corresponding quality measures that enable the process of servitization for internal stakeholders? Informed by the literature, the question was addressed by first considering the context of servitization through solutions as a lens for inquiry. This inquiry focused on the troubled interactions of internal stakeholders viewed as operant resources. As operant resources, this study acknowledged internal stakeholders as actors acting and being acted upon through relationships and processes at the locus of inquiry (see chapter 1, figure 5). An appropriate method surfaced from the literature by problematizing and asking why, what and how to study internal stakeholders working under the holdings umbrella of Phoenix Contact USA, yet coping in the space "in between" two units - the US Subsidiary and the D&M Company. Similar questions were applied to discover how a method might be useful in an IAR context to generate practical and actionable findings for internal stakeholders, including myself as researcher.

3.2.1 Why Study Internal Stakeholders in a Solutions-Producing Context

This action research pursued a pragmatic intent to surface knowledge as an enabler of capabilities. In capability assessments, units of analysis like relevant processes and performance gauged in terms of valued outcomes like quality service may be used (Day, 1994). Within a solutions-producing context that combines services with products, the literature suggests some practical reasons for studying internal stakeholders that embody capabilities. Internal stakeholders represent a perspective within in the context of service encounters (Tax, McCutcheon and Wilkinson, 2013). As the perception of service operations are affected by mutual co-creation processes, a broadened sense of customer experience makes perceptions among all actors in solutions co-creation worthy of study (Hakanen and Jaakkola, 2012). However, internal service provides employees the capability to serve customers through the actions of other employees (Hallowell, Schlesinger and Zornitsky, 1996; Ehrhart *et al.*, 2011). This suggests that, within a solutions context, a broadened sense of experience linked to service might also consider how internal stakeholders engage one another with service while servicing customers through solutions.

From the perspective of S-D logic, individual service experiences link conceptually to value co-creation through the integration of resources. This linkage underscores the interactivity of integration as it is undertaken by individuals as the beneficiaries of value (Vargo cited in Jaakkola, Helkkula and Aarikka-Stenroos, 2015). In a solutions context, value propositions effectively connect an evolution toward more integration of the value chain with the elements that make up the solution offering (Cova and Salle, 2008). Alternately, solutions and their provisioning may be thought of as summing the value of products, services and operational integration (Sawhney, 2006). This suggests that solutions' value may include the individual, internal level of relational and service experience as additive, operational terms summing to solutions.

3.2.2 What to Study Among Internal Stakeholders

In managing business contexts involving service processes, measurability remains a central problem and a field offering "huge research potential" (Weitlaner and Kohlbacher, 2015, p. 56). Yet, services may be studied from perspectives that account for particular value sources that include both service providers and customers (Lepak, Smith and Taylor, 2007; Payne, Storbacka and Frow, 2008). The literature also expands the sense of what service stakeholders do and consider as valuable. As part of co-created experience, stakeholders co-create value by exchanging resources and competencies directly; making the determination of value contextual and individual since unique actors enact unique, reciprocal links among one another (Chandler and Vargo, 2011). These individual and contextual understandings of value recognize a lived and performed sense of value realization (Schau cited in Jaakkola, Helkkula and Aarikka-Stenroos, 2015). That is, stakeholders integrate by blending life with service experiences to enhance their quality of life (Lusch, Vargo and O'Brien, 2007). In the blend of life and service experiences, relationship quality has been measured as an outcome of service experience (Aurier and Siadou-Martin, 2007). Further, the literature suggests that relational qualities precede and cultivate value creation and that a variety of relationship qualities account for the relationships between service stakeholders (De Wulf, Odekerken-Schroder and Iacobucci, 2001; Hennig-Thurau, Gwinner and Gremler, 2002; Ulaga and Eggert, 2006; López Sánchez, Santos Vijande and Trespalacios Gutiérrez, 2010).

This study works from a pre-understanding of processes and quality as culturally and individually valued for producing solutions at Phoenix Contact USA. As noted by Parasuraman (1987), "An organization's culture is not unlike an individual's personality; before accomplishing a desired change, one must first understand the status quo" (p. 44). However, the hardcopy of written solutions processes seems to diverge from the sense of softer relational processes that may be used but unwritten by stakeholders to provision solutions together. Within Phoenix Contact, issues intertwined with solutions are experienced as part of cross-functioning operations as internal stakeholders work to produce solutions for customers. Considering internal service viewed as employees enabling the capabilities of one another to serve customers, the nature of these internal service interactions may be clarified by considering how the content of service experience is subjective and individual-specific. Here, the literature reveals how service triggered by interpersonal interactions may be viewed as uniquely and phenomenologically understood and judged by a service beneficiary (Vargo and Lusch, 2008; Helkkula, 2011; Jaakkola, Helkkula and Aarikka-Stenroos, 2015). Servitization, service, and process researchers have also produced phenomenological understanding about: 1) relational quality (Kandampully, 1998), 2) process initiatives as phenomenological within organizational transformations (Edwards, Braganza and Lambert, 2000), 3) formalization processes that name and render explicit otherwise implicit service elements (Gallouj and Weinstein, 1997), and 4) servitization perspectives on the competencies and interactions required for solutions integration (Helkkula, 2011). To produce phenomenological characterizations of service experience, several authors endorse the view that internal service providers are co-experiencers of service and may be the subject of service experience studies (Arnould and Price, 1993; Millard, 2006; Berry and Carbone, 2007; Mosley, 2007; O'Donohoe and Turley, 2007).

3.2.3 How to Study Internal Stakeholders

Actionable knowledge sought in this study concerns processes and quality as phenomena that are culturally and individually valued by internal stakeholders at the company. This study views internal stakeholders as experiencers and beneficiaries of internal service processes that influence the quality they perceive about their lived work experiences. In studies directed at service quality, the literature suggests that issues involving assessment and evaluative criteria are worthy of investigation (Parasuraman, 1998). However, regarding perceptions of service quality, the complexity of interactions across inter-organizational relationships may limit service insights derived from survey instruments (Zolkiewski *et al.*, 2007). Gummesson (2006) argues that the inherent contextuality of social realities in contemporary management research favours qualitative methods that account for interrelations and shed light on complexities and ambiguities otherwise hidden in quantitative studies. Hence, there is a need for both "conceptual and methodological models enabling a more dynamic and holistic analysis of business relationships" (Andersson-Cederholm and Gyimóthy, 2010, p. 269). Further, inward facing service operations research draws upon semi-structured interviews and qualitative methods for investigating context, processes, limitations, and how people cope with change (Jevnaker, Tellefsen and Lüders, 2015). Research questions touching upon service experience require rich accounts and data to analyse the full complexity of co-created experience (Jaakkola, Helkkula and Aarikka-Stenroos, 2015; Jevnaker, Tellefsen and Lüders, 2015).

Just as S-D logic serves as a theoretical scaffold to sevitization research (Rabetino *et al.*, 2018), a premise of S-D logic claims value as idiosyncratic, meaning laden, experiential and "always uniquely and phenomenologically determined by the beneficiary" (Vargo and Lusch, 2008, p. 7). However, in research adopting interpretive approaches, the content of service experience phenomena may be assumed as individually and situationally specific while acknowledging interpersonal interaction as an important trigger (Helkkula, 2011). This means that service experiences are not only individual and subjective, but also relational and social (Pullman and Gross, 2004; Helkkula, 2011). As suggested by the literature, service quality may be perceived in the attitudes and behaviour of servicing personnel as well as the quality of processes used to deliver service (LeBlanc and Nguyen, 1988). Further, phenomenological characterizations of service experiences may draw upon them as a "…primarily subjective state of consciousness with a variety of symbolic meanings…and aesthetic criteria" (Holbrook and Hirschman, 1982, p. 132). While focused on individuals, this study takes an interpretative approach to study relational processes and quality measures viewed as phenomena - the objects of individuals' perceptions about their experiences. For this study, inquiry and data were drawn from internal solutions stakeholders' individual experiences of interactions with one another, then explored and evaluated to shed light on relational processes and quality measures (figure 6).

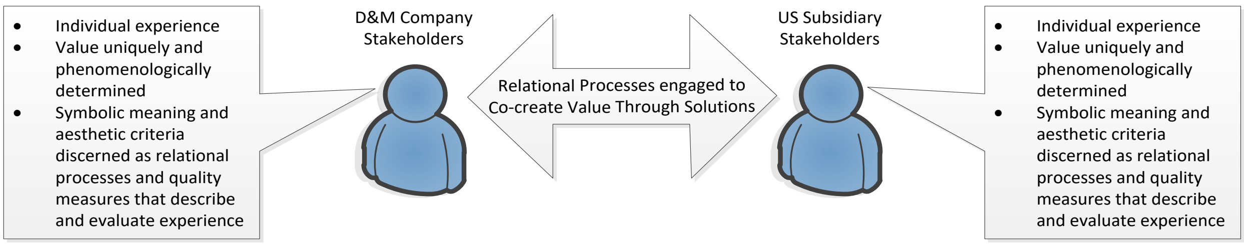

Figure 6
Drawing upon Individual Experiences of Interactions Between Internal Stakeholders

3.3 Methodology Chosen for this Research

Methodology chosen for this research reflects research aims for creating actionable knowledge, useful for addressing the relational issues experienced by internal stakeholders creating solutions together in teams of cross-functioning employees. Therefore, methodological choices in this research were justified according to the pragmatic purposes of the research and their fit to the practicalities of researching and acting within a workplace context. This context combined: 1) a real workplace-based issue experienced between internal stakeholders, 2) a single company with few individual stakeholders that could offer data about their experiences, 3) the researcher's intent to create actionable knowledge for stakeholders while attending to his biases as an executive and insider, 4) ways and means of co-participating with key stakeholders in the analysis of experiential data to create actionable knowledge, and 5) methods for sharing and exploring analytical insights as actionable knowledge with internal stakeholders. Methodological approaches were chosen to align with these contextual criteria and included action research paired with phenomenology.

Action research may be viewed as living inquiry aimed at practical knowing through collaborative problem-solving relationships intent upon generating new knowledge and solving problems (Coghlan and Brannick, 2014). As methodology to approach this research, phenomenology served as a means for creating new knowledge based upon the experiences of internal stakeholders. This knowledge was then used to inform action addressing a workplace-based issue involving internal stakeholders. Through phenomenology, "One can strengthen the intimacy of the relation between knowledge and action by re-instating lived experience itself as a valid basis for practical action" (Van Manen, 1990, p. 155). How phenomenology might apply then draws upon its usefulness for informing practice (Creswell, 2013) while "anchored in the life-world and understood as a description of the natural attitude" (Belvedere, 2007, p. 7).

Through phenomenological analysis, the meaning of experience becomes the challenge whereas the qualities of experience become the focus (Moustakas, 1999). As noted: 1) quality linked to service may be perceived in the attitudes and behaviour of servicing personnel as well as the quality of processes used to deliver service (LeBlanc and Nguyen, 1988), and 2) phenomenological analyses of service experiences may characterize them with symbolic meanings and aesthetic criteria (Holbrook and Hirschman, 1982). To researchers using phenomenology as method, the symbols within stories "are as 'real' as tables and chairs and equally valid as a source of data for researchers" (Thorpe and Holt, 2008, p. 152). In this study, internal stakeholders' experiences were explored to shed light on relational processes engaged while provisioning solutions with one another, and the corresponding quality measures they perceived in these relational processes. Distinct quality measures were used as terms to characterize the quality internal stakeholders perceived as inherent features emerging from their experiences with active relational processes. Further, "relational processes" and "quality measures" were assumed as categories of symbolic meanings and aesthetic criteria of service experience that could be explored and discerned from the expressions of individual internal stakeholders. By using what internal stakeholders said about their service experiences with one another, this study drew upon a qualitative sense of internal services as phenomena that could be characterized with terms within these two categories.

However, phenomenology also acknowledges that the expressions of experience used as data for analysis may be drawn from few internal stakeholders as interviewees. The sense of validation that informs quantitative generalizations, vis-à-vis external validity as an evaluative criterion, is an external concept not belonging to phenomenology (Englander, 2012; Van Manen, 2014). Questions of generalizability and representativeness that are addressed quantitatively by asking "How much?" or "How many?" to start are replaced by asking "Do you have the experience that I am looking for?" and "What is it like?" (Englander, 2012, p. 19). Adding sense to a reasonable selection of participants, Van Mannen (2014) reframes "samples" into "examples" of rich experiential descriptions that come from individuals capable of expressing their experiences. For this research, an affirmation of experience was initiated through a snowball sampling process within the company as described in section 3.5 below. Just as sampling occurred within the context and confines of Phoenix Contact USA, Section 3.5.1 discusses how the sense of internal validity was accommodated within this context.

Phenomenology also aligned with the norms of action research to address the researcher's personal biases as insider and executive. Action research asks researchers to account for and suppress their pre-understandings before projects as alternative interpretations are likely to emerge during projects (Easterby-Smith, Thorpe and Jackson, 2012). Phenomenology supports this research discipline and suggests establishing a freedom from suppositions or "epoche" by first identifying and actively setting aside multiple "pre's" including presumptions, predilections and preconceived ideas about things (Moustakas, 1999; Van Manen, 2014). This setting aside activity, also known as bracketing, happens prior to phenomenological analysis. Sections 3.8 and 4.1 of this study discuss the steps taken by the researcher to reflect upon, express then bracket his personal biases prior to analysis. However, in the progress and rigour of creating new actionable knowledge, action researchers are admonished to affirm the "what" and "how" of knowledge and knowing through the attention paid to experience, understanding and judgement that leads to action (Coghlan and Brannick, 2014). Within this research, this attention is expressed in the narrative of section 4.2 through chapter 5.

Finally, considering the practicalities of this study, methodologies used in the development of new knowledge linked to useful methods for making knowledge accessible for co-participation in analysis and informative of action. For this study, the methods applied by the researcher included thematic analysis to identify, analyse and express thematic patterns within interview data and interpret various aspects of the data (King, 2004; Braun and Clarke, 2006). As a complement to thematic analysis, template analysis aids in the discovery of underlying causes of human phenomena and in the production of themes (King, 2016). In the progress of this action research, a template matrix eventually provided a flexible space for ethical co-participation in analysis as well as the presentation and discussion of findings emerging from analysis of the interview transcripts. The next chapter accounts for the usefulness of the template matrix early in the researcher's analysis and later in the co-participatory analysis and evaluation performed with key internal stakeholders. In addition, matrices were used to express findings and bring them into action through dialog with internal stakeholders. Matrices offer a flexible means for accessing qualitative data that ranges in detail from in-depth comparative analyses to general descriptions (Nadin and Cassell, 2004). Further, by operating at different levels of detail, both template and matrix analysis may complement and overcome the weaknesses of the other – namely too much versus too little detail (Nadin and Cassell, 2004). For this study, chapter 4 begins the narrative describing when and how a matrix was configured as an accessible artefact and expression of findings that were useful for bridging analytical findings to actionable knowledge for decision-making and intervention.

3.3.1 How Phenomena are Found and How Findings are Useful as Knowledge

While solutions co-creation forms an experience that is shared among internal stakeholders, this study seeks meanings of this co-creation as a shared phenomenon. In qualitative studies, phenomenology is a method of explaining meaning by looking into experiencing subjects' direct awareness of phenomena (Thorpe and Holt, 2008) and offering a description of "what" they experienced and "how" they experienced it (Creswell, 2013). From the perspective of phenomenology, consciousness is always directed toward an object, the reality of which is inextricably related to a subject's consciousness of it (Steward and Mickunas, 1990 cited in Creswell, 2013). The concern of a researcher's analysis therefore is "not whether things or objects actually exist, but whether these are intended in consciousness" (Thorpe and Holt, 2008, p. 152). Descriptions of what was experienced and how it was experienced thus form the "meaning acts" (Thorpe and Holt, 2008, p. 152) or "meaning units" (Creswell, 2013, p.79) that summarize the essence of experience. Practically, this identification of "what" and "how" to summarize the essence of experience is important to my understanding the troublesome behaviour (i.e. blaming and finger-pointing) observed among internal stakeholders in this IAR. For critical realists, observable behaviour is not explicable unless located in the context of essences and their interactions, and descriptions of phenomena can be used to move onto descriptions of mechanisms that produce phenomena or are the conditions for it (Johnson and Duberley, 2000).

Within this study, phenomenology was chosen as a qualitative method to delve into internal stakeholders' solutions experiences and to uncover and explore phenomena by using relational processes and quality measures as mechanisms and units of meaning to describe the "what" and "how" of solutions experience. This life-world link of phenomenology to everyday relationships, practices, and their improvement is especially relevant to action research (Ladkin, 2005). Servitization research produces case studies purposed for both the "inductive" production of theory as well as the "deductive" demonstration of theory adoption (Baines, Lightfoot, Benedettini, *et al.*, 2009). Considering S-D logic as a scaffold to servitization studies (Rabetino *et al.*, 2018), and S-D logic's premise on value as "uniquely and phenomenologically determined" (Vargo and Lusch, 2008, p. 7), phenomenology was chosen to infer a "theory of the unique" (Van Manen, 1990, p. 155) about internal stakeholders experiences amid servitization. This theory was purposeful and intended to enable practical action - producing knowledge from analysis of internal stakeholders' experiences then sharing this knowledge as a basis for action with internal stakeholders.

Within servitization contexts, service concepts and language may not be widespread among practitioners, requiring techniques to assuage theory-practice disparities (Baines *et al.*, 2017). Servitization research into performance measurement may ask "What?" questions to identify measures applied in the delivery of advanced services (Baines and Lightfoot, 2014). As a method applied in this research, phenomenology was intended to shed light upon *what* measures of quality linked to relational processes may be discerned from the lived experience of solutions provisioning stakeholders. In the process of phenomenological analysis, thematic structures help form the eidos or “whatness” (Van Manen, 2014, p. 228) of experience. A life-world perspective emerges through eidetic reduction in phenomenology as a process applied to surface thematic patterns of meaning or “the internal meaning structures of lived experience” (Van Manen, 2014, p. 229). This suggests that phenomenology may serve as a method and an element of an action research process by first addressing the question: “What are the relational processes and corresponding quality measures…?” Linking to action research, the usefulness of phenomenology unfolds through its conception of knowing things objectively through otherwise subjective knowing (Ladkin, 2005). Answers to the “What…?” question are intended to make the otherwise subjective knowing of internal stakeholders objective by discerning and making explicit their relational processes and quality measures as useful language, terms and concepts.

The servitization literature recommends research concerning measures that touch upon employee satisfaction and business successes to foster a well-functioning service organization and “fine-tune the organization…thereby creating credibility inside the organization” (Oliva and Kallenberg, 2003, p. 167). This research links to the researcher’s intent to produce findings about quality measures and relational processes as credible knowledge by using phenomenology as method. As method, phenomenology offered a means for unpacking the relational processes and quality measures intertwined within the experiences of individual internal stakeholders. For this research, these experiences offered data for understanding the relational processes and quality measures applied to provision solutions. However, this research also addressed a workplace-based issue concerning internal stakeholders troubled by solutions. Key to this research was an understanding of what relational processes and quality measures emerge through servitization toward solutions and how this knowledge was useful for intervening with internal stakeholders struggling with their joint provision of solutions.

In servitization contexts, action research is recognized as a means of assuring that other methodologies can be applied in practice (Dimache and Roche, 2013; Rabetino *et al.*, 2018). Findings concerning relational processes and quality measures surfaced as new knowledge through phenomenological analysis of internal stakeholders’ experience with solutions. To make this knowledge actionable, pathways to intervention were suggested by action research theory. To facilitate action, AR accounts for experience as an operation of human cognition that leads to understanding, judgement and action through the process of human knowing (Coghlan and Brannick, 2014). AR theory also attends to the quality of relationships managed through common language as well as context set by individual and shared goals (Shani and Pasmore, 2010 cited in

Coghlan and Brannick, 2014). Combined, these insights suggested useful means of assuring that findings produced through analysis of experience also represented actionable knowledge, useful for practice in a servitization context. The application of findings produced through analysis linked to the use of them as new knowledge expressed in the language of "processes" and "quality" to fit the company context. However, this knowledge was "new" in the sense that it linked processes and quality to relationships, and "actionable" in the sense it was shared with internal stakeholders to facilitate intervention. In intervention with internal stakeholders, findings were actionable as topics for discussion about changing or "fine-tuning" their otherwise stressed relationships with one another. In other words, analytical findings to the "What?" question about relational processes and quality measures were put to the test. This test concerned how new, objective understandings about otherwise subjective experiences, framed as relational processes and quality measures, applied in practice as actionable knowledge for intervention.

3.4 Ethics and Research Approval

Approval to proceed with this study was secured via signed letter from the President of Phoenix Contact USA on 7 October 2016 (Appendix A). Thereafter, approval was received from the University of Liverpool – DBA Ethics Committee on 19 December 2016 (Appendix B).

Including myself, answers to how stakeholders may attend to ethical linkages through this research surface by considering relational processes and quality measures as new forms of relational knowledge. In knowledge generated through AR, Eikeland (2007) notes how the ethical aspects of different relational knowledge-forms become obvious once these knowledge-forms are implanted among people. As part of AR, researchers may also reference Rowan's (2000) concentric circles as a framework for thinking about the quality of relationships and as ethical arenas for research and inquiry (Coghlan and Brannick, 2014). Among the innermost circles is human inquiry captured by phenomenology. This arena emphasizes empathy, trust, and non-exploitive relationships (Rowan, 2000). Thereafter, a larger circle forms "the arena of action research" (Coghlan and Brannick, 2014, p. 146) and encompasses participants in research planning and results processing.

Together, these insights suggested an approach to ethical tactics and behaviour applied in the research methods while drawing upon a sense of quality as an element of relational understanding. With Rowan's (2000) circular presentation envisioned as research arenas (figure 7), ethical tactics in this research were applied while acting through the intersection of two arenas: First, in

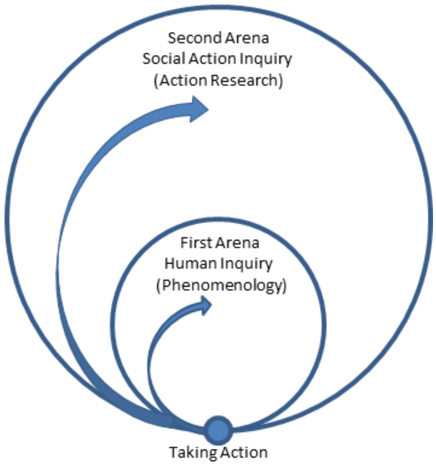

Figure 7
Taking Action in Ethical Arenas from Phenomenology to AR
Adapted from Rowan (2000) and Coghlan and Brannick (2014)

phenomenology used as an approach to understand the experience of internal stakeholders. Next, in applying the discoveries of the first in an action research approach to intervention with groups of internal stakeholders. This had different ethical meanings informing my actions as the researcher. In the first arena, this meant drawing upon the experiences of internal stakeholders for phenomenological findings and insights while ensuring their anonymity as interviewees. In the second arena, this meant preserving interviewee anonymity while sharing phenomenological findings and insights for action among groups of internal stakeholders in workshops.

3.4.1 Informed Consent, Risk and Voluntary Participation

Tactics forming an ethical approach to interviews derived from a research scope limited to the employees of Phoenix Contact USA. Ethical considerations were applied in the planning, consent and performance of semi-structured interviews with internal stakeholders.

Information was provided to allow participants to make an informed decision regarding their participation. Consent forms were accompanied by a written explanation of the research through an information sheet and one-on-one communications (Appendix D, E, F). Placed within the solutions context at work, the information sheet clarified why stakeholders receiving it were asked to participate; either through information present in written solutions processes, or by recommendation from other solutions stakeholders.

Both written and verbal communications made clear that any participation was entirely voluntary. This was supplemented by a statement that declining participation bore no disadvantage to any participant choosing to do so. Psychological, career or physical risks of participation to interviewee-stakeholders were made clear in information and consent forms. Information sheets and discussions also made clear that interviews could last from sixty to ninety minutes. While there would be no compensation or reimbursements for interviews, information sheets mentioned that light refreshments would be made available.

As standard procedure, consent forms were secured for this research. All interviewees offered written consent prior to interviews by signing consent forms. As good practice, verbal consent was recorded to confirm consent just prior to interviews.

During interview questioning, it was not inferred nor asked that employees disclose legal violations or forego any legal rights. However, the information document also made clear that any legal risks would be weighed against the company's stated policies regarding conduct and code of ethics. These demand that all employees conform to legal standards and abide by the law. Following the advice of our in-house legal counsel, information sheets also included an indemnity statement. To enhance the comfort of participants, this statement made clear that any liabilities for adverse outcomes prompted by the research belong entirely to me as the researcher.

Finally, in the event that interviewees were unhappy for any reason, the research information sheet offered several points of contact (e-mail and phone numbers) to express their concerns. These points of contact included me as the primary researcher as well as the Research Governance Officer and the Research Participant Advocate at the University of Liverpool.

3.4.2 Confidentiality and Anonymity of Research Participants

Procedures for securing interviews and collecting and transferring data were applied to protect the identity of interviewees and ensure anonymity. To ensure privacy, interviews were conducted one-on-one in closed and secure meeting rooms on the Phoenix Contact USA campus (see Appendix G). During interviews, some role data was gathered to provide a sense of whether interviewees' experiences were of process owners or stakeholders. However, risks of participant identities (names and contact numbers) being indirectly or unintentionally exposed, or of readers deducing participant identities, was minimized as these process ownership or stakeholder roles are not unique.

To preserve anonymity, records of interviewee names or contact information were not stored or written in the research record or outputs required for this research. It was not necessary for this research to indicate the experiences of particular named individuals. File names of interview transcripts were coded such that interviewee identities do not appear in the document names of final, digitized transcripts. Digitized transcripts were also password protected for added access security. Once interviews were recorded and transcribed, transcript contents were made available for review and comment only to the interviewees whose comments appeared in the transcripts. This allowed interviewees a quality check for an accurate representation of their perceptions. Individual transcripts were sent to interviewees through secure company e-mail using confidential delivery options to prevent copying and forwarding. All company computers and e-mail accounts are password protected according to company policy. Personal e-mail addresses were not used. For access to digitized transcripts, passwords were given to interviewees verbally. Transcripts with mark-ups were returned to me as the researcher using the same secure e-mail procedures, or as hard copies with handwritten mark-ups. The final, marked-up transcripts where then used for analysis.

No quotations have been used or references made to specific solutions or competencies that may be associated with particular interviewees. Quotations used in this research are published in the context of solutions, processes, competencies and qualities experienced and expressed by internal stakeholders while co-participants in the analysis during action research and in group interventions as part of the action research.

3.5 Sampling and Recruitment Criteria for Phenomenological Analysis

In the production of qualitative studies, researchers need to be clear on the sampling strategy employed to address what is being studied and why (Miles and Huberman, 1994; Pratt, 2008). As phenomenological study aims at describing common meaning for several individuals of their lived experiences of a phenomenon, data are collected from individuals who have experienced the phenomenon (Creswell, 2013). This study explored the experiences of internal stakeholders linked to the provision of solutions. Therefore, the sampling strategy was aimed at selecting appropriate internal solutions stakeholders as interviewees. The search and selection of viable internal stakeholders as interviewees began with my pre-understanding of the company's written ISO processes. Processes of interest touched upon solutions and both the US Subsidiary and D&M Company. The variety of services indicated within written processes included engineering, development, project management, value-added manufacture and change management of solutions. In total, seven written processes were identified (Appendix C). Within some process documents, references were made to other linked processes, indicating process handoff points from one written process to another. These solutions-oriented and linked processes were examined to uncover suitable internal stakeholders as prospective research participants.

While process owners and stakeholders are sometimes listed by name or implied by their roles in written processes, other process stakeholders were not so clearly identified. Within process documents, some linkages to process stakeholders were not explicit in signature lines or text mentioning titles like Project Manager. These challenges prompted a snowball sampling design wherein individuals belonging to the population are difficult to identify (Easterby-Smith, Thorpe and Jackson, 2012).

Beyond written processes, my company pre-understanding of who's who in solutions provision also came into play in the selection of potential interviewees. The time required to inform potential interviewees about the research, secure their consent, schedule blocks of interview time at their convenience, and provide sufficient time for their review of transcripts also informed my selection of interviewee candidates. By applying this pre-understanding of process stakeholders and time constraints, as well as the analysis of written processes, an initial list of thirteen potential interviewees was developed.

Snowball sampling insights emerged through discussions with these stakeholders to identify any additional written processes for analysis as well as other qualified solutions process stakeholders. Newly identified stakeholders then became prospects for participation in in-depth interviews. This inquiry process helped identify interview candidates needed in the study and bolstered rigor in snowball sampling. For robustness, this process was repeated until the solutions processes and names of stakeholders actively participating in these processes repeatedly identified the same process and stakeholder names. Through these initial discussions, the original list of thirteen potential interviewees eventually grew to seventeen. However, from the list of seventeen, thirteen internal stakeholders eventually volunteered to participate in interviews using the consent procedures discussed in section 3.3.1. Four of these were from the D&M Company while nine were from the US Subsidiary. Broken down functionally, three of these participants were from sales, three from marketing, five from engineering, and two from executive management (table 1).

Company	Function	Title
US Subsidiary	Sales	Project Sales Engineering Manager
US Subsidiary	Sales	Regional Sales Manager
US Subsidiary	Sales	Manager of Solutions Engineering and Market Development
US Subsidiary	Marketing	Sr. Product Marketing Specialist
US Subsidiary	Marketing	Director, Product Marketing
US Subsidiary	Marketing	Product Marketing Manager
US Subsidiary	Engineering	Engineering Services Manager
US Subsidiary	Engineering	Director, Industry Solutions Management
D&M Company	Engineering	Group Leader & Product Manager - Industrial Field Connectors
D&M Company	Engineering	Group Leader & Product Manager - Device Connectors
D&M Company	Engineering	Engineering Manager
US Subsidiary	Executive	VP Industry Management and Automation
D&M Company	Executive	VP Industrial Connectors & Electronics

Table 1
Interviewee Company, Function and Title

3.5.1 Sampling and Validity of the Research

Regarding the sample, insights from the literature shed light on validity and representativeness in the context of phenomenology. Phenomenological validity derives from an originality of insights and sound processes related to interpretation and imaginative variation (Bevan, 2014; Van Manen, 2014). For phenomenological research, the literature recommends interviewing from 5 to 25 individuals with common experience of a phenomenon (Polkinghorne 1989 cited in Creswell, 2013). However, while a phenomenological perspective may contribute some sense of existential generalizations, there is little sense to the notion of sample size supporting empirical generalization within phenomenology (Van Manen, 2014). In phenomenology, motives for more versus fewer participants surface in contribution to the researcher's appreciation of a phenomenon's variation, not the generalizable results sought in quantitative analysis (Englander, 2012).

Nonetheless, ethical management research addresses needs for trust when communicating information about the research to interested parties (Bell and Bryman, 2007). Qualitative studies garner a sense of trustworthiness by showing intentional design and by discussing analytical strategy – the steps for analysing data and the explanation of how data relates to findings (Pratt, 2008). While intentional design is addressed in this chapter, the discussion of steps taken in the analysis and the explanation of how data linked to findings appears in chapter 4, 5 and 6. However, this study is also informed by criteria for trustworthiness that accompanies the naturalistic paradigm for inquiry into human behaviour. According to Guba and Lincoln (1982), these criteria encompass both credibility and transferability; credibility in terms of the inquirer's analysis being believable, thus demonstrating internal validity to research co-participants (the sources of data), and transferability in the sense of findings being transferable to other contexts. Transferability is accommodated by rich descriptions that enable interested parties to make reasoned judgements about the degree of transferability possible to their contexts (Guba and Lincoln, 1982). Within this thesis, chapters 4 and 5 illustrate the researchers' action to produce credibility with co-participants via action research. The narrative of chapters 4 and 5 is intended offer a rich description of context to accommodate interested parties' judgments of the research's transferability to their own contexts.

3.6 Interview Questions and Protocol

This research collected natural language data for analysis. This approach is appropriate for discovering perceptions of individuals through the language they use during the course of in-depth, semi-structured interviews and begins with the development of questions used to guide conversation during interviews (Easterby-Smith, Thorpe and Jackson, 2012). For this study, question development was influenced by the literature review, allowing theory to inform data collection (Miles and Huberman, 1994; Dubois and Gadde, 2017). The literature suggests that it may be impossible to know, prior to reading, what salient theoretical concepts or insights regarding problems might emerge from the literature review (Tuckett, 2005). Further, the literature reviewed at the outset of action research projects enables discussion by grounding the research in existing work (Coghlan and Brannick, 2014) and may help sensitize the researcher to more subtle features of the data during the course of analysis (Tuckett, 2005). Scholar-practitioners thus bind theoretical mediators to their projects, creating theory-practice alignments to make them both workable and productive (Tenkasi and Hay, 2004). In this project, the researcher's reading and reflection contributed to theory-practice alignment as they combined to help focus the questions used to produce data from interviews.

As researcher, the aim of qualitative interviews is to collect information that captures the meaning and interpretation of phenomenon in relation to interviewees' worldviews (Easterby-Smith, Thorpe and Jackson, 2012). This process is intended to develop understanding from interviewees' viewpoints as well as why interviewees have particular viewpoints (King, 2004). Thus, in-depth interviews probe deeply to open up new dimensions of problems and secure vivid, accurate, inclusive accounts that are based on personal experience (Burgess, 1982 cited in Easterby-Smith, Thorpe and Jackson, 2012). Similarly, the characteristics of questions used in phenomenology seek to reveal the meanings of human experience and are illuminated through stories and anecdotes as accurate renderings of experience (Van Manen, 1990; Moustakas, 1999). For this research, these understandings concerning the aims of interviews were also influenced by the researcher's use of theory to help formulate questions intent upon unravelling the internal, relational issues within stakeholders' experiences of provisioning solutions. Qualitative researchers want intentional interview questions because the complex experiences of interviewees do not unravel neatly before the researcher, and require time, careful listening and follow-up to help interviewees explain and tell the stories of their lived experiences and the meanings they make of them (Castillo-Montoya, 2016). Questions were thus formulated through the lens of phenomenological research methods: 1) serving as a topical guide for tapping into experience to render sufficient meaning and depth (Moustakas, 1999), while 2) inquiring into the relational topics oriented to the production of solutions as discerned from the literature review. Open questions were configured to allow interviewees to express their experience of provisioning solutions as part of their life stories through moments, episodes, incidents and anecdotes (Van Manen, 1990; Moustakas, 1999) related to their solutions provisioning experiences.

