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Redesigning the Information Technology Infrastructure Sales Engineering Process

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REDESIGNING THE INFORMATION TECHNOLOGY INFRASTRUCTURE

SALES ENGINEERING PROCESS

by

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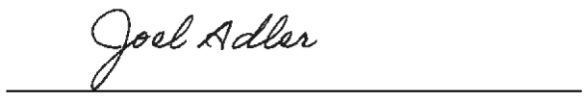

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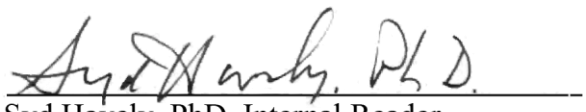

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ACKNOWLEDGEMENTS

After a tumultuous year and a half of undergraduate studies in engineering and architecture, I left the academic world to embark on a personal and professional journey that didn't include a college degree. Years later, my wife-to-be challenged me, asking if I would be OK with our future children having a father without a degree. She refuted my answer that "in my field, a degree isn't required, so I'm OK with it," which resulted in the completion of my bachelor's degree. I didn't know it at the time, but that push and my begrudging choice to go back at that time became the tipping point that unlocked my desire for learning. For that I offer my most sincere thanks to Jen, who saw more potential in me than I ever did, and to our boys Ethan and Jonathan who have cheered me on throughout this process.

During my search for an appropriate doctoral program, I explored many options but within a few short minutes of meeting Larry Starr I knew that the program he built was the one for me. His clarity of purpose, openness, and belief in the power of heutagogy provided the right blend of guidance, motivation, and flexibility to allow me to successfully carve my own path. My thanks extend to Larry and the team he curated to create an exceptional learning environment, notably including John Pourdehnad and Steve Freeman.

Finally, I would like to acknowledge my dissertation committee. Syd Havely critically challenged me through the pre-dissertation process and continued to do so as a member of my committee, and Marc Ondrechen generously shared his extensive professional experience. Finally my deepest gratitude goes to chairperson Joel Adler, who relentlessly drove rigor and clarity in my work and acted as a guide and partner throughout this process.

ABSTRACT

Vendors in industries with highly technical solutions often employ sales engineers to engage with customers and align solutions to customer requirements. In the information technology infrastructure industry, sales engineers are not consistently identifying customer business outcomes. This results in a gap between the execution of sales engineering and the ideal impact of presales systems for customers and vendors. This dissertation identifies the context of this problem through the lens of the Cynefin Framework as complex.

As a complex system, sales engineering demands a systems thinking approach to understand the present state and to design an ideal future state. A multimethodological approach was used, drawing on a breadth of systems and design thinking tools. After describing the present state through these tools, a representative cohort of industry stakeholders participated in a design session to identify the characteristics and design of an ideal system. The synthesis of this output describes an ideal sales engineering system, inclusive of an engagement and coaching process, training and enablement programs, organizational structure, and compensation plan for sales engineering and the adjacent systems of sales and post-sales.

The present state analysis and ideal future state designs were validated with an industry questionnaire. Survey responses indicated general agreement with present and ideal design descriptions but highlighted some areas of concern that require caution during implementation. These included the integration of pre- and post-sales organizations and connecting sales engineer compensation to customer satisfaction. The design identified by this work empowers sales engineering organizations to address customer outcomes, which has the potential to drive vendor revenue while accelerating customers' digital transformation and its associated benefits.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

CHAPTER I
INTRODUCTION

Background

What is Presales?

The Bureau of Labor Statistics, U.S. Department of Labor (2020) describes sales engineers as professionals who "sell complex scientific and technological products or services to businesses" and equates success to the combination of "technical knowledge of the products or services they are selling with strong interpersonal skills." These professionals carry varied titles, depending on the industry and company they work for, including systems engineer, solutions engineer, solutions consultant, solutions architect, technical consultant, and sales engineer. Regardless of title, the job role is frequently categorized as presales. Because of the prevalence of titles abbreviated as SE (sales engineer, systems engineering, solutions engineer), SE will be used to refer to presales professionals going forward.

The responsibilities of SEs are primarily focused on technical aspects of solutions being sold and their integration with customer environments. For example, software company VMware (2020, para. 3) describes a solution engineer role in their Carbon Black business unit as follows:

> Reporting to the Solution Engineering Manager, the Solution Engineer is the primary technical resource. This person will play the role of technical advisor and product evangelist. The Solution Engineer is responsible for building technical understanding and credibility during the sales process and positioning professional services where appropriate to ensure success of VMware Carbon Black's solutions. As part of a sales pursuit team, the Solution Engineer works

closely with sales, marketing, and product management to pursue leads, demonstrate product capability, inspire confidence, and effectively communicate the power of VMware Carbon Black solutions.

The focus on technical solutions was echoed by former global SE leader Chad Sakac (2012) in his "Presales Manifesto" which describes SEs as "technologists" who know their technologies "cold" and "hands-on" as well as knowing their customers' "use of technology" and as "evangelists" who want to "show you" and "persuade you." Sakac also notes that SEs are responsible for "technical account strategy" as part of their "technical selling" responsibilities.

My Background

Sun Microsystems and Early Career

For more than twenty years I've been a sales engineer or sales engineering leader. During my first SE interview in the fall of 2000, prior to joining Sun Microsystems (later acquired by Oracle), I asked the hiring manager for a job description. His response was that the job was to "keep my sales rep honest," a statement which continues to resonate with me today. I worked at Sun for almost five years, most of which as an SE; my last year I took an account manager (sales) role but disliked the loss of credibility with customers. Sun Microsystems was primarily a computer system company, focused on workstations, servers, and storage products. After Sun, I held SE roles in several different parts of the IT infrastructure space, including Integrien Corporation, a startup focused on machine learning for infrastructure management and monitoring, which was eventually acquired by VMware, F5 Networks, a leader in application delivery networking which encompasses aspects of networking and deep integration with application-level traffic that travels across networks, Cisco Systems, the well-known networking

giant which shortly before I joined introduced compute (server) platforms in addition to its networking, wireless, and telephony/collaboration businesses, and EMC Corporation, a leader in data storage and data protection technologies and the former owner of infrastructure virtualization pioneer VMware

EMC and Beyond

My first role at EMC was titled vSpecialist, and like my first SE role, I inquired about the hiring manager's realistic job description. His response was that EMC had generalist SEs, who were portfolio specialists, product specialist SEs who were specialists in their respective products, and vSpecialists, who were context specialists. I attribute much of my success as an SE to my understanding of context as it relates to technology ecosystems; I believed it was my (and other SEs') responsibility to not just understand my own company's technology but understand the technologies that it interacted with. The "context specialist" role was ideal for my mindset and working in that role expanded my understanding of how important context is.

During my time at EMC, I took on formal leadership responsibilities, leading a specialist SE team (Network Attached Storage specialists), a team of generalist SEs dedicated to one large global pharmaceutical customer, and a team of generalist SEs focused on customers in the New York and New Jersey financial services industry. Subsequently I built and led a global presales team for memory and storage maker Micron Technology. Eventually I returned to EMC (after they were acquired by Dell Technologies) to lead their Unstructured Data Solutions presales team in the Americas. Presently I lead the enterprise presales team at Pure Storage, a leader in all flash datacenter and cloud storage and data management.

Relevance Through Context

As mentioned above, I attribute much of my success to the belief that understanding of context drives relevance. For the earlier part of my career, much of my contextual understanding was about the technology ecosystem: how does my solution interact with the myriad solutions it touches? During my time at Cisco, an intrepid sales manager encouraged me to think bigger. She charged each sales team (one account manager and one SE) to profile their biggest customer to understand that customer's business objectives and most important success criteria. The expectation was that account managers would focus on primarily business topics and SEs would add technical color, but my team chose to independently research the customer and compare notes to uncover each other's blind spots. Because we presented and discussed our findings with the entire district of sales and SE teams, we were able to identify that our approach produced vastly more understanding of our customer than the other teams' approaches. My sales partner was a former SE who took a sales role and I had more than a decade of SE experience at this point, leading to the core hypothesis of the next phase of my career: SEs, if they are encouraged and empowered to do so, can use their skills at seeing the interaction between technology components in a technical system to learn and understand large (market moving) and small (internally improving) business outcomes and focus their solutions to address them.

Problem Statement

Boston Consulting Group's Konikoff, et al. (2021) argue that, in sales, "outcomes are the new opportunity" and, to address that, companies are "shifting from the transactional process of selling products and services to developing deeper relationships and providing outcomes." Despite their assertions that these opportunities are new, in 1973 Peter Drucker (1974) argued that "what the customer buys and considers value is never a product. It is always utility, that is,

what a product or service does for him" (p. 47). Haeckel (2016) sharpens this point, arguing that outputs alone, such as the sound waves made by trees falling, are essentially irrelevant; only the "effects" or outcomes, in this case the sound "produced in the auditory cortex of listeners when sound waves trigger vibrations in their ears," have any value at all (p. 8). Identifying desired business outcomes and delivering solutions that have measurable impact on these outcomes, therefore, is how vendors can deliver the most value to their customers and consequently earn the highest margins. This is validated by Guenzi et al. (2011), who demonstrate that Customer-Oriented Selling is positively corelated with "superior customer value creation" (p. 278).

Sales Engineering & Business Outcomes

Sales engineers and presales organizations, however, are not consistently identifying business outcomes or connecting the dots between their solutions and these outcomes. Evidence of this was exposed when, in December 2019, targeted interviews were conducted with high-performing (as determined by their leadership) sales engineers in the Dell Technologies Unstructured Data Solutions presales organization. Of the six participants, only two indicated that they researched customers' business objectives and only one researched customers' industries to prepare for meetings. Similarly, only one indicated that the alignment of solutions to business outcomes was one of the most important elements of the SE-customer relationship, and two of the six stated that quantifiable business impact was the most important outcome of an implementation. In response to an inquiry about customer wins that were based on business outcomes, an SE who was regarded as a good performer stated that the business objective was to "refresh the environment with higher performance," "provide two years of storage growth," "reduce year three total cost of ownership," and "provide a migration plan" (A. Choukekar, personal communication, November 16, 2020).

This lack of alignment to measurable business outcomes is pervasive in sales engineering. SE trainer Phil Janus notes that "A typical sales engineer … is going to be very, very technically astute, but what they very often lack is sales savvy" (Lerner, 2002). Sakac's (2012) Presales Manifesto argues that SEs should put customers first and do so by delivering the right "solutions," a term that Grove, et al. (2018) describe as "generic jargon that sellers have co-opted to mean 'the bundle of products and services I want to sell you.'" As previously mentioned, the US Government definition of sales engineers by The Bureau of Labor Statistics, U.S. Department of Labor (2020) describes SEs as focused on "technical knowledge of the products or services they are selling." Together, the expectation of SEs is that they are technically astute and experts on their own products and "solutions," but not expected to discover, understand, or address customers' business outcomes. While sales engineers often strive to be considered "trusted advisors" by customers (Gomez, 2020), they are encouraged by industry standards, culture, and expectations to be experts in their own products rather than their customers' business outcomes. Like the good performing SE referenced above, even when SEs target outcomes, their training and experience may focus them on technical outputs ("refresh the environment with higher performance") rather than encouraging them to understand the business outcomes that these technical outputs may influence.

Pourdehnad and Robinson (2001) argue that financial returns and competitive advantage is created by customer satisfaction, which "can only be obtained by increasing one's knowledge and understanding of customer needs and desires." Maximizing customer value and the resulting impacts on the competitive, revenue, and margin potential of a vendor requires an outcome oriented approach. This is validated by Guenzi et al. (2011)'s data, which show the correlation between customer-orientation and value creation. That sales engineers and presales organizations

are not consistently seeking and addressing customers' business outcomes leaves a gap between their execution and the ideal impact of presales for both customers and vendors.

Framing the Problem & Sensing the Context

Starr (2018) argues that results are strongly determined by the "thinking processes" used to make decisions (p. 2). Bhardwaj, et al. (2018, as cited by Starr, 2018) argue that "how we frame a problem affects…the outcomes we attain" and that utilizing a framework can help avoid biases and blind spots while framing a problem. Snowden (2022) describes a framework as "a way of looking at reality," opposed to a model which "seeks to represent reality." One such "sense-making framework" (Snowden, 2022) is Snowden and Boone's (2007) Cynefin, which "sorts the issues facing leaders into five contexts defined by the nature of the relationship between cause and effect." Snowden and Boone (2007) argue that each of the contexts that are described by the Cynefin framework require different actions that are "contextually appropriate," including responses that, for the complex domain, are "often counterintuitive." Snowden (2022) describes how, without a sense-making framework, the background and preferences of the individual or individuals making decisions and their predetermined decisions on action are likely to determine how a situation is handled: bureaucrats see process failures, experts assume a lack of information, politicians seek possibilities by engaging people with different backgrounds, and fascists seek crisis to centralize their power.

The Cynefin Framework

Cynefin is a Welsh word that may be understood as place or domain. It is a sense-making framework built upon earlier frameworks that define contexts and the challenges within them as varying from ordered to unordered. Within the unordered context are those that are complex, and

chaotic; within the ordered context are those that are simple, obvious, or clear, and complicated. When a context does not fit the others, it is referred to as disordered (Snowden, 2022), more recently known as “confusion and aporia” (Cynefin domains, n.d.).

Disorder vs Ordered Systems

Disorder, or confusion and aporia, describes the situation of not knowing which domain a situation falls into; this differs from a chaotic system which lacks the possibility of order.

Clear Contexts

Ordered systems, both clear and complicated, are defined by a “linear relationship between cause and effect”: the nature of an ordered system ensures that doing the same things more than once results in the same outcomes every time (Snowden, 2022). Clear contexts are those where the relationship between cause and effect is obvious, and “often, the right answer is self-evident and undisputed” resulting in clear contexts being “the realm of known knowns” (Snowden and Boone, 2007). Over-constraining a clear system will result in constraints that are impossible to adhere to, resulting in a collapse into chaos. Note the squiggled line at the bottom of Figure 1.1, indicating the cliff between clear and chaos: complacency due to the simple nature of clear systems may result in late identification of challenges and subsequently plunge into chaos. Simple systems are addressed by repeating what has worked in the past by implementing best practices.