Although theory informed the development of interview questions, the actions taken to refine questions were influenced by the researcher's access to few interview participants and the degree of depth and confidentiality desired for the interviews. While interview questions may be refined by first piloting them (Easterby-Smith, Thorpe and Jackson, 2012; Castillo-Montoya, 2016), the literature suggests that piloting pertains to interviews that are highly structured and applied in survey mechanisms to large numbers of respondents – the simplest of which require short answers and no deep thought from interviewer or interviewees (Easterby-Smith, Thorpe and Jackson, 2012). However, if access to participants is limited, iterative feedback may be used during the course of data collection to increase alignment with interviewee's experiences while still soliciting relevant information (Hurst *et al.*, 2015). This aligns with the iterative nature of qualitative research and helps refine the interview protocol by allowing the researcher to check on how evolving questions are heard and responded to by interviewees (Castillo-Montoya, 2016). Further, researchers may loosely or semi-structure questions as a topic guides to foster confidentiality and the expression of interviewees' personal insights while fully covering issues and themes addressed in the course of interviews (Easterby-Smith, Thorpe and Jackson, 2012).

Piloting questions for qualitative research of large population samples also refers to "simulating the actual interview in as real conditions as possible" (Castillo-Montoya, 2016, p. 827) to try out the research instrument and get a realistic sense of interview time and whether interviewees are able to answer the questions. However, for this study, a realistic sense of interview time and interviewees' abilities to answer questions was developed by securing flexible but sufficient space in interviewees' calendars, and carefully and iteratively attending to the feedback offered by interviewees. The snowball sampling process produced few respondents that agreed to interview, and no efforts were undertaken to pilot or "simulate" actual interview questions with any of interviewees closely linked to solutions. Instead, the development and implementation of interview questions was conditioned by the researcher's "real" rather than "simulated" concerns for the meaning of the interviews to interviewees. Social interaction with the interviewer can influence the interview process as interviewees attribute meaning and significance to the research situations in which they find themselves (Jones, 1985 cited in Easterby-Smith, Thorpe and Jackson, 2012). For insider action research projects, interviews are influenced by the researcher's sense of how questions might be experienced by interviewees and the effects these experiences might have upon the researcher's relationships with interviewees (Coghlan and Brannick, 2014). Further, in IAR, interviews are undertaken to develop understanding of interviewees' "world" so that the researcher might influence it, either independently or collaboratively (Easterby-Smith, Thorpe and Jackson, 2012). For this study, the interview protocol was designed to balance the researcher's personal intent to use the data generated by interview questions while fostering his ongoing insider business relationships; relationships fostered by paying heed to confidentiality and collaboration with interviewees before, during and after interviews.

To accommodate relational needs between the researcher and interviewees, the interview protocol was also designed to account for the experience of the unfolding interview process for interviewees. Interview protocols may be organized and applied to align with social rules of ordinary conversation, blending its use as an instrument of inquiry related to the aims of the study as well as an instrument for conversation about particular experiences (Castillo-Montoya, 2016). Thus, the questions asked during the course of interviews were placed into categories as a topic guide to provide loose structure for the questions, from opening to closing, and to promote inquiry-based conversation (Easterby-Smith, Thorpe and Jackson, 2012; Castillo-Montoya, 2016). During interviews, the use of appropriate language is important to ascertain clarity with respect to the interviewee's use of language as what is said may not always be what is meant (Easterby-Smith, Thorpe and Jackson, 2012). For this study, all interviews were conducted in English as English fluency is a necessary condition for employment at Phoenix Contact USA. However, my experience within the company and relationships with the interviewees also sensitized me to interviewees' use of company jargon during interviews. Probing and laddering by asking "Why?" questions helped to clarify the meaning of such company-specific language elements in the experiences of interviewees. To allow interviewees time to fully express their insights in response to interview questions, all interviews adhered to the suggested time frame of sixty to ninety minutes. While I suggested times, dates and private meeting rooms for interviews, an interview schedule was produced and interviews begun at the convenience of the consenting interviewees.

The top of table 2 illustrates inquiry topics grounded in phenomenological research methods and aimed at tapping into experience qualitatively with sufficient meaning and depth. These topics were used to frame the formulation of broad interview questions aimed at facilitating rich descriptions of experiences of phenomenon (Moustakas, 1999). Table 2 also encapsulates theoretical elements taken from the literature review and used as a lens to focus the inquiry framework. The theoretical lens informed the formulation of questions used to probe the experiences and relationships of internal stakeholders with one another as part of producing of solutions. Table 2 categories gather theoretical elements and questions together as a topic guide used in interviews to probe and prompt deep conversation about the personal experiences of interviewees as internal solutions stakeholders.

Topical guide from phenomenological research methods	Topic #	Inquiry Framework Topics (Moustakas, 1999, Van Mannen, 2014)
	1	Confirmation that interviewees are capable of providing rich experiential descriptions
	2	Dimensions, incidents and people that stand out to the interviewee and are intimately connected with the experience
	3	The effects of the experience on the interviewee
	4	The changes the interviewee associates with the experience
	5	The effects of the experience upon significant others in the interviewee's life
	6	The interviewee's feelings generated by the experience
	7	The thoughts that stood out for the interviewee
	8	Full disclosure of interviewees' experiences
Category		
Relationship to solutions processes		**Theory Lens to Focus Inquiry**
		Internal stakeholders as employees influencing and influenced by the company (Kaler, 2002; Thorpe and Holt, 2008)
		Solutions co-creation among stakeholders supported by clarity of tasks, roles and responsibily for inner engagement (Hakanen and Jaakkola, 2012; Schmiedel, vom Brocke and Recker, 2013)
		Interview Questions to Probe into Stakeholders' Solutions Experiences
	1	Q1: For our solutions process(es), how do you consider yourself? A process owner, a stakeholder?
	1	Q2: When it comes to solutions, how would you describe your role and responsibilities?
Competence, resources & integration		**Theory Lens to Focus Inquiry**
		Internal stakeholders sense of internal service capability and solutions grounded in resources and teamwork (Ehrhart et al., 2011; Schmiedel, vom Brocke and Recker, 2013)
		Stakeholders' understanding of their own and others' competencies and connectedness to resources for service exchanges (Chandler and Vargo, 2011; Lusch, Vargo and O'Brien, 2007)
		Stakeholders' experience of purposefully integrating and exchanging their applied resources (knowledge, skills, competencies, etc.) to co-create value through solution development process (Lusch, Vargo and O'Brien, 2007; Cova and Salle, 2008; Hakanen and Jaakkola, 2012; Vargo and Lusch, 2014)
		Solutions as relational processes and complex interactions between stakeholders that require competencies (process knowledge) to engage them (Windahl and Lakemond, 2006; Tuli, Kohli and Bharadwaj, 2007; Weitlaner and Kohlbacher, 2015)
		Interview Questions to Probe into Stakeholders' Solutions Experiences
	2	Q3: What competencies or resources do you or your group contribute to solutions?
	3, 5	Q4: How do the competencies or resources of other stakeholders' or groups' integrate with yours to contribute to solutions?
Solutions/service process experience: Solutions as incident, moment, anecdote and personal life story		**Theory Lens to Focus Inquiry**
		Stakeholders as identical with service experiences they coproduce to transform the conditions or states of one another (Miles, 1993; Edvardsson, Larsson and Setterlind, 1997; Gallouj and Weinstein, 1997; Kandampully, 1998; Chesbrough and Spohrer, 2006; Spohrer and Maglio, 2008)
		Solutions as value co-creating experiences among stakeholders using one anothers' existing knowledge to create new, higher-value knolwedge (Gadrey and Gallouj, 1998; Cova and Salle, 2008; Gallouj and Savona, 2009; Hakanen and Jaakkola, 2012)
		Viewpoints on operant service resources (people) perceived as resistances or as resources "becomming" while connecting through value co-creation processes (Chandler and Vargo, 2011; Akaka and Vargo, 2014, Vargo and Lusch, 2014)
		Process knowledge that includes knowledge of process relationships as a means of changing stakeholders' thinking (Hammer, 2007; Weitlaner and Kohlbacher, 2015)
		Solutions prompting conflict across functions and tension as a corresponding emotional/affective state and feedback loop that characterizes behaviour and learning (Pondy, 1967; Anning et al., 2010; Raja et al., 2018)
		Internal service relationships grounded in trust and commitment to common goals to co-create value through solutions (De Wulf, Odekerken-Schroder and Iacobucci, 2001; Hennig-Thurau, Gwinner and Gremler, 2002; Ulaga and Eggert, 2006; López Sánchez, Santos Vijande and Trespalacios Gutiérrez, 2010; Hakanen and Jaakkola, 2012)
		Solutions as practices that favour flexibility and learning to evolve and overcome structural problems or resource constraints (Garvin, 1995; Håkansson, Havila and Pedersen, 1999; Galbraith, 2002; Gebauer and Friedli, 2005; Cova and Salle, 2008)
		Learning as an ongoing practice and responsibility to sustain change; acquiring and applying future knowledge in response to internal and external developments (Conner and Prahalad, 1996)
		Interview Questions to Probe into Stakeholders' Solutions Experiences
	2	Q5: What people closely connected with your experiences of solutions processes stand out for you? Why?
	2, 3, 7	Q6: What have we done particularly well internally when producing solutions?
	2, 3, 7	Q7: What has been particularly problematic or resistant within our solutions approach and process?
	3	Q8: How does the experience of our solutions process affect you?
	6	Q9: What feelings are generated by the experience of our solutions process?
	6	Q10: How has your sense of trust in our solutions process or stakeholders been affected?
	4	Q11: What boundaries or expectations have changed over time in our solutions and approach?
	4, 7	Q12: How have you or your group's experiences contributed to the future development of solutions?
Service and relational quality		**Theory Lens to Focus Inquiry**
		Service as application of knowledge and skills through processes as benefit for another entity or to the entity itself (Vargo and Lusch, 2004, 2008; Lusch and Vargo, 2006)
		Construction of solutions' meaning from a common sense of value and its co-creation (Spohrer and Maglio, 2008)
		Sense of value emerging from solutions as combinations of process outcomes and unfolding process experiences, relationships and knowledge (Davies, Brady and Hobday, 2006; Tuli, Kohli and Bharadwaj, 2007; Cova and Salle, 2008)
		Internal service quality as phenomenon perceived by beneficiaries about processes or the attitudes or behaviour of servicers (LeBlanc and Nguyen, 1988; Zeithaml, Parasuraman and Berry, 1990; Szmigin, 1993; Hallowell, Schlesinger and Zornitsky, 1996; Schneider, White and Paul, 1998; Ehrhart et al., 2011)
		Value co-creation ongoing through design and use phases of service processes; service innovation driven by iterative processes of collaboration and learning…and unique perspectives of how to apply and integrate resources to allow co-creation itself to evolve (Akaka and Vargo, 2014; Frow et al., 2015)
		Service quality as criteria or dimensions used to evaluate interpersonal service encounters between service stakeholders (Zeithaml, Parasuraman and Berry, 1990; Svensson, 2001)
		Service quality viewed as a phenomenon that contributes to the strength of interpersonal service encounters and business relationships (Svensson, 2001)
		Stakeholders as interdependent entities that understand the evolution of trusting relationships as well as the mechanisms for supporting and enforcing them (Spohrer and Maglio, 2008)
		Interview Questions to Probe into Stakeholders' Solutions Experiences
	2, 5	Q13: How do you or your group judge the benefit or service that you provide to other stakeholders or groups in the solutions process?
	2, 3, 6	Q14: How do you or your group judge the benefit or service you receive from other stakeholders or groups during the solutions process?
	2, 4	Q15: How do these measures change over the time of a solutions development?
	2, 5	Q16: How do you measure or gauge the relationship you or your group has with other stakeholders while developing solutions?
	2, 4, 5	Q17: How is it maintained/improved/damaged?
Closing comments		**Interview Questions to Probe into Stakeholders' Solutions Experiences**
	8	Q18: Have you shared all that is significant in reference to your solutions experience?

Table 2
Interview Framework and Questions

3.7 Data Collection and Security

All interviews were recorded with a Philips Voice Tracer mobile electronic recorder. Once interviews were complete, electronic audio recordings (MP3 files) of interviews were immediately uploaded to a secure, password-protected PC for transcription. Audio files were then deleted from the electronic recorder. Thereafter, all electric files and transcripts were stored and accessed from the secured PC hard drive. Physical data such as transcript printouts and signed consent forms were stored in a locked file cabinet behind a locked office door on the Phoenix Contact USA campus. Data is secured and will be stored for ten years as company processes and policies for document retention are flexible to allow for the necessary time-period.

3.8 Data Analysis

Coding and analysis of Interview data collected for this research aligned with the phases of thematic analysis (King, 2004; Braun and Clarke, 2006). Recent servitization studies have found thematic analysis useful for exploring single cases (Raja *et al.*, 2018). For this study, thematic analysis offered a flexible method that was both consistent with the researcher's methodological choices and accessible for the researcher as somewhat novice in qualitative analysis. Thematic analysis is appropriate for scholars at the beginning stages of qualitative research careers and may be flexibly applied within multiple theoretical frameworks (Braun and Clarke, 2006). The phases of thematic analysis outlined by Braun and Clarke (2006) as well as the analytical processes applied within these phases are described in the following sections 3.8.1 through 3.8.5.

3.8.1 Familiarizing Oneself with the Data

Data for the study originated in the anecdotes and natural language interviewees used to answer interview questions. Rather than in-depth analysis, this stage involved a familiarization through active re-reading combined with re-listening to original recordings and attending to punctuation in the transcripts. In thematic analysis, this process enables the accuracy of the transcripts by ensuring that the transcripts convey information in a way that is true to their original nature while adhering to conventions that are practical for the purposes of the analysis (Braun and Clarke, 2006). In this phase, interviews were transcribed faithfully. However, this research pursued the meanings and perceptions expressed by interviewees. Thus, data preparation in this phase "denaturalized" (Easterby-Smith, Thorpe and Jackson, 2012, p. 172) interview recordings into transcripts by omitting involuntary utterances and vocalizations in the process of digitization. Preparation in this stage also involved helpful research technology for the analysis and coding to follow. Once prepared, interview transcripts were loaded into qualitative data analysis software. For this research, ATLAS.ti 7 was used as CAQDAS to evaluate and manage codes used in the analysis.

3.8.2 Generating Initial Codes

The analytical approach for this research sought clarity on relational processes and quality measures perceived by internal stakeholders in their experiences of interacting with one another to provision solutions. Relational processes and quality measures were discerned from anecdotes used by internal solutions stakeholders to express their experiences in response to open questions during interviews. Theoretical grounding for analysing relational processes suggests researchers may evaluate human conduct as processes of *activity* and *becoming*, and with an "overriding aim…to catch this reality in flight" (Pettigrew, 1997, p. 338). Such micro-organizing processes may be envisioned as "tentative 'assemblages' of patternings or local orchestration of relationships which generate consequent effects" (Chia, 1995, p. 587). While engaged in processes of activity, active and becoming entities are purposeful by themselves and in interaction with others without presuming a necessary sequence of events (Van De Ven, 1992). Analysis of individual stakeholders' experiences may then account for the "private face" of the enacted organizational environment - the psychological actions, cause maps, and if-then assertions that serve as expectations about what will happen in the future (Pauchant and Mitroff, 1988; Weick, 1988). Analysis in this research adopted these perspectives along with the assumptions of teleological theory, namely: 1) descriptions of phenomena unfold through the purposes they serve in stakeholders' experiences of becoming, and 2) as the theory can operate for individuals or groups of individuals who are sufficiently like-minded to act as a single, collective entity, a single entity's goals may explain development and enactment toward an envisioned end state (Van De Ven and Poole, 1995). For analyses that expose activity and becoming, an active process vocabulary may be favoured over a static language describing states of being (Chia, 1995; Pettigrew, 1997). In this analysis, the gerund "…ing" was used to capture relational processes as processes of activity, and describe them according to the purposes they serve for internal stakeholders.

The literature on service experience indicates a convergence in the terms used to characterize distinct quality measures. Within service experience, terms applied to characterize distinct service quality and relational quality measures also share commonalities. Terms like *trust* and *commitment* have been used as relational quality measures, and applied as descriptions of that which precedes the value created in services (López Sánchez, Santos Vijande and Trespalacios Gutiérrez, 2010). The commonality of *trust* and *satisfaction* as terms used in studies to characterize service quality (Zeithaml, Parasuraman and Berry, 1990), internal service (Schneider, White and Paul, 1998) and relationship quality (De Wulf, Odekerken-Schroder and Iacobucci, 2001; Hennig-Thurau, Gwinner and Gremler, 2002; Ulaga and Eggert, 2006) suggests that they serve useful measures for describing meanings and criteria linked to quality in service contexts. This study followed this approach as exemplified in the literature, using singular words or short phrases to characterize distinct relational processes and quality measures. However, considerations were also given to the unique context and issues at Phoenix Contact USA. While borrowing some descriptions from the literature, this study was not constrained to them. Rather, this study also surfaced meanings and criteria as they appeared in the unique context of internal stakeholders at Phoenix Contact USA.

Codes identify latent features in the data that appear interesting and refer to the basic elements of the raw data or information that can be assessed in a meaningful way regarding a phenomenon (Braun and Clarke, 2006). For this study, codes helped sort the anecdotes that reflected distinct relational processes and quality measures - the symbolic meanings and aesthetic criteria discerned from the data. Codes captured the sense of relational processes as active and purposive by using single terms or short phrases with gerund "…ing" endings. The gerund form also provided a sense of uniformity to the relational process codes. These descriptions helped link abbreviated meanings in the codes to the purposes or goals I discerned in the relational processes I witnessed among internal stakeholders before my analysis began and during my analysis of transcript data. Similarly, codes for quality measures used single terms or short phrases to capture symbolic meanings or aesthetic criteria.

However, coding often involves interpretation and value-laden assumptions regarding the meaning of the data (Miles and Huberman, 1994; Nadin and Cassell, 2004). Researchers may be subject to an effect known as "projection" whereby an established literature review may influence the analysis process (Tuckett, 2005). These issues were addressed in code generating phase of this analysis. As noted, both phenomenology and action research advise researchers to actively reflect upon and bracket their preconceptions to enable the emergence of alternate data interpretations. However, in the analysis of single cases, pre-structured analytical frameworks allow researchers to clearly articulate their preconceptions while maintaining the precision of their analytical frameworks as they evolve (Dubois and Gadde, 2017). Hybrid coding models often derive from such analytical frameworks, and may begin by creating a start list of codes *a priori* (*Analyzing Data*, no date; Miles and Huberman, 1994; King, 2004, 2016). Thus, this research followed the process of bracketing and articulating the researcher's preconceptions evinced in codes selected *a priori* from the literature. Once selected, these codes were referenced as a starting point to analysis. Analysis proceeded by comparing anecdotal data in the interview transcripts to codes selected *a priori*, then applying these codes as applicable to the anecdotes.

While analysing interview data, this process was iterative, stopping and starting in regular cycles for reflection upon how anecdotes expressed by interviewees fit with relational process and quality measure codes selected *a priori*. However, new codes emerged if the researcher's reflections revealed no linkages between the anecdotes and codes selected *a priori*. Transcripts and anecdotes were then re-analysed, allowing the researcher to reflect upon the fit of the newly emergent codes to anecdotal data in the transcripts. These cycles of analysis and re-analysis continued through the transcripts until the representative list of relational process and quality measure codes was settled and applied to the transcripts. Through this process, some codes selected *a priori* remained as the researcher's meaningful and representative assessments of relational processes and quality measures as latent features in the data. Other codes selected *a priori* were discarded. As findings used as actionable knowledge in the action research, the surviving codes that were selected *a priori* blended with codes emerging later in the interview data analysis.

However, visual representations are useful for sorting different codes into themes (Braun and Clarke, 2006). Template analysis is an adaptable method where researchers may look for themes and patters in the data (King, 2004; Easterby-Smith, Thorpe and Jackson, 2012). Thus, to progress in the analysis, relational processes and quality measures discerned together in anecdotes also contributed to the formation of a template matrix using Excel spreadsheet software. To develop the template matrix, matrix row headers helped account for the various relational process codes whereas columns headers were used for quality measure codes. The intersecting cell spaces of the template matrix were then used to capture anecdotes from the interview transcripts that illustrated correspondences of relational processes and quality measures and stage them for analysis. In this way, the matrix also enabled phenomenological analysis by providing intersecting cell spaces to store and work with anecdotes. Cycles of reading and re-reading interview transcripts revealed a variety of anecdotes that were illustrative of correspondences. Once an anecdote was found that illustrated a relational process and a corresponding quality, it was captured in the cell at the intersection of a relational process row and a quality measure column. Anecdotes that were collected and placed in the matrix also made them secure and accessible to me as the researcher for thematic analysis.

3.8.3 Searching for and Reviewing Themes

Using AR as an approach to organizational development involves dialog and a design that fosters co-participation in research and knowledge generation as well as joint vision, commitment, understanding and implementation of change (Coghlan and Brannick, 2014). To foster commitment and actionable knowledge, key internal stakeholders were involved in the searching and reviewing phases of thematic analysis. Enabling co-participation required a presentation of the researcher's insights garnered from the coding phase of the analysis in a way that made them accessible key internal stakeholders. Also, rather than linearly progressing through the searching and reviewing phases, co-participation prompted a cyclical approach to the data and the analysis – sometimes by the researcher alone, sometimes in co-participation with key internal stakeholders.

In the process of searching for themes, researchers need to think about the relationships between codes, themes and different levels of themes to produce a collection of candidate themes and sub-themes (Braun and Clarke, 2006). However, as a "gatherer of anecdotes" (Van Manen, 1990, p. 69), phenomenology asks researchers to observe experiences for their lived meaning to develop a strong sense of the point or cogency carried within them. To search for themes, the template matrix offered a first-person space for the researcher to apply rigor, reflection and imagination in the thematic analysis of raw, anecdotal data from the transcripts. In phenomenology, the horizons of thematic meaning structures emerge from textural qualities that may be used to understand experience and expose the nature of phenomenon (Moustakas, 1999). For the researcher, horizons formed as the coded anecdotes were made accessible within the cells of the template matrix, next to one another, for reading, comparing, contrasting and reflecting upon their textual qualities. As thematic meaning structures emerged from the reading, the template matrix then served as an analytical tool for the researcher to re-order and group rows and columns side-by-side in the matrix into themes. Re-ordering the rows and columns helped group the anecdotes that shared similar textural and thematic qualities. However, the cells containing the anecdotes maintained their correspondences to relational processes and quality measures in the rows and columns. Thus, the re-ordering process helped sort codes into themes as it gathered together the anecdotes that shared similar, thematic textural qualities. Simultaneously, this process gathered the intersecting rows and columns of relational process and quality measure codes that formed the cells containing the anecdotes.

Thus, the horizons that formed as part of the researcher's re-ordering and grouping of columns and rows of matrix cells filled with anecdotes also fostered the emergence of coherent themes of relational processes and quality measures. However, in the review phase of thematic analysis, researchers may consider the validity of their candidate themes not only in relation to their own sense of 'accuracy' reflected in the meanings evident in the data, but also to the theoretical and analytical approach taken in the analysis (Braun and Clarke, 2006). As noted earlier, this action research project was undertaken with an intent to address a real workplace-based issue involving multiple stakeholders. Thus, the analytical approach needed to accommodate co-participation in the analysis to produce a sense of internal validity. Phenomenological analysis also supports the sense of credibility developed through co-participation in research. Through phenomenological analysis, researchers reflectively account for the extent to which their insightful inventions (i.e. codes and themes) may offer meaning to others' experiences as well as their own. They do so such that they may be validated inter-subjectively as the possible experiences of others and themselves (Van Manen, 1990). With this in mind, an analytical layout for the data emerged by considering the primacy of the practical in action research (Coghlan and Brannick, 2014). Structured and inter-subjectively useful meanings of relational processes, corresponding quality measures and themes discerned by the researcher in the data needed to be practically accessible to co-participants in the action research. Another data layout using a matrix accommodated this need to present and handle the data, codes and themes in a way suitable for company stakeholders to co-participate in discussion and analysis. The matrix was created by transforming the template matrix, replacing the anecdotes with colour-filled cells. This produced an accessible matrix as space that was suitable for co-participation in the analysis and, by removing the anecdotes, preserved the anonymity of interviewees. Thereafter, the matrix was used to accommodate co-participation in the review phase of the analysis. This phase began the process of discussing and validating the sub-themes and themes that were used to gather codes with the company's Director of Organizational Development (DOD). Sections 4.2 and 4.3 of chapter 4 describes details this co-participatory analytical process as part of the AR narrative.

3.8.4 Defining and Naming Themes

In this phase of thematic analysis, researchers define and refine themes as analytical outcomes in the form of stories and describe how themes fit into the overall story being told about the data in relation to the research question (Braun and Clarke, 2006). Servitization studies have used this phase for refining linkages between codes, sub-themes and themes developed through thematic analysis (Raja *et al.*, 2018). However, the desired outcomes of AR surface in reliable interpretations of social phenomena as well as actionable knowledge that is both robust for scholars and useful to practitioners (Greenwood and Levin, 2007; Coghlan and Brannick, 2014). Phenomenological analysis produces terms and themes for coherent descriptions of the phenomena (Moustakas, 1999). Relational processes and quality measures were gathered as terms and themes to provide a new lens for viewing internal stakeholders' experiences while provisioning solutions. However, by establishing the structure of experience, thematic analysis also offers a means to control and order within phenomenology (Van Manen, 1990). Within this action research, this pursuit of control and order provided an opportunity to garner the co-participation of an important internal stakeholder to the analysis. Thematic analysis was used as a pragmatic method for involving and opening a sense of control and order to the Director of Organizational Development (DOD) as a key research co-participant. While contributing valuable thematic insights, the DOD's co-participation evoked a sense of co-ownership in the results, and control through her contributions to orderly progress in the research.

Thus, for this phase, methods and findings were put into action as the researcher's process of re-reading transcripts and refining linkages of codes to themes coupled iteratively with cycles of dialog with the DOD. In dialog, the DODs co-participation in the definition and naming of sub-themes and themes drew upon her critique and questioning as a form of sense making and contextualizing the findings presented in the matrix. As dialog surfaced refinements, the matrix was augmented to reflect them. Refinements addressed how the codes grouped into themes, or how the sub-themes and themes should be named and defined to fit within the context of the company. Through these processes, detailed definitions of the themes were created to align them with the company's organizational development issues and goals as understood and supported by the DOD. Through naming and defining process, the DOD also gave voice to her developing sense of commitment to the study by describing why and how the analytical findings would be valuable and useful as actionable knowledge. This usefulness linked to her sense of intervention needed with teams experiencing conflict while producing solutions. This process also enriched the researcher's sense of how his insights developed through the analysis would enable his insider participation in intervention to make findings actionable. The naming and defining process continued until the researcher and DOD agreed that further refinements added nothing more substantial to the analysis. As this co-participation reflected an important element of the AR narrative, sections 4.4 through 4.7 of chapter 4 describe the unfolding of this part of the analysis.

3.8.5 Producing the Report

In the final phase of thematic analysis, researchers report a concise, coherent, logical and interesting account of the otherwise complicated story told by the data in order to convince readers of its validity (Braun and Clarke, 2006). Servitization studies suggest this kind of output may be useful in workshops to garner feedback from key stakeholders (Raja *et al.*, 2018). For this study, findings from the thematic analysis of interviewee transcripts were condensed into an executive briefing document. Paired with presentations from the researcher and the DOD, this document also used the final matrix developed in the analysis with the DOD as an interesting and condensed view of thematic findings. Feedback gathered from these meetings informed the both the researcher's and the DODs sense of credibility of the findings as new knowledge for attendees. This sense of credibility derived from attendees' comments and decisions produced from briefings that informed actions and future interventions through workshops.

3.9 Design of the Research Process

A summary of the sampling, data collecting, analytical approach and overall research design is illustrated in the process diagram of figure 8.

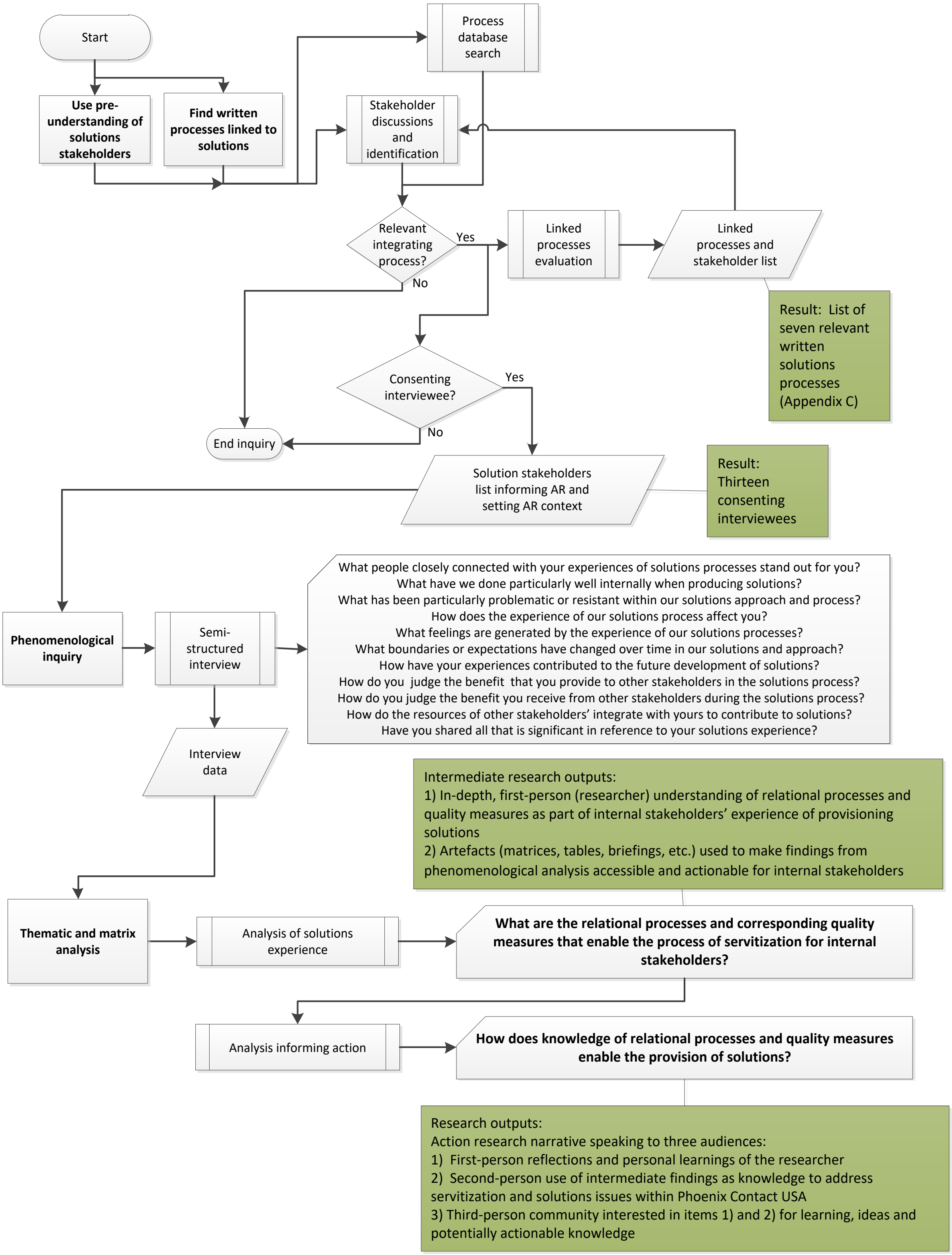

Figure 8
Analytical and Action Approach

3.10 Inquiry Within AR and Phenomenology

Just as experiences are at the forefront of inquiry in phenomenology, AR admonishes researchers to authentically attend to inquiry about experience. As part of AR, a spirit of inquiry accompanies the process of human knowing by attending to: 1) the inner and outer sense of experience, 2) the understanding of data by asking questions, 3) the judgement of whether understanding fits evidence, and 4) decisions on taking action in light of new knowledge (Coghlan and Brannick, 2014). This action research employed the process of human knowing (figure 9) as a framework to help align phenomenology and action research methods as inquiry into experience. This alignment happened over the course of action research cycles by further developing understanding about solutions as experiences, and by facilitating inquiry and action among internal stakeholders to foster this joint understanding. While applied in action, this process also helped guide the production this thesis throughout the written narrative.

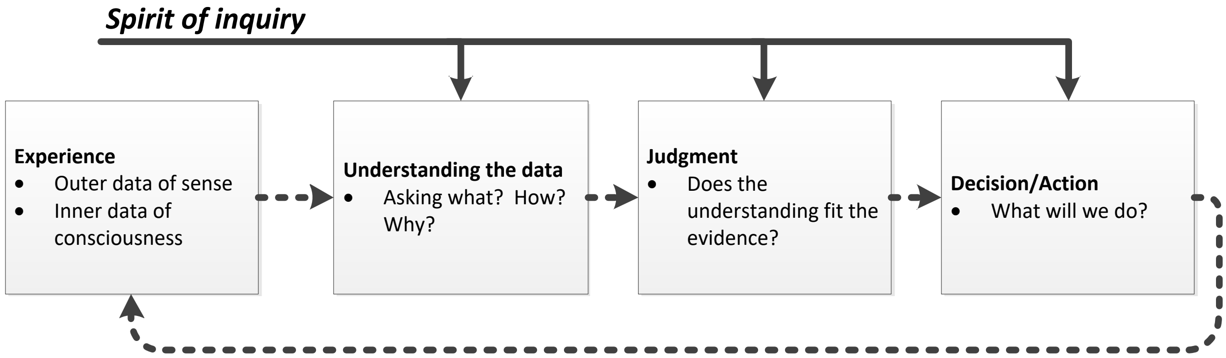

Figure 9
Process of Human Knowing
Adapted from Coghlan and Brannick (2014)

To produce a thesis using action research, the literature suggests that researchers actively engage in inquiry and reflection about the thesis itself as a project (Coghlan and Brannick, 2014). Zuber-Skerritt and Perry (2002) describe this as the “thesis action research project” (p. 2) that accounts for plan and design of the thesis as well as observation and reflection in the thesis. A thesis AR project expresses the researcher’s first-person engagement in the research including the researcher’s implementation, evaluation, personal enactment and reflection on the research (Zuber-Skerritt and Perry, 2002). Hereafter, the narrative unfolds as a story of the researcher’s thesis AR project where inquiry and findings of phenomenological analysis are positioned and applied as actionable knowledge. Action begins with findings from an analysis of stakeholders’ experiences amid solutions aimed at revealing relational processes and quality measures. However, these represent intermediate findings and the beginnings of the story. Just as quality seems open to inquiry within relational processes, quality in action research unfolds through the findings of a "core action research project" (Zuber-Skerritt and Perry, 2002, p. 5) that addresses and actively engages the concerns of research co-participants as well as the researcher. The core of this AR unfolds as a collaborative venture. To expand the analysis from the arena of phenomenology to action research, this venture involved the researcher's first-person reflection as well as intervention concurrent with cycles through the process of human knowing. Attending to a cyclical process of experiencing, understanding, judging and acting helped frame and narrate second-person practice, between the researcher and internal stakeholders, with the analytical findings used as actionable knowledge. Applied in action, the purpose of this inquiry extends beyond *what* relational processes and quality measures might be as phenomena to explore *how* they influence solutions provisioning stakeholders within Phoenix Contact USA. Findings from this exploration of *how* offer a better sense of knowledge put into practical action through the narrative of this action research. Relational processes and quality measures were leveraged as new forms of knowledge to prompt dialog, enable inquiry and facilitate intervention in the human and process-oriented system my company uses for provisioning solutions.

3.11 Putting New Knowledge into Action

Relational processes, quality measures and associated themes were made actionable by purposefully bringing them into discussion with internal stakeholders and applying them as topics and substance for dialog. To align with the intent of this action research, internal stakeholders were brought together to discover how knowledge of relational processes and quality measures could be made useful in addressing issues with solutions. However, AR may also be taken as an account of first- and second-person learning and experience that has some interest and relevance for a third-person audience (Coghlan and Brannick, 2014). In the unfolding of this action research, active reflection reveals my intent for learning coupled with a stream of second-person engagements with internal stakeholders. Appendix I illustrates the timeline of the entire study. Following permissions, approvals and my initial engagements with phenomenological analysis (i.e. snowball sampling, conducting interviews, analysis of transcripts, etc.), figure 10 illustrates the merging of human inquiry (phenomenology) into the arena of social action and inquiry (AR). The figure provides an overview of how analytical findings were tested and put into action, thereby producing further learnings and action. Research artefacts (e.g. matrices) containing knowledge from thematic and phenomenological analysis helped operationalize my first-person understandings and intent to offer tangible findings in an accessible and actionable format. Detailed dialog emerged through co-participatory analysis and as research findings were made accessible to various stakeholders through briefings and workshop sessions. The timeline of figure 10 summarizes these forms of co-participation and intervention with internal stakeholders, and runs parallel to the streams of my first-person intent and second-person engagements. Both streams addressed real, workplace-based issues with solutions over the course of the core action research project. For interested third-parties, figure 10 also illustrates chapters of this action research narrative.

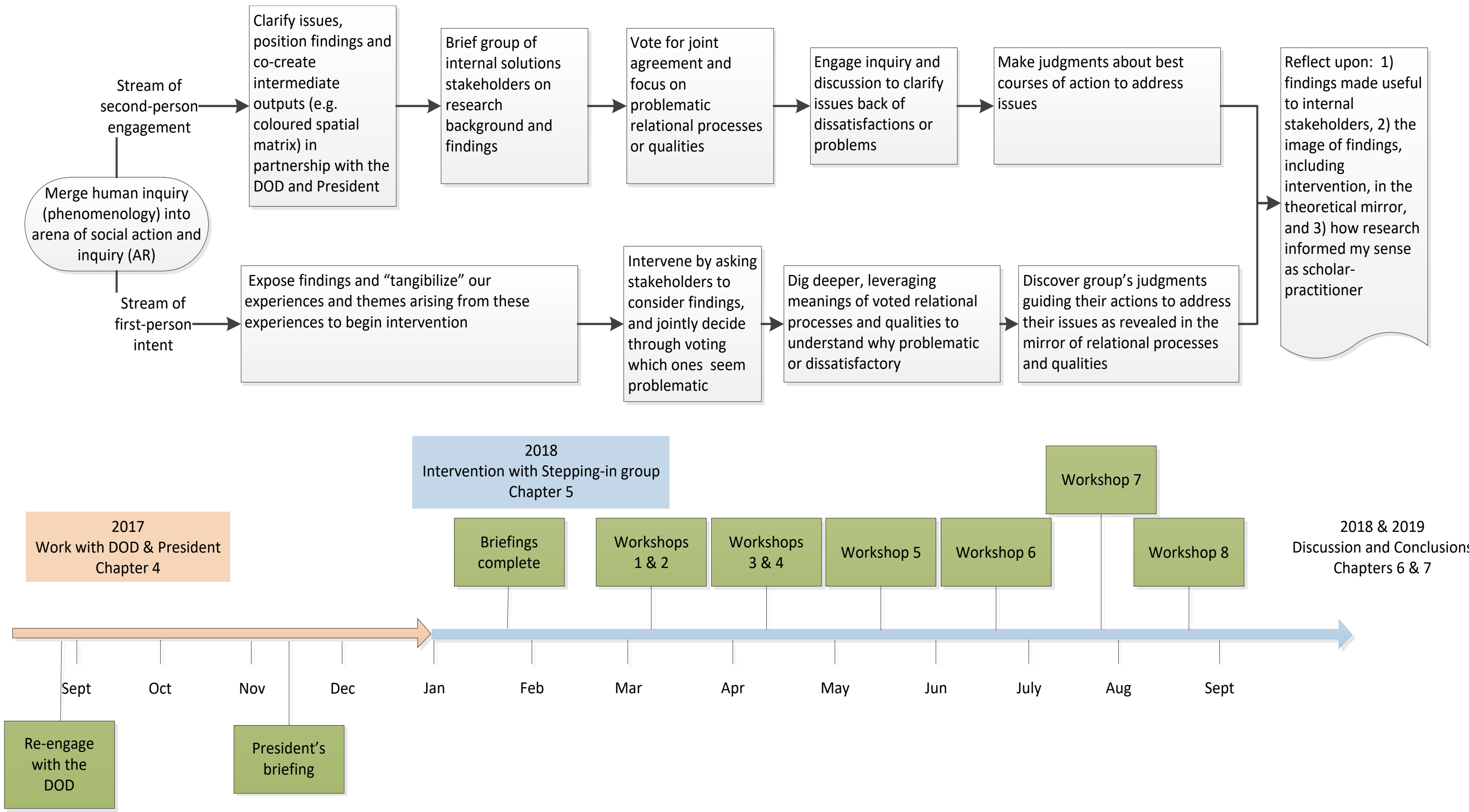

Figure 10
AR Timelines, Engagements and Intent of the Research

CHAPTER 4 FINDINGS AS ACTIONABLE KNOWLEDGE

4.1 Developing Understanding, Accessing Preunderstanding

As researcher, implementation of the research required a careful consideration of timing while cycling between the human inquiry of one-on-one interviews and the social action inquiry of action research – the ethical arenas of figure 7, chapter 3. The approach to the research and analytical results required transitions from first-person phenomenological analysis of transcript data to second-person, action research context involving internal stakeholders as co-participants in the analysis. These transitions occurred after reflecting upon stages of the research and determining appropriate moments of transition. For example, as illustrated in figure 10 in chapter 3, the decision to re-engage in discussions with the DOD happened in September 2017 after phenomenological and matrix analysis had progressed to a point where it was reasonable to seek the DOD's feedback.

As researcher, my first-person experience with the analysis began by determining codes to define relational processes and quality measures. This process started with my selection of codes *a priori* from my reflections and discernments of literature readings. Both the literature review and past readings informed my selection of codes *a priori*. The codes selected from the literature *a priori* resonated with my pre-understanding of solutions experiences in terms of active relational processes and quality measures. My selections were made after reflecting and judging the codes' fit to my experience observing and dealing with solutions-oriented issues involving internal stakeholders. The codes selected *a priori* and used to name relational processes were the ones I judged to be apt descriptions of the relational processes internal stakeholders used to purposefully interrelate with one another. In other words, my pre-understanding of the purposes approached through relational processes by internal stakeholders reflected my understanding of codes selected *a priori* from the literature. For example, *information sharing* reflected my experience of a relational process used by internal stakeholders to use facts and data with one another. *Information sharing* was also discerned as a relational process in the literature. The relational process of *information sharing* was therefore used as a code selected *a priori.* Similarly, quality measure codes were selected *a priori* from the literature if they reflected my experience of what I sensed from internal stakeholders prior to analysis. Quality measure codes were selected *a priori* if they were apt descriptions of how I sensed (how I saw or heard) internal stakeholders felt while engaged in relational processes, or what I sensed that they perceived in the quality of relational processes.

This *a priori* code selection process enabled bracketing as I was able express and set aside my prejudgments regarding distinct relational process and quality measure codes. The codes were selected *a priori* from the literature as I believed them likely to appear in the transcripts before reading and analysing the transcripts in detail. However, the process of making the codes explicit and clearly defining them allowed the individual codes to be set aside (i.e. bracketed) for evaluation prior to analysis of the transcripts. To streamline this evaluation and continue the bracketing exercise, the individual codes were collated into two tables – one for relational processes and one for quality measures. Producing tables of codes made the codes accessible as tangible evidence of my pre-judgements.

Being accessible, the tables allowed me to conveniently return to the codes and critically reflect upon my pre-judgements that prompted me to select the codes *a priori*. Further, the tables exposed my pre-judgements to critical reflection, code by code, before my reading then during my reading and re-reading through the transcripts. Used this way, the code tables shed light on my pre-judgments *and* made them available for comparison to the evidence presented in the anecdotes within the transcripts. The tables therefore served a dual purpose as tools for first-person, reflective analysis as well as analysis of the transcripts. This reflective process was critical as it enabled me to make new judgements about linkages between what I thought might be in the transcripts (pre-analysis) and what appeared in the transcripts during the analysis. Thus, the tables served as actionable, first-person knowledge to help me approach epoche – freedom from my suppositions – while enabling new, personal understandings and judgements about the data. The codes selected *a priori* and used to bracket my pre-analysis sense of relational processes and quality measures are noted in tables 3 and 4. The source literature pieces of the *a priori* code selections are also reflected in tables 3 and 4.

RELATIONAL PROCESS	DEFINITION
Capability Cuing	**Relational interactions paired with immediate outcomes influencing trust** (Gounaris and Venetis, 2002)
Collaborating	**Parties encouraging the mutual expression of their needs and concerns. Actively soliciting feedback** (Raelin, 2003)
Deliberate Evolving	**Consciously developing in response to our new solutions environment** (Kowalkowski et al., 2012)
Enabling	**Steps taken fostering relationships through people and the processes that guide their behaviour** (Baines and Lightfoot, 2014)
Envisioning	**Critical process of expressing and sharing in vision for future possibilities of the company in provisioning solutions** (Nijssen et al., 2006)
Gap Identifying	**Finding solutions areas where the company falls short of what is required to provide the solution** (Zeithaml, Parasuraman and Berry, 1990; Szmigin, 1993; Sweeney and Soutar, 2001; Klaus and Maklan, 2012)
Information Sharing	**Using with others facts provided, learned, or conveyed, represented by a particular arrangement or sequence of things** (Gebauer, 2007; Ehrhart et al., 2011; Hakanen and Jaakkola, 2012)
Integrating	**Bringing people/groups/things into equal participation** (Windahl and Lakemond, 2006)
Match Making	**Researching solutions from history, finding whether a viable similar solution already exists, then choosing and assigning the known solutions approach and resources available to resolve the customer's problem** (Nightingale, 1998)
Meaning Creating	**Making explicit or expressing the meaning of the experience of the solution being co-created** (Raelin, 2003)
Measure Evolving	**Developing our means of ascertaining or standard units used** (Hammer, 2007)
Quality Demonstrating	**Acknowledging and making explicit the quality of something or someone** (Edvardsson, Holmlund and Strandvik, 2008)
Relational Space Building	**Critical managerial task of creating protected spaces for relationships to grow** (Bowen, Siehl and Schneider, 1989)
Service Quality (SQ) Importance Raising	**Setting and communication of service quality standards that reflect customers' expectations** (Zeithaml, Parasuraman and Berry, 1990)
Task Clarifying	**Communicating detailed instructions on what is required to complete an element of work** (Conner and Prahalad, 1996)

Table 3
Relational Process Codes Selected *a priori*

QUALITY MEASURE	DEFINITION
Inertia	**When routines of the status quo are sufficiently dominant to suppress opposing minority positions** (Van de Ven, 1992)
Available Operant Resource	**Availability of resources that are continuous and dynamic, capable of producing effects by acting upon other resources. Prerequisites for creating a solution** (Vargo and Lusch, 2004; Lusch, Vargo and O'Brien, 2007)
Satisfaction	**Fulfilment of expectations or needs or the pleasure derived from this** (Hallowell, Schlesinger and Zornitsky, 1996; Schneider, White and Paul, 1998; Homburg and Garbe, 1999; De Wulf, Odekerken-Schroder and Iacobucci, 2001; Hennig-Thurau, Gwinner and Gremler, 2002; Ulaga and Eggert, 2006; Ehrhart et al., 2011)
Timeliness	**The fact or quality of being done or occurring at a favorable or useful time** (Vandermerwe and Rada, 1988; Van De Ven, 1992; Szmigin, 1993; Gallouj and Weinstein, 1997; Pettigrew, 1997; Comfort et al., 2001; Mathieu, 2001; Edvardsson, Holmlund and Strandvik, 2008; Spohrer and Maglio, 2008; Gremyr, Löfberg and Witell, 2010; Ehrhart et al., 2011)
Trust	**Belief in the reliability, truth, ability or strength of** (Zeithaml, Parasuraman and Berry, 1990; Day, 1994; Homburg and Garbe, 1999; De Wulf, Odekerken-Schroder and Iacobucci, 2001; Gounaris and Venetis, 2002; Hennig-Thurau, Gwinner and Gremler, 2002; Ulaga and Eggert, 2006; Edvardsson, Holmlund and Strandvik, 2008; Spohrer and Maglio, 2008; López Sánchez, Santos Vijande and Trespalacios Gutiérrez, 2010; Hakanen and Jaakkola, 2012)
Willing Flexibility	**Desire or inclination to change or modify through application of the flexibility effect: Accommodating learning by acquiring and applying future knowledge in response to internal developments** (Conner and Prahalad, 1996)

Table 4
Quality Measure Codes Selected *a priori*

First-person experience with the analysis continued by linking the data produced from interview transcripts to codes used to define relational processes and quality measures. To proceed with analysis, anecdotes were chosen from the interview transcripts. Within the anecdotes, interviewees' comments were evaluated for: 1) a purposeful interaction through a relational process with other internal stakeholders, and 2) how interviewees felt about or perceived the quality of the relational process. If the anecdotes reflected the sense of the codes selected *a priori*, these codes were used to mark the anecdotes in the CAQDAS (software). However, emergent codes were also developed during the transcript readings. If the anecdotal data did not match any of the codes selected *a priori*, then the researcher's reflection and imagination were applied to create new codes and definitions. Codes were created to reflect emergent relational processes. As with the codes selected *a priori*, short one- or two-word codes in gerund form (i.e. ending in "…ing") were used to attach abbreviated meanings to the purposes or goals the researcher discerned in interactive, relational processes as they were appeared in the anecdotes.

A similar process generated of emergent quality measure codes. Codes describing quality measures were selected from the ways interviewees described how they felt or the sense of quality they perceived and expressed about the relational processes in the anecdotes. As new relational process codes and quality measure codes emerged, they were evaluated, one-by-one by re-reading the interview transcripts and anecdotes within them. By re-reading and reflecting upon them, each new, emergent code was judged for its fit to anecdotes in the interview data. Anecdotes were then marked with the new, emergent codes in the CAQDAS as judged appropriate by the researcher.

Anecdotes within the interview transcripts were read and re-read until this coding process was complete and no more codes emerged. Through this iterative process, emergent codes were chosen and modified to settle upon a consistent and reasonable meaning to relational processes and quality measures discerned within the anecdotes. Relational processes and quality measures emerging from the transcripts and anecdotes are shown in tables 5 and 6.

RELATIONAL PROCESS	DEFINITION
Ameliorating	Making better or more tolerable
Boundary Setting	Making explicit the work that is a good match to our capabilities and resources, our "sweet spots"
Co-learning	Acquiring knowledge or skills together through experience, reflection, study or being taught
Coaching	Forming or teaching to make fit or proficient
Complementing	Continuous and dynamic, producing effects by acting upon other resources for the sake of making something complete
Coordinating	Involving different or variable elements into a relationship to ensure efficiency or harmony
Escalating	Process of sending a decision up the organizational hierarchy
Historical Accounting	Collecting and making explicit or expressing the changes and developments that occurred through periods of time. Drawing from experience
Innovating	Changing something, or establishing through new method, process, or idea
Negotiating	Finding a way through an obstacle or difficult path. Coping or dealing with problems. Conflict reduction. Troubleshooting
Objective Clarifying	Setting expectations by making clear the elements that will make up a solution (requirements, objectives)
Prioritizing	Determining the order for dealing with tasks according to their relative importance
Problematizing	Process of making into or regarding as a problem by asking questions that prompt discovery
Responding	Reacting and providing answers to inquiry
Spearheading	Leading influence and interface between internal and external stakeholders in a solutions undertaking or development
Systematic Visioning	Seeing the holistic sense of a system and developing goals based upon knowledge or insight of the set of principles or procedures according to which something is done within the system

Table 5
Relational Process Codes Emerging from Anecdotes in the Interview Transcripts

QUALITY MEASURE	DEFINITION
Balance	Condition in which different elements are in the correct proportion
Co-ownership	Belonging to other stakeholders as well as to oneself. Togetherness
New Concept	Arising of a fresh or novel idea about all the instances of a situation
Energized	Vitalized, enthusiastic and motivated - given a cause to act. Willing involvement
Esteem	Respect or admiration, known as valuable
Expectation Specification	Clear, documented, or agreed description of belief of precisely what will happen or be the case in the future to mark successful completion. Consensus
Friendliness	Service with a smile. Kindly concern or support
Ease	Absence of difficulty or effort
Risk	Something or someone that creates or suggests a hazard
Tension	Strain experienced mentally or emotionally
Thriving	To progress toward or realize a goal despite or because of circumstances
Volume	An amount or quantity. Often a precursor to, or received in, sales over a specified period

Table 6
Quality Measure Codes Emerging from Anecdotes in the Interview Transcripts

As described later in section 4.3, co-participation with the DOD produced an evaluation of the individual codes representing relational processes and quality measures as actionable knowledge. The names of three quality measures (i.e. *available operant resource*, *new concept*, and *expectation specification*) were eventually modified slightly as a result this evaluation to better reflect a description of quality. However, the underlying definition of the codes was not changed. Section 4.3 also describes how this co-participatory analysis with the DOD resulted in a reduced number of relational processes and quality measures that were eventually used as actionable knowledge for intervention.

While relational processes and quality measures were either selected *a priori* or emerged as distinct codes used for analysis, the question guiding the research explored relational processes as corresponding to quality measures. With the research question in mind, pairings of relational process and corresponding quality measures were analysed as they occurred together in anecdotes shared in the interviews. As an analytical tool, the rows of a matrix typically represent the unit of analysis while columns represent characteristics or elements pertinent to the research question (Nadin and Cassell, 2004). To continue analysis of interview data, a template matrix was created to evaluate the correspondences between relational processes and quality measures by using the codes selected *a priori* and the emergent codes collated together. Within the template matrix, rows indicated relational process codes and columns indicated quality measure codes. Empty cells formed by the intersections of rows and columns in the matrix served as discrete spaces for collecting anecdotes drawn from the interview transcripts. Anecdotes represented coded data in the interview transcripts. To make use of them in matrix analysis, the anecdotes were cut-andpasted to fill cells if they indicated a correspondence of a relational process and a quality measure. Relational processes and quality measures corresponded to one another if a relational process used to code an anecdote appeared together with a quality measure used to code an anecdote.

After cutting and pasting anecdotes to fill the template matrix, another version of the template matrix was created to simply indicate whether cells were filled (or not) with anecdotes. Within this matrix, if a cell contained an anecdote, the anecdote was replaced by a colour-filled cell. The relational process and quality measure codes in tables 3, 4, 5 and 6 were maintained as headers in this new version of matrix to create the rows and columns respectively. Individual, colour-filled cells then indicated whether a particular relational process had a corresponding quality measure as suggested in an anecdote. While less detailed, the colour-filled cells preserved the matrix as an analytical space and formed an alternate and condensed view of the transcript data. This spatial form of the matrix also enabled a shift in the analysis to focus upon the relational process rows and quality measures columns. Below, section 4.3 discusses how dialog and co-participatory analysis eventually focused on relational processes and quality measures and helped produce important thematic insights about the findings. However, before co-participation with other internal stakeholders, and to move forward in my first-person analysis as researcher, the template matrix was kept in two forms:

1) In its form with cells filled by detailed anecdotes chosen from the interview transcripts. To preserve anonymity of interviewees, this matrix view is not shown in this thesis and was not shared with other internal stakeholders.
2) In its spatial form, with coloured cells simply indicating the presence of anecdotes where particular relational processes and quality measures were found in correspondence with one another. This spatial form of the template matrix evolved to become an important, working artefact used later with co-participants in the research.

In the spatial form of the matrix, columns and rows where sorted left to right and top to bottom, aligning from most to least colour-filled cells. This sorting revealed a new sense of shape in the template matrix as it produced a density map of relational processes paired with quality measures (figure 11). While suggesting which relational processes corresponded to quality measures, the density in figure 11 also suggested that, in the experience of internal stakeholders, some relational processes corresponded with a greater variety of quality measures and vice versa.

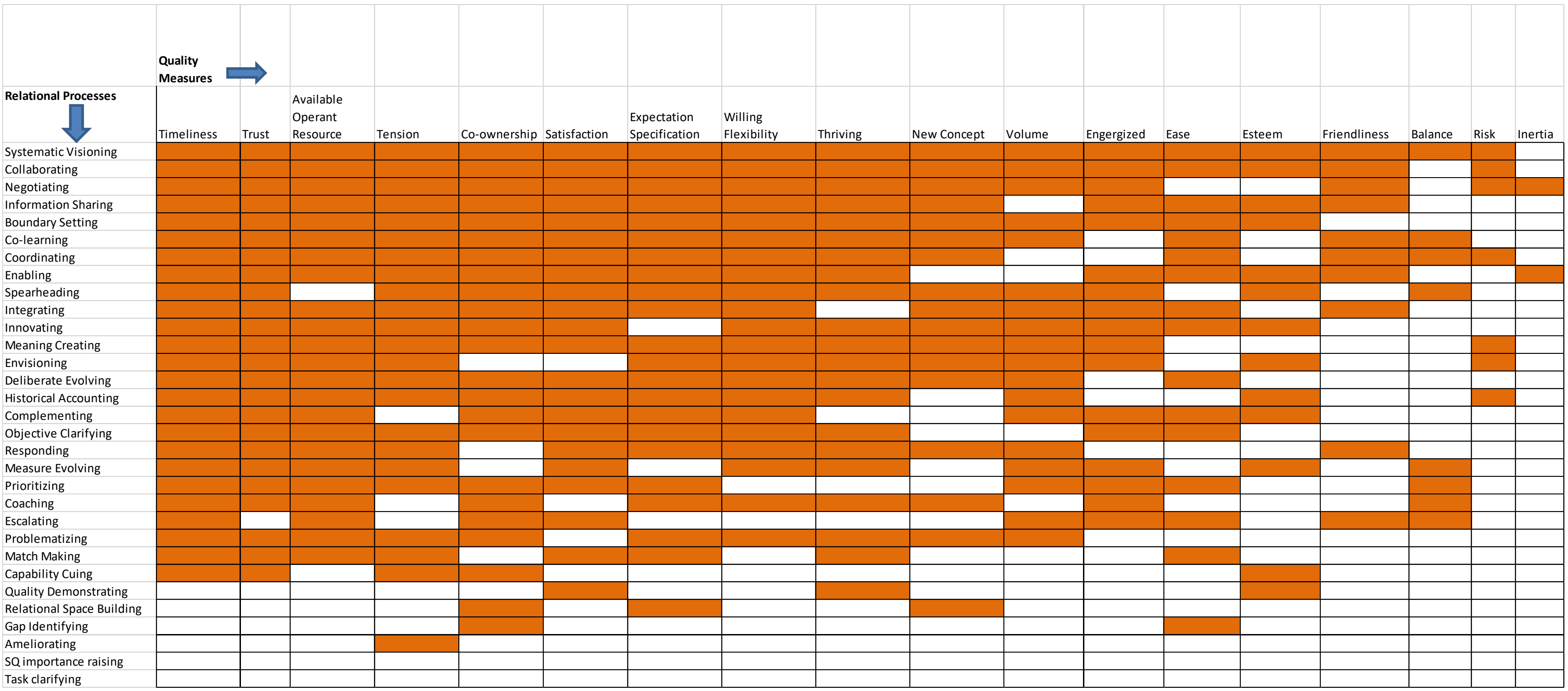

Figure 11
Relational Processes and Quality Measures Template Matrix as an Analytical Space

Reflections on the research up to this point exposed additional analyses and action necessary to address the workplace issues experienced by internal stakeholders. First, the newfound density in the figure 11 matrix prompted further inquiry into the relational processes and quality measures that internal stakeholders found essential or useful in their solutions provisioning experience. Next, while the matrix gathered analytical findings, it produced few insights concerning the influence that these or additional findings would have upon the understanding and action of internal stakeholders. As researcher and scholar-practitioner, the analytical findings up to this point (i.e. the matrix of figure 11) and how these findings would serve as actionable knowledge represented a gap in understanding. This gap prompted inquiry and exploration into the research as useful for organizational development or intervention. As researcher, this gap also prompted my decision to transition from first-person analysis to a second-person context involving other internal stakeholders as research co-participants. In the next phase of research, action and inquiry undertaken to address this gap informed and augmented: 1) the analytical findings represented in the figure 11 matrix as an element co-participative inquiry, 2) the analytical findings' meanings to internal stakeholders as actionable knowledge, and 3) the positioning and development of analytical findings to make them useful for intervention. These inquiries were addressed in cooperation with important internal stakeholders to foster their co-participation. First among these was the Director of Organizational Development (DOD).

4.2 Transitioning to Co-Participation: Involving the Director of Organizational Development (DOD) in the Research Process

Action research may be viewed as an activity "aimed at shaping knowledge relevant to action built on a critical understanding of historical and political contexts within which participants act" (Greenwood and Levin, 2007, p. 64). Decisions on next steps in the analysis followed the researcher's critical reflection on historical and political contexts that informed this research. An important element of this context was linked to a request received from the President. Through our interactions, the President was fully aware and approving of my academic pursuits and supportive of my investments in scholarly practice, including time and tuition reimbursement. However, the President approved this research to address process and relationship issues that he believed intersected with the role and responsibilities of the DOD. As part of her responsibilities, the DOD oversees organizational development through employee education and skill-building. While focused on building employee competencies, a portion of this oversight also touches upon intervention and team building. Often, the DOD is personally engaged in administering intervention programs tailored to the needs of different groups and departments. Her oversight includes approval and advising of employees that take advantage of the company's tuition assistance benefits for continuing education.

As expressed by the President, involvement of the DOD intersected appropriately with several aspects of the research. Her oversight of professional development and continuing education linked to the tuition assistance given to me by the company in support of my DBA degree pursuits. In turn, my DBA pursuits clearly intersected with my pursuit of action research into pertinent company issues to fulfil the requirements of the degree. However, for the President, organizational development also involved change to overcome the issues he had witnessed between cross-functioning stakeholders. This prompted the President to request that the DOD be involved with the action research. In conversation, the President's request coupled with his belief that the DOD's involvement would help drive the research as a part of organizational development. According to the President, the DOD's involvement in the research process would serve two purposes: 1) the DOD would serve as an internal adviser to me as the researcher, and 2) the DOD would help as a facilitating partner in organizational development according to her expertise and responsibilities. In an action research context, internal networks may be used to assess the appropriateness of the research as well as political and professional activities (Björkman and Sundgren, 2005). Through a critical lens, the President represented the primary political actor in the company. His approval was necessary to prompt as well as sustain the research through his continued support and partnership. As insider, I judged that maintaining approval and support of the research was partially contingent upon his request that the DOD be informed and involved in the research. Responding to the President's reasoned request meant involving the DOD and served as a warrant for me to reach out to the DOD as research co-participant.

Before this thesis research began, the DOD had some awareness of my professional development goals. While pursuing my DBA coursework, the DOD was involved in the company's processes to approve my requests for tuition reimbursement. However, the President's request prompted me to review more details about my degree program with the DOD in late October 2016. Our discussion included my ideas for forthcoming research and intent to produce a thesis. To help establish context, I offered brief overviews of dissatisfactions expressed by the President and others regarding solutions. Dialog with the DOD exposed her interest in both the topic and issues surrounding the research. Aligning my interests with her responsibilities, the DOD was interested in the DBA as a practitioner's degree contributing to my professional development as both scholar and practitioner. This meeting also produced agreement to future outreach and dialog as the research progressed.

Movement through the cycle of action research, from planning to taking action, is supported by a critical premise as well as content and a process for doing so (Coghlan and Brannick, 2014). Following my first-person analysis that produced the matrix in figure 11, the DOD was reengaged as co-participant in the research in August 2017. As noted, fulfilling the President's request meant involving the DOD. The DOD had expressed interest in the research topic in October 2016. However, the decision to re-engage the DOD as a research co-participant in August 2017 followed additional reflection on my pre-understanding of the DOD as an internal expert in organizational development. A portion of the DOD's expertise involved intervention into contentious cross-functional issues among internal stakeholders. As described in chapter 5, this research eventually drew upon the DOD's expertise to help facilitate developmental actions (e.g. workshops) and steps taken to address solutions-based issues with internal stakeholders.

Reflection and additional reading also informed my decision to share the content represented in the matrix of figure 11 with the DOD. This sharing decision balanced two issues. The first issue linked to my ethical concerns and agreements with interviewees that interviews and transcript data were confidential and restricted for viewing between me as the researcher and the individual interviewees. Ethical concerns were addressed by considering how qualitative data may be shared and reused for further analysis by other researchers. Qualitative data may be made reusable for further analysis so long as it conforms to ethical guidelines concerning the preservation of anonymity (Corti, Thompson and Fink, 2004). For this research, anonymity was preserved as the coloured cells of matrix figure 11 replaced anecdotes from the transcripts that might otherwise be directly associated with interviewees. For co-participation in analysis, the DOD would not see transcript data in the form of anecdotes, but would see the coloured matrix of figure 11 along with the definitions of relational processes and quality measures in tables 3, 4, 5 and 6.

The second issue linked to my considerations for the DOD's time and willingness to work with detailed analytical findings. This issue was addressed by considering matrices as a means and method for co-participatory analysis. Matrices offer a flexible means for making qualitative data accessible for the process of interpretation and analysis, and may be applied purposefully according to the level of detail appropriate for readers to absorb and understand large amounts of data (Nadin and Cassell, 2004). The matrix of figure 11 avoided too much detail by leaving out anecdotal data, but preserved the sense of intersection and correspondence between relational processes and quality measures through the coloured cells. Further, the coloured cells represented data in the matrix of figure 11 that derived from the troublesome experiences of internal solutions stakeholders. As coloured cells also preserved anonymity agreements made with interviewees, it represented research data that I judged as relevant, reusable, ethical and open to interpretation and analysis by the DOD. The matrix of figure 11 and definitions in tables 3, 4, 5 and 6 were thus used to provide the DOD with an analytical tool and data that was both accessible and ethical for her co-participation in analysis. Presented this way, the data in the matrix was also accessible to others for co-participation in the analysis.

The findings represented by the matrix in figure 11 and my sense of inquiry for making these findings actionable suggested an opportune moment to reengage in dialog with the DOD. The action research required a way to further develop the findings as actionable knowledge with internal stakeholders. Within a phenomenological research process, researchers may inter-subjectively validate the extent to which their analytical insights offer meanings to the experiences of others and themselves (Van Manen, 1990). In matrix form, my findings offered both means and opportunity to benefit from the DOD's understandings, judgements and potential actions applied to research progress. As a quality check, independent scrutiny from others may also assuage systematic distortion of the analysis through the researcher's preconceptions and assumptions (King, 2016). Both the content and process of research co-participation with the DOD derived from further exploration and critique of relational processes and corresponding quality measures within the matrix of figure 11 as the meanings of stakeholder experiences. Further, this process opened findings to interpretation and analysis as actionable knowledge fit to approach solutions-based issues. Open discussions about intervention and future co-participation from additional internal stakeholders in the research also aligned with my intent for involving the DOD.