Complicated Contexts

Complicated systems, like those in the clear domain, have a linear relationship between cause and effect; the difference, however, is that these relationships are rarely obvious to decision makers (Snowden, 2022). Decision makers understand that solutions exist but are

required to rely on experts to identify the pathways forward. Analysis of what is known about the situation is used to identify who the right experts are to call. Because there are multiple right answers based on the nuances of the situation, it is a mistake to apply best practice (the single right way); decision makers should use good practice, applying solutions that are informed by past success but guided by the context of the situation. Snowden and Boone (2007) call this "the realm of known unknowns," where decisions makers know their gaps in expertise but understand that the situation remains knowable.

Complex Contexts

Complex systems differ from ordered systems in that there is no linear relationship between cause and effect (Snowden, 2022). Snowden continues that, in complex contexts "the evidence supports conflicting hypotheses and [they] cannot be resolved within an acceptable timescale." Snowden and Boone (2007) describe the complex realm as that of "unknown unknowns" where one right answer does not exist, but instructive patterns emerge. This lack of a single right answer derives from the deeply interconnected nature of complex systems, where changes may have disproportionate impacts (Starr, 2018). Further, Snowden (2022) argues that "in a complex world, everything I do changes the situation, so a diagnostic is an intervention, and an intervention is a diagnostic." Addressing complex systems requires configuring circumstances so that patterns may emerge and creatively seeking experimental ideas, including group discussions that "encourage dissent and diversity" (Snowden and Boone, 2007). Coherent ideas for action are then tested in parallel experiments to reveal what is possible, and the combination of the experiments as they "merge, mutate, and change" result in improvements (Snowden, 2022). While clear and complicated contexts leverage the past through best and good practice, respectively, complex contexts repurpose existing capabilities in novel ways that

emerge through experimentation. Constraints in a complex system should be enabling, or heuristic, providing guidance that enables autonomous action and self-organization based on guiding principles. Identifying and codifying the natural constraints in a system enable such heuristic management.

Chaotic Contexts

Like complex systems, those in chaos offer no linear relationship between cause and effect (Snowden, 2022). They differ in that these chaotic systems have no patterns that can be observed. Often it is the constraints placed on the environment that determine if it will be complex or chaotic: removing constraints from complex systems will push them into chaos and adding constraints will allow patterns to emerge and allow chaos to be managed as complex. Addressing chaotic environments begins with action followed by sensing the impact of that action.

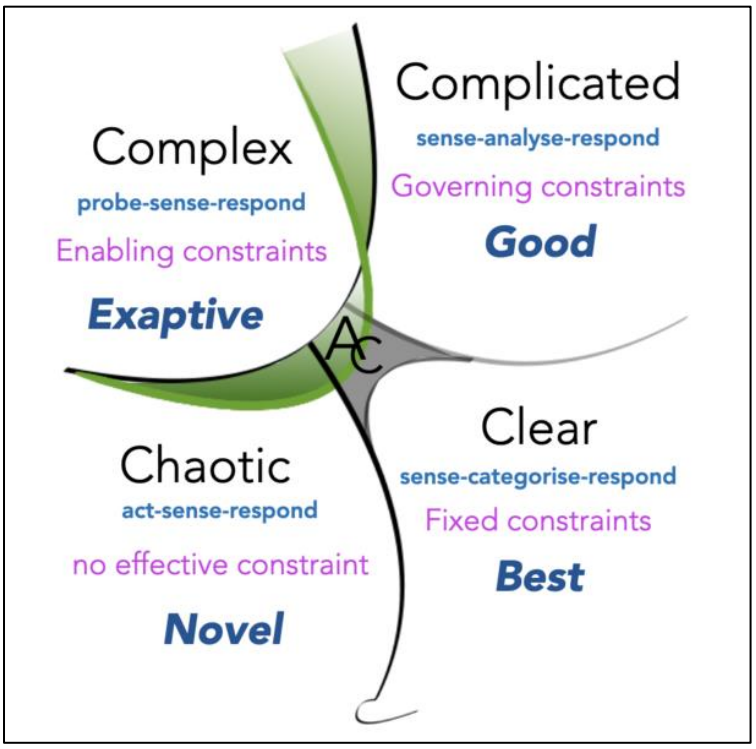

Figure 1.1: Snowden's (2021) Cynefin Framework CC BY-SA 4.0

The Context of Presales

Understanding the context in which presales operates is key to determining the methodology that would be most appropriate to seek improvement to the problem statement. The Cynefin framework provides five contexts: disorder, clear, complicated, complex, and chaotic (Snowden and Boone, 2007). Disorder is the lack of understanding of which context applies and seeking the appropriate context will allow us to exist outside of disorder. As I am seeking to understand the context in which presales operates, disorder will not apply. Chaos is defined by a lack of constraints or discernable patterns. Each organization that employs a presales team provides constraints on that team and, as discussed earlier in What is Presales, there are discernable patterns in the system. Therefore, presales does not (generally) operate in the context

of chaos. This means presales operates either as an ordered system, in either the clear or complicated context, or as a complex system.

Complex and ordered systems differ in the relationship between cause and effect (Snowden, 2022). Salespeople are frequently described as “coin operated,” suggesting a linear relationship between compensation and behavior. This relationship, however, is not as direct as popular anecdotes would imply. Miao et al. (2017) argue that the impacts of performance rewards on sales organization development is dependent on perceptions which are in turn dependent on the “complex three-way cross-level interactive effects of top-performer rewards and organizational as well as managerial factors” (p. 281). One of these managerial factors is behavior control, or “a high level of managerial involvement in directing and monitoring salesperson activities” (p. 282), as opposed to outcome control, where sales results are valued over specific actions. Complex systems are also defined by the enabling nature of their constraints which are focused on heuristics that empower autonomy. An example of an enabling constraint is a clearly defined expectation of knowledge with suggested learning paths (andragogy), as opposed to a governing constraint of a specific, rigid learning path that does not allow for creativity or leveraging options that align with learning style (pedagogy). Chakrabarty et al. (2015) argue that behavior control is often negatively correlated with sales organization performance, indicating that a heuristic focus based on enabling constraints improves system performance. Sales at large is, therefore, a complex system. As presales operates either as a type of sales organization or as a system within the containing system of a larger sales organization, it is appropriate to address presales as complex.

Research Questions

Previously I argued that sales engineers and presales organizations do not consistently seek and address customers' business outcomes. This leaves a gap between how presales systems operate today and the ideal impact they can have for both the vendors who employ them and the customers they serve. This dissertation attempts to close this gap, thus maximizing the value of IT infrastructure presales to customers and vendors, by asking the following two research questions:

1) What are the characteristics of the current common presales organization?
2) What are the characteristics of an ideal presales organization?

CHAPTER II
METHODOLOGY

Identifying the context of the situation provides some insight into how to address it. Snowden and Boone (2007) argue that creative experimentation seeking the emergence of potential solutions is necessary for problems in complex contexts. Jackson (2003) describes that problem situations that are "richly interconnected" (p. xiii) result in complexity, and that most solutions to address such problems fail because they are not "holistic or creative enough" (p. xiv). He continues that the holistic nature of systems thinking makes it the appropriate way to address complex problems. Jackson (2019) deepens his earlier assertion, arguing that classical management theory "relies on there being a predictable future environment" and is built on "the need to forecast, plan, organize, lead, and control." This misalignment with complexity means it does not apply to a modern world. Systems thinking, Jackson argues, is "the only appropriate response to complexity" (p. xix). As I have identified presales as a complex system, understanding and improving presales demands a systems thinking approach.

Multimethodology and A System of Systems Methodologies Approach

Systems thinking consists of a broad range of frameworks and methodologies. Jackson (2019) references ten such methodologies, which may be applicable in different situations based on their characteristics and contexts. His System of Systems Methodologies (SOSM) attempts to categorize which frameworks and methodologies may provide insight into each context. An earlier version of the System of Systems Methodologies, shown in Table 2.1, categorized each methodology into a position on a matrix based on its assumptions "about the nature of problem

contexts" (p. 511) with respect to the complexity of the system (vertical axis) and the complexity of the participants (horizontal axis). Despite where these assumptions place each methodology on the matrix, their methods may prove helpful in any of these contexts.

		Participants		
		Unitary	Pluralist	Coercive
Systems	**Simple**	Hard systems thinking	Soft systems approaches	Emancipatory systems thinking
	Complex	System dynamics Organizational cybernetics Complexity theory		Postmodern systems thinking

Table 2.1: Jackson's (2019, p. 158) Original System of Systems Methodologies.

Jackson (2019) refined the System of Systems Methodologies by adapting the vertical axis to roughly align with the Cynefin framework and reordered it to go from complex at the top to simple at the bottom. He also relabeled the horizontal axis from "participants" to "stakeholders" to more clearly represent that those described by this axis were "affected but not involved" in the resolution process (p. 163). Finally, Jackson removed the methodologies from appearing in individual cells of the matrix (Table 2.2), choosing instead to map their locations, which often span more than one cell and change as the methodologies evolve, in his description of each (Figure 2.1).

Table 8.2 A revised "ideal-type" grid of problem contexts.

		Stakeholders		
		Unitary	**Pluralist**	**Coercive**
Systems	**Complex**	Complex–unitary	Complex–pluralist	Complex–coercive
	Complicated	Complicated–unitary	Complicated–pluralist	Complicated–coercive
	Simple	Simple–unitary	Simple–pluralist	Simple–coercive

Table 2.2: Jackson's (2019, p. 164) Revised System of Systems Methodologies

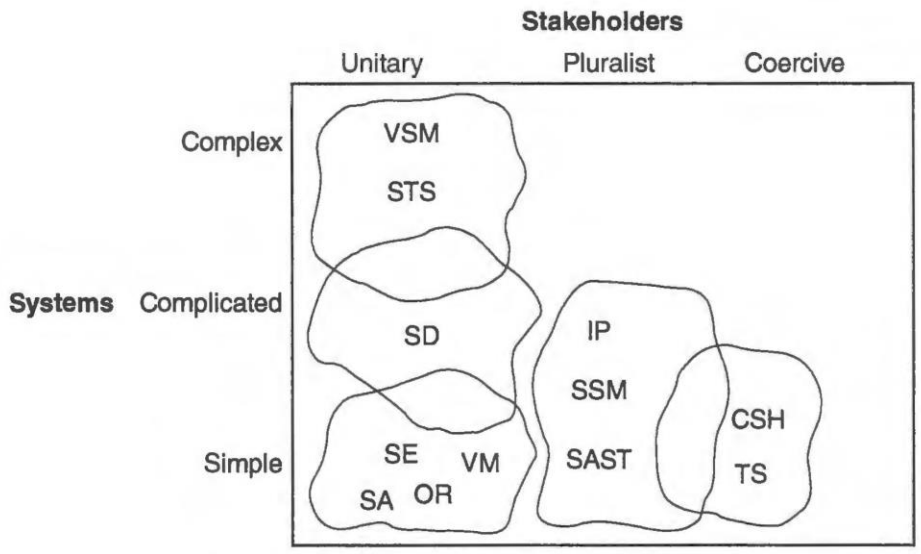

Figure 2.1: Jackson's (2019, p. 512) Major systems methodologies positioned on the SOSM

Jackson (2019)'s System of Systems Methodologies is representative of his critical, pluralist approach to systems thinking. He argues that the SOSM "showed that alternative systems approaches could be seen as complementary" (p. 520) and that a "pragmatist strategy… is to develop management science by bringing together the best elements of the different strands on the criterion of what 'works'" (p. 521). This approach of combining methodologies and methods

as part of a single intervention is described as multimethodology (p. 531). The multimethodology approach provides multiple viewpoints, highlighting different parts of situations, thus reducing the blind spots that are potentially created by rigidly following a single systems thinking paradigm. This dissertation uses a multimethodological approach, leveraging tools and methods from multiple systems thinking methodologies to answer the research questions.

Systems Thinking Methodologies

Interactive Planning/Idealized Design

Ackoff (2001) describes interactive planning as "directed at creating the future" and differentiates that method from reactive planning, which evaluates current and past deficiencies, and from preactive planning, which attempts to predict the future. Interactive planning involves the two fundamental motions: idealization and realization.

Idealization

The idealization phase begins with understanding what we have, or formulating the mess (Ackoff et al., 2006). The mess is defined as "a set of interacting threats and opportunities" and formulating (mapping and understanding) these aims to "determine how the organization would eventually destroy itself if it were to continue doing what it is currently doing" (p. 5). Formulating the mess is designed to identify what must be avoided in the picture of an ideal present. Ackoff (2001) suggests the steps of a mess formulation include a systems analysis to describe how the system current operates, an obstruction analysis that identifies what restricts its progress from its current state, reference projections to describe how the organization may look in the future should none of the expectations change, and a reference scenario that synthesizes

the prior steps into a description of how the organization will eventually destroy itself without change.

After mess formulation, the idealization phase continues with ends planning, which Ackoff et al. (2006) describe as "the heart of idealized design" (p. 7). Ends planning involves "the design of a desirable present" (Ackoff, 2001, p. 3), describing the organization as it would be if the planners could have whatever they want right now (Ackoff et al., 2006). Ends planning starts with a clean sheet of paper, best described by a Bell Labs VP who exclaimed that "the telephone system of the United States was destroyed last night" (p. xxvii) before asking his team to create what we want right now, avoiding the potential for error associated with attempting to predict the future. That same VP described two critical constraints on ends planning: technological feasibility based on today's state of the art, and operational viability indicating a requirement to operate within current social and legal constructs.

Realization

While the idealization phase of interactive planning focuses on the desired present state, realization includes the interdependent steps that Ackoff (2001) identifies as required to achieve that desired state. During means planning, planners determine the actions and changes required to close the gaps between the current reality and the ideal present. Resource planning supports means planning by determining what quantity of resources will be required at which points during the execution. This step also identifies the delta between the required and available resources and determines how to manage these gaps. Design of Implementation is when planners determine "who is to do what, when and where" (p. 6). Finally, controls are designed to monitor the implementation actions and to measure the responses to these actions, including determining when corrective action is required to achieve the desired ends.

Applicability

The idealization phase of interactive planning provides a framework that is well aligned to the research questions posed by this dissertation. While the explicit steps of Ackoff (2006)'s mess formulation may be limiting, the broader concept of identifying the current situation is apropos of the research question "What are the characteristics of the current common presales organization?" Ends planning seeks to describe the desirable present, which aligns with the second research question, "What are the characteristics of an ideal presales organization?" and Konikoff, et al.'s (2021) definition of outcomes. Finally, while the realization phase is out of scope for this dissertation, it provides a foundation for future work to implement the ideal state that is in scope.

Consumer Idealized Design

Interactive planning and idealized design are structural methods to identify the current reality, define an ideal present, and plan to close the gap. An adaptation of this process is consumer idealized design, which, as its name suggests, engages "a carefully selected group of consumers in a creative design of a new product or service" (Pourdehnad & Robinson, 2001, p. 30). They argue for this approach, as Ackoff (1986) suggests, that "it is harder for a market researcher to get inside a consumer's mind than it is for a consumer to turn his mind inside out" (p. 7). Unlike traditional market research, consumer idealized design relies on establishing the mindset of creating something new rather than improving on what already exists.

Pourdehnad and Robinson's (2001) example of consumer idealized design includes four phases. The first is preparatory work, which includes creating a shared mission, creating a learning environment, and specifying stakeholders to ensure a holistic view of the market. The

second phase, stakeholder idealized design, is based on a blend of "market pull/company push" (p. 37) and works towards a shared understanding of the ideal present. These phases lead to the product development phase, based on the ideals defined in the stakeholder idealized design phase, and finally to a pilot phase, where the designed product is tested with consumers.

Applicability

Consumer idealized design is an application of Ackoff's idealized design/interactive planning. The inclusion of consumers in the process in the "market pull/company push" approach works to reduce the blind spots and assumptions associated with traditional market research. As I seek to answer the second research question, "What are the characteristics of an ideal presales organization?", following CID's inclusion of customers in the process is likely to provide a more complete picture of the ideal. The product development and pilot phases are out of scope but offer insight into potential applications of the ideal design.

Strategic Assumption Surfacing and Testing

Addressing complexity that is based in human interaction with a focus on ensuring we are "doing the right things" rather than "doing things right" is the foundation of soft systems methodologies (Jackson, 2019). Interactive planning, described above, falls into this category. This is likely because of the friendship and student-teacher relationship between Ackoff and C. West Churchman, the developer of an earlier soft systems methodology known as Strategic Assumption Surfacing and Testing, or SAST.

Wicked problems, or messes, are "characterized by interconnectedness, complicatedness, uncertainty, ambiguity, conflict, and societal constraints" (Jackson, 2019, p. 353). These are the problems that SAST is designed to address. Mason and Mitroff (1981, as cited by Jackson, 2019)

identified four principles key to SAST. The first is that SAST is participative, drawing on the experience and knowledge of a wide cross section of individuals both inside and outside of the organization in question and increasing engagement through participant buy-in during problem definition. It is also adversarial, encouraging full discourse of all perspectives to ensure maximal understanding of problems from as many viewpoints as possible. These opposing perspectives subsequently must be synthesized, resulting in SAST being integrative. Finally, SAST is managerial mind-supporting, meaning managers who experience the adversarial and integrative approach will "gain deeper insight into the difficulties facing an organization and appropriate strategies that will enable it to move forward" (p. 353).

Jackson (2019) synthesized several of the literature on SAST to describe the process as the following four steps:

1. Group formation, in which groups are formed from individuals who are likely to have similar perspective
2. Assumption surfacing, where each group identifies and analyzes key assumptions of the strategies and/or solutions they consider
3. Dialectical debate, where the groups are mixed and each presents its solution and assumptions followed by debate in the "form of 'constructive conflict'" (p. 355)
4. Synthesis, where solutions influenced by the debate phase are brought together and compromise is negotiated between the groups and their solutions into one solution and set of assumptions

Methods for assumption surfacing associated with SAST include stakeholder analysis where, as the name suggests, a list of relevant stakeholders is developed. Assumption specification is where each group identifies the "assumptions it is making about each of the stakeholders" (p.

356). These assumptions then can be rated and displayed on a two-axis chart, with level of importance (from least on the left to most on the right) on the x axis and certainty (from least on the bottom to most on the top) on the y axis.

Applicability

The first three principles of SAST are applicable to the second research question "What are the characteristics of an ideal presales organization?" as the perspectives of diverse individuals will uncover blind spots when seeking the ideal present. Allowing these ideas, experiences, and perspectives to mix with "constructive conflict" encourages a broader understanding of the ideal situation and allows for the highlight of what might otherwise have remained as blind spots. Finally, the integrative principle informs the process of synthesizing these myriad perspectives into a single coherent ideal.

The Vanguard Method

Jackson (2019) lists the Vanguard Method as a systems approach that is appropriate for addressing process complexity, which he argues "arises when we have to put together a series of interdependent actions to achieve a purpose" (p. 199). Sales engineering has been described as a process and fits this definition of a series of interdependent actions aligned to achieve a purpose. John Seddon based The Vanguard Method on W. Edwards Deming's tenet of customer centricity; work must be designed to address what are predicted to be the needs of the customer. To do so, Seddon believes that the horizontal flow of work across disciplines and departments is vastly more important than hierarchical organizational structure. This results in the two key steps of The Vanguard Method. First, the purpose of a system must always be seen in terms of its customer, thus understanding the customer's purpose must occur before taking action. Second,

the parts of the organization and/or the actions that must occur to address the customer's purpose are organized in such a way that their interactions deliver on that purpose. The Vanguard Method thus replaces top-down, hierarchical organizational structures based on command-and-control management with horizontally aligned systems that are viewed holistically with customer-centric goals.

Applicability

The Vanguard Method's holistic approach to customer-centric organizational design aligns with the foundations of this dissertation's second research question, "What are the characteristics of an ideal presales organization?", which is asked in the context of outcome orientation. The Vanguard Method, therefore, can inform the design process of an ideal presales organization by demanding that the integration of the parts of the ideal design reflect alignment with customer purpose. The principles of The Vanguard Method are applicable during ends planning, where a customer centric approach is helpful in achieving the ideal presales organization. This approach also requires considering presales' containing systems as part of the horizontal alignment required to truly address customer purposes.

Systems and Design Thinking Integration

Design Thinking

Design thinking is described as consisting of both "a unique way of looking at the world" and "a process of activities and methods that reflect and support that worldview" (Clarke, 2020, p. 3). This mindset is described by Martin (2009, as referenced by Pourdehnad et al., 2011) as the integration of deductive, inductive, and abductive thinking, while the process consists of empathetic discovery, problem definition, idea generation, creation, and evaluation (Clarke,

2020, p. 8). While this mindset and process are most commonly associated with the development of products, design thinking is fundamentally a problem-solving technique that can be helpful when addressing wicked, or complex, problems that may or may not involve product design. Pourdehnad et al. (2011) share a designer-centric definition of design thinking as "applying a designer's sensibility and methods to problem solving" (p. 4). This aligns with Clarke's (2020) focus on empathetic discovery; she argues that "only when you really understand what it is like to be a user can you identify and define specific problems that can be tackled" (p. 9).

Systems and Design Thinking

Systems thinking has adopted design as a means to solve problems due to its use of synthesis and the preference for creative, non-linear redesign rather than linear, incremental improvement (Pourdehnad, et al., 2011). One key difference between design thinking and systems thinking is the role of the designer. In design thinking, the designer is a professional who designs based on what he or she learns from empathetic interactions with stakeholders. In systems thinking, "the stakeholders are the designers" (p. 7). Pourdehnad et al. (2011) argue that "the success of a design is directly related to the level of stakeholder participation in the development of the design" (p. 9), which means that by integrating the participative principle of systems thinking into design, designers can dramatically improve the success of their designs. Similarly, systems thinkers can benefit from the principles of design thinking, including the freedom to create and the focus on an empathetic connection with stakeholders.

Methodological Framework

The integration of design and systems thinking informs the multimethodological, pluralist framework used to address the research questions posed by this dissertation. The design thinking

approach provides a foundation of empathy and the freedom to creatively draw on multiple methodologies. The idealization phase of Ackoff (2001)'s interactive planning process provides a framework for this approach: first describe the current reality and then design an ideal present.

Describe the Current Reality

To describe the current reality, including analyzing the system as it is and the obstructions that limit its progress, I draw on methods and tools from multiple research and systems thinking methodologies. As both planner and stakeholder, I draw on more than twenty years of experience in IT infrastructure presales to inform this description. These methods include a literature review, focused on both the state of the art of sales engineering as well as the use of systems thinking in sales and sales engineering contexts, a system of systems view, identifying IT infrastructure sales engineering's containing systems and subsystems, a set of systems diagrams identifying and demonstrating interactions between parts of the IT infrastructure sales engineering system, with its containing systems, and its stated outcomes, and description of my observations through evidence and experience

Design an Ideal Present

To answer the second research question, "What are the characteristics of an ideal presales organization?", I held a collaborative design session with experienced stakeholders from key areas of the IT infrastructure presales process. Working collaboratively to design a future state, without the burden of existing structures and norms, participants were asked to "assume that the typical IT infrastructure presales organization being planned for was completely destroyed last night, but its environment remains exactly as it was." Stakeholders involved in the design session

included current and former IT sales engineers, IT account managers (salespeople), IT buyers/decision makers, and IT executives.

The cohort met over Zoom and worked to create a shared vision and ideal present. The design session consisted of a brief background discussion, a discussion of the design goal, an open discussion on the ideal impact of presales for customers and vendors, and an open discussion on the ideal presales process to achieve this ideal impact.

The design process undertaken with the representative cohort provided the foundation for the outputs of the process. While my experience in presales and research informed the description of the current situation, this process placed the responsibility of designing the ideal present in the hands of the diverse cohort. I have synthesized the discussion and shared vision that was created during the design session. That output is documented in Chapter 4.

This process was informed by systems and design thinking methodologies, including Interactive Planning, where the aim is to design the ideal present, as if the system were destroyed last night, consumer idealized design, where customers are included in the list of stakeholders and the stakeholders are the designers, Strategic Assumption Surfacing and Testing (SAST), where a broad cross section of stakeholders from inside and outside of the system are configured in a learning space where constructive conflict was encouraged and the outputs were synthesized into a final negotiated perspective, design thinking, where empathetic engagement with diverse stakeholders drive a creative approach to redesigning the system for non-linear improvement as opposed to linear, incremental change, and The Vanguard Method, where the focus is on customer-centric outcomes, inclusive of customers or potential customers as stakeholders in the design process.

Industry Validation

The perspective on the current reality described in Chapter 3 and the synthesis of the design session described in the first part of Chapter 4 were validated with an industry questionnaire. Because the primary audience of this design is presales professionals, their customers, and their sales peers, the 8,500 members of the PreSales Collective, a community of presales professionals with the "mission of elevating the role of PreSales within organizations worldwide, and in providing PreSales professionals with the resources, knowledge, network, and mentorship to develop impactful careers," was an ideal target audience (Higashi, 2021). The questionnaire was shared on the PreSales Collective's Slack collaboration space, and the organization promoted the request via its large LinkedIn network. The questionnaire was also distributed via my own 2,000+ member LinkedIn network, soliciting feedback from members of each category of stakeholders, including IT salespeople, IT decision makers, and IT executives in addition to sales engineers. The results and their analysis are documented in the second part of Chapter 4.

CHAPTER III

CURRENT REALITY

Literature Review

Systems Thinking

Systems Thinking in Business & Sales

Applying a systems view to business is not new. Monat, Amissah, and Gannon (2020) argue that, while research applying it to organizational management is prevalent, systems thinking has not been widely adopted in business. Vargo et al. (2013), argue that systems thinking is "increasingly important" when considering markets, thus systems thinking is potentially more common in business than Monat et al. (2020) suggest. Skaržauskienė (2010) highlights the potential impact of systems thinking in business with evidence where, in a mix of Lithuanian companies, systems thinking was positively correlated with organizational performance, including that "cognitive intelligence competencies explain 32 percent of organization results" (p. 57).

Sales is a critical process of business, and the aforementioned arguments that systems thinking has a positive correlation to business performance can be extrapolated to include sales performance. Russell Ackoff described a system as "never the sum of its parts; [but] the product of their interaction" (The Deming Cooperative, 2003); the social interaction, or relationships, between individuals are important considerations in sales organizations. Flaherty, et al. (2012) argue that sales managers should be viewed as social "network engineers" who orchestrate the flow of interpersonal resources. This perspective selects systems, in the form of social interactions, as the key enabler of sales. Darr (2006) agrees with this, arguing that technology

sales have shifted from product to process, that "the sale of emergent technology includes elements of design and even some production work," and that sales engineers must perform both cognitive and execution tasks (p. 118).

The argument that systems thinking is applicable to business generally and sales specifically aligns with the hypothesis. Monat et al. (2020) argue that businesses must "design and sell user experience systems, not products or services" (p. 13), where user experience is a reference to desired business outcomes; presales is part of the sales process and should be considered part of the customer journey. This aligns with Norman (2009) who argues that "a product is actually a service," which means that the outcome or result of the use of the product is what customers buy rather than the product itself. The sales engineer's cognitive skills for planning, therefore, should be aligned with the outcome of the use of the product rather than with the details of the product alone.

Presales & Outcome Orientation

One challenge with outcome-orientation comes with the experience and training of sales engineers. SE trainer Phil Janus articulates this challenge by describing "A typical sales engineer … is going to be very, very technically astute, but what they very often lack is sales savvy" (Lerner, 2002, para. 10). McKew (2018) agrees, encouraging "teaching skills to technically improve the individual versus educating … on product specifics, such as features and benefits" such that SEs gain "system and equipment design" (p. 50) experience through mentorship.

For both sales and presales professionals, an understanding of their customers is a critical step in determining high-value outcomes. Melkman and Simmonds (2006) argue that the "key account planning process" can "produce better results in terms of sales and profits" (p. 22) and

offers “the opportunity for the account manager to stand back and take an objective look at all the aspects of the customer and competitors” (p. 24). They continue that customer data, including organization structure, market share, and their customers, market, and competitors are critical to extracting value from key account planning (pp. 45-48). While their focus is on account managers, the synthesis of customer information in Melkman and Simmonds’s (2006) key account planning process combined with technical knowledge that SEs bring can serve as the foundation of a systems based, outcome-oriented presales practice. Such a practice offers the promise of higher revenue and margins for companies that embrace it.