4.3 The DOD's Co-Participation in Analysis

Discussions with the DOD were reopened in August 2017 (see research timeline Appendix I) for co-participation in the analysis of the spatial form of the template matrix. The DOD was introduced to the analysis using the collection of definitions (tables 3, 4, 5 and 6) as well as the spatial template matrix (figure 11) illustrating relational processes and corresponding quality measures.

Dialog began by considering and evaluating the full collection of thirty-one relational processes and eighteen quality measures in the matrix of figure 11. As noted in section 4.1, three codes describing quality measures were modified slightly following this evaluation. Specifically, quality measures originally termed *available operant resources*, *expectation specification*, and *new concept,* were changed to *operant resource availability, expectation specificity,* and *conceptual newness* to better reflect the sense of these codes as quality measures. As noted, definitions of these quality measures were not changed. Inquiry with DOD then turned to an exploration of how early findings linked to her role, and how findings might influence the understanding and development of internal stakeholders. Also explored was the sense of what might be done with the research findings as actionable knowledge.

Action decisions eventually emerged by considering solutions issues addressed by the DOD. She expressed interest in using the research outcomes for practical applications. A portion of her interest linked to a history of intervening with a group of internal stakeholders on contentious solutions issues. From her experience, discussions had bogged down with a team unable to find fruitful means for progressing with dialog. From our discussion, her appreciation stemmed from the sense of relational processes and quality measures as new topics for dialog and learning with this contentious group of internal stakeholders that we later named the "Stepping-in" group.

From our discussions, the DOD also offered insights on what would make knowledge of relational processes and quality measures actionable through discussion. She expressed how the variety of relational processes was concerning. This concern derived from her sense that some internal stakeholders did not seem to recognize many of the relational processes as important for co-creating solutions. According to the DOD:

> "It's important that we help people identify the [relational processes] that they do not recognize or are problems for them. They need a chance to recognize that relational processes are important as they try to pull together solutions with other employees, even if they think that they don't need to use some [relational processes]."

For quality measures, the DOD expressed her sense of them as meaningful goals corresponding to relational processes. However, the DOD also expressed how quality measures seemed symptomatic of other company issues that could affect the solutions development experiences of internal stakeholders. In terms of action, the DOD expressed how:

> "We may set qualities or quality levels we want to reach then work backward, doing what it takes to reach these levels in relational processes. But if we keep working backward, we might find that we need to rethink how the solutions group works, how it's organized, or the spaces people work in."

As our dialog explored how internal stakeholders might come to recognize relational processes or use quality measures as goals, the DOD expressed how existing training that focused upon quality and processes did not address these topics. Further, considering issues with the "Stepping-in" group, the DOD reaffirmed her sense that these topics would be useful for learning and dialog, but had not entered her attempts to intervene with the group.

Discussion then progressed to consider how the knowledge represented in figure 11 and the tables 3, 4, 5 and 6 could be made actionable for training or intervention. From discussion, we agreed that our sense of which relational processes and quality measures were most important remained unclear. From the DOD's perspective, impactful and memorable intervention and training did not overload stakeholders with too much information. She recommended reducing the matrix to relational processes and quality measures offering "…the most bang for the buck" when introduced into training and intervention. Further dialog produced agreement that the relational processes and quality measures should be reduced in number to contribute to this objective. This sense of reducing the findings also helped future conversations and our analysis to gather relational processes and quality measures into meaningful themes.

By considering which relational processes and quality measures might be most important for internal stakeholders, dialog explored how the quantity of relational processes and quality measures in the template matrix of figure 11 might be reduced. As action, several meetings were scheduled with the DOD beginning September 2017 to evaluate, reduce and make sense of the relational processes and quality measures. Considering the DOD's insights, this analysis was mindful of deciding and collating the relational processes and quality measures that had commonality and significance in the experience of internal stakeholders. The quality measures and relational processes chosen to remain in the research eventually reduced the size of the template matrix of figure 11 to a dense map of twenty-three relational processes and thirteen corresponding quality measures of figure 12.

While figure 12 offered a condensed image, it was also a step in our agreement to express relational processes and quality measures as useful and impactful knowledge. Figure 12 represented a tangible output of our understanding thus far. However, while the figure 12 matrix shed light on the experiences of internal stakeholders expressed as relational processes and quality measures, our discussions also suggested that there may also be commonalities or contexts that inform or underlie these experiences.

Discussions on qualities revealed that the solutions business may link quality to layered contexts involving solutions work or the organization supporting this work. The DOD had suggested that internal

Figure 12
Reduced Spatial Form of the Template Matrix

stakeholders might find some relational processes common and useful while others might be problematic or unrecognized. Yet, figure 12 did not express such quality contexts or offer insights on the commonalities and usefulness of some relational processes over others. The DOD and I agreed that an understanding of these commonalities or contexts would be useful for approaching interventions among cross-functional stakeholders with a variety of roles and responsibilities. My reflections on research methods revealed that such underlying contexts or commonalities offered a rich area for thematic exploration in phenomenological analysis. However, as figure 12 offered no insight into thematic connections between distinct relational processes or individual quality measures, the DOD and I agreed that the matrix of figure 12 expressed no thematic understanding. While interesting, we determined that figure 12 represented a transitional outcome in the research aimed at producing actionable knowledge for intervention. This opened inquiry and exploration of relational processes and quality measures to produce thematic understanding about the experiences of internal stakeholders.

4.4 Determining Sub-themes and Themes in the Data

The reduced quantity of relational processes and quality measures that filled the matrix of figure 12 offered a condensed, coloured image of common and significant relational processes. However, the co-participatory analysis with the DOD that produced figure 12 used the anonymized data of figure 11 as well as definitions of relational processes and quality measures in tables 3, 4, 5 and 6. In the matrices of figures 11 and 12, coloured cells anonymized the data as they replaced the anecdotes originally taken from the interview transcripts. While this anonymization process made the data accessible for co-participatory analysis and dialog with the DOD, it also simplified the data by removing the rich data available in the anecdotes. As researcher, this prompted my reflection on the anecdotes drawn from the interview transcripts as data and how this data could be useful for further analysis to produce thematic understanding. In figures 11 and 12, the coloured cells replaced textural qualities of anecdotes to facilitate co-participation with the DOD. However, phenomenology uses rich, textural data to find thematic cogency in experiences and surface horizons leading to thematic structures (Moustakas, 1999). As researcher, a return to the transcript data (i.e. the anecdotes) was necessary to produce thematic understanding. However, any first-person return to transcripts would be constrained to the anonymity agreement with the interviewees. To conform to the anonymity agreement, the DOD could not have access to read the transcripts or the anecdotes drawn from them. However, considering the DOD's engagement in the research thus far, reflections upon the next, thematic phase of the analysis suggested that her co-participation as a quality check to my first-person development of thematic understanding would be valuable. The DOD and I agreed to continue our regular cycle of meetings to explore sub-themes and themes. However, to advance the research, the DOD and I agreed that our forthcoming meetings would leverage her insights and expertise as a quality check to my development of sub-themes and themes emerging from my re-analysis of the anecdotes. We confirmed our agreement that findings and outcomes produced from our meetings should be actionable knowledge and that the DOD would offer expert insights on the usefulness of the findings for intervention with internal stakeholders.

My first-person re-analysis of the anecdotes to reveal sub-themes and themes used the matrix of figure 12 as a starting point. The coloured cells that represented relational processes and corresponding quality measures in figure 12 were replaced by anecdotes - the same anecdotes that, in the analysis that produced figure 12, indicated correspondence between relational processes and quality measures. This focused my first-person re-analysis on the same anecdotes that linked to the twenty-three relational processes and thirteen quality measures the DOD and I determined as common and significant. This first-person process then commenced with a re-reading and re-analysis of the anecdotes. As I returned to the text to re-analyse the anecdotes, horizons emerging from my re-reading were carefully noted for quality check discussions with the DOD. These discussions began as I shared these horizons and my insights with the DOD, then solicited comments from the DOD concerning the horizons as actionable knowledge and useful for intervention. The DOD's comments were then carefully noted and used for reflection side-by-side with a re-reading of the anecdotes. Upon my return to the rich data in the anecdotes, I applied insight garnered from discussions with the DOD to shape and clarify the lens I used to discern thematic horizons in the relational processes and quality measures. My first-person discernment reflected comments and perspectives the DOD shared with me concerning the usefulness of horizons I shared with her.

This process enabled me to share my sense of horizons without directly revealing anonymous interview data with the DOD. However, the DOD's comments informed my sense of horizons that emerged from my re-readings of the anecdotes as meaningful to the DOD and applicable in partnership with the DOD as actionable knowledge. This cycle of first-person re-analysis of the anecdotes followed by sharing and second-person commentary and feedback from the DOD also helped settle the form eventually taken by the sub-themes and themes of relational processes and quality measures. For example, to make them clear and differentiable, the DOD and I agreed that sub-themes would be collated from distinct relational processes and quality measures, and that sub-themes would not share relational processes or quality measures. Sub-themes were formed by collating distinct relational processes and quality measures into groups. Similarly, the themes formed by collating groups of distinct sub-themes under the themes.

Progress in this stage of the analysis was facilitated by visually expressing thematic findings for discussion and co-participation with the DOD. The DOD and I agreed that the matrix of figure 12 had served as practical output from our earlier discussions. The matrix of figure 12 represented our understanding of common and significant relational processes and quality measures. We decided to carry forward our understandings captured in figure 12 into the thematic analysis and apply it as a visual starting point. The matrix of figure 12 was then put it back into use as a tool to facilitate our co-participation in the collation of relational processes and quality measures into sub-themes and themes. However, to make the figure 12 matrix useful for thematic analysis also required a process of modifying the matrix to reflect thematic findings.

To begin, I modified the figure 12 matrix as a first-person exercise by expanding it. To preserve accessibility for the DOD, coloured cells were preserved in the figure 12 matrix. As before, coloured cells also maintained anonymity and simplicity in the matrix data. To modify the matrix, the sub-themes and themes of relational processes and quality measures that were forming from my re-analysis of the anecdotes were given spaces to fit in the matrix of figure 12. To create these spaces, the top edge of the figure 12 matrix was expanded upward by adding wide rows as spaces for headings of quality measure sub-themes and themes. Similarly, the left edge of the figure 12 matrix was expanded leftward by adding columns as wide spaces for headings of relational process sub-themes and themes. The headings were brief descriptions of the sub-themes and themes of relational processes and quality measures formed from my first-person analysis. To express which relational processes (in rows) and quality measures (in columns) gathered into distinct sub-themes, the rows and columns were rearranged and reordered according to their fit under the sub-theme headings. Similarly, sub-theme headings were gathered under distinct theme headings. My modifications of the figure 12 matrix made it useful to assemble, present and discuss all thematic findings in the cyclical meetings with the DOD. The modification exercise also allowed themes to be isolated and broken out from the matrix into distinct tables. Tables enabled the themes to be expressed, examined, interpreted and agreed as separate topics and as collations of distinct sub-themes, and sub-themes as collations of distinct relational processes or quality measures. Tables are used in sections 4.5.1 and 4.6.1 of this chapter to help illustrate the various themes that the DOD and I eventually agreed as representative of our thematic understanding.

Combined with cycles of meeting and discussion, my exercise of modifying the figure 12 matrix also facilitated further dialog and co-participation in analysis with the DOD. Dialog with the DOD continued as a cycle of meeting and discussing my modifications of figure 12 matrix. Meetings were followed by my first-person reflection upon our discussions as well as re-analysis and reflections on the interview data. I then made more modifications to the figure 12 matrix based upon my re-analysis and reflections. My modifications to the figure 12 matrix sometimes involved the words and terms used in the headings to describe the sub-themes and themes. Other modifications involved the collation of relational processes or quality measures under more fitting sub-themes. Once my modifications were made, I returned to meetings with the DOD with modified versions of the matrix for more dialog to discuss and confirm reasons for modifications.

The DOD's co-participation in analysis derived from her inquiry during our meetings. In meetings, the DOD's inquiry about the sub-themes and themes I proposed in my figure 12 matrix modifications would prompt my return to the anecdotes to clarify my understandings. Once clarified, I would make reasoned modifications the matrix and return to my meetings with the DOD for more inquiry and dialog. In her analysis, the DOD's inquiry demanded that I provide clear articulation concerning why particular relational processes and quality measures fit under particular sub-themes and themes. At times, this would prompt me to modify the headings to better describe sub-themes and themes. The DOD's inquiry also prompted me to prepare my expression and description of sub-themes and themes to offer more clarity through plain language. According to the DOD, this clarity would improve the usefulness of the findings shared in future interventions with internal stakeholders. As a quality check of the analysis, discussion was generative of agreements with the DOD on sub-themes and themes as actionable knowledge for discussion with other internal stakeholders. This cycle continued until the DOD and I reached agreement on thematic findings and how these findings should be usefully expressed in matrix form. The matrix headings that were used to describe and provide concise meanings of the sub-themes and themes were settled as we discussed how and why particular relational processes and quality measures fit under sub-themes and themes.

The matrix served as a useful tool and tangible evidence that helped the DOD understand and contribute to the progress of the analysis. The process of modifying, presenting and discussing the matrix activated the DOD's steady, cyclical co-participation in the analysis and settlement of the sub-themes and themes. While accommodating a sense of quality check, the DOD's co-participation in the development of thematic findings also generated confidence in the findings as actionable knowledge. For example, the sub-themes and themes expressed in the matrix used abbreviated descriptions. However, our discussions produced insights into the ways thematic findings could be more fully expressed in active dialog to make practical sense to other stakeholders during interventions. Both the DOD and I used nuanced meanings and understandings of the sub-themes and themes that developed during this phase of the research in the dialog of interventions that followed with internal stakeholders.

4.5 Context of Relational Process Sub-themes and Themes

Discussion with the DOD was useful for shaping the character and meaning of relational process sub-themes and themes that formed from the researcher's re-analysis of the anecdotes. In the effort to thematise relational processes, discussions considered the usefulness of processes. This discussion acknowledged the company context as we considered documented solutions processes and what made them useful. Within the company, the DOD and I agreed that documented processes enabled stakeholders by prompting them to plan and deconstruct their work into manageable phases - the steps and stages within written processes. The DOD expressed how this step by step deconstruction was used by internal stakeholders to approach solutions as projects. This approach allowed internal stakeholders to focus on the tasks "at hand" – the tasks that were necessary to complete stages within the documented solutions processes. The DOD expressed how one task led to another to fulfil the requirements of a development phase or stage in a solutions project. As stakeholders focused upon tasks at hand within a process stage, the DOD claimed that they were better able cope and avoid being overwhelmed by the complexity of provisioning a solution. From conversation, we agreed that while relational processes appeared focused and purposeful they also appeared task-like. However, unlike tasks within documented processes, the relational processes within the themes were ongoing and could not be "checked-off" as complete or finished within any particular solutions project.

Relational processes formed apt descriptions of purposeful, ongoing efforts stakeholders applied in their experience of engaging in the business of provisioning solutions with one another. Nonetheless, documented processes provided a workable example of making process knowledge tangible by collating prescribed tasks, steps and stages individual stakeholders took to provision solutions. Based upon the commonality of these process-oriented practices, the DOD and I agreed that a similar approach could be applied to document relational processes. The existing collation and documentation practices helped us express how the relational processes in figure 12 grouped into sub-themes and themes. Through the process of cyclical meeting and analysis noted above, we came to agree that the relational processes analysed to produce figure 12 should group thematically into purposeful, ongoing and broader efforts or processes already implemented within company. In the experiences of internal stakeholders, including the researcher and the DOD, these themes of broader efforts also appeared meaningful and necessary for the provision of solutions.

To help in the expression of themes, the DOD offered an example of a broader ongoing effort for which she was responsible that involved organizational development. She described how leadership development was not limited to internal stakeholders with managerial or executive titles. According to the DOD, leadership applied to all internal stakeholders as an ongoing developmental effort while still encompassing relational processes and corresponding qualities:

> "We're all called to be leaders with personal power. That's where you get the results. That's where people see the co-benefit of the relationships, engagement, meaningful work, environment. People with a good sense of self are able to form the relationships we use to get anything done. They will be more influential than those with merely titles. They are the facilitators, they are the means of accomplishing action. They are usually facilitating sustained efforts by getting others involved, beyond start-up or project phases of a process."

This sense of relational processes supporting broader efforts (documented processes, development programs, etc.) formed a practical lens for my re-analysis of the anecdotes, and the collation of relational processes into useful sub-themes and themes.

4.5.1 Relational Process Themes and Sub-themes

Thematically, findings from analysis suggest that stakeholders engage relational processes oriented toward leading solutions or while doing the detailed work of provisioning of solutions. To lead solutions, certain relational processes help internal stakeholders express positions or cultivate operational environment and understanding amid the solutions business context. These relational processes gathered thematically into *Processes Conducive of Solutions (Leading Solutions).* Discussions with the DOD revealed that the *Processes Conducive of Solutions (Leading Solutions)* theme resonated with the implementation of leadership development programs within the company. These programs supported the company's stated leadership principles and manifested in training curricula and sheets guiding the conduct of annual performance reviews within the company. As an insider and experiencer of these programs, my reflections on the relational processes presented in the interviewees' anecdotes and the DODs experience with leadership development influenced our development of sub-themes that aligned with these leadership principles. Two sub-themes surfaced from these reflections and discussions with the DOD within the *Leading Solutions* theme. In the first sub-theme, *Making sense of solutions,* four relational processes appeared vital to stakeholders' interaction through framing and sizing-up solutions for the business and themselves as internal stakeholders. These included *Systematic Visioning, Meaning Creating, Historical Accounting* and *Measure Evolving*. Through co-participation with the DOD, the *Making sense of solutions* sub-theme gathered relational processes resonant with the company's leadership principles including; 1) the development of stakeholders' understanding about how their work relates to the goals of the business and identifies with the unit's mission, 2) understanding the unspoken meaning in situations, 3) acknowledging historical contributions and achievements, and 4) creating ways to measure performance against goals.

As part of *Leading Solutions,* internal stakeholders also engage in seven relational processes critical for working with and through solutions. In the second sub-theme, *Fostering Solutions' Working (Critical)*, assembles seven relational processes that benefit both solutions business and other internal stakeholders involved with solutions. These relational processes seemed critical in the sense of stimulating solutions business through care and deliberation given by internal stakeholders to one another within the solutions business context. Relational processes within this sub-theme also oriented toward promoting development of internal stakeholders and the organization in their approach to solutions. Seven relational processes gathered into the *Fostering solutions working (critical)* sub-theme include *Co-learning*, *Deliberate Evolving*, *Enabling*, *Envisioning*, *Problematizing*, *Prioritizing* and *Coaching*. Again, discussion with DOD confirmed the sense of how these relational processes harmonized with leadership principles already implemented within the company. These existing principles supported: 1) seeking out others involved in a situation to learn their perspectives, 2) taking initiative to set new business policies or procedures, 3) seeking out and building relationships with others who can provide information, intelligence, support and other forms of help, 4) identifying action needs and taking action before being asked or required, 5) speaking up to the right people at the right time when in disagreement with decisions or strategy, 6) acting to align unit's goals with the strategic direction of the business, and 7) sharing expertise, listening and giving honest feedback to others. Relational processes and sub-themes of relational processes under the *Leading Solutions* theme are illustrated table 7.

Theme	Sub-themes	Relational Processes
Processes Conducive of Solutions (Leading Solutions)	Making sense of solutions	Systematic Visioning
		Meaning Creating
		Historical Accounting
		Measure Evolving
	Fostering solutions' working (critical)	Co-learning
		Deliberate Evolving
		Enabling
		Envisioning
		Problematizing
		Prioritizing
		Coaching

Table 7
Processes Conducive of Solutions (Leading Solutions)

The second theme that emerged from the analysis touched upon relational processes engaged by internal stakeholders as they prepare for and perform the nitty-gritty, hands-on, detailed work of making solutions into real, operating hardware and software. These relational processes are gathered under the *Processes for Provisioning Solutions (Doing Solutions)* theme. Within this theme, the *Finding workable solutions* sub-theme groups the relational processes dedicated to dynamically finding and defining solutions opportunities - the opportunities to work toward solutions. These are the close-at-hand, more immediate opportunities that have yet to become complete solutions, and about which internal stakeholders work to produce a stronger sense of an accomplishable solution. As part of a broader effort, dialogue with the DOD revealed how a company training program dedicated to better understanding of solutions opportunities and growing solutions business resonated with the *Finding workable solutions* sub-theme. Within this program, training sessions were designed for company sales personnel to help them identify markets where solutions applications were likely to arise as well as issues and problems that customers were likely to face within these markets. Training material focused on developing skills linked to the recognition of viable sales opportunities and customer applications amenable to solutions. The DOD affirmed the technology and engineering focus of these training sessions, emphasizing the sense of solutions as combinations hardware and software. Per the DOD, the program made no expression of relational or service elements linked to solutions.

However, in their interactions leading up to the decision to create solutions out of hardware and software, analysis of interviewees' experiences suggested that internal stakeholders engage in relational processes dedicated to producing internal agreement on what "could be" or what they perceived as reasonably possible for themselves as an implementation of documented solutions development processes. These relational processes seem dedicated to helping internal stakeholders decide which solutions opportunities were acceptable and had good potential for making the transition into internal solutions-provisioning projects. Internal stakeholders interact with these relational processes to winnow the opportunities to produce solutions. Through these relational processes, solutions opportunities are considered and reduced to those best suited to internal stakeholders' sense of their present and near-term capacities to take on and resolve new, unique problems from customers. Internal stakeholders engage these relational processes as a matter of driving the exploration and solidification of how they feel about fulfilling solutions requests, and the implications for their work and operations if requests are made to unfold within company walls and among one another. While engaging in these relational processes, internal stakeholders seem to acknowledge that the uniqueness of solutions opportunities carry the potential to stretch the capabilities and resources of the internal operations (including tasks, written processes and outputs) beyond those understood as currently operational. As part of their solutions experiences, internal stakeholders express how provisioning unique solutions carries the possibility for internal change as necessary to produce solutions. Vigorous, purposeful interactions to prompt and agree to the extent of this change seem to follow from stakeholder's understanding and acquiescing to this possibility. They interact to make sense of the degrees of change suggested by solutions opportunities and whether these are mutually acceptable.

Thus, relational processes within this sub-theme seem dedicated to dealing with change and its acceptable limits while deciding upon which opportunities could be transitioned into work and made to happen as solutions projects. This sub-theme of *Finding workable solutions* consists of four relational processes: *Boundary Setting*, *Objective Clarifying*, *Spearheading* and *Match Making*.

The next sub-theme within the *Processes for Provisioning Solutions (Doing Solutions)* theme emerges from the relational processes internal stakeholders engage while in their work together to make (i.e. schedule, layout, program, draw, build, package, deliver, etc.) a working solution. The variety of written solutions processes - varied according to solutions types, categories or approaches (see appendix C) – served as explicit process knowledge to guide internal stakeholders through the provision of solutions. However, interviewees expressions suggested that relational processes run coincident, in support of the cross-functional tasks performed to fulfil the steps and stages captured in written process documents. Discussions with the DOD confirmed how documented solutions processes formed part of the company's broad process documentation efforts to align with ISO standards and sustain ISO 9001 accreditation. The network of written processes and programs used to run the solutions business – from the identification of sales opportunities to contracting, production, shipping and billing – link and complement one another, identify process responsibilities by functional unit, and enable the fulfilment customers' orders. Documented processes direct stakeholders by prescribing work instructions and tasks for which they were responsible and perform according to their individual roles and functions. However, solutions may be reasonably viewed as relational processes (Tuli, Kohli and Bharadwaj, 2007) and, as suggested in the anecdotes expressed by interviewees, require the interaction and exchange of many internal stakeholders. The relational processes identified in the interviews indicated purposeful, relational interactions engaged by these stakeholders to exchange their knowledge and knowhow through various channels as they provisioned solutions together in groups or teams. Face-to-face conversations, meetings, email and other software or business systems for customer relationship and project management served as channels for interaction among internal stakeholders.

As part of the *Making solutions work* sub-theme, relational processes seem to pair closely with the individual tasks and outputs that individual stakeholders contribute in the implementation of documented processes, and unfold as they interact amid groups charged and working together to provision solutions that work. Unlike mass-produced products, solutions do not come off production lines ready to work. Instead, solutions are made to work as stakeholders engage multiple relational processes for pulling together service and product combinations focused on producing functioning solutions comprised of hardware and/or software. However, unlike the implementation of documented processes to capture, collate and convey steps, stages and tasks, there existed no corresponding actions to “tangibilize” or document relational processes prior to this study. Prior to this study, no documentation made relational processes sensible for inquiry into how solutions were provisioned through relational processes. While making solutions work, the lived experiences expressed by internal stakeholders reveal that they engage in *Integrating*, *Information Sharing*, *Collaborating*, *Coordinating*, *Negotiating*, *Innovating*, *Complementing* and *Responding* as relational processes. Relational processes and sub-themes of relational processes under the *Doing Solutions* theme are illustrated table 8.

Theme	Sub-themes	Relational Processes
Processes for Provisioning Solutions (Doing Solutions)	Finding workable solutions	Boundary Setting
		Objective Clarifying
		Spearheading
		Match Making
	Making solutions work	Integrating
		Information Sharing
		Collaborating
		Coordinating
		Negotiating
		Innovating
		Complementing
		Responding

Table 8
Processes for Provisioning Solutions (Doing Solutions)

4.6 Context of Quality Measure Detections and Perspectives

As with relational processes, a cycle of first-person re-analysis of the anecdotes, followed by discussion with the DOD, then more first-person analysis was used to inform the collation of quality measures. Discussions with the DOD helped to shape the lens I applied to discern quality measure horizons in my first-person re-analysis of the anecdotes. Following my re-analysis, discussions with the DOD helped settle the character and meanings used to collate quality measures into sub-thematic groups. In these discussions, I expressed how my re-readings of the anecdotes revealed that internal stakeholders appeared to discern quality measures for different reasons and in different ways. To collate quality measures, I suggested that distinct quality measures could be placed into groups that were named for these different reasons and different ways. As internal stakeholders seemed to use to different reasons and different ways to discern quality measures, I then proposed that quality measure groups might be more aptly described as “discernments”.

However, in dialog for understanding these groupings, the DOD questioned the sense of qualities as "discernments" made by internal stakeholders. In her estimation, internal stakeholders exposed to the matrix groupings could be confused by the meaning of "discernment" linked to quality. Our discussion advanced by considering how quality linked to products set the context and informed the ways internal stakeholders perceived quality. We discussed how targeted metrics like yield, throughput and scrap rate suggested that quality management happened as internal stakeholders were trained to detect neutral measures falling outside of tolerances. Quality measures seemed to offer an objective sense of evidence for detecting quality problems.

My conversation with the DOD then illuminated my first-person bias favouring the practice of "discernment" and time spent in my first-person, reflective analysis that enabled me to "discern" quality measures. Per the DOD, busy and time-constrained internal stakeholders would not be inclined toward reflection and analysis meant to discern qualities. As part of the company's quality training, the DOD expressed how internal stakeholders were often taught the importance of quality measures and their use to detect quality issues. These measures informed actions taken to bring quality back into agreed margins. By considering how quality measures could correspond to relational processes, the DOD agreed that internal stakeholders could detect quality while engaged in relational processes with one another. In agreement with the DOD, the sense of "detections" aligned with the ways and reasons internal stakeholders found quality measures useful and seemed a better fit to describe the quality measure groupings. Thereafter, "detections" replaced "discernments" to describe the groupings of quality measures.

By considering internal stakeholders' different reasons and ways for detecting quality measures, groups described as "detections" shed light on why and how internal stakeholders perceived quality measures while they interacted with one another through relational processes. However, analysis of the anecdotes also suggested that stakeholders adopted different perspectives to produce rich descriptions of their experiences with solutions. The DOD and I agreed that these perspectives reflected the variety of internal stakeholders' concerns linked to solutions. These concerns seemed to clarify as internal stakeholders focused the lens they used in their mind's eye to view then describe their solutions experiences. Viewing and reflecting upon their solutions experiences from different foci seemed to enable internal stakeholders to express their concerns from different perspectives. While some concerns focused on broad views, other concerns were personal and reflected the feelings of internal stakeholders as individuals, or their concerns as individuals working with other individuals. The DOD and I agreed that "perspectives" offered a novel way to describe thematic groupings of quality measures. To express thematic understanding, we agreed that the thematic groupings described as "perspectives" demodulated into sub-thematic groups described as "detections". The "detections" then served as brief descriptions of the ways and reasons internal stakeholders perceived distinct service quality measures.

4.6.1 Quality Measure Perspectives and Detections

The quality measure detections gathered within three perspectives. In one perspective, internal stakeholders adopted an organizational, big picture point of view about conducting business through solutions. The condition of solutions-based business at the company level seemed the basis of this perspective as internal stakeholders highlighted their reckoning of the company's transformation (i.e. servitization) into a solutions provider. Further, this perspective was offered in contrast to doing business with mass-produced products at the company level. By changing from a seller of mass-produced products, stakeholders were fully aware of the company's transition prompted by adding solutions-based business. From the perspective of *Conducting business through solutions*, stakeholders seemed to detect qualities while working through the solutions processes, from one to the next, both leading solutions efforts and doing solutions work. These quality measures included *Timeliness* and *Ease*. Detections of qualities also emerged to help frame or formulate solutions and what they might demand from or give back to the company including *Expectation Specificity* and *Volume*. Finally, qualities were detected about the internal status of solutions as a business venture in terms of its readiness and general health. These qualities included *Operant Resource Availability* and *Thriving*. Quality measures and detections of them from the perspective of *Conducting business through solutions* are illustrated table 9.

Perspective	Detections	Quality Measures
Conducting business through solutions	Detected while working through solutions process	Timeliness
		Ease
	Detected to help frame or formulate solutions	Expectation Specificity
		Volume
	Detected about the internal status of solutions business	Operant Resource Availability
		Thriving

Table 9

Quality Measures and Detections from the Perspective of *Conducting business through solutions*

The perspective of *Solutions' provision with internal stakeholders* accounted for the many, personal, one-on-one relationships developed among internal stakeholders. These relationships seem to develop while enacting solutions-oriented roles and responsibilities. As qualities in this theme seemed to emerge from many relational processes, the sense of "provision" with other internal stakeholders was taken in a holistic sense to include both the doing of solutions work and the support of this doing – both the *Doing* and *Leading Solutions* themes of relational processes. From the perspective of *Solutions' provision with internal stakeholders*, stakeholders seemed to detect qualities arising in others, or in themselves and others. Qualities that stakeholders seemed to detect arising in themselves and others included *Tension*, *Satisfaction*, *Energized*, and *Conceptual Newness*. However, from the expressions of internal stakeholders, some qualities seem detected arising in others rather than in themselves. For internal stakeholders, the qualities of *Willing Flexibility* and *Co-ownership* appear as qualities reserved for the expression of what was felt about others or shared by others, not themselves, in their solutions experiences. Quality measures and detections of them from the perspective of *Solutions' provision with internal stakeholders* are illustrated table 10.

Perspective	Detections	Quality Measures
Solutions' provision with internal stakeholders	Detected arising in self & others in solutions' provision	Tension
		Satisfaction
		Energized
		Conceptual Newness
	Detected in others in solutions' provision	Willing Flexibility
		Co-ownership

Table 10
Quality Measures and Detections from the Perspective of *Solutions' provision with internal stakeholders*

The perspective of *Confidence and certainty* bridged the perspectives of *Conducting business through solutions* and *Solutions' provision with internal stakeholders*. The *Confidence and certainty* perspective also appeared as a connecting element between detections. It linked to the detection of *Trust* as a quality measure felt in the overall status of solutions business. However, the perspective of confidence and certainty also bridged to stakeholders' detection of *Trust* arising in themselves and others about solutions provision (table 11).

Perspective	Detection	Quality Measure
Confidence & certainty	Detected arising in self & others concerning solutions' provision & business status	Trust

Table 11
Quality Measures and Detections from the Perspective of *Confidence & certainty*

4.7 Formation of a New Matrix to Illustrate Thematic Understanding

As noted in section 4.4 of this chapter, tables were broken out as part of the exercise of modifying the figure 12 matrix. Tables enabled discussions with the DOD about sub-themes and themes, perspectives and detections as separate topics apart from the figure 12 matrix. Tables 6 through 10 then helped illustrate and express our settled thematic understanding. However, to assemble our settled thematic understanding together with our understanding of relational processes as corresponding with quality measures, a new matrix was created using tables 7 through 11. As with figure 12, design of the new matrix considered accessibility of the data for dialog with the DOD and other internal stakeholders. As the layout of the figure 12 matrix (i.e. relational process rows and quality measure columns) was familiar and useful in discussion with the DOD, it was used as a model for a new matrix that included sub-themes, themes, perspectives and detections. Table 7 was stacked atop table 8 to express themes, sub-themes and distinct relational processes as matrix rows. Tables 9, 10 and 11 were used to create matrix columns that illustrated perspectives, detections and quality measures. To put them into columnar form, tables 9, 10 and 11 were turned ninety degrees such that perspectives, detections and quality measures read top to bottom instead of left to right. However, as the perspective of *Confidence & certainty* in table 11 bridged the perspectives of *Conducting business through solutions* (table 9) and *Solutions' provision with internal stakeholders* (table 10), the matrix columns were ordered left to right with table 9 at the left, table 10 at the right, and table 11 in the middle to bridge tables 9 and 10.