To leverage the impact of outcome-oriented presales practice, we must translate the actions of SEs as they interact with their customers and managers as they interact with their teams into organizations built to adaptively address the outcome requirements of their customers. Haeckel (1999) describes this, at the corporate level, as the transformation from a “make-and-sell” business, where “structure follows [the] strategy” which is built on the corporate mission, to a “sense-and-respond” business that coordinates capability and adjusts based on changing industry context (pp. 5-6). Haeckel (1999)’s Adaptive Enterprise, therefore, is the enterprise equivalent of Norman (2009)’s product to impact argument. Haeckel (2016) goes a step further, arguing that outputs, such as the sound waves made by trees falling, are essentially irrelevant; only effects, in this case the sound “produced in the auditory cortex of listeners when sound waves trigger vibrations in their ears,” have value (p. 8). This research aligns with both Haeckel (1999 & 2016) arguments, positing that a systems approach to presales can be a part of a company’s transition into an adaptive enterprise, converting their outputs into effects for their customers.

Measurement & Intervention

This research is focused on redesigning the technical sales process focused on sales engineering within IT infrastructure markets. Subsequent research may include the development of interventions that train SEs to become more outcome oriented. To do so, measuring and developing systems thinking will be important. Ateskan and Lane (2018) suggests the use of the Systems Thinking Scale, which was validated by Dolansky, et al. (2020), while discussing workshop measures to develop capabilities. Grohs, et al. (2018) propose an alternative approach that assesses problem dimensions from both technical and contextual lenses, the evaluation of problem dimensions from multiple stakeholder perspectives, and the evaluation of problem dimensions across time (p. 112). Taheri, et al. (2016) argue that training should be focused on skill-based outcomes, cognitive outcomes, and affective outcomes to develop design thinking skills, considered a derivative of systems thinking, that could be applicable to the development of interventions. Doyle, Radzicki, and Trees (1996) propose a methodology to assess the impact of systems thinking interventions on mental models that could be useful to assess any interventions that are developed. These methods combine to assess, develop, and reassess systems and design thinking capabilities.

Sales Engineering Practice

Very little has been published specifically focused on sales engineering. Two books, however, stand out as guides designed to improve presales practice. *The Six Habits of Highly Effective Sales Engineers* (White, 2019, pp. 27-28) describes, as its title suggests, six habits that the author argues optimize the effectiveness of presales:

1. Partner: SEs should collaborate with their sales counterparts and perceive sales as a "team sport"
2. Probe: SEs should respond to requests for demonstration by "digging into… customers' objectives, requirements, expectations, etc." via a "Technical Discovery Call"
3. Prepare: SEs should focus and efficiently prepare for demos
4. Practice: SEs should regularly practice their demos
5. Perform: SEs should understand that demos are performances that should be managed as such
6. Perfect: SEs should never stop learning and improving regardless of level of experience

The habits that White (2019) argues for have some alignment with the arguments I make regarding sales engineers' consistency, or lack thereof, in seeking understanding of customer outcomes and goals. White argues that the "probe" habit is "the most important thing we can do to position ourselves to achieve the technical win" (p. 59). He goes on to describe an ideal "Technical Discovery Call" that emphasizes seeking an understanding of customer goals, motivation, burning issues, definition of success, specific capabilities required, history of vendor and/or industry engagements, and other contextual information required to make a demo successful, along with the logistics and participants who will be present at the demo (pp. 65-66). While many of these learnings are like those I argue for and the cohort discussed during the design session, White's perspective is that these questions should be asked on a single call to prepare for a discreet demo. My arguments and much of the consensus of the design cohort is that these questions must be understood over a more complete customer engagement across a

solution lifecycle rather than focused specifically on understanding customer requirements for a demo alone.

Similar to White (2019), Care and Bohlig (2014) attempt to describe the sales process and identify the characteristics and actions of successful SEs in *Mastering Technical Sales: The Sales Engineer's Handbook*. They describe a sales lifecycle broken into three master categories of New Product Introduction, Sales Process, and Post-sales Support (p. 7). Their sales process contains lead qualification, request for proposal, discovery and customer engagement, present, demonstrate, and propose, evaluation, and negotiate and close steps (p. 7). Care and Bohling describe discovery and needs analysis as the SE's "first opportunity to build a relationship with the customer project team" (p. 43) and identify "observe current processes-get to know the end user" (p. 53) as a step in the discovery process, describing the need for the understanding of solution impact. They continue with business value discovery, arguing that "SEs are trained to gather the 'speeds and feeds' and the technical infrastructure issues" and "the skill that many SE organizations seem to lack is staying focused on the business issues and not reverting back to technology at the first chance they get" (p. 61). From an organizational design perspective, Care and Bohlig offer three options: the "Separate SE structure" (p. 298), where SEs are either aligned under regional sales VPs, the "Totally Independent SE Structure" (p. 300) where SE leadership is aligned to the COO or VP of sales and operations, and the "Strong Branch Management" (p. 300) model where SEs report to sales managers without separate SE leadership.

Perspective Through Systems Tools

As part of the Idealized Design process, Ackoff et al. (2006) argue that Formulating the Mess is the first step of the Idealization process. The specific detailed steps of mess formulation are

extensive; performing a complete mess formulation to their specifications is out of scope, and their preference for a mess formulation team separate from the idealized design team (p. 48) is not feasible in the context of this dissertation. Their first mess formulation step, "prepare a systems analysis: A detailed description of how the organization or institution currently operates…" (p.45), however, is useful in organizing an understanding of the current situation.

Ackoff et al. (2006) argue that a systems analysis is "usually best revealed in a series of flow charts showing how material is acquired and processed through the organization" (p. 6). As presales is a social system, material is not explicitly acquired and processed, so material flows cannot be charted. Gharajedaghi (2011) provides clarity to the systems analysis stage, arguing that the system's structure, function, and process should be exposed as described in table 3.1. This table serves as a guide for the organization of the remainder of this chapter.

<table>
<tr><td colspan="3">Systems Analysis</td></tr>
<tr><td>Structure (input)</td><td>Members</td><td>Stakeholders</td></tr>
<tr><td>Major actors, their interests</td><td rowspan="2">Major components and their relationships</td><td>Customers, consumers, suppliers, creditors, government, regulators</td></tr>
<tr><td>Variables they control or influence, how much stake they have, and how they are organized</td><td>Other interest groups</td></tr>
<tr><td>Function (output)</td><td>Product/markets</td><td>Market potential</td></tr>
<tr><td rowspan="3">What is being produced for whom and why? Explicit, implicit, and potential requirements</td><td>Basis for differentiation</td><td>Reliability of demand</td></tr>
<tr><td>Basis for competition</td><td>Intensity of competition</td></tr>
<tr><td>Market access</td><td>Competitive analysis</td></tr>
<tr><td>Process (knowledge)</td><td>Core technology</td><td>Industry standard</td></tr>
<tr><td rowspan="2">How they do what they do</td><td>Throughput process</td><td>Minimum size to be a player</td></tr>
<tr><td>Organizational processes</td><td>Cost of selling, cost of goods, and cost of overhead</td></tr>
</table>

Table 3.1: Gharajedaghi's (2011, p. 161) Systems Analysis Framework

Because presales is a system within the containing system of an IT vendor, some of the categories that Gharajedaghi suggests, including market potential, do not apply. Others may be adapted, such as cost within industry standard, which can be represented through the cost of labor. Visualizations, including system of systems diagrams that visualize containing systems and subsystems and organization charts, are helpful when representing the structure, function and process of the organization.

Structure (input)

To describe the structure of the presales organization, it is important to describe the context in which presales operates. The following sections include figures that describe this context and include:

1. The common alignment of resources based on sales districts in the present reality (Figure 3.1)
2. An organization chart that depicts examples of the hierarchies and reporting structures common in IT infrastructure vendor sales organizations (Figure 3.2)
3. Containing systems diagrams depicting
    a. Stakeholders internal to IT infrastructure vendor organizations from the perspective of presales (Figure 3.3)
    b. The IT vendor landscape, inclusive of the primary segmentation among IT infrastructure vendors where they must compete and collaborate (Figure 3.5)
    c. Stakeholders external to IT infrastructure vendor organizations from the perspective of presales (Figure 3.6)

Organizational Hierarchy & District Alignment

Presales organizations in infrastructure vendors are generally made up of several teams that share senior leadership. Core SEs have narrow account focus and are frequently aligned directly to sales. This alignment ranges from one to one, where one SE and one account manager are paired as a team covering a set of accounts or geographic territories, to one to more than one, where each SE aligns with multiple account managers, to many to many, where multiple SEs are pooled to support a group of account managers (e.g., a sales district). Specialty SEs differ from core SEs in that they have a much narrower solution focus, which leads them to be spread more broadly across accounts. The solutions that specialists are focused on may be vendor products or product categories (e.g., unstructured data, data protection), industry, workload, or application focused (e.g., databases, cloud native software development), or time horizon based (e.g., emerging technologies). Some organizations include teams of senior SEs excluded from direct account alignment as escalation paths. These individuals, sometimes called principals or corporate SEs, frequently have deep and lengthy experience with the vendors' products.

In mature organizations, core SEs are frequently organized by district in alignment with their sales counterparts. These sales districts are often configured both by geography and by segment. Segments include small and medium business, commercial, enterprise, global accounts, and public sector. Examples may include narrowly specific districts like "New York City Enterprise," administrative region alignment (e.g., state or province) "Oklahoma Commercial," or broader territories like "Midwest State, Local, and Education." Less mature organizations that do not have the scale to segment often align sales teams with geographies inclusive of all account types in a city, state, or territory. Core SEs usually outnumber specialists by several times, leaving specialists to align with less scale. In very large organizations, specialists follow the core

market segmentation, but more often specialist teams span segments. This alignment structure influences the relationships between SEs insofar as individuals interact most often with the members of their own teams and those they are assigned to work with (e.g., specialists assigned to core districts). Tools like email aliases and Slack groups encourage collaboration and sharing of ideas between SEs who do not work on the same teams, with varied levels of success between organizations.

In addition to SEs themselves, presales organizations contain leadership structures. These include leaders at various parts of the organization, including district level SE managers, area or region level SE directors, segment, function, or country level SE leaders, and global or company-wide SE leadership. These leadership positions are generally positioned to align with sales leaders, either in a one to one or one to several relationships. While SE leadership appears to have structural parity with sales leadership, global SE leaders most often report to the head of sales or chief revenue officer, shifting their functions down one rung on the organization chart from their sales counterparts. Sometimes this is accompanied by SE leader titles that are one rung below their sales counterparts; an example would be a SE senior director aligned with a sales vice president. Leadership relationships are built with the purpose of direct management (in the case of first and potentially second line managers), enablement and guidance, and at higher levels determination of organization structure and the setting of expectations.