Following the example of the figure 12 matrix, the cells of the new matrix were filled to indicate that relational processes had corresponding quality measures. For consistency, these correspondences were extracted from the figure 12 matrix. If a cell at the intersection of a relational process and a quality measure in figure 12 was coloured, then the same cell of the same relational process and quality measure in the new matrix was filled with a colour. However, to differentiate the new matrix from the figure 12 matrix, different colours and shades were used to accent different themes.

A pattern was added to highlight coloured relational process cells if they corresponded with all the quality measure cells. The relational processes *Systematic Visioning*, *Boundary Setting* and *Collaborating* contained this pattern. A similar patterning approach was taken to highlight quality measures that corresponding with all relational processes, namely *Timeliness* and *Trust*.

The DOD and I agreed that the new matrix (figure 13) expressed our understanding of themes and sub-themes of relational processes. The matrix also expressed different reasons and ways internal stakeholders experienced their detections of quality measures while adopting different perspectives. We agreed that the coloured cells clarified and made these ideas more accessible while highlighting the correspondences between relational processes and quality measures. Versus anecdote-filled cells, coloured cells also preserved the anonymity of interviewees. The patterns indicating which relational processes corresponded with all the quality measures and vice versa added interesting detail to the matrix. However, considering our intent to produce actionable knowledge, the DOD and I agreed to transition our research to an exploration of our findings as useful for other internal stakeholders. Gathered into the figure 13 matrix, findings were made tangible. As an artefact, the figure 13 matrix also made findings accessible to others for consideration. The sections that follow describe how our explorations eventually led to actions to implement the findings produced thus far – the relational processes, sub-themes and themes as well as quality measures, detections and perspectives - through briefings and interventions.

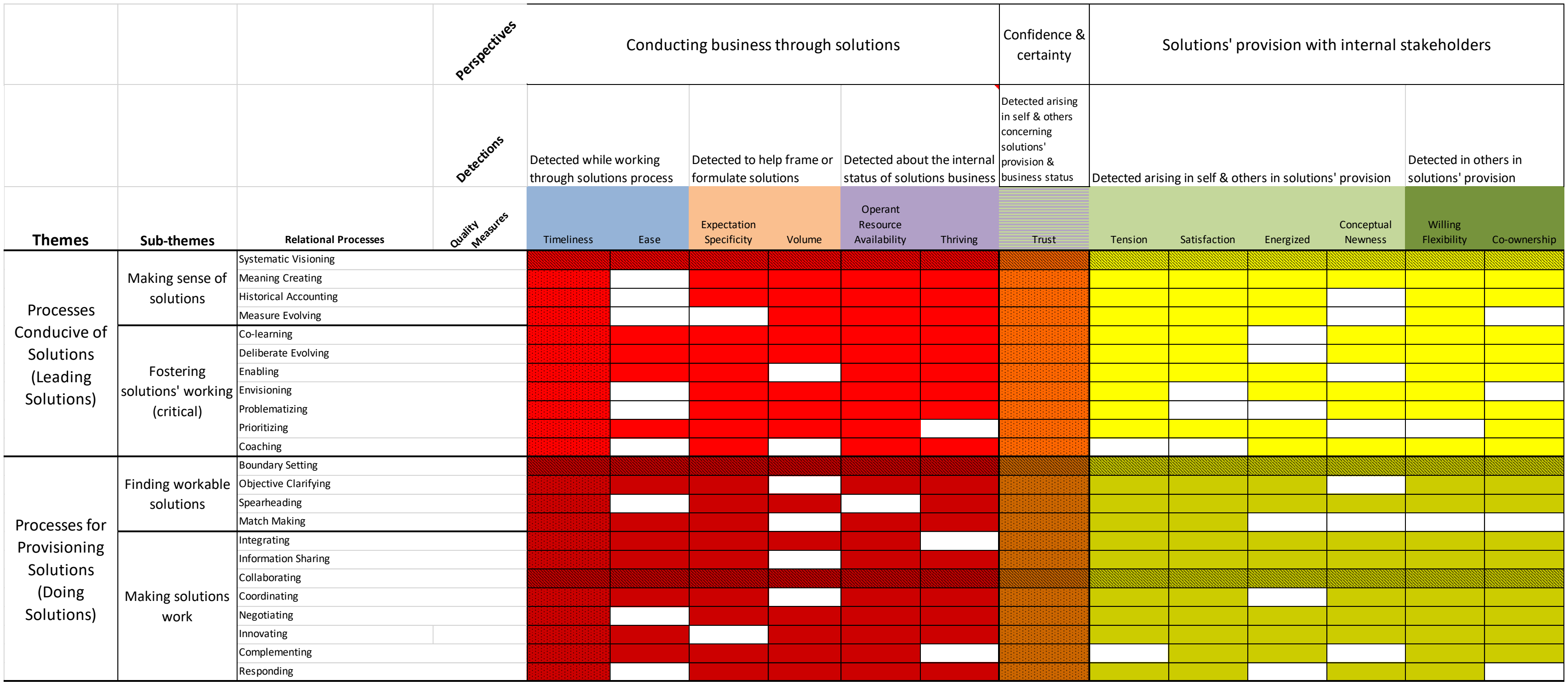

Figure 13
Spatial Matrix with Relational Process Themes and Sub-themes and Quality Measure Perspectives and Detections

4.8 Introduction of Findings to Company Executives

While dialog with the DOD was seeded by the spatial form template matrix (figure 11), understanding emerged by giving mindful attention to the relational processes and quality measures within the figure 11 matrix. The figure 11 matrix was a useful artefact for co-participation in the research. It provided access to data, but preserved anonymity by converting detailed anecdotes to simple, colour-filled cells. Colour-filled cells simply indicated correspondences between relational processes and quality measures. Discussions with the DOD then produced a sense of common and significant relational processes and quality measures – the ones that would give us "most bang for the buck" when shared with internal stakeholders. These discussions facilitated a reduction of figure 11 matrix to the condensed matrix of figure 12. In discussing and creatively working with the figure 12 matrix, topmost columns and leftmost rows were added to facilitate more matrix space to capture headings for sub-themes and themes. We then expressed our thematic understanding by moving the relational process rows and quality measure columns to express their fit under their respective sub-themes and themes. Cell colours still indicated correspondences, but were modified to highlight how relational processes and quality measures fit into sub-themes and themes. Eventually, the revised, coloured spatial matrix (figure 13) surfaced as a common reference we used to visualize, map and express our understanding of experiences of internal solutions stakeholders. However, to move the research beyond our thematic insight and knowledge of how relational processes paired with corresponding quality measures, the DOD and I imagined the matrix cells, sub-themes, themes, perspectives and detections as spaces ready for exploring where and how relational and quality issues might arise. Reflecting upon recent dialog and discovery that produced the matrix of figure 13, there was sense in making this type of experience open to others for discovery.

Further dialog produced agreement that data condensed in the figure 13 matrix was accessible for discussion. As several months had passed since the first interactions with the President about this research, it also seemed politically reasonable to update him. The President had supported initiating the research and suggested the DOD's involvement. The DOD agreed that our current findings were appropriate for a briefing and some inquiry with the President. From the DOD's perspective on timing, the research findings thus far were suitable for review by the President followed by internal stakeholders. However, our agreement was conditional. Discussion of the coloured matrix of figure 13 only made sense if accompanied by rich expressions of relational processes and clear definitions of quality measures as contributors to thematic insights. We agreed that this was my responsibility as the researcher and scholar-practitioner. Discussions with the DOD also confirmed that presentation of a written executive briefing would help communicate findings and insights as an accompaniment to the spatial matrix.

Another meeting was called with the DOD to co-create a document and determine a briefing approach. Important insights from previous interactions helped summarize and guide our co-creation dialog. We decided that sections for the brief were predicated upon on the research findings made interesting and informative for the President and other decision-makers as well as internal stakeholders. To begin operationalizing artefacts like the matrix of figure 13, we agreed that an interesting presentation of definitions, findings and insights were also reasonable topics for a briefing. However, we also considered these findings as intermediate to the action research process. The intermediate research findings had yet to be put into action or tested as useful knowledge for intervention with internal stakeholders troubled by solutions.

For impact, the DOD suggested that the briefing should form a powerful and personal statement about the meaning of the findings, and should leave the President and other decision-makers with an example of how they ought to be thinking. Dialog with the DOD suggested the value and impact of constructing the briefing this way:

> "Here are your actions, executives… When you bring these two together - processes and qualities - here's the view. Now what is our judgment? What is our gap analysis? What are our next actions? What changes might be informed by these research insights? This will set the direction for action, constructing and prioritizing the next actions. Taking action on the research data: What is our direction? We may need to dig deeper as further action."

As decisions-makers also supported action within departments across D&M and the US Subsidiary, the sections of the briefing were created with the intent of prompting action based upon research findings. To accommodate dialog and inquiry with different decision-makers, a section was isolated at the end of the briefing document dedicated to questions. This made editing easier as specific questions were developed for different decision-makers. These questions then appeared in different revisions of the brief.

Dialog with the DOD also surfaced areas of focus for further action and inquiry with the President. First, the President's judgments on research findings were needed for a robust consideration of what the DOD termed the "organizational philosophy" or the corporate policy and empowerment standards guiding the company. From experience, the President often referred to these standards for a sense of their alignment with proposed action, and the potential for proposed action to fulfil the standards. Another topic for dialog surfaced from the DOD's experience with troubled solutions groups and her reflections on the potential meaning of research findings for company leadership. As the DOD was responsible for training, I suggested expanding dialog with the President to get high level insights on how the research might inform the training approach to organizational development.

We agreed that a briefing should be set with the President to review intermediate research findings and insights. Further, the DOD agreed that discussions with the President should include her impressions and contributions to the research. These contributions referred to dialog used to condense and surface themes in the matrix of figure 13 as well as insights on the fit of research findings with organizational development. When prompted, the DOD offered an expression of her experiences with troubled solutions stakeholders viewed through the lens of research findings as potentially actionable knowledge:

> "Solutions need to be sustainable through relationships and their processes and qualities. These relationships then need to be part of our core for a change toward solutions. [There are] many shades of grey in relational processes, maybe less black and white versus transactional product sales and development…more moving up and into new understanding of what 'partnership' means. When is the collaboration self-initiating? How do stakeholders overcome the sense that they need permission to collaborate on their own? How have we set up barriers to this collaboration – secrets that need to be kept, management and prioritization of workloads, being overwhelmed with too much communication, conflict of strategies and interests between groups?"

4.9 Briefing the President and Positioning Findings for Action

The President received a briefing over a two-hour time slot in November 2017. To address time constraints and engage the President in dialog, an executive brief document summarized intermediate findings from research activities leading up to November 2017. As the meeting's purpose included inquiry for robust dialog with the President, findings were accompanied by written questions in the brief (see Appendix H).

Challenges to understanding began early in the briefing. The President expressed concerns over use of the term "relational process". When first introduced, the President expressed how "relational process" connoted relations between written processes; when one written process intersected or flowed into or out of another. To him, the semantic sense of relational processes did not immediately produce the sense of human interaction and connection. Akin to the sense of operant resources acting upon one another, the President's insights expressed how something relational could happen between things like written processes as well as people. To align with the sense of relational process, dialog helped ground the analysis in terms of experiences happening between internal stakeholders to produce service and solutions. Some references to the literature also helped scaffold solutions as relational processes (e.g. Tuli, Kohli and Bharadwaj, 2007; Hakanen and Jaakkola, 2012) and ground a revised sense of processes as relational linkages happening between stakeholders. The President's sense of relational processes settled with a recounting of our prior discussions concerning the research as well as inquiry into the troubled relationships and processes among solutions stakeholders in the D&M Company and US Subsidiary. Discussing this history helped reconnect the research findings to complaints heard from people about people within the context of solutions and written processes. Reclaiming the research topic as action with internal stakeholders amid solutions facilitated understanding about the human-centred nature of the findings – the relational processes and corresponding quality measures.

In dialog about implications of the research findings for the solutions business, inquiry turned to corporate policies as well as the expected behaviours documented by these policies. Aligning with the DOD's expectation, this inquiry with the President prompted his reference to corporate policy statements. These statements are framed and hung in every company meeting room (figure 14).

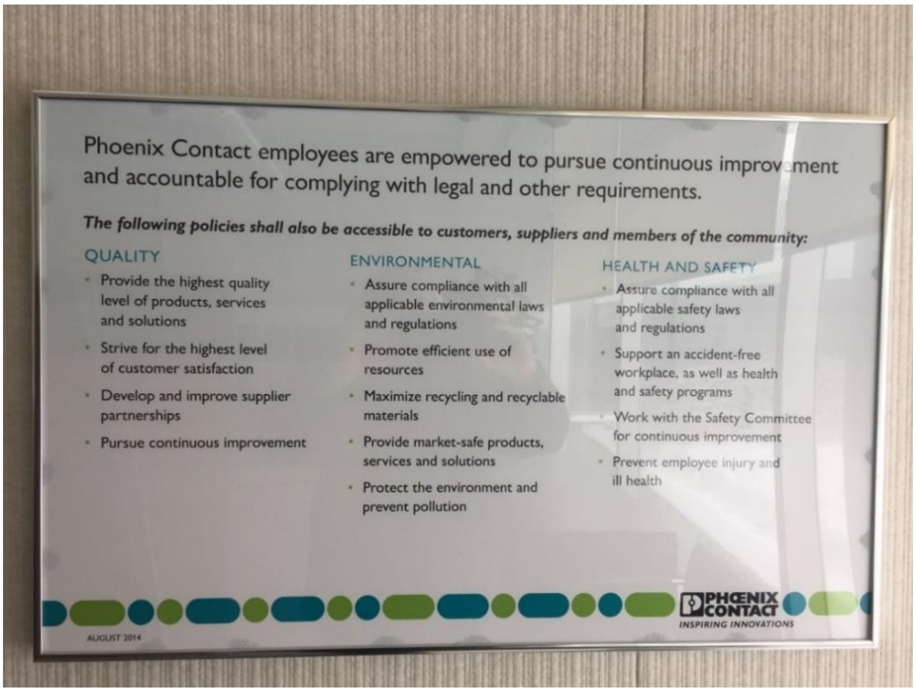

Figure 14
Corporate Policies

Among these, the statements under "Quality" seemed to align with the President's sense of relational processes and quality measures:

- Provide the highest quality level of products, services and solutions
- Strive for the highest level of customer satisfaction
- Pursue continuous improvement

In the President's view, the research highlighted how we might be missing relational processes linked to solutions. He expressed how research findings seemed to shed light on the services needed to create solutions as different and additive to the services applied to accommodate product sales - customer service, technical service, etc. However, from the President's perspective on process, an expanded understanding of internal stakeholders' experience within solutions still presented a challenge to decision-making. To the President, internal stakeholders needed to decide where and how relational processes applied in the company's written process format.

This line of inquiry also explored requirements for a revised written process dedicated to solution development. Referencing the policy statements, the President also shared thoughts on the linkage of quality to solutions:

> "We have always said 'Provide the highest quality level of products, services and solutions', but in light of the research, we probably had no solid way of truly verifying the quality of solutions that include services and products together."

In the President's view, the light shed on relational processes within solutions work suggested a gap in the pursuit of the "the highest quality level" according to the policy statement. Further, this gap suggested an evaluation of the written process deck or an alteration of language used in written processes. The President went on to suggest that such an evaluation may be enacted through an audit of where relational processes and quality measures apply in written processes. More discussion on the reasons for policies and their implications for managers revealed how stated policies are intended to build common understanding of the company's behavioural standards. Per the President, these standards were also intended to support the work environment and culture of the business.

Dialog continued by exploring the written process intersections with the research findings and the managerial implications of these intersections. However, detailed insight on the intersection of written and relational processes seemed out of context for both the President and the DOD. Neither had in-depth, detailed experience with the actual work described in the steps and stages of written solutions processes. Rather than commenting on the content in written processes, discussions turned to internal stakeholders enacting processes and process management. From the President's and the DOD's perspectives, process management also prompted discussion of managerial behaviour and leadership.

While insights surfaced from dialog on the relational process themes, a puzzle also emerged concerning linkages between written processes and stakeholders' managerial behaviour and leadership. Discussion of the *Processes Conducive of Solutions (Leading Solutions)* theme seemed to prompt a sense of paradox between behaviours and written processes. According to the DOD's experience, elements placed into written ISO processes were subject to audit by auditors from certifying agencies. Auditors, in turn, were satisfied by the documentation accompanying process steps and stages as proof of company stakeholders following their quality-oriented process. However, the DOD noted a problem with behaviour and documented processes. Per the DOD, behavioural elements installed in written processes would also be subject to audit. From her history, the DOD expressed great difficulty with trying to provide written proof of behaviours to satisfy an audit. This prompted inquiry into whether relational processes were auditable. For managers responsible for the behaviour of their direct reports, the act of recording and documenting behaviours was notoriously difficult amid the daily grind of work. According to the DOD, the daily documentation of behaviours would be almost impossible for non-managerial stakeholders unaccustomed to the practice of documenting behaviour.

Discussions eventually returned to the first words in the policy statement, "Phoenix Contact employees are empowered to pursue continuous improvement..." However, dialog progressed by inquiry into the making and meaning of the policy statement. As it stood, the policy was a statement of fact. Inquiry unfolded by reframing the policy as action and asking what provided the means to empowerment for the pursuit of continuous improvement. Here, the President suggested work on the full development and expression of relational processes as examples of behaviour to empower employees. Connotations on the meaning of relational processes for the President seemed oriented to putting research findings into action. He offered an example by drawing upon his sense of *Problematizing* and suggested development of a guideline or list of key questions to be used as examples of engaging in *Problematizing*. The President suggested such examples might empower employees by showing them how to practice relational processes.

The President and the DOD both shared the perspective that stakeholders closest to written solutions processes were likely supported by research findings as actionable knowledge. However, their sense of relational processes as supportive of solutions seemed to align with the behaviours that were engaged and experienced, but not documented as a written quality process. To the DOD and President, relational processes seemed similar to leadership behaviour as a part of what stakeholders did to be supportive of written processes. Agreement emerged from the sense of relational processes and qualities as facilitating and supporting internal stakeholders as they fulfil their work through the steps and stages of written processes. Through dialog with the DOD and the President, this sense of facilitation and support served by relational processes helped position the research findings for intervention and inquiry exploring how findings might be actionable. In light of organizational development as the role of the DOD, the President suggested that relational processes and quality measures could be valuable for educational purposes. It seemed useful knowledge to advance organizational, process and human resource development for key solutions stakeholders.

Considering organizational development, dialog with the President and the DOD helped connect the *Leading Solutions* theme to process management and leadership. However, in both the President's and the DOD's view, the scope of training and intervention decoupled research findings from the organizational hierarchy. The briefing produced agreement that leadership behaviour and management skills could be improved through training and intervention applied among internal stakeholders either with or without management or executive titles. By considering the research scope, we agreed that behaviours viewed as relational processes narrowed to internal stakeholders involved with solutions.

4.10 Approach to Intervention and Change

In the design of insider action research, approach to change is grounded in organizational development and is essentially dialogical (Bushe and Marshak, 2009; Coghlan and Brannick, 2014). Dialogic approaches to organizational development acknowledge that interventions need to address conversational phenomena to affect cultures, strategies, structures, systems and so on (Barrett, Thomas and Hocevar, 1995; Bushe and Marshak, 2009). However, the approach to change through insider action research also accounts for the kind of change at stake as well time invested into change initiatives that link to AR and academic degrees (Coghlan and Brannick, 2014). Within this AR, my approach to change surfaced from a consideration of change interwoven with my first- and second-person concerns. These concerns were addressed in this AR by selecting *guided changing* as the approach to change and organizational development. First-person, my concerns linked to an application of AR in pursuit of my DBA degree and as a company insider among other internal stakeholders. As an approach to change, guided changing fits within the context and scope of a doctoral level action research as it takes full advantage of the expertise and creativity of organizational stakeholders for change that evolves existing practices and tests new perspectives (Buono and Kerber, 2008; Coghlan and Brannick, 2014). In contrast to directed or planned change, guided changing also “focuses on enhancing and extending the effects of myriad changes that are already underway” (Buono and Kerber, 2008, p. 106). Considering the company’s servitization as change underway, my second-person concerns encompassed the lived experiences of cross-functioning internal stakeholders charged to produce solutions, including the President and the DOD. These concerns acknowledged both the President’s and the DOD’s participation in BPM through their use of direction-setting processes to manage organizational change and the behaviour of managers, and managerial processes comprising decision-making and communication activities (Armistead and Machin, 1998).

Guided changing aligns with leadership pointing the way to change while instructing and keeping watch over the process, and emerges from stakeholders commitment and contributions to the purpose of the organization (Buono and Kerber, 2008; Coghlan and Brannick, 2014). This suggests that guided changing agrees with the teleological underpinnings of change that incorporate a constructive mode of development and processes that seek to diverge from the status quo toward an entity’s (i.e. an employee’s, a group’s, and organization’s) goals or purposes (Van De Ven and Poole, 1995). To decide upon action supporting solutions business goals, conversation with the President returned to issues he identified at the beginning of the research. These issues were grounded in his interactions with cross-functioning internal stakeholders that complained about one another in their work to provision solutions. From the President’s perspective, the blame and finger-pointing expressed by internal stakeholders ran contrary to the guidance offered by company culture statements concerning friendliness and trusting partnership. Further inquiry exploring the culture statements with the President and the DOD confirmed that guidance in the culture statement was an ideal for the company. Similar to the policy statement concerning quality, this ideal was stated as fact. However, DOD expressed how both the culture statement and quality policies seemed to discount the approach these ideals:

> “We tell people to ‘be friendly’ or ‘be trusting partners’ or ‘provide the highest quality’, but we can’t expect that they will just do it. We have to work at it with them and show them how it’s done.”

The DOD also expressed how her experience dealing with different groups of internal solutions stakeholders had also been problematic and that she too had witnessed behaviours that seemed to run contrary to the culture statements. From the shared perspective of the DOD and President, efforts to show internal stakeholders how to pursue these cultural and policy ideals linked to organizational development intended to prompt behavioural change through the education, training and intervention pursued by the DOD.

From the DOD's and President's perspective, the culture and policy statements were both meant to guide behaviour. However, we agreed that the statements did not provide actionable knowledge to facilitate this guidance, intervene in the behaviours, or enhance the capabilities of internal stakeholders linked to solutions. Further discussion about the culture and policy statements (figures 4 and 16) produced agreement that three phrases were appropriate as guidelines to link intervention to relational processes and corresponding quality measures:

1) Trusting partnership – our actions are based on a mutually committed spirit, on friendliness and honesty (figure 4 - culture statement)
2) Provide the highest quality level of products, services and solutions (figure 14 - corporate policies)
3) Phoenix Contact employees are empowered to pursue continuous improvement… (figure 14 – corporate policies)

4.10.1 Action Decision: Prepare for Intervention with a Solutions Provisioning Group

Among approaches to change, guided changing prompts a collaborative relationship among changemakers dedicated to learning through action (Buono and Kerber, 2008). However, one of the central features of IAR is the enhancement of learning through cultural mechanisms that bear language for thinking, reasoning and understanding consistent with new capabilities (Friedman, Lipshitz and Overmeer, 2001 cited in Roth, Shani and Leary, 2007). While such mechanisms may include the articulation or processes, they also form the means of creating understanding among employees on the need to develop organizational capability as well as the action research project as the means to realize it (Roth, Shani and Leary, 2007). Action decisions following the briefing concerned collaborative intervention with a team leading and provisioning one of the company's solutions categories. This group focused on provisioning solutions in the form of custom connection interfaces (see example in figure 15) to industrial computers known as programmable logic controllers (PLCs). According to the DOD, this group first received her attention at the request of the Executive VP of the D&M Company. As a group, internal stakeholders from both the D&M Company

Figure 15
Custom Connection Interface for a PLC

and the US Subsidiary disagreed about many areas in this category of solutions business. We named this our “Stepping-in” group to reflect how use of relational processes might help us step-in or intervene in the issues and behaviour of this group. The DOD suggested that insights on relational processes and qualities might open internal stakeholders to dialog on what ought to happen relationally between people when producing solutions, and what qualities ought to emerge from these happenings.

Interview data suggested that relational processes were part of stakeholders’ jobs and their lived experiences. However, discussions with the DOD and the President also suggested gaps in understanding about relational processes. Two gaps seemed prominent. As illustrated by the spatial matrix, the collection of relational processes and qualities seemed to shed new light for understanding what happens as stakeholders interact with one another in the solutions context. The first gap in understanding seemed to touch upon this matrix view, including the number and diversity of relational processes and qualities involved in the provision of solutions. The second gap touched upon internal stakeholders’ learning and potential for engagement with relational processes and qualities that may be outside their personal experience. An opportunity to bridge this gap seemed to emerge as a kind of organization development at the level of internal stakeholders working together as a team. This development applied to the growth of individual stakeholders’ understanding about what is happening in the experience of other stakeholders as well as their own. Further, there was a sense that stakeholders’ might find value in dialog and reflection upon their own (dis)engagement with particular relational processes. By exposing findings and making them clear and explicit, dialog suggested a means for expanding understanding about unfamiliar or dissatisfactory relational processes and quality measures. From the DOD's perspective, this was a matter of informing and potentially empowering practice to "provide the highest quality level of…solutions" according to policy though knowledge and understanding.

4.11 Reflections and Insights from the Findings

Sharing and validating a portion of internal stakeholders' solutions provisioning experience through matrix analysis also helped me to enact a sense of internal, political entrepreneurialism through backstaging (Coghlan and Brannick, 2014). From a political view, the manoeuvrings with the DOD and the President helped build personal credibility with powerful internal stakeholders. This was intended to foster any incipient credibility already developed by understanding, gathering and expressing some portion of internal stakeholders' solutions experiences. Through the breadth of interviews, I gained broader perspective within my own experience about the experiences many individual stakeholders. However, reflecting upon this understanding of experience as something that was lacking for the DOD and the President, I also gained a sense of empowerment. This empowered sense emerged from knowledge derived from stakeholders' experiences turned around and applied to help stakeholders reflect upon what the experience of provisioning and leading solutions entails. My personal sense of empowerment seemed to derive from knowledge transforming into action.

Dialog with the DOD and the President helped clarify the efficacy of findings from the analysis. My proximity to confidential data and my engagement with phenomenology as the method of analysis offered a unique perspective on internal stakeholders' experiences. Reflection on the dialog revealed how my participation was dependent upon deeper insight into the meanings of relational processes and qualities expressed through rich descriptions. Eventual agreement with the DOD and the President also confirmed my responsibilities as a scholar-practitioner intervening on the company's behalf with new, actionable knowledge. Working from my role as scholar, it was my responsibility to develop clear phenomenological insights about relational processes and qualities. However, as practitioner, I held responsibility for expressing this understanding, making this knowledge accessible to co-participants through this expression. As a contribution to scholarly-practice, this personal expression entered into practice during the course of later intervention with internal stakeholders. Reflection on the President's advice about *Problematizing* also prompted insights on what research co-participants might need to augment their understanding of relational processes. The questions proposed by the President as exemplars of *Problematizing* also suggested robust discussion to inform an enriched narrative around relational processes. This development eventually served two purposes: 1) to advance stakeholders' understanding of the relational processes, and 2) to prompt action through an active dialog about relational processes and qualities.

CHAPTER 5 INTERVENTION WITH THE "STEPPING-IN" GROUP

5.1 Clarifying Issues, Intervention and Roles

Following the briefing, the DOD and I shared a common sense of action approved by the President. Action concerned intervention and a willingness to do something about issues linked to the Stepping-in group. The DOD had worked with this group since the Spring of 2017, but progress was slow. She expressed how group members seemed irresponsible toward one another in interactions meant to address solutions-oriented issues. As evidence, she described how certain individuals would decline their meeting attendance through the office scheduling system just minutes before meetings were scheduled to begin. These individuals often cited overriding needs to attend to more urgent issues. Discussions and dialog were often frozen or heated within meetings initiated by the DOD. Once in meetings, group members might state their position by pointing to the responsibilities of others, then fold their arms and shut their mouths.

These and other occurrences prompted the DOD's scepticism about the group's approach to jointly held problems. According to the DOD, this group seemed to recognize the difficulties working with one another, but found it difficult to identify and discuss what the real issues might be behind these difficulties. She was not sure if issues had to do with the group's motivations toward pursuing their category of solutions business, the perspectives of different stakeholders from different parts of the organization (i.e. the US Subsidiary vs. the D&M Company), or both.

As insider and researcher, my partnership with the DOD was established and nurtured through co-participation in the thematic analysis. This partnership continued with an intervention intended to address relational issues within the Stepping-in group. To be consistent with the meeting pattern already established by the DOD and acknowledged by the group, we agreed that intervention should involve all Stepping-in group members. However, we also agreed that future meetings should be framed as a workshop intended to engage and focus group discussions through the lens of our analytical and thematic findings. We arranged for findings to be put into action by using workshop activities and group dialog to explore, identify and potentially act to address relational issues. In our workshop planning, and later during the workshop, we extended and bolstered our partnership by leveraging one another's understandings and experiences to facilitate and participate in workshop activities.

Referencing the richness of the analytical and thematic findings, we agreed that Stepping-in group stakeholders would benefit from more than one workshop session to explore the findings and unwind issues faced by the group, and that both of us (researcher and DOD) would be fully present during all workshop sessions. As an intervention intended to address these issues, we felt each of us had to be present as full contributors to the discourse, interaction and dialog we intended for workshop attendees. We foresaw our consistent presence during workshop sessions as enabling for one another, allowing us to draw upon one another's strengths and experiences as needed during the workshop sessions. Our workshop planning discussions then produced agreements on how we would engage attendees with our analytical and thematic findings as well as our responsibilities in this engagement. Up to this point in the project, our co-participation in analysis produced the coloured matrix (see chapter 4, figure 13) as an interesting presentation of findings. The literature suggested that the internal, relational and service-oriented transactions among employees could be clarified by objectifying them through surrogates and rendering their properties or impacts as tangible (Levitt, 1981; Shostack, 1982; Araujo and Spring, 2006). Discussions with the President indicated that, coupled with briefing document, the matrix was useful as an artefact to make findings tangible and as a tool for exposing the findings to others for further discussion and inquiry.

For workshops, the literature notes the importance of creating appropriate learning environments by applying useful items and activities to stimulate and encourage learning (Brooks-Harris and Stock-Ward, 1999). In our workshop planning discussions, the DOD confirmed her enthusiasm for putting our findings to use and commented on where she saw her fit and preferences while working in partnership through the workshop activities:

> "We need the research findings as a basis for dialog, to see what our problems might be and how we might work our way out of them. I love dealing with the concepts, talking about them with people and teaching them. I just hate doing the research!"

This preference along with the DODs experiences as a teacher helped to shape the workings of our partnership in the next phase of action research. As a teacher, the DOD was experienced at introducing and engaging employees with new concepts. For the workshop sessions, the DODs experience as a workshop facilitator also guided the planning of the workshop activities and my co-facilitation of the workshop. These activities eventually centred on items already presented to the President – the analytical findings expressed in briefing document and coloured matrix. We agreed that the workshop would begin with my reproduction and re-presentation of the briefing document and its contents. However, as part of our facilitation planning, the DOD developed a checklist and eventually brought a selection of items that would be used to interact with the findings and stimulate dialog and learning (flip charts, markers, sticky notes and dots, etc.).

Workshop planning discussions with the DOD also revealed how my research experience could be useful in contribution to workshop activities and dialog. As interviewer and analyst of interview transcripts, we recognised that I had a higher degree of familiarity and confidentiality with interviewees' experiences. Through phenomenological analysis, I had exclusive access to the collection of interview transcripts, and my readings and reflections upon transcripts prior to the workshops had cultivated a deep, personal understanding and appreciation of stakeholders' experiences. These understandings were expressed to the DOD as we produced the coloured spatial matrix (see chapter 4, figure 13). In our workshop planning, she expressed her belief that, with my understandings, I could contribute nuanced insights and foster robust inquiry among group members. We agreed that workshop sessions would also benefit from rich expressions of analytical findings about relational processes to inform and potentially empower the learning and practice of them. The literature suggests that findings surfacing from phenomenological analysis may inform practice through coherent descriptions of experience (Van Manen, 1990; Creswell, 2013). To address the question guiding the research, my exploration of internal stakeholders' experiences refined my in-depth understanding of relational processes and corresponding qualities.

Thus, for the workshop plan, rich, verbal expressions of relational processes and corresponding qualities were taken as both opportunity and means for further action. The DOD and I agreed that expressions of my understandings would improve the impact of the workshops sessions as interventions and learning events. We agreed that my contributions should also include inquiry based upon analytical findings to prompt stakeholders to voice their insights and concerns, thereby enriching dialog. Claiming this dialog responsibility for relational processes and quality measures during workshop sessions also reinforced how the partnership with the DOD would benefit and work in terms of co-participation and -facilitation. We foresaw my co-participation adding depth to my personal workshop involvement by helping others build their understandings about their own solutions experiences. In tandem, we agreed that my co-facilitation would enable discussion by allowing my insights and understandings to inform purposeful inquiry and encourage dialog among internal stakeholders during workshop sessions.

My concerns for scholarly practice also informed my approach to the workshop and my intent to put theoretical insights and analytical findings into action. A means of converting insights and findings into action surfaced through my reflections upon the applicability of the process of human knowing (see chapter 3, figure 9) within action research. Thus, as scholar-practitioner, I was motivated to use the process of human knowing as a framework to help illuminate and oversee the workshop. The process of experiencing, understanding, judging and acting that I presumed as unfolding for attendees in the workshop sessions also became a way for me to frame and help guide the workshop sessions as experiential happenings for all participants, including myself. My sense of the workshop sessions as learning experiences modelled through the process of human knowing also informed both of my workshop roles as learning participant and co-facilitator. The literature suggests that workshops provide a space to operate for this combined role of facilitator and learner. Similar to the practices encouraged for phenomenological analysis, those serving in this combined role attend to their preconceptions before such participatory workshops, then, during the course of workshops, watch, listen, learn and apply their best judgement as model behaviour to empower the learning behaviour of other participants (Chambers, 2004). As workshop participant, I applied the analytical findings as a lens to view solutions issues, and employed the process of human knowing as useful, reflective tool for authentically experiencing, understanding, judging and agreeing to actions to address solutions issues among fellow internal stakeholders.