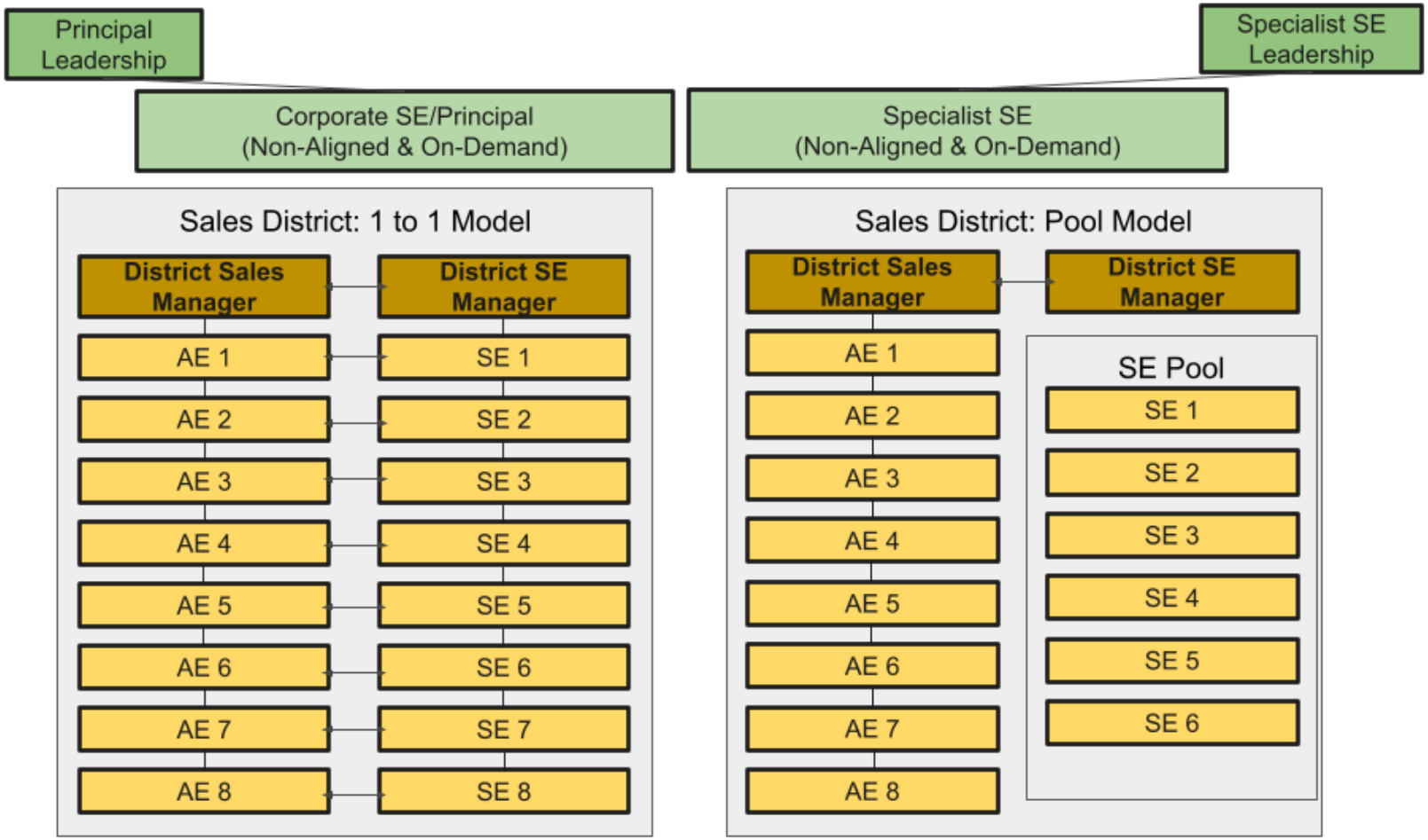

Figure 3.1: Examples of SE, Specialist, and Sales District Alignment

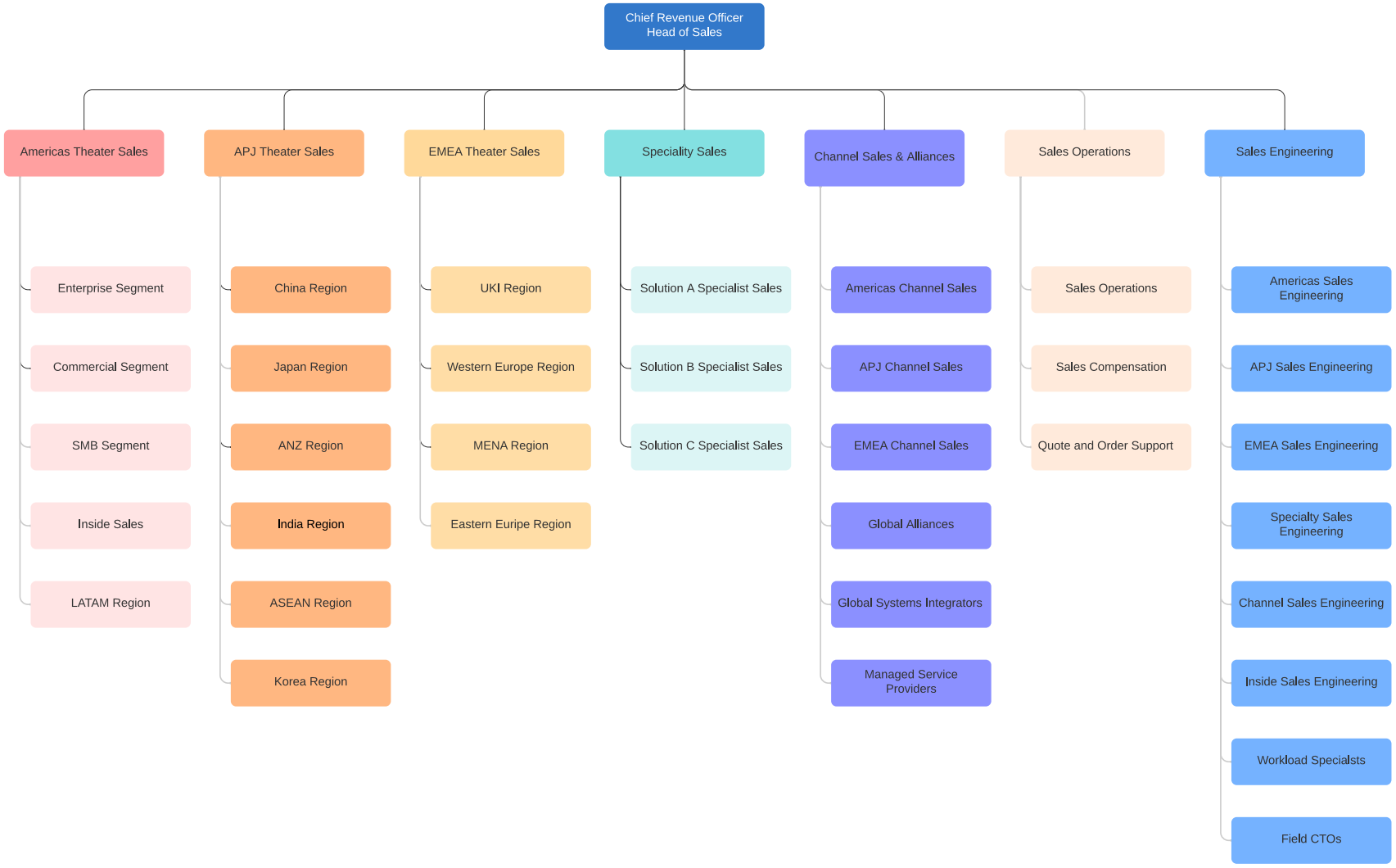

Figure 3.2: Example IT Infrastructure Vendor Sales Department Organization Chart

Stakeholders

Internal Stakeholders

Stakeholders in presales organizations include individuals and groups both inside and outside of vendors' organizations. The most obvious internal stakeholders come from other parts of the sales organization: account managers and sales leaders. Presales is most frequently measured on sales goals that link stakeholders together through compensation, with SEs and account managers sharing identical sales quotas. Less common compensation models exist, including those where SEs are aligned to district goals (the aggregate of the quotas of all account managers in the district) or non-sales related goals like MBOs (management by objectives). Sales and presales compensation plans generally differ by their amount of leverage against sales targets; as much as 50 or 60 percent of account managers' pay comes from commissions, while commissions usually only account for only 20 or 30 percent of SEs compensation. Other internal stakeholders include the following, shown in figure 3.3:

- Product management who rely on presales to deliver honest, accurate representations of products and solutions to customers while delivering actionable market intelligence back to be considered when designing new solutions or updating existing products
- Engineering who builds products and solutions based on the market feedback provided from presales through product management and address product bugs and defects identified by customers
- Marketing who often relies on presales to deliver technical content at events.
- Technical support who interacts with customers after the sale and are impacted by the quality of the solutions that presales teams design and sell

- Professional services who deliver services that may include assessments, implementation, integration, or other adjacent services and who rely on the quality of the solutions that presales teams design and sell as well as how they hand off and transition from sales to delivery

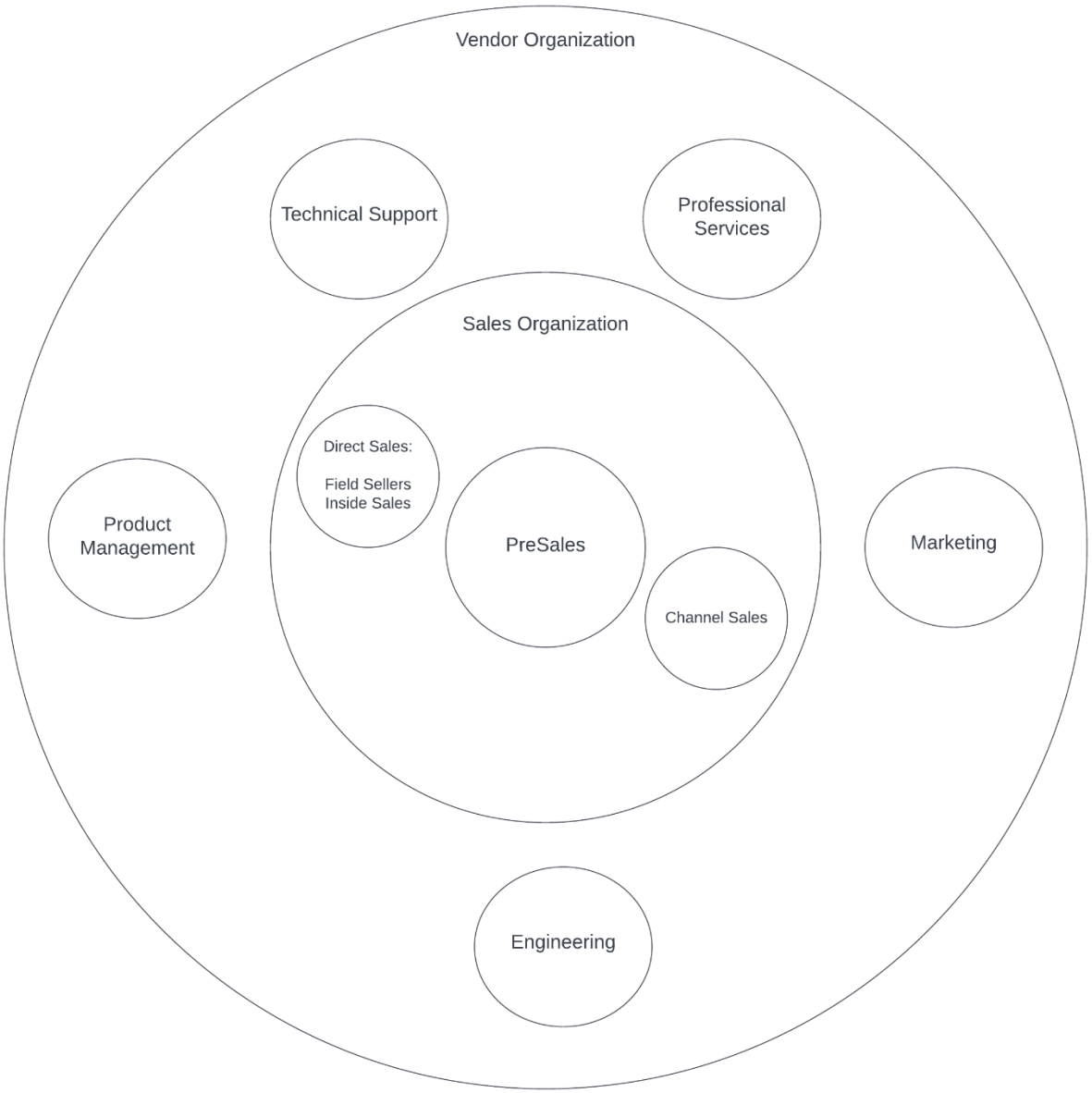

Figure 3.3: Internal Stakeholders from the Perspective of Presales

External Stakeholders

Many external stakeholders of presales organizations exist, including shareholders or others with equity positions who benefit from the revenue that SEs are responsible for. More closely aligned external stakeholders include partners and customers. While not every infrastructure vendor relies on partner channels, many do. These partners, primarily value-added resellers but also inclusive of managed service providers and systems integrators, resell vendor solutions and provide related services that may be financial (e.g., financing), logistical (e.g., inventory stocking), and/or technical (e.g., deployment and integration) in nature. Presales organizations often include dedicated channel focused SEs whose responsibility it is to train and support channel partners, but core and specialist SEs also directly and indirectly engage with partner stakeholders. Customers are clearly primary stakeholders for SEs, as the SE mission is to deliver compelling solutions that address customer challenges. An example of the interaction between SEs, account managers, and external stakeholders including channel partners and customers is illustrated in figure 3.4.

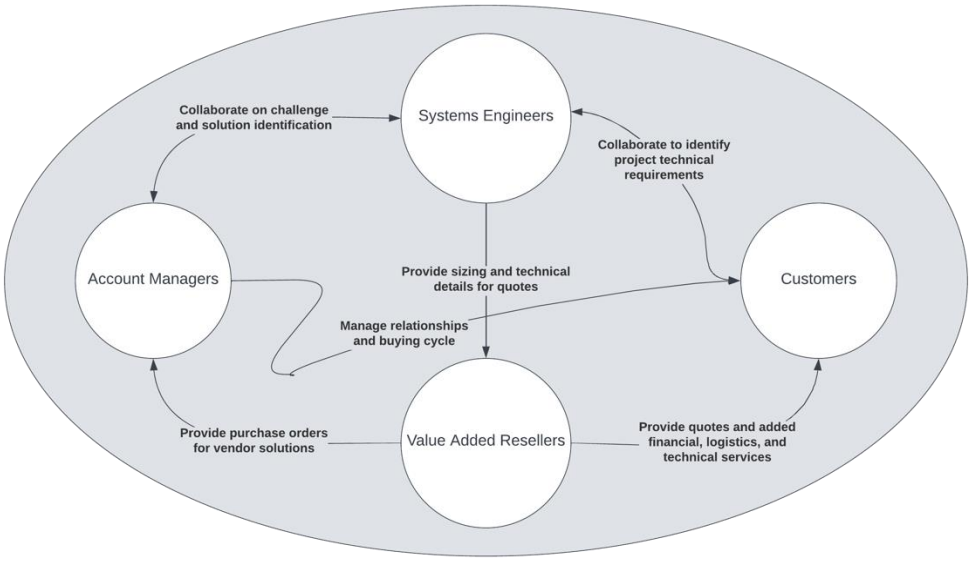

Figure 3.4: Example of systems engineers' interaction with stakeholders

External stakeholders also include other vendors, as solutions from a single vendor rarely, if ever, operate on their own. Many vendors operate in one area of infrastructure, such as storage, networking, or compute. A few provide solutions across these areas, though even the most robust infrastructure portfolio rarely operates without third party components. Others deliver converged or hyperconverged solutions that attempt to integrate functions, but again rarely exist on their own. Non infrastructure vendors, including enterprise software vendors, provide vital components, and many customers rely on managed service providers and/or public cloud providers for some portion of their infrastructure. This creates an environment of shifting competition and collaboration between vendors, as shown in figure 3.5:

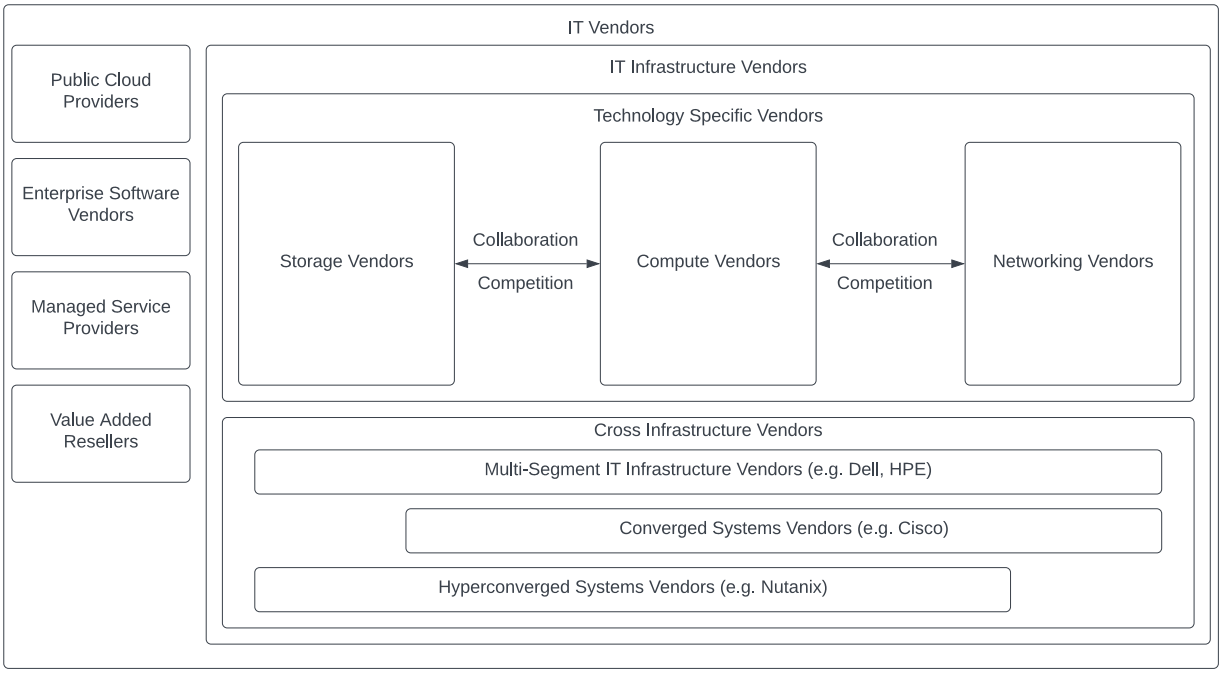

Figure 3.5: IT Vendor Containing & Collaborating Systems Diagram

A holistic view of external stakeholders is represented below in Figure 3.6:

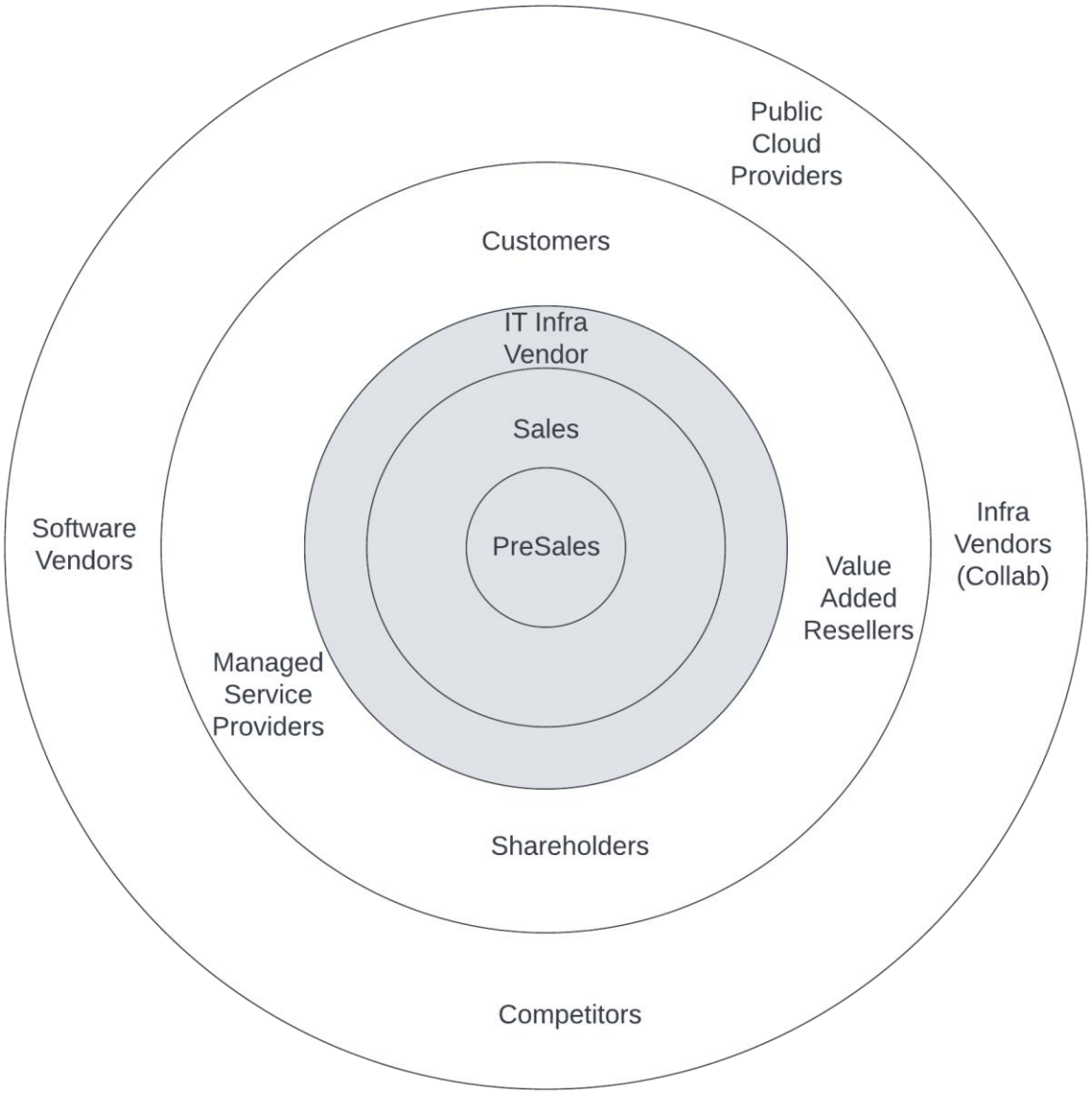

Figure 3.6: Stakeholder Onion Diagram

Influence

Relationships, expectations, and organizational structure shapes the influence that presales has. With respect to the sales process, presales is often described as "supporting" sales, which may result, overtly or covertly, in placing presales as subordinate to sales. Marjaba (2018) argues that "SEs and AMs don't always see eye to eye. In the end, it is the AM's call on what action to be taken next. You may not report to him, but if you cannot convince him of something, you will have to follow his lead." This is reinforced when presales leaders sit one rung below sales leaders when mapping organizational charts between sales and presales. Thusly, while SEs have very strong influence over the technical solutions that are designed and presented to customers, in many circumstances they have less control over sales and customer engagement strategies. This is evidenced in quarterly sales reviews, where SEs generally make up a very small portion of the presentations that account managers make regarding the state of their businesses. With customers, however, SEs have the opportunity to carry significantly more influence than sales; Magnum (2021) argues that "the presales professional establishes credibility as a 'trusted technical advisor,'" while salespeople may be seen as financially motivated. Similarly, presales is frequently responsible, in part, for helping product management teams understand the present and future requirements of customers as they develop roadmaps. The level of trust between product management and presales teams varies by company, and often there are selected specialists (e.g., corporate SEs, principals) that are tasked with translating and negotiating field requirements with product organizations.

Function (output) and Process (knowledge)

The explicit desired output of presales is the "technical win" that enables the successful closure of sales opportunities resulting in revenue to the vendor. Sakac (2012) describes the

presales practice as the “75/25 Model” where SEs spend 75 percent of their time with customers and partners and 25 percent of their time learning. This can be simplified to externally facing and internally facing time and, despite Sakac’s description of the ideal ratio, my experience shows that SEs split their time approximately evenly between internal and external activity. External activity with customers is most often related to technical discovery or a deal in the sales process. Care and Bohlig (2014, p. 8) describe the sales process as a pathway with the following sequential steps:

1. Lead qualification
2. Request for proposal
3. Discovery and customer engagement
4. Present, demonstrate, and propose
5. Evaluation
6. Negotiation and close

The following diagram visualizes a similar pathway focused on the presales aspects of sales based on my observation of the sales processes at infrastructure vendors. The process recurs for each sales opportunity, with the relationship and project identification steps occurring nearly continuously for top performing sales teams. Validating the value reviews project outcomes and reinforces the impact of the solution deployed. While this step has the capacity of identifying and disclosing business impacts of solutions, in my experience the vast majority of value validation occurs at the technical and project level.

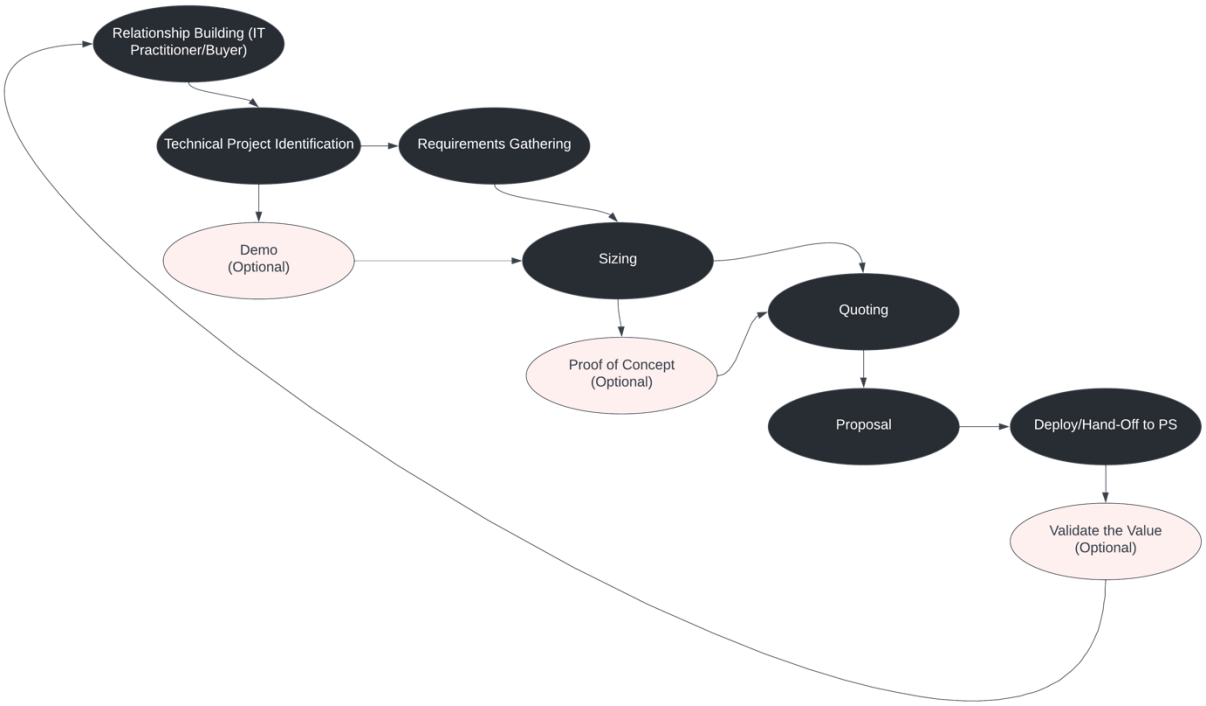

Figure 3.7: Example of Existing Presales Deal Process

In vendors with a channel focus, external activities also include time working with partners. Some of this is captured in the above process, as sizing, quoting, and proposing may be joint activities with vendors and partners. Other partner activities include enablement, training, and hands on work with solutions.

While partner enablement falls into the external category, personal enablement is internally focused. These activities include all learning and development activities, which may be classroom led, on-demand, self-paced, and/or hands-on. Many organizations provide required learning paths for SEs, though many SEs take the initiative to learn above and beyond what is required by their employers. Other internally focused activities include documenting wins and

losses, documenting and communicating market requirements, and documenting activities and deals in customer relationship management (CRM) software such as Salesforce.com.

Cost

Most infrastructure vendors compensate their sales and presales employees with a mix of fixed (base) and variable pay. The ratio of fixed to variable varies by company and role, but it is common for those in sales (account managers and sales leaders) to be paid between 40 and 60 percent fixed, with the remaining 60 to 40 percent as variable. Most often the variable portion for sales employees is commission based, with accelerators for sales above 100 percent. Presales employees (SEs and SE leaders) are generally less leveraged against sales, averaging across the industry with a 72 percent base and 28 percent variable (Consensus Sales, 2022). Like sales, most SEs have commission based variable pay, but some vendors subdivide the variable portion to include activities and documented accomplishments. Accelerators for overachievement vary by vendor, with some vendors aligning sales and presales accelerators and others reducing the value of overachievement for SEs as compared to their sales counterparts. The industry's commonly accepted term for total compensation at 100 percent achievement is on-target earnings, or OTE.

Sales engineering platform Consensus Sales performs an annual survey and analysis of sales engineering compensation (Consensus Sales, 2022). The majority of their over 1000 respondents were in the IT industry (hardware, software, or a combination), with a relatively even mix of individual contributors (SEs) and presales leaders. They report that the median SE OTE in the United States is $180,000 with a median base salary of $130,000. Presales leaders in the United States had a median OTE of $230,000 with a median base salary of $165,000. Taking into account tax and benefit costs, the fully loaded cost (FLC) of an SE or leader is approximately 1.4

times the OTE (Weltman, 2019), resulting in a median FLC of $252,000 for each SE and $322,000 for each presales leader.

Vendors are frequently measured by operating margin, with those that are publicly traded reporting the metric in quarterly and annual statements. As cost of sales can be a significant portion of the expense that determines operating profit or loss, sales organizations are measured by their revenue performance versus their expenses. Sales leadership consultant Henning Schwinum (2021) argues that "10 to 20 percent of revenues" is a typical cost of sales for ongoing sales in the technology space, with "high-growth technology businesses spend[ing] 25 to 40 percent of revenues on sales." Sales costs include both sales and presales, with many vendors providing the highest level of value on quota bearing roles, or those account manager positions that primarily hold sales quota. This leaves SEs as added expense, so understanding the value of presales to revenue is vital to determining the appropriate investment.

CHAPTER IV

RESULTS

Design Session Synthesis

Design Session Process

To answer the second research question, “What are the characteristics of an ideal presales organization?", I held a collaborative design session with experienced stakeholders from key areas of the IT infrastructure presales process. Working collaboratively to design a future state, without the burden of existing structures and norms, participants were asked to “assume that the typical IT infrastructure presales organization being planned for was completely destroyed last night, but its environment remains exactly as it was.”