As noted in chapter 2, a sense of psychological safety links to team members' shared acceptance of interpersonal risks and is supported by teaching behaviours that normalize speaking-up without embarrassment or fear of punishment (Tannenbaum and Salas, 2020). The literature suggests that teams of professional stakeholders involved in services may benefit from cycles of reflection on workplace happenings to expand their understandings and refine their practice (Anning *et al.*, 2010). However, beyond sharing important ideas with colleagues, workshops may also create a sense of common purpose among participants (University of Kansas, no date). These literature-based insights informed my scholarly practice of workshop facilitator by blending them with the process of human knowing. This combination formed both a lens to observe and a framework to facilitate attendees': 1) experiences with the tangible artefacts co-produced with the DOD as thematic findings (i.e. the briefing document and coloured matrix) - using these as tools to prompt reflection and discussion about solutions as relational processes, 2) open inquiry for developing understandings about team issues - using relational processes and corresponding qualities expressed in the artefacts to help participants frame and voice issues as workplace happenings, 3) progress toward judgements about team issues revealed via workshop activities – fostering decision-making based on the fit of relational processes and corresponding qualities as evidence of solutions issues, 4) expressions of how these judgements aligned with team values to produce action – using the team's sense of purpose to prompt agreements and decisions about refining their practice and addressing relational issues. Applied cyclically, this process also enabled my oversight of the many workshop sessions to follow - using it as theory to help both guide and understand the workshop experience.

Thus, my role and engagement in workshops was characterized by my enactment of behaviours that balanced listening and personal judgement with inquiry and “speaking-up” to add nuanced insights to discussions and encourage learning. Other tasks encompassed by my facilitator responsibilities included arranging safe, comfortable places and times to meet without interruption as well as suitable breaks and refreshments for workshop attendees. In workshops consisting of a team of professional stakeholders, the literature suggests that mutual accountabilities and shared repertoires emerging from joint activities may be reified into objects and used as tools for discourse (Anning *et al.*, 2010). To put these scholarly insights into action, my workshop activities also included careful note-taking on team judgements and action agreements. These notes were carried forward in the progress of the workshop dialog and used to develop the AR narrative presented in this thesis.

In our workshop preparations, the DOD and I agreed to close the first workshop session with questions meant to prompt group members’ reflections. The questions were meant to facilitate reflection upon research findings and make clear that future workshop sessions would require authentic participation and active dialog. Questions intended to convey that stakeholders ought to have a sense personal accountability for workshop outcomes included:

1. What relational processes are dissatisfactory?
2. Which quality measures are important?
3. How do we use relational processes and quality measures to evaluate the group’s solutions work?
4. What does mutual agreement look like for the group?
5. How might mutual agreement produce action?

Aided by the lens offered by relational processes and quality measures, sessions thereafter would focus upon addressing issues faced by the group.

5.2 Setting an Intervention Pattern for the Stepping-in Group

Workshop sessions were scheduled over several months, from March through August 2018, to allow the intervention to occupy flexible and agreeable space on group participants’ calendars. Each session was scheduled for a flexible time slot, from ninety minutes to two hours. Thereafter, the DOD and I gauged whether progress merited longer workshop sessions. The initial briefing with the Stepping-in group was held in January 2018. In the briefing, Stepping-in group members were given the same presentation of findings as was offered the President.

The briefing elicited some comments from the Stepping-in group stakeholders about the spatial matrix. Comments from participants suggested the matrix gave the impression of a map and a new way of thinking about solutions as interactions. In terms of action, participants expressed how exposure to relational processes seemed to reveal a way to intercede and perhaps overcome biases expressed by solutions stakeholders. In the words of one participant:

> "This is really a way to empower employees to pursue relational processes instead of assuming that others aren't working and telling them to 'Get off your clock-punching asses'".

The group assessed the spatial matrix as a new and interesting basis for looking at solutions. Regarding the revised spatial matrix, one stakeholder helped produce meaning for the group, pronouncing it as a "View from the stratosphere" to help us:

1. Recognize and express dissatisfactions
2. Discuss where the group wants to go
3. Stay connected in learning and dialog about solutions through relational processes

Following the briefing, the group agreed to continue with workshop sessions and discuss insights offered by research findings. Group members also agreed to take individual action on findings by reflecting upon the relational processes and quality measures. To prompt active participation in future sessions, participants were encouraged to consider their current situation, their "status quo", through the lens of relational processes and qualities. Then, participants were addressed with the first three questions planned before the workshop and instructed that questions were intended to prompt active, personal reflection from participants as they saw themselves in solutions work.

5.3 Intervention Through Workshops with the Stepping-in Group

The next workshop session followed in early March 2018. After discussion with the DOD, we agreed that separation of the relational processes and quality measures resonated with the first two questions we used to prompt reflection from participants. To facilitate group activities, the relational processes and quality measures, grouped into themes and sub-themes, were reproduced and presented as rows on two large paper flipcharts. As the group produced insights that seemed to inform future action, these points were also noted in a large, flipchart format.

The DOD then outlined a workshop activity intended to draw out individual views of dissatisfactory relational processes. This activity involved the use of sticky dots we termed "hot spots". As individuals voted upon which relational processes they deemed most dissatisfactory, voting patterns were also made visible to the group (figure 16).

Figure 16
Relational Process "Hot Spots"

Discussion and inquiry followed the hot spot exercise. Interesting patterns emerged with few dots appearing within *Processes conducive of solutions (Leading solutions)* theme. Of all the relational processes that could be voted as dissatisfactory, only *Systematic Visioning* and *Prioritizing* received votes within the *Leading Solutions* theme. Patterns in the voting results then formed the basis for inquiry and observations with the group. Most relational processes voted dissatisfactory appeared as a variety of relational processes within the *Processes for Provisioning Solutions (Doing Solutions)* theme. When asked why this might be so, group members expressed their insights:

1. Solutions opportunities came with expectations for processing them. Group members expressed how salespeople are encouraged to find problems experienced by individual customers. Further, salespeople are trained to recognize opportunities that seemed to fit the kinds of solutions offered by the group. Salespeople then forwarded these opportunities to the group for evaluation. Salespeople might also elaborate on the meaning of the opportunity by explaining the importance of the potential solution from the customer's perspective. However, instead of segmenting these opportunities to derive solutions applicable to more than one customer, group members described how opportunities were evaluated and acted upon individually. Unique solutions were provided one-by-one, customer-by-customer.
2. The burden of expectations seemed one-sided. Salespeople often expressed the urgency for quickly producing solutions to customers' problems. However, solutions opportunities were often accompanied by vague objectives from customers. While the

group felt pressure to produce quick answers on behalf of customers, achieving clarity on what customers really wanted from solutions could take up to six months.

3. Some types of solutions were more complex and suffered more problems than others. This complexity seemed to depend upon manufacturing steps and processes. For example, some modular solutions required simple components that snap together in manufacturing. Alternately, the printed circuit boards (PCBs) assembled as solutions by this group required complex manufacturing processes like wave soldering.

The group made clear that when it came to "doing" solutions, agile response to customers' solutions requests was negatively affected by these and other reasons.

These comments prompted some additional dialog on marketing and selling practices applied to solutions by other groups. The group understood how other solutions groups developed profiles and provided in-depth training to salespeople on what they termed solutions "sweet spots". These sweet spots equated to clear images and parameters of the kinds of solutions that fit the product resources and service capabilities of the solutions group. Through the lens of relational processes, I offered some reference to sweet spots emerging from *Boundary Setting* within the *Finding workable solutions* sub-theme. Returning to the pattern of dissatisfactions that emerged for this group, dialog went on to consider other groups' successes with sweet spots. This seemed prompt some insight for the Stepping-in group. A sense emerged that making solutions work may have some linkage to finding workable solutions through *Boundary Setting*.

The group's emphasis on "doing" solutions also prompted some inquiry on "leading" solutions. Few dots from the voting exercise suggested dissatisfactory processes in the "leading" solutions theme. When asked why, the group offered few comments. However, further inquiry revealed little sense of whether the relational processes under the "leading" theme were emphasized or prompted a sense of quality. From one stakeholder:

> "Everyone is focused on doing solutions…we're focused on the trees, not the forest."

At this point, the DOD made a connection between the vote of dissatisfaction received by *Systematic Visioning* and the holistic sense of "seeing the forest, not just the trees". After listening to the group, the DOD made some expression of concern regarding the group's experience with *Systematic Visioning* and other relational processes in the *Leading Solutions* theme. She expressed how voting results seemed overly biased toward *Doing Solutions* given that some participants were directors and managers. Her inquiry probed whether there was sufficient engagement with *Systematic Visioning* or other "leading" processes. My inquiry then explored whether the group felt empowered to improve agility and how agility might be achieved. This prompted lively discussion on the cyclical workload for the group – sometimes busy, sometimes not according to the ebb and flow of emerging solutions opportunities. However, conversation then revealed a sense of agility as closely related to the number of internal stakeholders able to deal with these opportunities. In the words of one stakeholder:

> "It's the elephant in the room. We've got so much manual work and too few personnel."

Further inquiry with the group confirmed a sense of *Leading Solutions* as something extra, and perhaps originating from someone or someplace else. When asked from whom or where these leading processes might originate, group members suggested that customers seemed to lead with their requests for solutions. They gathered that customers might lead by reaching out for knowledgeable help and invoking solutions provisioning capabilities from Phoenix Contact. However, for the group, inquiry about their votes for *Prioritizing* seemed to bring the sense and logic of this relational processes to mind. What would happen if customers were asked to prioritize among all other solutions opportunities present in the company? The group consensus was that customers would favour their own needs for solutions over others. Inquiry also explored whether an overabundance of work internally - work dedicated to provisioning or *Doing Solutions* - could be lead without internal stakeholders engaging in *Prioritizing* or *Systematic Visioning*.

As the first workshop session concluded, the group agreed to focus future discussions on *Boundary Setting* linked to finding solutions sweet spots. Trailing comments from the group suggested that the idea of "sweet spots" also evoked a sense of *Expectation Specificity* as quality measure corresponding with *Boundary Setting*. Similar comments emerged for *Objective Clarifying* as a relational process. As expressed by some group members, *Objective Clarifying* seemed especially problematic considering the *Timeliness* quality measure. Six-month time periods seemed too long to achieve clarity on what customers, or their advocating salespeople, might want from solutions.

Dialog about "leading" processes, particularly *Systematic Visioning*, seemed linked to the group's sense of empowerment for dealing with agility issues. Further, these agility issues seemed embedded in the system. Discussions shed light on how the system for provisioning solutions affected agility in "doing" solutions. This produced agreement that *Systematic Visioning* linked to group dissatisfaction and was open for further exploration. Dialog on how the group felt empowered to deal with agility issues also seemed to surface important qualities. Discussions revealed long turnaround times for drawings (nine-weeks) and too few stakeholders available to handle waves of incoming solutions opportunities with agility. The group agreed that empowering agility highlighted their sense of *Timeliness* and *Operant Resource Availability* as quality measures that merited further exploration.

The session closed with inquiry left open for group members: How do we use relational processes and quality measures to evaluate the group's solutions work? For the group, two fields of exploration emerged from this inquiry. One opened exploration into what group members did or could do about their solutions offerings through the lens of relational processes. The second probed the types of solutions offerings and what they should be from a both a product and service standpoint. Votes and dialog suggested *Boundary Setting* and *Objective Clarifying* as particularly dissatisfying when "doing" some types of solutions. However, dialog also produced a sense of linkage and sequence between relational processes. Dissatisfactions emerging from the relational processes for "doing" solutions seemed a reflection of dissatisfying relational processes linked to "leading" like *Prioritizing* and *Systematic Visioning*. The group agreed that these and potentially other relational processes within the *Leading Solutions* theme needed further exploration.

Agreed action for the group involved reflection upon individual relational processes in both themes, both *Leading* and *Doing Solutions*. As our discussion suggested that relational processes sequenced or linked to one another, it also opened inquiry into relational processes that ought to precede or parallel others. Beyond "doing", the group agreed that *Processes Conducive of Solutions (Leading Solutions)* needed more reflection on how and when they fit into the issues experienced by the group. As action, the group agreed to come ready for more dialog on the dissatisfactory processes for both "leading" and "doing" solutions. The sense of how these relational processes might sequence or intermingle in approach to group issues was also up for consideration.

5.4 Using Relational Processes and Quality Measures to Clarify Solutions Issues

In late March 2018, during the next workshop session, the group continued dialog by reviewing notes and actions agreed from the previous session. Dialog continued by considering *Prioritizing* as a relational process for "leading" solutions. Inquiry into how tasks ought to be prioritized prompted dialog on successful outcomes from completed tasks. More inquiry about the meaning of "successful outcomes" revealed that such outcomes correlated to particular types of solutions. Approaching success meant that tasks and the time spent on tasks needed to align with: 1) what the group felt they could control, 2) what fit their capabilities, and 3) what they believed they could accomplish with agility. Discussion then moved to consider opportunities that yielded successful outcomes in the past and the task of uncovering solutions opportunities that had good potential for success. This sense of discovering viable solutions opportunities quickly linked to the tasks of salespeople aimed at growing revenue and fostering relationships with customers.

Here, the DOD was quick to point out that highlighting success from past outcomes also seemed to link to the sense of *Historical Accounting* as part of *Making sense of solutions*. She also noted, critically, how this responsibility was likely to rest with the current workshop group and other company leaders. The group then explored whether leaders or executives clearly understood the sense "successful outcomes". Group members expressed how executives often considered the results of solutions in terms of revenue produced rather than types of solutions produced.

The group then explored how the logic of "successful outcomes" might be introduced into conversation with executives. Inquiry probed how executives might be exposed to different views or notions of solutions in terms of what made them successful (or not) as a business. This prompted the DOD to offer insights and experiences from other workshops she had facilitated. She expressed how other groups and executives found it useful to gather insights together as a "big picture". To accommodate the co-creation of such "big picture" images, she mentioned using approaches from Business Model Generation (Osterwalder, Pigneur and Clark, 2010). The DOD then claimed that tools and exercises from Business Model Generation had some credibility in her work with other groups, including executives. In her experience, Business Model Generation seemed to help other groups identify new ways of doing business to replace old, outdated ones.

Near the end of the workshop session, group members began to summarize and evaluate the conversation. The group expressed how complexity of some solutions seemed to strain the capabilities of the group. However, discussions on solutions' complexity linked to the promotion of solution types. This prompted agreement among group members that they required broader dialog about solutions through *Boundary Setting*. As expressed by one group member:

> "We need to be able to do something that is outside of day-to-day product business while still being able to say 'no' to solutions that fall outside of the strategic boundaries. Maybe we can look at past solutions as examples of where we will say 'no' versus where we say 'yes'".

To engage in this broader discussion, *Systematic Visioning* seemed useful as relational process applied in the sequence of discussion. Through *Systematic Visioning*, the group engaged a more holistic dialog beyond solutions boundaries, encompassing the promotion of solutions through marketing and sales efforts. Considering what ought to be marketed and sold as a type of solution produced agreement that solutions promotions needed to be considered systematically against the capabilities of the group. Specific to sales, inquiry exposed how salespeople may need to counter their "We'll take anything" approach by finding more appropriate solutions opportunities. Such opportunities would fit the types of solutions the group felt confident and capable of offering with agility.

Dialog produced agreement that narrowing the scope of solutions offerings through *Boundary Setting* may help align the offering to the capabilities of internal solutions stakeholders. However, while engaged in the *Systematic Visioning* discussion, the workshop also produced a sense of who ought to be involved in solutions strategy. As part of this system, certain types of solutions also seemed aligned to specific customers interested in them. Further, distinct salespeople were brought into consideration as they were responsible for specific customers. As expressed by one group member:

> "We've had enough growing pains and now know what we need to do. Now we need to select who will be on our team to get it done besides us."

Similar insights emerged from the discussion on *Prioritizing*. The group agreed that discovery of opportunities rested with salespeople as a task. However, as a matter of priority, agreement clarified the sense of salespeople finding opportunities comparable to successful outcomes of the past. Beyond finding opportunities, this meant finding the right opportunities. Supporting agreement was the sense that solutions opportunities ought to fit the controls, capabilities and time demands of the group to foster more successful outcomes. Helping salespeople address the right opportunities through *Boundary Setting* and *Prioritizing* seemed to bridge the sense of these relational processes to the *Fostering* and *Finding* sub-themes. However, akin to her active inquiry about *Systematic Visioning*, comments from the DOD also prompted a return to the *Making sense of solutions* sub-theme through *Historical Accounting*. Group members then agreed to their responsibility for making explicit the meaning of "successful outcomes" for salespeople based upon history. One group member summed up this agreement:

> "We need more messaging on where we have been successful…"

The group agreed that such communications might encourage salespeople to find more solutions opportunities that seemed like "successful outcomes" from the past.

Questions of whether *Historical Accounting* might clarify the group's successes also expanded the sense of who should be engaged in this relational process. There was agreement that other leaders, including executives, might need to engage with *Historical Accounting*. In the judgement of the group, such engagement might lead to better understanding of "successful outcomes" from the past, and executive support for group decisions. Per the group, such decisions would favour opportunities that resembled historical, successful outcomes. Referring to the matrix, I offered some sense of quality measures that emerged from analysis. Analysis suggested that *Historical Accounting* corresponded with *Expectation Specificity* and *Volume*. To clarify, I expressed how the sense of *Volume* seemed associated with revenue. The dialog that followed focused on the linkages of successful outcomes to *Expectation Specificity*. Eventually, the group agreed to generate a more clear and common sense of successful outcomes. To prompt a sense of *Expectation Specificity*, the types of solutions that qualified as successful outcomes would need to correspond with *Historical Accounting* involving executives.

Per the group, it was also critical for executives to be exposed to the insights emerging from the workshop. Group members agreed that executives needed something to look at beyond numbers when considering future possibilities for the solutions business (i.e. the group's category of the solutions business). There was a sense that multiple stakeholders, including executives, needed a holistic view of these insights. My contribution to this agreement derived from the sense of *Envisioning* as a relational process. The group required a means for expressing the future possibilities of the company in provisioning solutions. *Envisioning* seemed the most appropriate relational process in the sequence of workshop dialog.

The workshop closed with several agreements on action items. Although the group began with dialog on *Boundary Setting* as dissatisfying in their experience, they eventually surfaced *Envisioning* as a gap requiring action. Lacking engagement with *Envisioning*, the group decided to move discussion forward with this relational process as the focus of future dialog. By considering insights shared by the DOD, the group decided that tools from Business Model Generation merited further exploration. As one group member expressed:

> "We need a way to sell this strategy upstream. We need a cadence. Dominos need to fall in line with how we approach this."

The tools from Business Model Generation were explored as a means for providing a "big picture" of what was possible for this group's part of the solutions business. Future workshop sessions were taken as opportunities to draw out and make explicit group members' view of a solutions strategy that was not otherwise being envisioned. Action forward meant creating a vision and mutual decision-making on what their area of solutions business could and should be. However, as cadence, the group agreed to an order for expressing their workshop insights and agreements. To get their agreement on a new approach, executives from the US Subsidiary and the D&M Company needed to be first recipients of this expression. If agreeable, the new approach would be developed and eventually shared with salespeople. These salespeople would be selected according to their profiled customers.

5.5 Reflections and Insights About the Stepping-in Group Workshops

Follow-up inquiry, one-on-one with the DOD, revealed insights and feelings on the progress of the workshop sessions as intervention. For the DOD, it was noteworthy that workshop sessions did not need to be rescheduled and were attended by all invitees. The DOD took this as evidence that all group members were more willing to engage in conversation:

> "Focusing on relational processes and quality measures allowed us to get though the meeting without finger-pointing and blaming. We can discuss things as common experience of our problems. I think our discussion of relational processes and desired qualities brought this out into the open."

The DOD also expressed an emotional element to this engagement. Reflecting on her history with the group, she noted how previously negative group members seemed enthused about developing, for themselves, a better strategy and approach to solutions. Workshop discussions had prompted some political energy among workshop attendees as they surfaced critical insights about their group situation. As action, they agreed to explore and stage new solutions business approaches. Through a political lens, the group recognized that success for these approaches meant presenting them upstream to earn executive buy-in.

In the DOD's judgement, narrowing the conversation to voted relational processes helped to focus conversation and inquiry on what the group felt was dissatisfying but important. However, the inquiry and questioning in our workshop conversations also influenced the DOD's decision to introduce a tool from Business Model Generation called the Business Model Canvas (BMC). She described how the BMC provided an open discussion framework and a "fill in the blanks" approach to workshops. From her experience using the BMC, she recognized linkages to our workshop conversations about dissatisfying relational processes. In her experience, both relational processes and the BMC seemed to resonate with one another through the similarity of questions asked and insights emerging during workshop conversations. However, in the DOD's view, connecting the two frameworks made sense as the questions raised in relational process discussions seemed structured by the BMC:

"I just saw several of the same questions starting to pop up: Who are our most important customers? What are the customer's problems we are helping solve? Who are the salespeople involved and what kinds of relationships do they have with the customers? All these questions just seemed to flow from our conversation. The Business Model Canvas seems like a good way of pulling the group's ideas together into a big picture view"

5.6 What Happened Next: The Stepping-in Group Rebuilds a Business Model

For the Stepping-in group, five remaining workshop sessions from April through July 2018 were dedicated to filling in the BMC. The workshop progressed by working through various building blocks of a large sheet representing the BMC framework. However, in parallel with dialog exploring the BMC, previous agreements concerning relational processes also facilitated discussion. As part of this exercise, the matrix sheet showing relational processes voted as dissatisfactory "hot spots" was posted next to the BMC (figure 17). Posting the two sheets together kept recent dialog and inquiry about dissatisfying relational processes present in the current BMC building block conversation.

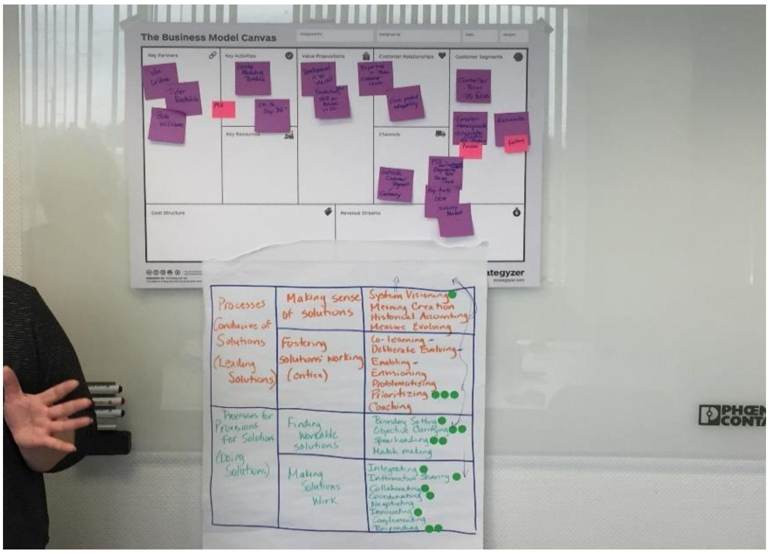

Figure 17
Filling-in the Business Model Canvas

To begin facilitating the back-and-forth consideration between the two sheets, the DOD asked group members for their views on three building blocks: 1) customer segments and ideas concerning ideal customers, 2) customer relationships, and 3) channels. To prompt deeper conversation, the DOD then leveraged previous dialog about *Systematic Visioning*, *Prioritizing* and *Boundary Setting*. However, in parallel with their ideas used to fill-in the BMC building blocks, participants also leveraged relational processes within their conversations. For example, as dialog explored reasons why the company's customer relationship management (CRM) system was not used to help provision solutions among all internal stakeholders, one participant proposed:

> "Clearly there was not enough *Systematic Visioning* when we were setting up the CRM system!"

Referencing relational processes and quality measures also prompted the group's imaginings of improved future states or conditions. For example, when asked how the CRM system might help in solutions provisioning, the group agreed that communication functions within the CRM might foster agility if these functions were shared across a wider variety of internal solutions stakeholders beyond salespeople. Referencing the spatial matrix, the group agreed that wider CRM usage held potential for an improved sense of *Timeliness* surfacing from relational processes like *Collaborating*, *Coordinating*, *Responding* and *Objective Clarifying.* One group member also noted how *Expectation Specificity* might clarify over time as stakeholders documented the provisioning of solutions and what might be needed from other team members.

As a matter of *Prioritizing*, the group acknowledged their responsibilities for engaging this relational process, giving priority to certain tasks in the future. Future tasks were linked to agreements about their capabilities to produce and control solutions that mirrored "successful outcomes" from the past. As a reflection of *Boundary Setting*, the group agreed that future solutions offerings would be successful if constrained to customer segments that purchased particular brands of PLCs. These PLC brands were then listed as a kind of shorthand in the customer segments building block.

Other portions of workshop dialog suggested that relational processes and qualities served as tools for unpacking issues between various building blocks. For example, as conversations focused on BMC building blocks labelled "key activities" and "value propositions", ongoing dialog blended the sense of these two topics. Considering how key activities affected value propositions, the group used *Systematic Visioning* to shed light on process problems originating from other internal stakeholders, outside the group. Many of these problems surfaced during steps of the solutions provisioning process (e.g. price quoting, packaging, logistics, etc.) that required the work of these other internal stakeholders. From dialog, participants agreed that these problems negatively affected value in terms of agile solutions offerings and customer relationships. To unpick and express problems with process steps, the group then referred to the quality measures in the spatial matrix. Once outside of process steps directly involving their group, participants discussed how their sense of *Tension* rose and *Satisfaction* decreased. Discussions actively explored how key activities and value propositions influenced the sense of these quality measures for themselves and customers. Eventually, the group began to inquire about the necessary *Spearheading* to poke and prod the solutions activities through all process steps to improve these quality measures. However, as *Spearheading* seemed to benefit the interests of individual solutions customers, the group had difficulty establishing who, among internal stakeholders, would engage in *Spearheading*. For group members, the question remained open on whether they or salespeople ought to engage in *Spearheading* to improve these quality measures.

Within this dialog, my contributions also offered some clarity on the meanings of the various quality measures including *Operant Resource Availability* and *Timeliness*. The group raised few questions and agreed with the sense of *Operant Resource Availability* linked to the availability of business systems' or stakeholders' engagement in relational processes. Expressions on the meaning of *Operant Resource Availability* also seemed to reference stronger claims about the importance and difficulty in attaining the "operant" sense of this quality:

> "We have lots of scar tissue. We've learned from our mistakes and they've made us better. If we think about our value proposition, this approach allows us to do the right projects and to do them right."

Some further exploration of *Operant Resource Availability* and *Timeliness* with the group linked to *Boundary Setting* in the coloured spatial matrix. These discussions produced a stronger sense of what *Boundary Setting* and these emergent qualities meant for group members. As expressed by one group member:

> "We're the ones equipped to do these projects. We've got the right competencies in place. Other types of solutions open too many new areas of figuring out what to do. Now when we talk to customers our conversations can be more detailed right from the beginning…[we] can eliminate too many touches and back-and-forth as we try to figure out what it is they want to do."

The DOD also offered insight linking the key resources building block on the BMC to earlier discussions on *Operant Resource Availability.* She referenced comments about "scar tissue" as proof of the group's experiences, and these experiences as contributors to their knowhow in provisioning solutions. Addressing the group, she commented how they seemed to identify themselves as operant resources by mentioning their experiential scar tissue. From previous dialog and "hot spot" voting, she also recalled how poor *Operant Resource Availability* was explored and linked to *Systematic Visioning* and *Boundary Setting.* Referencing the spatial matrix, she expressed how *Operant Resource Availability* also paired with most relational processes spanning both themes, both *Leading* and *Doing* Solutions. Then, referencing the BMC, the DOD described how key resources may include human and intellectual resources. She proposed that the group consider filling in the key resources building block with a list that included themselves and other human and intellectual resources. She described how this would present a fuller picture of key resources beyond physical resources like lab space, production equipment, or business systems.

5.7 Action Decision of the Stepping-in Group

The final workshop session ended in August 2018 with various ideas and agreements collected across multiple building blocks of the BMC (figure 18). Some group reflection on workshop outcomes prompted recollections of earlier comments from the DOD. She reminded the group that the BMC merely represented an abbreviated summary of a what they proposed as a new approach to solutions. The DOD's comments also suggested that there was a story behind the development of the proposal, and that this story was meant for an executive audience:

> "It's important that everyone see the logic of how this group came to agreements and made decisions as a team. You really can't expect executives to understand the reasoning or meaning behind all the bullet points."

Group members agreed to use the finished BMC as an enabler of discussion around a new approach for their category of the solutions business. However, group members also indicated that, as a topic, new insights about the business approach captured in the BMC represented unusual subject matter for their discussions with executives. They described how most of their past conversations with executives focused on sales and updates on the pipeline of solutions projects. Group members described how few of their past conversations broached "big picture" issues suggested by the canvas. Here, some inquiry prompted group members to recall their agreements concerning "dominos falling" and "cadence" applied to the presentation of workshop outcomes. The DOD also referenced my research briefing delivered to the President earlier in the year. However, to help address the unusual nature of the topic, the DOD claimed responsibility for reviewing the BMC with executives that might be unfamiliar with the framework. She committed to expressing how it was used with the coloured spatial matrix in the current context. For the group, I claimed similar responsibilities for my research findings including the coloured spatial matrix. I committed to offer any insights on my research findings and how relational processes and qualities informed workshop dialog.

To facilitate a fuller rendition of the story, the DOD suggested that the group members commit to a joint presentation of the findings. However, as cadence, the group decided that they needed feedback, and that his feedback needed to be considered and incorporated first to improve their presentation. Once the group agreed their presentation was fully developed, the DOD and I agreed to serve as sounding boards for group members. While committing to offer feedback on our

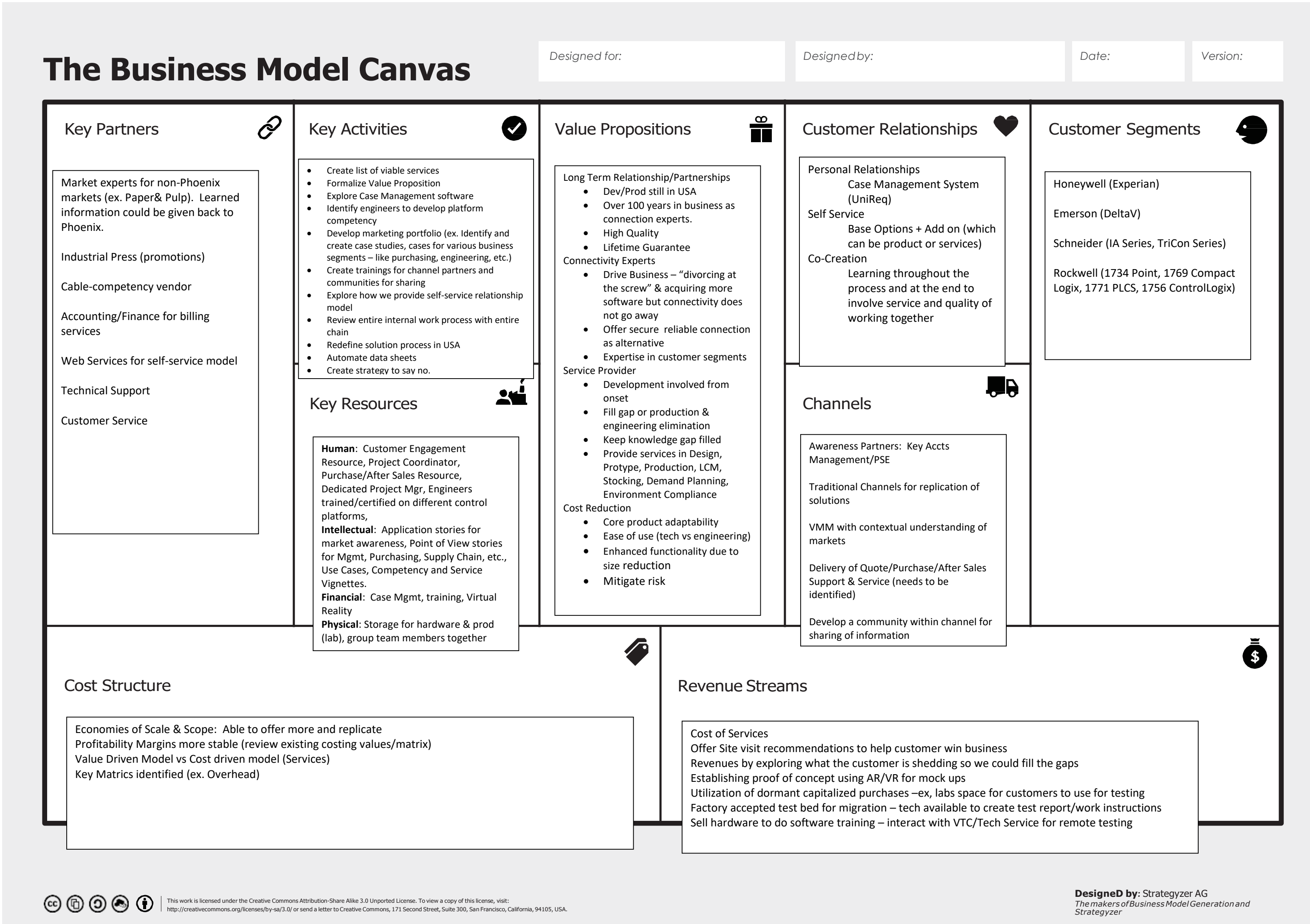

Figure 18
Stepping-in Group's Complete Business Model Canvas

impressions of presentation, we confirmed that final decisions on presentation content belonged to the group. The group agreed that they would then target an executive from the D&M Company to "try out" the presentation. Per the group, this executive had some background on the solutions provisioning issues faced by the group. They felt that this executive could be trusted to offer reasoned feedback on the presentation before reproducing it for additional executive stakeholders.