The cohort met over Zoom and worked to create a shared vision and ideal present. The design session consisted of the following steps:

1. A brief background discussion including introductions from each of the participants
2. A discussion of my hypotheses and the present state described in chapter 3, exposing the challenges targeted to be designed out of the system
3. An open discussion on the ideal impact of presales for customers and vendors
4. An open discussion on the ideal presales system design to achieve this ideal impact, inclusive of maintaining a motivated workforce and pipeline of candidates for presales roles

The final two steps where we discussed the ideal impact and ideal design to achieve this impact were nonlinear and the discussion moved between these two ideals throughout.

As discussed in chapter two, this process was informed by several systems and design thinking methodologies, including Interactive Planning, where the aim is to design the ideal present, as if the system were destroyed last night. The design cohort was focused on designing this ideal present while eschewing the encumbrances and assumptions of the present design. When these came up as blockers to the ideal present, the cohort self-corrected to focus on designing something new rather than worrying about the flaws of the existing reality. Consumer idealized design, where customers are included in the list of stakeholders and the stakeholders are the designers, was also influential. The breadth of consumers of presales services and solutions include customers and sales counterparts, both of which were represented in the design cohort.

The process was also informed by Strategic Assumption Surfacing and Testing (SAST), where a broad cross section of stakeholders from inside and outside of the system are configured in a learning space, constructive conflict was encouraged, and the outputs were synthesized into a final negotiated perspective. The cohort was diverse and included those that were deeply embedded in presales, those who were closely aligned but outside of the system, and those that were loosely aligned and outside of the system. Also considered was The Vanguard Method, with its focus on customer-centric outcomes, inclusive of customers or potential customers as stakeholders in the design process. The ideals described by the cohort were highly focused on customers both internal and external to IT infrastructure vendor organizations, and both groups were represented in the cohort.

Finally, the process was informed by design thinking, inclusive of empathetic engagement with diverse stakeholders and a creative approach to redesigning the system for non-linear improvement as opposed to linear, incremental change. Similar to the ideals of interactive

planning, the design cohort leveraged its diversity and empathy to describe an ideal system to deliver the ideal outcome.

Participants

Participants in the design cohort included experienced stakeholders from key areas of the IT infrastructure presales process. They were selected based on their willingness to participate and their availability to commit to a call scheduled for three hours. Stakeholders involved in the design session included current and former IT sales engineers, IT account managers (salespeople), IT buyers/decision makers, and IT executives.

The following individuals participated in the design cohort:

- Rob Bergin, an IT salesperson at the time of the design session and formerly an IT executive, IT practitioner, SE leader, and SE.
- Mike Earnest, presently an IT sales leader (Americas Business Theater Leader) and formerly a SE leader and SE
- Rob Fallon, presently a SE leader (Director, Americas Presales Strategy) and formerly an SE
- Keith Manthey, presently an IT executive (Chief Technology Officer), formerly an SE leader, IT decision maker, and IT practitioner.
- Jay Singh, presently an IT salesperson (Account Executive), formerly an SE and IT practitioner
- Steven Hannah, presently an SE and formerly an IT practitioner
- Todd Rodgers, presently an SE and formerly an IT decision maker and IT practitioner
- Alex Alvord, presently a SE leader and formerly an SE

- Curtis Breville, D.Mgt, an SE at the time of the design session and formerly a sales leader
- Melissa Gurney Greene, presently a software community development leader and formerly a SE leader and SE
- Rael Mussel, presently an SE and formerly an IT executive, IT decision maker, and IT practitioner
- Christina Harrison, presently an SE
- Todd Brockdorf, presently an SE and formerly a SE leader

Key Topics of Discussion

The following sections represent the discussion that took place during the design session. Arguments and assertions are not attributed to any specific individual, rather they are a synthesis of the comments and discussions that took place. Quotations of comments from the session are included, without individual attribution.

What is a solution?

The word solution comes up often within presales and when discussing presales, including in the titles of many professionals called solutions architects or solutions engineers. The definition of a solution varies, however, between customer and vendor. One participant argued that “our customers aren’t in the technology buying business” even when referring to customers that may be IT buyers. Our customers’ business “is what they are doing,” or the value that they are delivering, meaning the stated or actual purpose of their organizations. Because of this, technology is “a necessary evil” or merely a means to the ends that are defined by customers’ business. This applies regardless of if the specific customers identify their

organizational outcomes; those in IT may not understand the macro-level business outcomes, rather they may only understand the outcomes that have been delegated to their department from senior leaders. Even for those who only know the delegated outcome goals, technology is a means to achieve these outcomes. In the current reality, SE's may "think a solution is whatever they are paid on," requiring a change in perspective to align with customer goals.

Because technology itself is not the outcome, solutions, as defined by customers, must be addressed holistically. This requires a detailed discovery process that gives the SE an understanding of both the goals that are defined at the IT level and at the business level, with the SE partnering with IT customers to address IT goals in context of larger business goals. This partnering strategy requires careful navigation of customer organizations to ensure context without alienating those in IT. While infrastructure companies vary in the breadth of their solution offerings, none offer the entire stack to deliver complete business outcomes. For this reason, SEs must be aware of a broader ecosystem and how to integrate with other vendors, including those considered to be competitors. Integrating solutions, however, is only one part of developing credibility as an SE and maximizing the impact of skillful SEs requires an appropriate organizational design and compensation structure.

Discovery process and who to engage when

The discovery process is about uncovering business challenges and working with IT to connect new and existing components to address these challenges. Identifying these challenges should begin with an SE "having a hypothesis" about the customer's environment and challenges and "developing [the hypothesis] as he or she continues to talk among people at the customer's organization." The goal of the discovery process is for the SE to "understand the business

challenges that they may solve through technology." As the one of the most important parts of the process, "successful presales is spending a lot of time in this phase."

In the current reality, SEs most frequently work only with IT practitioners. This IT to IT or technologist to technologist model offers the benefit of deep understanding of the technical situation and the details of the infrastructure environment that the SE's product will be installed into. On the other hand, without building relationships and doing discovery outside of IT organizations, SEs often do not have enough information to address business outcomes. Redesigning discovery to include significant focus outside of IT, therefore, is imperative to building solutions for customer business challenges. To develop the challenge and solution hypotheses, SEs must "understand who is in front of you today," most often from IT, and understand "who else you need to talk with" because "IT may tell you one thing, but the application owners, business units, and end users may tell you something completely different."

Many present and emerging workloads, while supported by infrastructure provided by IT organizations, may fall outside the purview or control of IT for many customers. These include but are not limited to, big data, analytics, and artificial intelligence workloads, all of which have the potential for significant business impact. These critical applications may not even fall into the purview of the Chief Information Officer, or CIO. Even though the CIO carries a "C-Suite," or "chief," title, he or she is sometimes not part of the corporate leadership team that "defines the direction of the organization," but rather is "there to make sure projects get executed from an IT standpoint." This means that participating in solutions for these impactful applications requires working with customer employees from outside of IT.

Blindly or aggressively engaging with business units or end customers, however, may be "insulting to IT" buyers, so SEs must use caution, tact, and emotional intelligence to navigate

customer organizations. This includes ensuring that IT is not excluded from the conversation altogether. While some workloads are managed completely outside of IT, and developing a good understanding for most others requires relationships outside of IT, line of business owners and end users may "know nothing about IT" and an SE "painting a rosy picture of a solution for them" will likely "breed resentment with IT." Working "in conjunction" and partnership with IT customers to ask questions, solicit feedback, and jointly develop business outcome understanding avoids these issues. Additionally, partnering with IT contacts to work with business owners and end users provides the value of increasing business awareness and acumen among those in IT.

Ecosystem, Integration, and Coopetition

The breadth of products required to build impactful IT solutions is significant. Infrastructure alone requires at minimum compute, networking, and storage capabilities, none of which operate without racks, power, cooling, or operating systems. Other hardware and software tools, including but not limited to management and orchestration software, load balancing, backup and data protection, and hypervisors are often utilized. These combinations form the infrastructure foundations for the commercial off the shelf and/or custom applications that ultimately provide business value. Even the vendors with the broadest product portfolios, including Dell, Hewlett Packard Enterprise, and Cisco Systems, lack the breadth to offer complete solutions in most cases. As "no company has the answer to every question," integration means that "IT solutions become [complicated] despite our best efforts" which means SEs should "understand the ecosystem of things and how they work together." This ability to "bring multiple technologies together to solve a problem" is what allows SEs to "deliver outcomes" to customers.

To achieve coherent solutions that deliver measurable outcomes to customers, SEs must maintain "holistic views of building solutions with multiple vendors' [products]" and "spend a

lot of time thinking about ecosystem as a core component [of being an SE].” This means working with other vendors, including those who are competitors. To “show integration with competitors” means that presales is in an “era of coopetition” that stresses the SE’s ability to “talk about [integration] and match that to [application and business] outcome[s].” Doing so requires a culture and organization structure that encourages and empowers SE to “stay curious” about existing and emerging technologies and the vendors delivering those technologies to the marketplace. Beyond delivering impactful solutions, recommending products from competitors as part of an integrated solution earns SEs credibility.

Credibility, Relationships, and SE skillsets

The term “trusted advisor” is often used in presales as the description of the sought-after relationship with customers. Earning this status is founded on the credibility of the SE, the relationships the SE builds, and the SE’s demonstrated skillset. One way to build credibility is for SEs to attempt to view challenges from the perspective of the customer and to leverage their experience and knowledge of the ecosystem to address challenges. This applies especially in circumstances where the SE’s employer does not have the best solution for a customer problem. An SE that “make[s] a recommendation for something that [they] don’t sell earns [them] the trusted vendor status.” SE’s may find it easier to solve problems when their employers have the answers, but trust and credibility is earned when they do not and they still help customers solve problems.

Understanding the ecosystem happens more often when SEs have deep industry experience. Credibility may present itself as a “silent reference” when buying decisions are being made, with industry experience positively influencing the relationships SEs build. Customers come to rely on SEs that generously share their experience, both from working in the industry and from

working with other customers. When customers know they can call on the SE and get perspectives built on this experience, relationships are deepened, and trust is established. Not all SEs do or should come from IT practitioner roles. This lack of hands-on experience can be overcome by SEs learning and training like they were practitioners, getting familiar with products and solutions from multiple competing vendors. This ability to learn from the perspective of a practitioner can be a viable substitute for years of hands-on experience.

Considering problems and building solutions from the perspective of the customer is also part of the "emotional IQ," or the blend of situation awareness and empathy, that is required to be a great SE. This skillset allows SEs to "build credibility with a sense of shared sacrifice." Working closely with customers and demonstrating the "tenacity to figure [complicated solutions] out together" builds "advisory relationships" with customers. Doing so requires "sitting with customers and watching for feedback" and working together "as [SEs] learn with them," looking for and responding to "subtle reactions" such that SEs create "a sense of 'we are in this together' and 'I've been there.'"

Solution Lifecycle

The common mindset in the present reality is that "[presales] ends when the purchase order comes." This is not appropriate for an ideal system design, as SEs' "responsibility doesn't end at the point of sale or even the end of the implementation." Rather, SEs should remain involved until it is measured that the vendor has "delivered the outcome" agreed upon. This lifecycle approach goes from understanding the customer challenge to working across the ecosystem to develop a solution to articulating total cost of ownership (TCO) and return on investment (ROI) to implementation all the way through to realization of value.

As part of the lifecycle, SEs must closely partner with their customers to "teach them how to sell the solution and process changes across their organizations so [the solution] can be implemented successfully and stick." This allows the customer and the SE to jointly articulate "real value despite the cost and pain to implement something new." Identifying the processes which need to be created, removed, or modified to successfully take advantage of a solution is a joint responsibility between the customer and the SE. The nature of the customer will determine if and how deeply the SE will participate in process changes, or if the SE's responsibility will be limited to enabling the customer to implement them.

Organizational Design

Presales organizations should be designed to address the challenges of alignment to the entire solution lifecycle. This means avoiding the pitfalls of the siloed approach that the present reality has between presales, professional services (delivery), customer success, and technical support departments. To do so, organizations should be built by "reverse engineering" customer problems into team structures designed to address them, thinking about the desired customer outcomes as inputs for organizational structure. The customer problems that a vendor is attempting to solve should define the products that they build rather than the other way around, which then defines what marketing is needed and the type of individuals that should be hired in sales and presales.

In addition to aligning with the other technically focused roles mentioned above, an outcome and lifecycle focused organizational design must include the appropriate distribution of responsibilities with relationship, business, and financially focused roles. These include sales development who should drive acquisition and coordination meetings with customers that sales and presales do not yet have relationships with. This involves leveraging initial discovery and

research that presales does about unknown customers to develop interest and value in initial conversations. SEs must be the primary focus of meetings early in the lifecycle of a solution, with a strong focus on discovery leading to solution design and integration. Sales (account managers) should steer clear during these phases to minimize financial impact on solution design but should work in parallel to presales to streamline the purchasing process once solutioning is complete.

Compensation and Culture

When aligned with performance against a quota, compensation may have the tendency to cause SEs to "think that a solution is whatever they are paid on," where that SE "is only paid on a widget" such that the compensation acts as a distraction from focusing on customer outcomes. With respect to credibility, "chasing a number" may "erode credibility" and reduce the focus on outcomes, but the variable compensation model and financial upside it provides is a draw to top talent. For a SE coming from a practitioner role, the opportunity to earn significant commission checks makes it "feel like the best job in his entire life." This allows presales organizations to hire top talent with the hands-on experience that drives credibility. Although finding an appropriate compensation mechanism was a point without consensus during the design session, it was agreed upon that compensation should both be based on customer outcome but retain the variable model with significant upside potential.

While compensation drives behavior, so does culture. A customer and employee-centric culture with a hierarchy of priorities with personal and family at the top and a clear connection between customer success and corporate performance can reduce the negative impacts of sales-based compensation, especially as part of a broader compensation structure that takes into account customer outcomes. This model can be helpful in rectifying the potential conflicts of

motivation among sales team members, where in the present reality account managers are generally more leveraged (e.g., 50% base, 50% commission) than are SEs (e.g., 70% base, 30% commission).

Ideal System Design

A potential ideal future of presales can be built from the topics discussed by the design cohort. Due to the complex nature of the system, with unknown unknowns, this design is built upon the emergent instructive patterns that were identified by the design cohort, where "dissent and diversity" (Snowden and Boone, 2007) was encouraged. Implementing this design requires experimentation, and each design consideration is a "probe" that must be followed by "sensing" of its impact to create an appropriate response.