CHAPTER 6 DISCUSSION

Action researchers apply methodological rigour to their approach by differentiating the research narrative structured around time periods within the research project from their insights, sense of meaning and views on what is important within the research narrative (Coghlan and Brannick, 2014). The discussion presented in this chapter seeks to differentiate the narrative of chapters 4 and 5 by discussing the meanings and sense made by the researcher concerning the research narrative. In contribution to process and the production of actionable knowledge, this chapter offers the researcher's views on the process for surfacing and addressing relational and process issues between internal stakeholders - first by developing a relational process and quality measure lens to view these issues, then using this lens as a basis for intervention and dialog with internal stakeholders involved in the process of transforming their organization through servitization. In light of servitization as a process of transformation, this chapter also addresses how the research findings help close the gap in research of existing organizational processes at the level of internal resources (Heineke and Davis, 2007; Baines, Lightfoot, Peppard, *et al.*, 2009) and contribute to research addressing the management of servitized operations (Lightfoot, Baines and Smart, 2013). Contributions to the practical and theoretical development of servitization within this chapter reflect the management of servitization among internal stakeholders as the operant resources working to deliver solutions as servitized offerings. This chapter closes with discussion of future research opportunities for addressing servitization-related issues and for shedding further conceptual light on relational processes in servitization contexts.

6.1 Contributions to Process: Developing Knowledge About a Servitization Context

Insights garnered from and about the analytical methods used to produce this thesis contribute to the call for more prescriptive approaches to the study and process of companies transforming through servitization (Baines, Lightfoot, Benedettini, *et al.*, 2009). As an insider action researcher, my pre-understanding linked quality to process as a culturally valued approach to business within Phoenix Contact USA. However, the choice of methods applied in the research was informed by the characterization of value within the experiences of service beneficiaries as phenomenologically determined, idiosyncratic, contextual and meaning laden (Vargo and Lusch, 2008). This prompted insight about internal stakeholders and how they may be viewed as beneficiaries of one another in the provision of solutions through internal service processes. Decisions to use phenomenology derived from these insights. As method, phenomenology was used to surface a unique theory around the research question: What are the relational processes and corresponding quality measures that enable the process of servitization for internal stakeholders? However, to convert findings into action, the "What?" transformed into a "How?" question, namely: How might relational processes and corresponding quality measures be used as knowledge to address issues with relationships and processes?

Phenomenological methods helped the researcher address his first-person preconceptions about solutions experiences. Prior to analysis, the bracketing process allowed the researcher to set aside his pre-determined, *a priori* sense of defined, unique relational processes and qualities that he believed to be part of the experiences of internal stakeholders. Thereafter, the notion of purposeful relational processes and qualities helped unpack and make sense of the solutions experiences of internal stakeholders. In analysis of interview transcripts, the predetermined relational processes and qualities were matched to anecdotes expressed by internal stakeholders while allowing undetermined relational process and qualities to emerge from analytical (re-)readings of anecdotes. Relational processes and quality measures were discerned and coded individually, but also found together, corresponding with one another within anecdotes expressed by interviewees about their solutions provisioning experiences with other internal stakeholders. While surfacing together through phenomenological analysis of anecdotes, these correspondences also formed relational process-quality measure pairings. Relational processes and qualities that paired to one another through these anecdotes were then brought together for analysis in a template matrix. Anecdotes filled the open cells of the matrix in intersecting relational process rows and quality measure columns.

Anecdotes came from interviewees as answers to questions during interviews under anonymity agreements. However, the matrix intersections also revealed new way of looking at phenomenological findings as cells that were either filled or unfilled with the anecdotes (the data from interviews). This flexibility in matrix analysis eventually fostered co-participation in analysis as well as pragmatic evaluation and eventual use of the findings as actionable knowledge. Indicating which template matrix cells contained anecdotes by filling them with a colour presented a simplified view into the pairing of relational processes and qualities. With colour indicating filled and unfilled cells, a coloured matrix was created as an ethical if less detailed way of expressing phenomenological findings and hiding any textual evidence offered through the anecdotes. Without textural evidence, anonymity of interviewees was preserved and pairings could be offered for discussion with other stakeholders. Thus, as an analytical tool, the matrix enabled relational processes and quality measures to be made ethically accessible to the DOD.

Afterward, a blend of thematic and matrix analysis was used in partnership with the DOD as a co-participatory means to reduce findings. Several interactions with the DOD helped check and keep the most common and significant relational processes and qualities appearing in the rows and columns of a colour-filled matrix. Sorted and grouped with the help of the DOD, remaining relational process rows coalesced into sub-themes within themes of *Leading* solutions or the *Doing* solutions work. These themes resonated with the organizational and developmental efforts and programs supported by the company. Similarly, columns were grouped as qualities seemed detected in different ways. Detections were grouped within different perspectives that stakeholders seemed to adopt about the solutions business, other stakeholders, or their confidence and certainty in either. This thematic, co-participatory approach eventually reduced to sets of twenty-three relational processes paired to thirteen quality measures. These sets were then used to render a new, colourful and thematised spatial matrix as a rich and condensed expression relational processes paired with qualities. In discussion, the DOD and the researcher agreed to its usefulness as an artefact summary of the research findings. The matrix then served as a useful and accessible artefact to express findings to the President. Within a briefing document, findings presented in matrix form helped convey relational processes and linked qualities as a new knowledge to the President and helped garner his interest and feedback on the findings' implications for action. Co-participation of the DOD in matrix analysis and briefing with the President was also generative of inquiry and conversation. This generative element seemed to prompt a purposive and actionable sensibility about the findings for the DOD and the President, and the sense of how the findings could be useful for interventions with solutions stakeholders experiencing relational issues.

When put into action, phenomenology strengthens the relation between being and acting once lived experience is restored as a basis for action (Van Manen, 1990). In the unfolding of this research, the development of artefacts like the coloured spatial matrix with the DOD helped us describe our sense of connection between being and acting within the experiences of internal solutions stakeholders - stakeholders being from different parts of the organization yet acting through relational processes to provision solutions. When viewed as operant resources through the lens of S-D logic, internal stakeholders' capabilities include their ability to act upon one another (Vargo and Lusch, 2004; Lusch, Vargo and O'Brien, 2007). Developing the spatial matrix with the DOD resulted in an efficient and accessible expression of findings. Once assembled, artefacts produced to illustrate findings uncovered during the research project coupled with opportunities for controlled intervention through a workshop. The tangible expression of solutions experiences framed as relational processes and corresponding qualities then served as a basis for internal stakeholders to act upon one another as research co-participants within a workshop. The executive brief document containing the spatial matrix helped put findings into action through introductory meetings, while robust workshop dialog and interaction emerged concerning the structure and patterns available in the matrix (i.e. rows, columns, themes, sub themes, perspectives, and detections) with internal stakeholders.

Group dialog in workshops eventually revealed how internal stakeholders enhanced and applied their understanding of research findings. Through workshop co-participation, the groups produced ideas to improve the future of solutions provisioning experiences. As revealed by tracking internal stakeholders' workshop interactions, and cycling through the process of human knowing, stakeholders seemed to use their newfound knowledge of relational processes and qualities as mirrors into their experience, objects of discussion, and foundations for planning. Internal stakeholders experienced their newly "tangiblized" experiences then sought to understand, make judgments and take solutions-oriented actions in reference to them. Within the Stepping-in group, informed actions eventually produced a revised image of the company's solutions business model.

Over several sessions, the workshop in this AR facilitated robust dialog and clarified how findings worked as actionable knowledge for the Stepping-in group. Workshops proved useful as they brought stakeholders together to:

1) Share in new knowledge about different relational processes and qualities uncovered by the analysis.
2) Prompt face-to-face interaction by which attendees engaged with analytical findings as new and actionable knowledge. As scheduled events, workshops revealed how a venue for learning about relational processes and qualities may be important and challenging for participants. While centred on research findings, intervention with the Stepping-in group seemed to facilitate otherwise frozen dialog. Explicit relational processes and qualities seem to enable participants in their dialog to explore their dissatisfactions amid solutions, and their agreements about where to take the conversation.
3) Facilitate and focus group decision-making on actions to address their solutions issues. Once Stepping-in group stakeholders were exposed to a selection of relational processes, they recognized the ones that are troublesome or problematic in their combined experience of the workshop. Once recognized, evidence from this AR suggests that participants may traverse through discussion for understanding and judgement, eventually choosing action to produce more agreeable outcomes.

Framed by the process of human knowing, dialog for understanding prompted by the spatial matrix was also generative of questions. While sometimes unanswerable at the time of their asking, questions nonetheless appeared valuable to further dialog. As questions surfaced among internal stakeholders, their potential as a pathway to understanding clarified. Relational processes and qualities unfolded as social objects and exposed linkages among internal stakeholders – both as things open for discussion and engagements required for solutions.

The workshop emphasized intervention using research findings within the Stepping-in group. Findings about relational processes and qualities emerged as useful catalysts to both discussion and action to address practical issues. By taking aim at solutions issues through the lens of relational processes and qualities, workshop sessions also offered a means to action through AR. Informed by workshop interaction, stakeholders went on to suggest and produce outputs that seemed more attuned to addressing their situation. Stepping-up group members invested their limited workshop session time to explore hindrances to qualities corresponding with *Systematic Visioning* and needs to overcome these hindrances. Thereafter, the completed BMC offered an efficacious means to communicating the group's ideas upstream to executives.

6.1.1 Experiences as a Tangible Part of Servitization

The literature suggests that employees' sensibilities about the combination of products and services that comprise solutions may be developed through tangible elements and action-oriented practices. Levitt (1981) described how service qualities made distinct and clear may be experienced or tested in advance by employees. Further, from an action perspective, employee knowledge of how product and service combinations perform only emerges once they are put to work (Levitt, 1981; Araujo and Spring, 2006). Such insights prompt these authors to draw similar conclusions regarding intangible services "tangibilized" (Levitt, 1981, p. 101) through metaphors or surrogates. By "objectifying their properties" (Araujo and Spring, 2006, p. 800) practitioners may move away from the mere transfer of services to clearly specifying services for their transaction and trade in service relationships (Araujo and Spring, 2006). These insights couple with arguments favouring internal performance measurement initiatives, including quality measures, that may enhance organizational capacity to circumscribe and segregate internal activities amid disaggregated structures (Zenger and Hesterly, 1997). Per Araujo and Spring's (2006) argument, newly objectified measures of service quality may connect the logic of service to the "reorganization of the institutional structures of production" (p. 803).

As part of its servitization, Phoenix Contact's inclusion of solutions offerings through structures of production (e.g. written processes, roles, production spaces, etc.) offer evidence of something additional to the tangible structures applied to mass-produced products. In this research, analytical findings of solutions experiences were structured and made tangible through artefacts like the spatial matrix and briefing documents. Specifically, relational processes were discerned through a teleological lens as the purposeful, focused interactions between internal stakeholders while producing solutions with one another, then made available for consideration by internal stakeholders as elements of their own, solution-producing experiences. To vivify stakeholders' ongoing experiences and link them to research findings about their experiences with solutions, stakeholders' dialog and inquiry for understanding was facilitated by briefings and workshops. Insights collected from these activities suggests that internal solutions stakeholders may enhance their understanding by putting relational processes and corresponding quality measures to work through dialog and the sense they make of these newly "tangibilized" structures. During the briefing with the President, discussions on *Problematizing* as a relational process prompted his request for real world examples of questions that could be used for training purposes. However, in intervention with the Stepping-in group, new understandings prompted by analytical findings seemed to spark a future-oriented sense of improvements and benefits that might accrue for the group as they created real world scenarios of what "could be". Within the workshops as part of action research, the group continued to step through the process of human knowing to inform their judgement and agreements to action.

From group dialog centred on relational processes and quality measures, actions emerged through stakeholders' desires to further tangibilize their understandings and agreements with real world examples and useful outputs. As their workshop progressed, it seemed useful for the Stepping-in group to work their way through dissatisfactory relational processes via dialog to render their understandings about additional quality measures. Yet, while the spatial matrix helped make knowledge of relational processes and quality measures actionable through discussion, it was also a tool of intermediation toward additional valuable, tangible outputs. Stepping-in group discussions both influenced and were influenced by discussions about a blank Business Model Canvas (BMC) (see Osterwalder, Pigneur and Clark, 2010). Coincident with relational process and quality measure discussions, activities were dedicated to "filling in the blanks" on the BMC worksheet. For the group, a business model image that better aligned to their solutions capabilities was facilitated by their discussions of relational processes and quality measures. These discussions also considered solutions as consisting of their services and the hard outputs created by the group. The BMC exercise seemed to further tangibilize the group's ideas for an improved future of provisioning their category of solutions. Alternately, for the Stepping-in group, the completed BMC offered a physical and efficacious means for communicating their ideas upstream to executives.

Within the BMC, the key resources building block provided an example of how the Stepping-in group captured their discussions to make services tangible and portable for future discussions with executives. Akin to the sense of service as a "time-perishable, intangible experience" (Spohrer and Maglio, 2008, p. 240), quality measures seemed fleeting as they emerged and evolved quickly in the progress of workshop dialog. Discussions of quality measures from the *Conducting business through solutions* perspective prompted actions to generate tangible evidence of these quality measures. However, as group dialog focused on the quality measure *Operant Resource Availability,* it opened an expanded consideration of resources that included themselves as stakeholders made wiser by the trials of provisioning solutions. As the bearers "scar tissue" earned through their experience of provisioning solutions, the group worked to produce a list of key resources in the BMC that accommodated an improved and personal sense of *Operant Resource Availability*. While perhaps unable to convey the emotion accompanying the dialog, the BMC seemed to capture a snapshot for tangible evidence of the group's agreements about the specifics of *Operant Resource Availability*. This snapshot appeared within a tangible and relatable space forming a big picture image of the business through the BMC. This suggests that the making of service amid solutions "tangible" may be supported through a "doing" of dialog about relational processes and quality measures derived from experience.

6.1.2 Intervention in a Servitization Context

Involvement of the DOD aligned with literature readings that illuminate the intersection of human resource management practices with service improvements. The literature suggests that aggregate improvements in employees' service-focused abilities and orientations improves experience and may produce changes in organizational performance and effectiveness (Ployhart, Weekley and Ramsey, 2009; Ployhart, Van Iddekinge and MacKenzie, 2011). However, action research offers a means of addressing abilities and orientations through intervention. Action research engages the provision of feedback on data findings as an "intervention to influence…the on-going action process of the system" (Lippitt, 1979 cited in Coghlan and Brannick, 2014, p. 46). AR thus avoids the false dichotomy present between description and prescription while admonishing presenters of research to express clear expectations of what consumers ought to take from it (Eden and Huxham, 1996). For the DOD, research findings captured in artefacts like the spatial matrix and the briefing document helped convey findings as well as questions. Questions produced in co-participation proved handy and useful as tools for reigniting discussions and unfreezing a troubled group of internal stakeholders (the Stepping-in group) otherwise unable to move forward in productive and critical dialog. By considering relational process and quality measure themes, both leadership and operations to support solutions suggested topics for critical dialog and intervention for the DOD:

> "For the executive level, this is not a set of prescriptions. It is a way to helping us question and gather insight on how we work. For example, can I or my group support the sense of *Timeliness*? Not the parameters of *Timeliness*, the structure that supports *Timeliness*. Similar with *Ease*…not the parameters of *Ease*, but the structure to support *Ease*?"

Contributions to process emerging from this research suggest that improved abilities and service orientations of employees align with intervention intended to help employees see relational processes and quality measures as part of their own experience, then engage in discussion to improve this experience by addressing troublesome relational processes and quality measures. To foster internal stakeholders' co-participation, engagement unfolded though workshops and voting on relational processes as problematic in the experiences of being and acting as stakeholders. Participants were encouraged to build upon their capabilities to act upon one another in a workshop setting, prescribing for themselves focused action through the voting process. Co-participation in the analysis and intervention with the DOD thus helped this AR avoid the false dichotomy between description and prescription.

As action research, this study sheds light on servitization prompting needs for intervention. It highlights stakeholders struggling with one another in their experience of change from developing and selling mass-produced products toward product-service solutions. This study reveals the practicalities of drawing upon the experiences of internal stakeholders to name and render explicit relational processes and quality measures, then using this knowledge to facilitate intervention. In the rising importance of service to businesses, the literature advised a capabilities-based developmental approach to the challenges of becoming a service provider, including identified skill sets and the means to acquire them (Oliva and Kallenberg, 2003). Critical capabilities may emerge alongside service development to reduce conflict and overcome organizational inertia (Nijssen *et al.*, 2006). As actionable knowledge for intervention, the literature sheds light on specific skill sets that emerge through a relational process lens applied to solutions. In their supplier-side sense of relational processes for developing solutions, Tuli, Kohli and Bharadwaj (2007) describe mechanisms for conflict resolution between functions and units as an element of "process articulation" (p. 11) - one of the variables affecting solutions effectiveness. While derived from their own experiences, named and themed relational processes and quality measures were articulated through co-participation with the DOD and supported by artefacts like the coloured spatial matrix. This made them accessible as social objects for study, reflection, dialog and action with internal stakeholders.

Internal stakeholders' engagement of relational processes seems an essential skill set and implicit knowhow learned from and applicable to their experiences of provisioning solutions with one another. To effect intervention and change, internal stakeholders co-participated in the conversion of new knowledge about their experiences into pragmatic knowhow aimed at improving their experiences. The literature suggests process articulation may be used as a "rule book" (Tuli, Kohli and Bharadwaj, 2007, p. 11) applied to help frame interactions rather than mandate how interactions should unfold. This study reveals the practicalities of drawing upon the experiences of internal stakeholders to name and make explicit relational processes and quality measures, then using this knowledge as a rule book to frame intervention and as a new way look at process and quality linked to solutions.

Once collected, thematised and applied as topics for discussion in workshops, an explicit sense of stakeholders' many relational processes and corresponding quality measures suggests the practicality of this knowledge made actionable. Viewed as a kind of process articulation rule book, explicit knowledge about relational processes became actionable through conflict resolution with the Stepping-in group. Workshop discussions emphasized and focused issues at the level of individual internal stakeholders, framing gaps as missing engagements with relational processes or problems with quality measures. These gaps appeared as stakeholders discussed the who's who of solutions decision-making, and surfaced concern over their own involvement. For the Stepping-in group, within *Processes Conducive of Solutions (Leading Solutions)* theme, a re-consideration of *Systematic Visioning* and *Prioritizing* seemed to redirect their attention to these relational processes as needful of their own engagement. Rather than something not involving themselves or "out of bounds" in their play of provisioning solutions, Stepping-in group stakeholders decided to engage in dialog about these relational processes.

6.2 Contributions to Theory: Internal Stakeholders' Service-Dominant Logic

While S-D logic emphases micro-activities among individuals that trade knowledge in service for service exchanges (Lusch and Vargo, 2006c), servitization studies acknowledge that solutions integration happens through micro-level interactions that encompass business activities (Baines and Lightfoot, 2014). This study contributes perspective on such micro-activities as distinct, purposeful relational processes, and offers relational processes as a means of discerning micro-level interactions from the expressed experiences of the internal stakeholders involved in servitization and solutions integration. Located at the level of individual stakeholders, this study also contributes to a novel sense of quality corresponding to relational processes as part of internal stakeholders' service for service exchanges. The literature sheds light on service quality as a phenomenon perceived by service beneficiaries about the attitudes and behaviour of serving personnel, or about service processes (LeBlanc and Nguyen, 1988; Zeithaml, Parasuraman and Berry, 1990; Szmigin, 1993), and links to employee's evaluation of their employee-employee service encounters through internal service quality (Hallowell, Schlesinger and Zornitsky, 1996; Schneider, White and Paul, 1998; Ehrhart *et al.*, 2011). As this research was located at the level of individual internal stakeholders addressing real workplace-based issues, it contributes to the understanding of internal service quality modelled as distinct quality measures that correspond to relational processes used and experienced as phenomena by internal stakeholders in their service for service exchanges.

S-D logic also suggests that service exchange processes that enable value co-creation account for time-dependent and embedded contexts perceived by individual actors. Through the lens of S-D logic, an individual's capability to serve is functionally dependent upon unique, layered contexts that include "micro, meso, and macro levels – as well as the dynamic meta layer" (Chandler and Vargo, 2011, p. 45). Findings from analysis in this study suggest that relational processes and quality measures offer some nuanced understanding and meaning to exchange processes and value co-created amid such contexts. This study contributes to the sense of layered contexts by embedding relational processes into sub-themes and themes. Themes, in turn, accounted for how internal stakeholders were enabled by relational process contexts at the meta-level of "leading" and the micro-level of "doing" of solutions. Linked to their experience of relational processes, internal stakeholders also perceived quality measures from different thematic perspectives on solutions - from the macro-level of the business to the micro-level of individuals. A meso-perspective is suggested by the confidence and certainty that arose between the other two quality measure themes to encapsulate the sense of *trust* internal stakeholders detected about the business and one another.

6.3 Future Research Opportunities

6.3.1 Servitization Effects on Service Capacity

According to Gallouj and Weinstein (1997) service "is identical in substance with those who produce it and with those who consume it" (p. 540). Expressed thematically by the literature, an equivalence emerges between service stakeholders and the service itself (Parasuraman, 1987; Edvardsson, Larsson and Setterlind, 1997). Akin to service likened to process (Shostack, 1982; Weitlaner and

Kohlbacher, 2015), this suggests that an organization's capacity to deliver service is at least partially derived from its internal stakeholders that embody service. Yet, the services systems and servitization literature defamiliarizes the sense of capacity compared to lean operations management aimed at optimization. Service systems that include people in their make-up are complex, adaptive, dynamic and open instead of simple and optimized (Spohrer *et al.*, 2007). Whereas lean practice in production strives to tightly align capacity and demand to optimize the usage of expensive resources, service perspectives on capacity might accept lower utilization to meet peak demand in high contact situations, or pursue demand in low contact situations (Baines, Lightfoot, Peppard, *et al.*, 2009). Further, the literature notes servitization as a transformational challenge for companies seeking to inject service into their otherwise production-oriented enterprises (Baines, Lightfoot, Peppard, *et al.*, 2009; Lightfoot, Baines and Smart, 2013). While this research offers relational processes drawn from solutions stakeholders' experiences, there's less temporal sense to these relational processes as something developed anew or merely emphasized in transformation through servitization. More longitudinal research is needed to explore where relational processes fit in the optimization versus adaptation of manufacturing firms transforming through servitization. As scholar-practitioners address issues arising from organizational servitization, future research is also needed to explore the evolution of internal quality measures corresponding with relational processes, and how such measures might improve the productive service capacity embodied by the stakeholders engaged in relational processes. Through a process lens applied to strategy, solutions and their supporting relational processes may emerge as social structures that both frame choice and evolve in practice recursively (Stacey, 2011) within a collaboratively produced, action research-based narrative.

6.3.2 Servitization Effects on Service Climate

As part of a strategic imperative, service climate intends to influence employee perceptions concerning service behaviour and quality (Ehrhart *et al.*, 2011). However, service climate may be underdeveloped if employees don't recognized the importance of intangible service elements (Bowen, Siehl and Schneider, 1989). For the professionals and internal stakeholders in this study, findings suggest that "being and acting" amid solutions is accompanied by relational processes and corresponding quality measures. However, in contrast to a common, written sense of process and quality, relational processes and quality measures seemed difficult to grasp, appearing "as lived" both in-the-moment and fleeting. Compared to knowledge and understanding captured in written processes, there seemed to be little explicit understanding of relational processes, their scope or their variety. Both stakeholder interviews and the briefing with the President revealed little sense of processes as “relational” or corresponding with quality measures. Internal stakeholders seemed to cope and work by engaging in relational processes unheedful of what they are or how they affected the quality of their solutions work. For Phoenix Contact USA, the servitization mandate toward solutions business seems to have augmented relational processes and quality measures as unforeseen and intangible elements of the company’s former and solely product-oriented service climate. This suggests that the strategic mandate to engage in solutions may not have paid sufficient heed to the mandate’s effect upon service climate. Future research should explore the timing and ways of introducing relational processes and quality measures into strategic imperatives, developments and evaluations. Such research could be pursued for insights into how these elements influence service climate, therefore perceptions about service behaviour.

Although arising from pure service settings like healthcare and airline travel, the theory of relational coordination may inform the sense of change and movement toward solutions that combine products and services. According to Gittell (2002), relational coordination accounts for provider-provider relationships in service settings that are time constrained and most effective through reciprocal rather than sequential interdependence. For Phoenix Contact, the steps and stages of written processes seem to concretize a sense of sequential interdependence. However, the sense of time corresponding with relational processes resonates with the pairing of *Timeliness* across all relational processes surfaced in this research. For internal stakeholders, *Timeliness* seemed a quality closely linked to conducting business through solutions and detected while working through solutions processes. In contrast to the company or organization as the unit of analysis, servitization via solutions at Phoenix Contact seems to have happened both to and through the relationships of internal stakeholders. Future longitudinal research is needed to shed light upon the effects of servitization upon service setting and the influence that service settings transforming through servitization have upon the relationships of internal stakeholders. Action research among internal stakeholders might then explore change in service setting through the lens of relational processes as shared knowledge, goals and mutual respect that are integral to relational coordination (Gittell, 2000, 2002, 2015).

CHAPTER 7 CONCLUSIONS

7.1 Methodology and Study Objectives

Objectives for this study included identification of the relational processes internal stakeholders use in their provision of solutions with one another as well as the quality measures stakeholders perceive in their engagement of relational processes. Conceptual light shed by the literature suggested solutions provision among stakeholders as value co-creating experiences involving relationships, service and knowledge exchange. Combined with theoretical claims of value as uniquely and phenomenologically determined, these insights formed a lens for bringing the phenomena and aesthetic criteria perceived by individual stakeholders to light as relational processes and corresponding qualities. Phenomenology was used as an approach to access these phenomena as something real and purposeful to internal stakeholders through: 1) inquiry into their experiences of provisioning solutions, 2) surfacing relational processes and corresponding quality measures in analysis of their anecdotes about solutions experiences, and 3) objectifying these findings about experience, making them tangible for others to see and understand. Phenomenological research methods informed the researcher's approach to inquiry into personal experience. For the insider-researcher, these methods also served as a means of bracketing and reflecting upon his preconceptions about relational processes and corresponding qualities as stakeholder experiences before and during analysis. To refine exploration into the solutions and service experiences of internal stakeholders, literature readings were used to focus questions applied in in-depth interviews through the lens of service and solutions theory.

Findings from the analysis of interviewees' anecdotes produced a selection of relational process and corresponding qualities that were captured in a matrix. Thereafter, phenomenology sequenced with action research as methodology for taking the researcher's first-person findings into a co-participatory form of analysis. The matrix presentation of correspondences between relational processes and quality measures offered an efficient and accessible way to transition from the researcher's strictly first-person, phenomenological analysis of stakeholders' experiences to second-person, co-participatory engagement with the DOD for thematic analysis. This analytical approach harmonized with the co-participatory values of action research and produced findings aligned with the next objective of the research – the expression of correspondences between relational process and quality measures as well as the linkages between distinct relational process and between distinct quality measures.

Co-participation unfolded as the researcher discussed initial findings in matrix form with the DOD, then worked with the DOD to reduce and settle upon a selection of twenty-three relational processes and thirteen corresponding qualities offering "most bang for the buck" for intervention and training. While participation began as a quality check of the researcher's analytical insights, the DODs active participation in inquiry and dialog also aided co-development of matrix through thematic analysis to link and group distinct relational processes and quality measures. Thematic analysis with the DOD fostered a common sense of how individual relational processes gathered and fit into themes that reflected organizational development programs and efforts implemented within the organization, and solidified the ways internal stakeholders detected groups of corresponding qualities as well as their perspectives taken to make these detections. For the DOD, co-participation in the development of thematic findings evoked a sense of co-ownership in the results, as sense of control through her contributions to orderly progress in the research, and, through the activity, dialog and inquiry that characterized her participation, a sense of how findings could be useful for intervention. Once completed, the coloured matrix containing thematised findings offered an opportune means to brief the President, present findings and gather additional insights about the usefulness of the findings. Action agreements from this meeting unfolded through the planning and implementation of workshops intended for intervention with a troubled team of solutions-provisioning stakeholders; a team we named our "Stepping-in" group to describe our intent to enter the relational situation and issues experienced by the group.

Intervention through workshop sessions and activities reflected the final objective of the study by using study findings within a group of internal solutions stakeholders to address issues in their joint provision of solutions. As scheduled events, workshop sessions revealed how venues applying newly objectified findings about relational processes and quality measures through tangible artefacts (e.g. matrices, briefing documents) also provide a means to reflection and learning about these findings. Well planned workshop activities made study artefacts available for team encounters to open and involve participants in dialog about relational issues affecting their joint provision of solutions. Once exposed to a selection of relational processes, recognized the ones that were troublesome or problematic through workshop activities and interactions. Although blame and finger-pointing among team members about one another to executives (i.e. the President) evinced conflict, intervention with the Stepping-in group facilitated otherwise frozen dialog within the team. While workshop meetings facilitated robust dialog, they also clarified how relational processes and corresponding quality measure findings work as actionable knowledge through AR and the process of human knowing. Participants' experience with explicit relational processes and qualities seemed to enable participants in their dialog to explore and understand their dissatisfactions with provisioning solutions. Workshop sessions also prompted judgements about where to take the conversation as well as action to produce more agreeable outcomes. The DODs introduction of the BMC into workshop exercises then helped capture these agreements, enabling Stepping-in group members to convey them up the organizational hierarchy.

7.2 Study Limitations

In contribution to the call for more prescriptive approaches to servitization process and research, this study drew upon AR blended with phenomenology as well as thematic and matrix analysis as supporting analytical methods to address a real workplace-based issue. This study aligns with the researcher's blended purposes and intent for the study as both insider and scholar-practitioner. Thus, theoretical insights informed the researcher's approach to company issues through proceedings and outcomes that were also internally valid and linked to the relationships and experiences of internal stakeholders provisioning solutions with one another. Simultaneously, for scholars, scholar-practitioners and other interested third-parties, this study articulates considerations, reasonings and reflections which may be useful within organizations infusing service to implement servitization strategy, and looking for process-based approaches to address internal, employee-employee, relational challenges associated with this implementation.

However, the study's progress within the US operations of a single, German-owned company adopting a servitization strategy amid the industrial electrical and electronics industry also highlights the study's context-bound limitations. Additionally, as noted throughout the study, the researcher's insider status as a long-term employee and company executive enabled political and organizational partnerships as well as cultural insights. While unique to the study and the researcher, these factors also contributed to the study's unfolding and outcomes. Bound by context, the study's unfolding also suggests limitations associated with time. The choice of methods applied in the research was informed by the literature's characterization of value within service experiences as phenomenologically determined, idiosyncratic, contextual and meaning laden. However, the sequence of probing these experiences through interviews then transmuting analytical insights into actionable knowledge through workshop sessions required a considerable time investment (see Appendix I). As intimated by the DOD, the Stepping-in group's troublesome situation was timely for intervention and the application of findings. This suggests that the time value of findings as knowledge may be tied to needs for intervention, and suggests that the timing of this project was linked the applicability of phenomenological paired with action research methodologies used to produce findings about solutions experiences and put them to work in intervention. Within this research, the orchestration and rhythm of applied methods affecting *when* analytical insights were available seemed to inform *how* stakeholders valued relational processes and qualities as useful and actionable knowledge. This suggests that the usefulness of this kind of knowledge within the longitudinal timelines of servitization and service infusions may be open to future action research.

Analysis suggested that internal stakeholders use several relational processes and qualities to interact with one another and evaluate their solutions experiences. The colourful, spatial matrix was eventually used as an artefact to facilitate knowledge sharing about twenty-three relational processes and thirteen qualities, themes and sub-themes, perceptions and detections. However, the quantity of relational processes and corresponding qualities appeared daunting to some workshop participants and unfamiliar to others. While the face-to-face workshop venue emerged well suited for facilitating practical experience with many otherwise unfamiliar relational processes and qualities, the usefulness of relational processes was closely linked to workshop activities involving the discussion of all the findings together. The workshop context contributed to attendees' ability to help address the apparent complexity and scope of the findings. In the workshop setting, the voting activity helped democratize and focus each groups' sense of which processes seemed troublesome or dissatisfactory, and which qualities might be best used to describe and make explicit the sense of what they were trying to achieve through relational processes. In workshop sessions, relational processes and quality measures emerged as both points and facilitators of decision rather than unknowns about process and quality. This suggests that artefacts like the spatial matrix may be practical tools for workshop sessions intended for intervention. However, the applicability and usefulness of research artefacts in the day-to-day activities of provisioning solutions was left unexplored. Further, when used within workshops, the spatial matrix seemed to offer a means of addressing a narrow set of issues with a limited number of relational processes. For example, in the parlance of the DOD, "…the most bang for the buck" within this AR seemed to derive from the group's concentration upon *Systematic Visioning* and *Boundary Setting*. Thus, while research artefacts like the briefing document and matrix were useful as intervention technology for unpicking and agreeing upon a commonly perceived problem, this usefulness appeared limited to addressing only narrow sets of issues aligned with particular relational processes. Future AR may benefit from an exploration of artefacts, as well as their size and scope, as useful for stakeholders in their day-to-day work of addressing solutions issues while engaged in relational processes.

The notion of relational process and quality pairings also exposed the limitations of phenomenology to reveal these pairings through the analysis of individual interviews. Some of these pairings seemed to emerge from group discussion in workshops rather than anecdotes collected from interview transcripts. Discussion of *Spearheading* (a relational process) among the Stepping-in group suggested that some participants had little sense of *Operant Resource Availability* (a quality) as they did not know who might responsible or available to engage in *Spearheading*. Practically applied, this suggests that pairings of relational processes and qualities may be obscure in individual stakeholders' expressions of their experiences and/or difficult to discern in the qualitative data analysis of individual transcripts. Accessibility to findings and avoidance of too much detail aligned with my intent as researcher to share the spatial matrix as an artefact. Nonetheless, findings used to construct the matrix originated with one-on-one, researcher-interviewee interactions. Group interactions seemed efficacious for surfacing more nuanced views of pairings between relational processes and quality measures. AR time invested in group exploration of relational process and quality measure pairings could reveal more in-depth insights into the linkages suggested by these pairings in the experiences of internal solutions stakeholders.

Finally, as an artefact, the spatial matrix featured relational process and qualities as paired in the experiences of internal stakeholders. However, the DOD and Stepping-in group seemed to find the knowledge of relational processes and qualities useful by first unpairing them. The spatial matrix was decoupled to show relational processes and qualities in separate, tabular form. Relational processes and their themes viewed as a standalone column allowed workshop participants to concentrate and vote upon them as dissatisfactory or problematic. Once voted upon, discussion about relational processes seemed augmented by the pertinence or salience of qualities within conversations. For the Stepping-in group, *Operant Resource Availability* was an apt linguistic means of expressing an important quality about themselves within their conversations on *Systematic Visioning* and *Boundary Setting.* The group then focused on needs to overcome hindrances to this individual quality. This suggests that, while perhaps interesting as a summary within a matrix, the meaning, sense and usefulness made of relational processes and qualities emerges from a consideration of them as discrete topics of discussion. AR exploring configurations of findings within research artefacts would shed light the most useful configurations for workshops or day-to-day work contexts.

7.3 Seeing Anew: Actively Reflecting on Solutions Issues Through a Relational Process and Quality Measure Mirror

What are the relational processes and corresponding quality measures that enable the process of servitization for internal stakeholders? Gathered into themes, relational processes are a part of what is done among internal stakeholders to lead or do the work solutions. Corresponding to relational processes, internal stakeholders adopt perspectives on their sense of quality in the conduct of business through solutions, on their provision solutions with others, or the confidence and certainty they have in either. When drawn from internal stakeholders' experiences and made accessible to them through artefacts like the spatial matrix and briefing documents, relational processes and quality measures form a basis and opportunity for discussion and group reflection. Made tangible and objective, findings communicated through artefacts supporting action research served as social objects that enabled discussion as well as action to improve issues that surfaced through discussion.

As objects of discussion and dialog within briefings and workshops, relational process and quality measures enabled internal stakeholders to perceive and develop meanings about their experiences. Akin to a mirror used for reflecting and interpreting the experience of producing solutions, findings from this research suggest that relational processes also clarify what can be done with them if seen as corresponding to quality measures in a solutions-provisioning context. For internal stakeholders, the everyday perceptibility relational processes and quality measures seemed fleeting but nonetheless useful in an intervention context. As a clean mirror, relational processes and corresponding quality measures may be less regarded while in daily use amid the bustle of internal stakeholders – each coping with others to provision solutions together. Yet, if problematic (i.e. a dirty or cracked mirror), they may become social objects, and put into use as partial reflections of shared experience. Experiences are seen somewhat reflected in relational processes and quality measures to reveal issues that need discussion and action. Further, the uses of relational processes and quality measures seemed to vary significantly according to different users. As users, internal stakeholders may see the usefulness of relational processes and quality measures as variable depending upon the users' historical standpoints or needs at different times. As relational processes came into consideration, different stakeholders shifted from different views - moving in or out from different focal points and using research findings to first see then address solutions-oriented issues. Intermediate research findings helped the President move his understanding of processes inward, closer to individual stakeholders, by reconsidering processes as "relational". For the President, intermediate findings also revealed a gap in the company's process-oriented support of policy to produce the "highest quality level" solutions. Alternately, Stepping-in group members saw the collection of relational processes and quality measures as a movement outward, offering a "view from the stratosphere" to enable their dialog with one another. After zooming out to this view, the Stepping-in group eventually acted to produce a "big picture" via the BMC. Before analytical findings were introduced and made actionable, it is notable that Stepping-in group members were reluctant to engage in discussion and lapsed into finger-pointing and blaming versus dialog. Further, their workshop outcomes suggest that discussion of relational processes and quality measures were generative of worthwhile interactions. Borrowing from terms used in this research, such worthwhile interaction might also be taken from a view of findings as actionable knowledge that practically enabled *Integrating* or bringing internal stakeholders into equal participation.

7.4 A House of Mirrors: Navigating the Maze of Relational Processes and Quality Measures

Once "hot spot" voting focused attention on troublesome relational processes for the Stepping-in group, inquiry to explore issues and quality measure shortcomings enabled workshop conversations. However, group discussions also suggested that relational processes sequenced with one another. This sequencing appeared in the flow of workshop conversation to fully understand and approach solutions issues in terms of relational processes. Conversation about troublesome relational processes first shed light on solutions issues, then fostered relational processes as topics open to discussion. The topic of troublesome relational processes connoted other relational processes for enriched dialog. The Stepping-in group's difficulty identifying dissatisfactions within the *Processes Conducive of Solutions (Leading Solutions)* theme suggested that stakeholders were bound-up in processes for *Doing Solutions.* Through dialog, the group agreed that *Prioritizing* belonged to them as a relational process and was not restricted to customers or other stakeholders. Then, as discussions moved on to consider *Systematic Visioning,* dialog prompted stakeholders to adopt a more holistic view of a system of stakeholders supporting solutions goals. Deftly guided by the DOD, discussion flowed and sequenced between considerations of dissatisfying relational processes, moving from one the next to enrich discussion and the depth of inquiry. Eventually, agreements emerged on the cadence and course of action as the Stepping-in group went on to create their own BMC.

7.5 Reflections on My Role as Scholar-Practitioner

Although the literature hints at phenomenology informing practice, how it may do so seems open to the scholar-practitioner's reflection and judgment. By listening to them and analysing their experiences, my sense is that phenomenology helped me secure the linkage of my experience as insider researcher to those of internal stakeholders. Through my interviews and inquiry with internal stakeholders, I interacted with them as the experiencers of provisioning solutions. The revised spatial matrix, briefing documents and this thesis offer exemplars of research outputs. While serving as a scholar-practitioner intent on creating such tangible artefacts from analysis, I nonetheless surfaced stakeholder experiences through a deep reading of transcripts. This enriched my understanding of relational processes and quality measures. However, to express my understanding following the analysis of experiences, my production of artefacts provided an evidential glimpse into these experiences. Thereafter, analysis and analytical outputs provisioned me with the means for intervening with internal stakeholders, both by using and by clearly illustrating some measure of my own understanding. Through my analysis, I claimed some knowledge of the richness and complexity of these experiences. My sense is that this approach also lends to the credibility and trustworthiness of a scholar-practitioner as one who shares in experience and one who may therefore know and contribute some deeper understanding of internal stakeholders' experiences.

As scholar-practitioner, reflection upon the research unfolding through time also shed light on the practicalities of knowledge made actionable, and my role in putting new knowledge into use through AR. While new knowledge of relational processes and quality measures catalysed discussion, they also prompted action as the group discovered how to use research findings that reflected the experiences of internal stakeholders. These outcomes also informed my personal sense of usefulness as a scholar-practitioner. The research required that I serve as the facilitator of workshops that allowed stakeholders to partake in actionable knowledge about themselves. As evinced by this IAR, the exposure of stakeholders to their relational processes and corresponding quality measures facilitated knowledge and action concerning solutions issues while working through a cycle of experiencing, understanding, judging and agreeing to action. In dialog, stakeholders seemed to move quickly from "know that" about relational processes to knowhow for enacting these processes and engendering a more specific sense of desired qualities and outcomes.

7.6 Service Quality within Process Competencies

"There can be no learning without action and no (sober and deliberate) action without learning."

-Revans cited in Pedler, 2008, p. 10

Reflections and insights guiding this study are submitted here as a contribution for understanding how to approach a servitization-oriented problem. This study evaluated and acted on a workplace-based issue from a perspective of servitization happening to and through internal stakeholders charged with provisioning of solutions. For internal stakeholders, provisioning solutions together as part of their servitization experience evinced difficulties in relationships. While sensed by the President of Phoenix Contact USA, these difficulties later catalysed his approval for this study. The locus of difficulties agitated between internal stakeholders from two different companies under Phoenix Contact USA: the D&M Company and the US Subsidiary. This study addressed the struggle of internal stakeholders with one another in their shared experience of change through servitization - from developing and selling mass-produced products to customers to provisioning product-service solutions for customers. As action research, this study sheds light on servitization issues at the level of internal stakeholders and processes prompting needs for intervention.

Considering service competencies, the literature suggests a contrast in perceptual gaps that pose risks to service quality versus gaps in risk-taking aligned with new services. Risks associated with perceptual gaps may be reduced by gap analysis and the application of quality measures to determine how competencies should develop as required for service improvements (Zeithaml, Parasuraman and Berry, 1990; Davies, Brady and Hobday, 2006). However, from a service climate perspective, competencies may also spread beyond risk reduction to include more risk-seeking aimed at developing service business (Gebauer and Fleisch, 2007). This balance of risk reduction and risk seeking resonated with the intervention outcomes of this research by addressing gaps in understanding as well as opportunities for development. This research suggests that findings from the analysis of internal stakeholders' experiences informed their practice. Findings filled perceptual gaps as relational processes and quality measures were made tangible and perceivable through artefacts, then made actionable through workshops and cycles of human knowing. Through their participation, the Stepping-in group produced an image of what they agreed as a better business model, then worked to position this image to executive stakeholders unaccustomed to this kind of feedback.

The literature also revealed useful views on solutions envisioned as products and services as well as relational processes happening between people. While the service literature suggested that services equate to processes, it also suggested that people are the embodiment of services. However, compared to services supporting products and product development, my reflections as an insider revealed services as different in a solutions-provisioning context. Internal service intertwined with solutions was linked but additional to the processes and relationships internal stakeholders used to develop mass-produced products. The literature then revealed internal service among employees as enabling of their capability to serve customers. From the literature, competence was taken as a coherent and synergistic combining of skills, knowledge, and experiences. Thereafter, capability was viewed as a combination of competence with reliable processes – in this case relational processes internal stakeholders use with one another to provision solutions. To transmute research findings into actionable knowledge, this concept of capabilities combining competencies and processes also became an important ingredient in the mix of methods used in action research. In this research, intervention through AR was driven by a shared intent with the President and the DOD to develop competencies around relational processes to ensure quality, thereby aligning to company policy. Subsequently, workshops embraced action and the process of human knowing to capably address the issues and dissatisfactions with relational processes and quality measures that internal stakeholders voted as part of their internal, service for service exchanges with one another.

Working with DOD, an issue that appeared addressable through research findings involved internal stakeholders unable to relate to one another – the Stepping-in group. Workshop sessions supported a sense of how knowledge of relational processes and quality measures might contribute to relationship development skills that are a characteristic of servitized manufacture (Baines, Lightfoot, Peppard, *et al.*, 2009). The workshop progressed by employing sober and deliberate action to foster learning and enhance competency around relational processes, and by attending to the process of human knowing to frame the unfolding action narrative. Intervention unfolded as an active group dialog on the experience of provisioning solutions with one another through the lens of relational processes and quality measures.

This research was constrained to one company undergoing servitization through solutions and one scholar-practitioner's intent on putting a "theory of the unique" about relational processes and quality measures to work. However, this research also offers a case of steps taken to make process articulation work among internal stakeholders in conflict prompted by servitization through solutions. A tangible sense relational processes and quality measures may contribute to relationship development skills by enabling internal stakeholders with actionable knowledge on how to relate to one another while undergoing servitization. As suggested by the workshops, learning then using relational processes and corresponding quality measures unfolds first by prompting people to engage these findings together as a "theory of the unique" about themselves and their experiences, then by making the theory useful through the process of human knowing - conjoint experiences, understanding, judgements and agreements to action.

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Appendix A

Approval from the President of Phoenix Contact USA

PHOENIX CONTACT
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To: International Online Research Ethics Committee

Re: Letter of Authorization to Conduct Research at Phoenix Contact

To whom it may concern:

This letter serves as authorization for the University of Liverpool student researcher Louis L. Grice (the "Researcher") to conduct the research project entitled <u>Service Quality within Process Competencies: Producing Solutions in an Industrial Electrical and Electronics Equipment Company</u> at Phoenix Contact in Harrisburg, Pennsylvania, USA (the "Facility").

The Facility acknowledges that it has reviewed the protocol presented by the Researcher, including access to company data and personnel time. The Facility accepts the protocol and associated risks. The Facility authorizes the research project to proceed upon approval from the International Online Research Ethics Committee.

If we have any concerns or require additional information, we will contact the Researcher and/or the International Online Research Ethics Committee.

Sincerely,

Facility's Authorized Signatory

10-7-16
Date

Jack Nehlig
President

Appendix B

Approval from University of Liverpool – DBA Ethics Committee

Dear Louis

I am pleased to inform you that the DBA Ethics Committee has approved your application for ethical approval for your study. Details and conditions of the approval can be found below:

Committee Name: DBA Ethics Committee
Title of Study: Service Quality within Process Competencies: Producing Solutions in an Industrial Electrical and Electronics Equipment Company
Student Investigator: Louis Grice
School/Institute: School of Management
Approval Date: 19-12-16

The application was APPROVED subject to the following conditions:

- The researchers must obtain ethical approval from a local research ethics committee if this is an international study
- University of Liverpool approval is subject to compliance with all relevant national legislative requirements if this this is an international study.
- All serious adverse events must be reported to the Sub-Committee within 24 hours of their occurrence, via the Research Integrity and Governance Officer (ethics@liv.ac.uk)
- If it is proposed to make an amendment to the research, you should notify the Committee of the amendment.

This approval applies to the duration of the research. If it is proposed to extend the duration of the study as specified in the application form, the Committee should be notified.

Kind regards

Clare Rigg

DBA Ethics Committee
University of Liverpool Management School in Partnership with Laureate Online Education

Appendix C

Written Solutions Processes

Snowball sampling insights emerged through discussions with internal solutions stakeholders to identify written processes for analysis as well as other qualified solutions process stakeholders (table A). Newly identified stakeholders then became prospects for participation in in-depth interviews. This inquiry process helped identify interview candidates needed in the study and bolstered rigor in snowball sampling. For robustness, this process was repeated until the solutions processes and names of stakeholders actively participating in these processes repeatedly identified the same process and stakeholder names.

	Process title
1	Product Development Process Solution Centre
2	Criteria for customer information in case of product changes and incrementing of the current state of version
3	The Project Management Process for CIS Customer Projects
4	The Product creation process of the Phoenix Contact Group
5	ICT RBU Custom Marking
6	US_D&M_Control of product changes
7	ICT RBU Solution Centre (Eng) Terminal Strip Assemblies

Table A
Solutions Processes Aiding Snowball Sampling

Appendix D

Contact, Communications and Consent with Volunteer Interviewees

To avoid any sense of captive audience or group pressure, initial contact with interviewee candidates was either one-on-one, face-to-face or through secured company e-mail. In pursuit of informed consent and anonymity, participant consent forms were given or sent to participants privately through these interfaces. A verbal explanation of the research was also part of face-to-face encounters. Although most interviewee candidates volunteered immediately for interviews, others were allowed three weeks before follow-up contact was made. This period was adopted to allow sufficient time to read documents and ask questions before stakeholders, otherwise challenged by busy travel and business schedules, made consent decisions. All interviews were scheduled during work hours per the pre-approval of the company President. Meeting times and room proposals were issued through Lotus Notes, the company's secure e-mail and scheduling system. To position interview requests as "low pressure" and non-coercive, interviewee candidates that did not counter-propose or respond to suggested interview meeting times through the company's Lotus Notes email and scheduling system received follow-up e-mails in two weeks' time.

The potential risks associated with interviewees' choice in expressions of dissatisfaction concerning leadership decisions, company policies, or work performance as possibly damaging to their position, professional reputation, promotability or employability were disclosed in the information document. However, the information document also expressed that these risks should not exceed those present in the daily working environment of interviewee-stakeholders or me as the researcher. There were no physical risks to research co-participants or me as the researcher beyond those present in the office environment. In private interview meeting rooms, risks were constrained to the relational dynamics between me as the researcher/insider and stakeholders as interviewees. Interview questions sometimes prompted expressions of stress or dissatisfaction as part of the work experience. However, psychological risks were minimized by positioning the research as a means for developing and sharing understanding about the experience of solutions amid internal stakeholders. In the context of interviews intended to draw upon their experiences, interviewees were open to express disagreement with leadership decisions, company policies, or work performance.

Appendix E

Research Project Information Sheet

UNIVERSITY OF LIVERPOOL

Research Project Information Sheet

1. **Title of Study**

   Service Quality within Process Competencies: Producing Solutions in an Industrial Electrical and Electronics Equipment Company

2. **Invitation Paragraph**

   You are invited to participate in a research study. However, before you decide whether to participate, it is important for you to understand why the research is being done and what it will involve. Please take some time to read the following information carefully and feel free to ask Lou Grice if there is anything you do not understand. Feel free to discuss this with your colleagues if you wish. Also, please note that you do not have to accept this invitation. Your participation is voluntary and you should only agree to take part if you want to.

3. **What is the purpose of the study?**

   As Phoenix Contact has grown, it has begun to incorporate more value-added solutions into its market offering. However, beyond products, producing solutions requires additional processes, services and competencies. This study is intended to help the company understand the nature and quality of this service linked to the competencies we use to produce solutions. In other words, considering our process approach to quality, how do we come to understand our experience of solutions service quality while we apply our competencies and follow processes to produce solutions?

4. **Why have I been chosen to take part?**

   You have been identified through a review of our documented processes, or by other company colleagues, as someone who has personal experience with solutions or solutions processes. That is, within the company, you are known as someone that has an interest in and has worked on or with value-added solutions. This research depends upon stakeholders like you as a source of research data.

5. **Do I have to take part?**

   Participation in this research project is entirely voluntary. It is your choice whether you participate or not. There is no disadvantage to you if you choose not to participate. If you choose to participate, you may also choose to withdraw your consent at any time, without explanation and without incurring any disadvantage.

6. **What will happen if I take part?**

   You and Lou Grice will participate in a one-on-one discussion. The discussion is intended to draw upon your experience while working with solutions. Discussions should last approximately 60 to 90 minutes and will be held in a private meeting room. In the discussion, you will be asked questions that tap into your experience of solutions. These will be open questions for you to express your experience regarding our solutions competencies, our solutions production, and associated quality within Phoenix Contact. Any expressions should be what you know and understand about solutions, solutions processes, and your sense of quality when producing solutions. The discussion itself will be recorded and later turned into a written transcript for data and analysis. There is no need to bring documentation concerning solutions processes, marketing, training or otherwise. However, if you feel these materials may help you express your insights and provide clear answers during a discussion, you are free to bring and share them.

Please note, the comments made on all transcripts will be kept confidential and your identity kept anonymous. If any of your comments are used in the research, they will simply be referenced to you as a solutions stakeholder or process owner and not by your name or identity. Further, transcripts taken from you will be shared only with you. You may be asked to make further comments or corrections on your written transcripts.

The intent of this research is that anyone contacted for a discussion, and that gives consent to a discussion, will actually participate in a discussion. However, this research is also constrained by time. If no discussion can happen because of research time constraints, you will be notified by Lou Grice.

7. **Expenses and / or payments**

While there will be light refreshments offered during the course of a discussion, there will be no additional reimbursements made for your participation in the research. Your time contributed to this research should help us understand how we come to judge and measure service quality within our solutions.

8. **Are there any risks in taking part?**

Although the risks associated with this research are low, any liabilities for adverse outcomes prompted by this research belong entirely to Lou Grice as the researcher. As employees of Phoenix Contact, we will strictly adhere to the company's stated policies regarding conduct and code of ethics demanding that all employees must conform to legal standards and abide by the law.

It is important to note that this research is separate from your professional role(s) and those held by Lou Grice as the researcher. Your participation in the research should offer no disadvantage to you or present any risks to your position, professional reputation, promotability or employability greater than are already present in our everyday office environment. If you feel any uneasiness or sense of discomfort as part of your participation in the research, please make this known immediately to Lou Grice.

9. **Are there any benefits in taking part?**

As a participant, you are also a co-researcher. Working together, we will contribute to the discovery and understanding of how we experience and measure the quality of service while provisioning solutions and applying our solutions processes. This research may add to our knowledge of internal service quality measures as shared resources or tools. This research may also build our shared understanding of internal service quality linked to our integrating solutions competencies and processes. You will be kept informed of research results as they are compiled and condensed. During this analysis, your additional insights and participation will also be welcome as input to the research.

10. **What if I am unhappy or if there is a problem?**

Once the research begins, if you are unhappy, or if there is a problem, pease feel free to contact Lou Grice at (717) 856-1584 or at (717) 944-1300 ext. 3617. He will try to help you. If you remain unhappy or have a complaint that you feel cannot be shared with Lou, then please contact the Research Governance Officer at ethics@liv.ac.uk. Alternately, you may contact the University of Liverpool's Research Participant Advocate at (612) 312-1210 or email at liverpoolethics@ohecampus.com.

When contacting either the Research Governance Officer or the Research Participant Advocate, please be prepared to give the name and description of the study, the researcher involved (Lou Grice) and the details of your complaint. These details will help identify the study and enable appropriate action.

11. Will my participation be kept confidential?

Data collection will unfold in one-on-one discussions between you and Lou Grice as the researcher. To respect and ensure privacy, discussions will be conducted in closed and secure meeting rooms on the Phoenix Contact USA campus. The discussions themselves will be scheduled according to your availability and we will choose discussion date(s) and time(s) at your convenience. You may offer consent for discussions verbally in order to avoid a written record and preserve anonymity. Some role data may be gathered to provide a sense of whether you are a solutions process owner or stakeholder. However, to ensure confidentiality, your participation will be made anonymous through de-identification steps taken in the research once discussion data is taken. A coding system will be applied such that your comments will appear as if they come from a stakeholder that works with solutions or as one of several solutions process owners.

For anonymity, records of your name or contact information will not be stored or written in the research record, or in outputs that may appear in thesis or dissertation documents. The data collected from your discussion transcript will only be used for this specific research project and not for future or additional research. You and your contact information will be anonymized and disassociated from any quotations used in publication. You will only be identified as one of several solutions process owners or stakeholders.

Discussions will be recorded electronically and the recordings (e.g. WAV files) will be immediately transferred to a secure, password-protected PC for transcription. The file will then be deleted from the electronic recorder. Individual, electronic files containing data (e.g. Word or Excel documents) will be password protected by the researcher. Steps will also be taken to ensure secure data storage. During and after research, all electric files will be stored on the secured PC hard drive. Any manual files or physical data (e.g. transcript printouts) will be stored in a locked file cabinet behind a locked office door on the Phoenix Contact USA campus. Data will be secured and stored on a password protected PC or, for physical data, locked in file cabinets for ten years, then destroyed.

12. What will happen to the results of the study?

The discussion transcript will be available only to you and the researcher. As a contributor to the discussion, the discussion transcript will be available to you for review so you can revise or add to your comments as you see fit. However, the co-participatory nature of this research means that once research results are made anonymous, they will also be thoughtfully condensed and shared with other solutions stakeholders via reports and PowerPoint presentations. Also, research results may contribute to outputs that include a thesis document or white papers used in publication. In these results, papers, documents, presentations or any other form of research output, your identity will be kept anonymous and you will not be dentifiable as a research participant. For your convenience as a co-researcher, it is the intent of the researcher (Lou Grice) to make any final published documents available to you upon request. Published documents may also be made available through professional or academic journals or library systems.

13. What will happen if I want to stop taking part?

You may withdraw your participation in this research at any time and without explanation or disadvantage to you. Up to the time of withdrawal, and if you agree and are happy to do so, your contribution may apply to research results. Otherwise, you may request that your contribution be destroyed and no further use made of it. Please note, research results may only be withdrawn prior to being made anonymous. Thereafter, it will be impossible to distinguish your contributions and they may not be removed from the research.

14. Who can I contact if I have further questions?

If you have any questions or concerns about this research, please contact Lou Grice:

586 Fulling Mill Road
3rd Floor, SW Corner
Middletown, PA 17057
Office: (717) 944-1300 ext. 3617
Cell: (717) 856-1584

Appendix F

Participant Consent Form

UNIVERSITY OF LIVERPOOL

Committee on Research Ethics

PARTICIPANT CONSENT FORM

Title of Research Project:
Service Quality within Process Competencies:
Producing Solutions in an Industrial Electrical and Electronics Equipment Company

Researcher:
Louis L. Grice

Please initial box

I confirm that I have read and have understood the information sheet dated 14 June 2016 for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.	
I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason, without my rights being affected. In addition, should I not wish to answer any particular question or questions, I am free to decline.	
I understand and agree that my participation will be audio recorded and I am aware of and consent to your use of these recordings for purposes of transcription and research data.	
I understand that anonymity will be maintained and it will not be possible to identify me in any publications.	
I understand that my responses will be kept strictly confidential and I give permission for the researcher to have access to my responses.	
From the intent of this research, I understand that anyone contacted for an interview, and that gives consent to be interviewed, may participate in an interview. However, I also understand that my paticipation as an interviewee depends upon, and may be restricted by, research time constraints.	
I understand that, under the Data Protection Act, I can at any time ask for access to the information I provide and I can also request the destruction of that information if I wish.	
I understand that any liability for any adverse events arising from or directly attributable to this research belongs entirely to the researcher.	
I agree to take part in the above study.	

Participant Name   Date   Signature

Louis L. Grice
Researcher   Date   Signature

Research Supervisor:
Dr. Victoria Hanna, University of Liverpool Management School
Chatham Street Liverpool L69 7ZH
+44 151 795 3000
V.Hanna@liverpool.ac.uk

Student Researcher:
Louis L. Grice
586 Fulling Mill Road, Harrisburg, PA 17057 USA
717-944-1300 x3617
lgrice@phoenixcon.com

Participant Consent Form v 1
14 June 2016

Appendix G

Research Setting

This action research took place within the confines of the Phoenix Contact USA campus in Harrisburg, Pennsylvania (figure A). The campus includes both the US Subsidiary and the Development and Manufacturing (D&M) Company. The US Subsidiary and the D&M Company are housed in four- and three-story buildings, occupying 3,780 m^2 and 5,950 m^2 respectively. While stakeholders in the US Subsidiary and D&M Company work in separate buildings, all buildings are connected to one another via protected hallways. Adjoining the main hallway is a sizable, single story manufacturing hall of 7,880 m^2. Within this hall, 1,495 m^2 is dedicated to the fabrication and assembly of solutions. Internal stakeholders often have to walk to see or meet with each other, but do not have to endure the weather to do so. For this research, while the majority of stakeholder interviewees worked within this context, those holding active sales roles work out of home offices. However, all interviews were conducted on the Phoenix Contact USA campus.

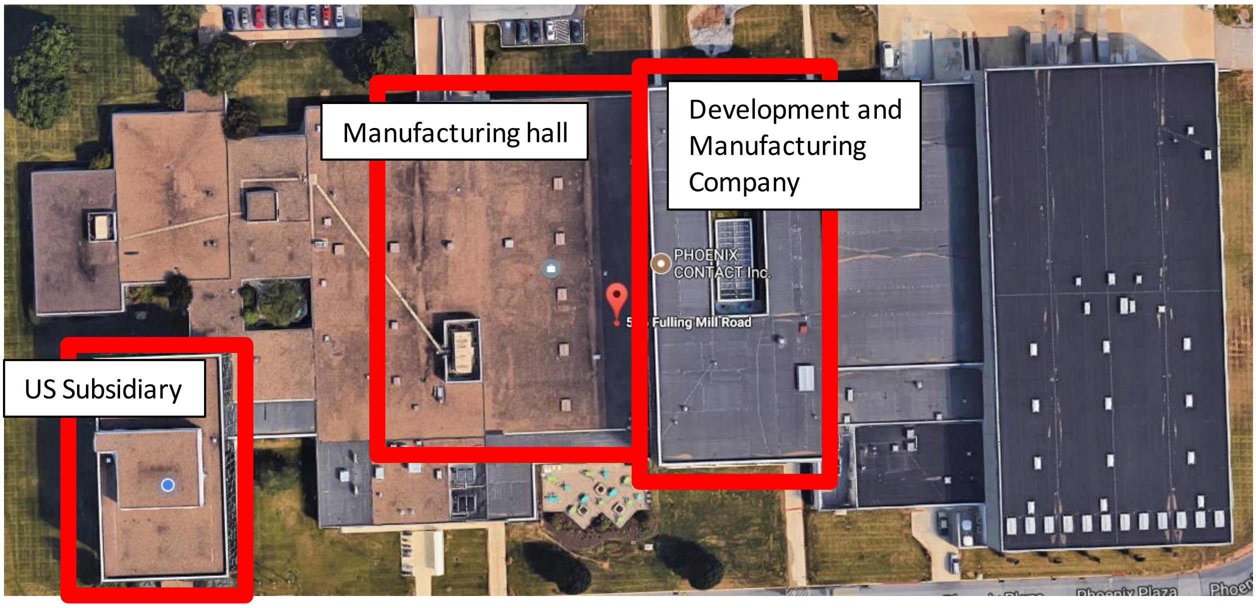

Figure A
Phoenix Contact USA Facility
Adapted from Google Maps

Appendix H

Questions in Intermediate Research Brief for the President

UNIVERSITY OF LIVERPOOL

Intermediate Research Brief

15 November 2017

Insight Summary and Inquiry for Action

Services represent a part of how our internal stakeholders' experience solutions within our operations. When viewed as relational processes, services within solutions highlight another perspective on how we operate. Within our process approach to quality, these services produce a variety situations where stakeholders detect quality arising from relational processes.

This brief is intended to help evaluate this knowledge as something additional to our understanding of solutions. In other words, what do we do with this new knowledge of relational processes and quality measures? The next phase of research represents positioning this new knowledge for action. To begin evaluating, following are questions to help position this study within corporate strategy and possible change:

1. How might these research findings intersect with corporate strategies?
    a. Corporate principles?
    b. Integrated Management System?
    c. Leadership principles?
    d. Partnership?
2. How might these relational processes and measures inform our management or way of producing solutions?
3. How might these research insights be practically applied?
    a. Augmenting competencies?
    b. Within processes?
    c. To augment our sense or knowledge of quality?
    d. Within organizational change, structure or development?
4. What are the gaps?
5. How might we address these gaps?

L. Grice
SID H00029688

11

Appendix I

Action Research Timeline

After securing written permission from the President to proceed with action research, the approved proposal for this thesis, including ethical approvals, were secured from the University of Liverpool in December 2016. Data gathering through written processes and interviews began in January and concluded in June 2017. Matrix and phenomenological analysis of interview transcripts followed immediately thereafter through July and August 2017. In September 2017, the DOD was re-engaged to quality check the analysis, assist with thematic understanding and begin positioning findings for intervention. Briefings with the President and internal stakeholders within the Stepping-in group began in November 2017 and completed in early March 2018. Thereafter, a series of workshop meetings the Stepping-in group unfolded through September 2018. Figure B provides an overview of the action research timeline.

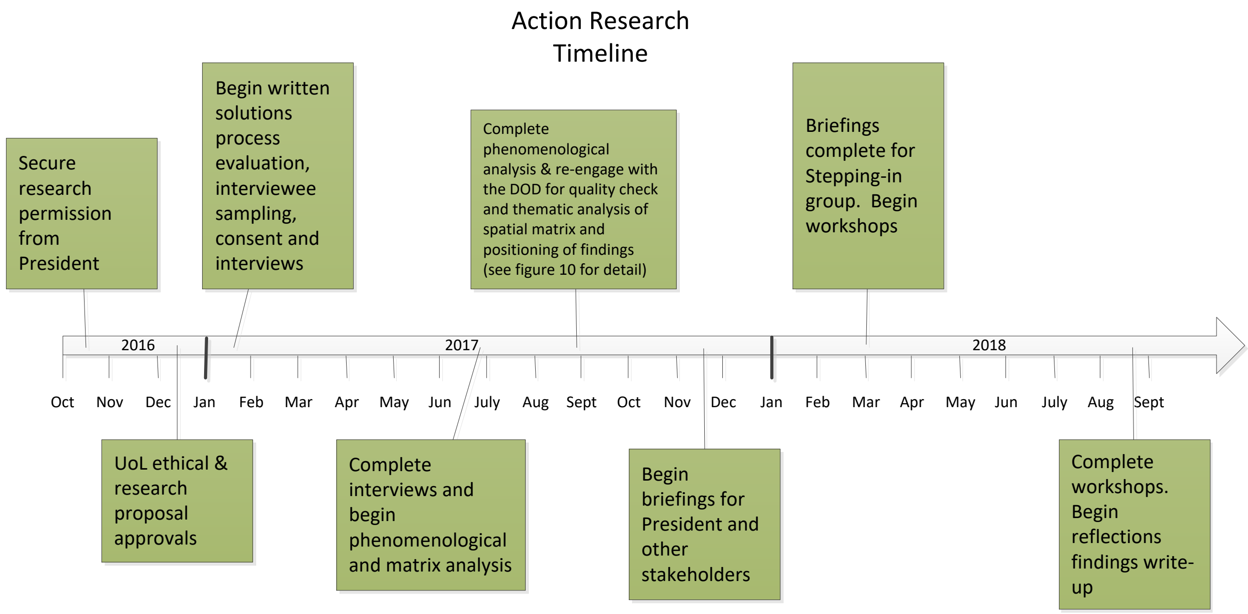

Figure B
Action Research Timeline