This ideal design is built to achieve mutual benefit to vendors and customers by focusing presales on the connections between technical solutions and business outcomes, investing in discovery such that solutions are inclusive of ecosystem components and reflect the organizational and process changes required for successful implementations, and creating deep alignment with other vendor internal organizations to provide consistent and comprehensive engagement across the solution lifecycle. These ideals are achieved with a consistent engagement and coaching process, organizational structure, training and enablement, and compensation models.

Engagement and Coaching Process

The solution lifecycle from the perspective of presales can be described with the following phases, which occur repeatedly throughout relationships with customers and may occur nonlinearly:

1. Research of industry requirements and trends, workload and application requirements and trends, and customer business and technical goals.
2. Discovery of customer organizations including relationship mapping, existing solutions along with their successes and challenges, and customer business and technical goals.
3. Solutioning, including design of solutions, plans to integrate with new and existing ecosystem components, alignment of solutions to technical and business goals, and identification of metrics to measure the impact on business and technical goals. This phase also requires the ability to say no, where SEs veto requests from customers or sales when solutions are poorly aligned to deliver desirable outcomes.
4. Deployment, including technical implementation of solutions, training of solution operators, integration with new and existing ecosystem components, and the implementation of process changes that amplify and propagate solution impact.
5. Operations, including day to day operations of solution components, support for issues and challenges that arise, and the measurement of solution impact over time.

To ensure that SEs are capable and consistently performing at each of these steps of the process, three presales leadership and coaching roles are aligned to each sales district. The first is the SE manager, who provides direct supervision of SEs in the reporting chain and holds responsibility for day-to-day management. The SE manager is responsible for validating the quality and accuracy of solutions prior to proposals being delivered to customer. He or she coordinates and acts as an escalation point for deployments, interfacing with the professional services lead that is assigned to the district to ensure smooth delivery of solutions. Finally, the SE manager acts as an escalation point and customer-centric coordinator for day two operational

support, offloading support coordination from SEs and working closely with the district aligned support lead to ensure consistent support throughout the solution lifecycle. The SE manager spends approximately 80% of his or her time and focus internally on leadership, coaching, and coordination, with the remaining 20% of time and focus with customers concentrated on the solution lifecycle.

The second leadership and coaching role is the senior technologist. This individual spends approximately 75% of his or her time and focus coaching district SEs in customer research, discovery, solution design, alignment of solutions to business outcomes, identification of customer process improvements that influence solution success, and validation and measurement of solution value. Customer research coaching includes identifying customer business goals, objectives, and purpose, and customer technical environments including identifying existing solutions and potential points of integration. Discovery coaching includes identifying customer personnel, their responsibilities, and their relationships, as well as identification of customer processes and potential barriers to success. The remaining 25% of the senior technologist's time is spent as a customer-facing expert with a focus on sharing context and ecosystem experience and discussing and demonstrating alignment of solutions to business value.

The third and final leadership and coaching role is the workload expert. This individual splits his or her time equally between internal and external focus. The internal portion of the workload expert's responsibilities include coaching district SEs on identification of trends associated with industries that are prevalent in the district's customer base and identifying trends associated with workloads and applications. He or she guides the SE team on discovery in customers of workloads, applications, and teams outside of traditional IT organizations, and

works with SEs to validate solution designs regarding their impact on workload and application requirements. The external portion of the workload expert's responsibility is as a customer-facing expert on workload and application solutions and the ecosystem of technologies that surround those solutions as well as emerging technology and industry trends. The alignment of leadership and coaching across the engagement and solution lifecycle is visualized in Figure 4.1.

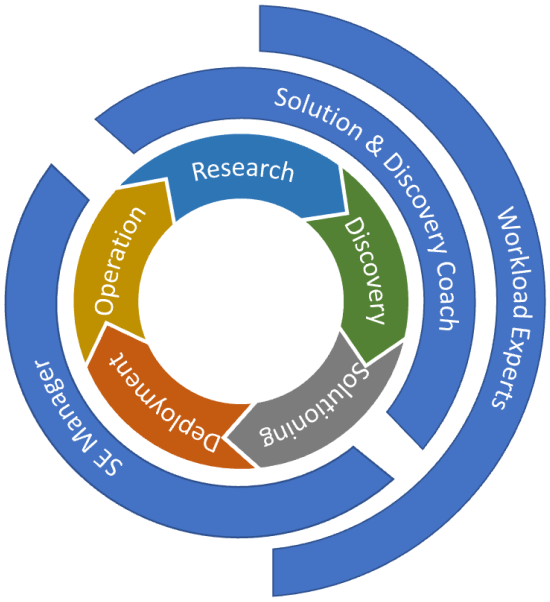

Figure 4.1: SE Coaching Through Engagement & Solution Lifecycle

Training and Enablement

Complimentary to the daily coaching process described above, SEs must be trained to deliver customer outcomes and develop credibility. This training includes the traditional training about vendor products and solutions, but also includes ecosystem training delivered both from a solution design perspective and from the perspective of a practitioner. This type of training builds credibility by allowing SEs to put themselves in the shoes of customers and serves as a substitute for years of hands-on experience. Other training requirements include financial acumen, customer and market research, and how to encourage positive process change. Finally,

training on active listening and emotional IQ empowers SEs to deliver solutions from customer points of view.

Organizational Structure

The structure of the organization is critical to enable solutions aligned to outcomes and to ensure success across the solution lifecycle. The district SE manager, described above, must be a functional leader of all technically aligned roles. Thus, the aligned coaching resources (senior technologists and workload experts) should have a dotted line or matrix reporting structure to the district SE manager. Because their specific function requires significant consistent learning and access to their peers across the organization, they should report directly to a leadership structure that supports their respective functions.

To engage across the lifecycle, resources from both professional services (deployment) and support (day two) should be aligned to the district. Like the technologist and workload expert relationships, these individuals should report directly into their own functions but share a matrix or dotted line reporting relationship to the district SE manager. These functions should also be dedicated to the district, ensuring full alignment with the set of customers that are shared with district sales and SE managers. On the sales side, sales development representatives should be aligned with the district with the responsibility for scheduling and coordinating meetings, especially early in the sales cycle. This allows for SEs to engage earlier, either before account managers are engaged or in parallel, maximizing the credibility and outcome focus of sales teams.

To maintain tight alignment, districts should remain close to the ideal size of eight to ten one-to-one mapped AE and SE teams, covering more or fewer customers based on the size and scale

of the vendor. Compare figure 4.2, with district aligned coaching, support, professional services, and sales development function, to figure 3.1 where, in the present reality, these functions are not generally aligned to a sales district nor do they matrix report into district leadership.

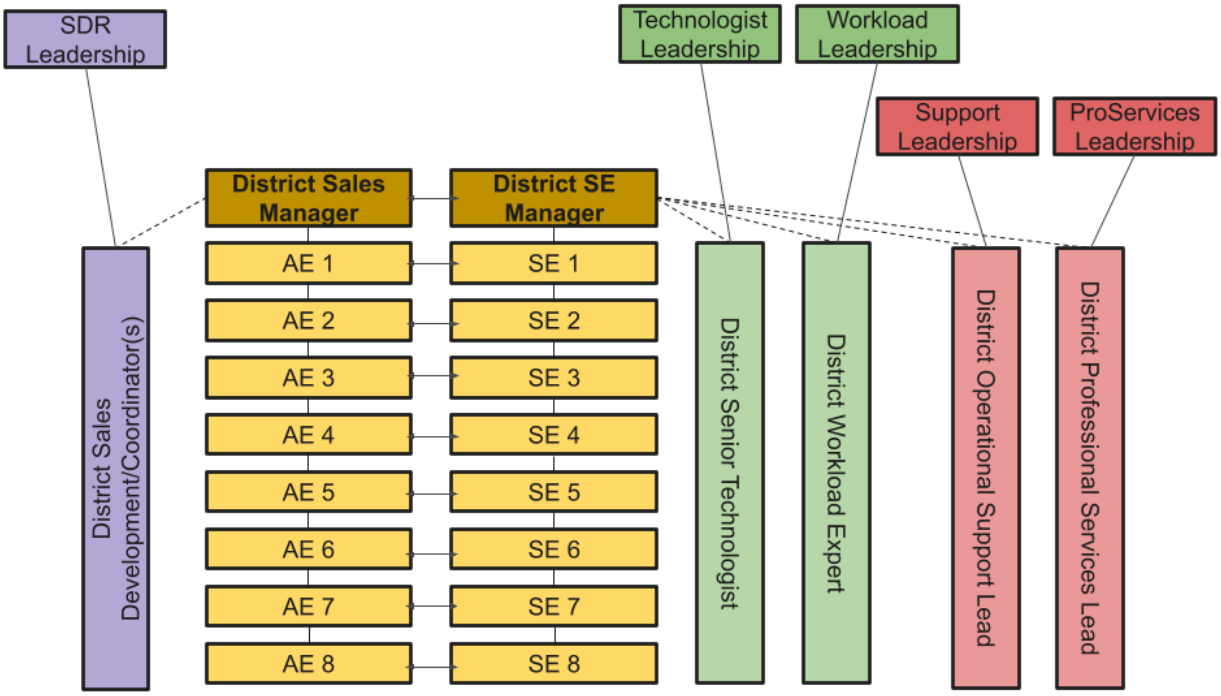

Figure 4.2: District Organizational Structure

Compensation

Designing compensation to meet the ideals requires considering alignment to customer outcomes, alignment with sales counterparts, alignment across lifecycle functions, vendor cost effectiveness, and attraction of top talent. Even though higher percentages of variable compensation present risk to employers, empowering SEs to have the same earning power as account managers demonstrates a commitment to customer solution success and outcomes. For this reason, this design includes a 60% base and 40% variable compensation model for account

managers, systems engineers, and their respective managers. This compensation model ensures full alignment between sales and presales. Unlike traditional models that solely compensate sales teams on revenue attainment against a quota, this model adds accelerators and decelerators for measurements of short- and long-term customer success. One potential measurement is Net Promoter Score, or NPS, which NICE Systems, Inc. (n.d.) describes as a measurement "of customer experience." An example of the accelerator/decelerator for NPS is as follows, but must be modified for each vendor's solution and marketplace:

NPS	Quarterly Variable Compensation Multiplier
-100 to -75	0.75X
-75 to +25	1.0X
+25 to +50	1.25X
+50 to +100	1.5X

Table 4.1: NPS Based Compensation Multiplier Example

Because NPS is a lagging indicator, the accelerator or decelerator should be applied quarterly and be based on the previous quarter's NPS score. Support renewal business is a measure of customer satisfaction and that solutions previously sold remain in place and continue to provide value. For this reason, sales teams (account managers and systems engineers) should be goaled on and compensated on support renewal business. The percentage of variable compensation dedicated to renewal business will depend on the vendor, their marketplace, and the business segment that the account teams work in (e.g., enterprise, commercial, public sector), with ten percent of variable compensation as the baseline to start from. Similarly, while companies should continue to target net new customer growth, approximately another ten percent of variable

compensation should be dedicated to existing customer sales, except in investment or growth territories or very new startup vendors, as a measure of success through repeat purchases.

Leadership and district-associated specialists and cross-functional partners must share in the compensation arrangements detailed above, tailored to their specific roles. District sales and SE mangers should have their quotas determined as an aggregate of the account teams in their districts with a similar 60/40 compensation plan. Because leadership and the alignment between sales and presales is vital to outcome alignment, their accelerators and decelerators for NPS should be higher than those of the individual contributors on the team, and they should carry a higher percentage of renewals and existing customer components of variable compensation. Specialist coaches, including senior technologists and workload experts, should be compensated against the district rollup carried by the SE manager, but with the same NPS modifiers that the SEs carry and no support renewal component of their compensation plans.

In the present reality, post-sales delivery and support teams are generally not paid on sales results; this ideal model reshapes their compensation structure to bring them into the full lifecycle support model. Unlike sales and presales professionals, the pay for district delivery and support aligned individuals should not be significantly leveraged with variable compensation; the ratio should be 80% base combined with a 20% variable portion paid either quarterly or biannually. This timing allows for a longitudinal connection to the business while also connecting the actions and behaviors of the individuals to their compensation. The variable portion of compensation should be made up of 50% revenue, with the ability to exceed 100% based on district quota, with the remainder made up of customer satisfaction via NPS, customized for the solution and market but based on the following example:

NPS	Variable Compensation Achievement
-100 to -75	0%
-75 to -25	25%
-25 to 0	50%
0 to +25	75%
+25 to +50	100%
+50 to +75	150%
+75 to +100	200%

Table 4.2: NPS Based Compensation for Post-Sales Example

Industry Validation

To validate my description of the present reality and the outputs of the design session, I solicited responses to a questionnaire from industry professionals. As described in chapter 2, the questionnaire was distributed through several mechanisms, primarily leveraging LinkedIn. The questionnaire reached my LinkedIn network of over 2,000 individuals, the networks of the many individuals who liked or reshared my posts, and those who follow the PreSales Collective. Feedback was solicited among each category of stakeholders, inclusive of IT salespeople, IT decision makers, IT executives, and SEs. A total of 125 responses were collected, though not all responses were complete. The following is the distribution among stakeholders:

Role - What best describes your role?	Number of responses
IT executive (VP, CIO, etc)	4
IT practitioner (Architect, Administrator, Manager, etc)	22
Line of business practitioner or owner (outside of IT)	1
Other	3
Presales Leader (SE Manager, Director, VP, etc)	30
Presales Professional (Systems Engineer, Sales Engineer, Solutions Architect, etc)	47
Sales Leader (Sales Manager, Director, VP, etc)	10
Sales Professional (Account Manager, etc)	8
TOTAL	**125**

Table 4.3: Respondent Breakdown

Questionnaire Design

The questionnaire was broken into four sections of questions. The first contained a single question to identify the role of the respondent. The results of this question are displayed above. The second and third sections were made up of questions requesting answers on a five-point Likert scale. The second section contained a single set of nine questions prompted by the statement "Please select the frequency that you believe is most appropriate for each statement regarding the current state of presales," with five-point Likert scale response options of never, sometimes, about half the time, most of the time, and always. The questions were as follows:

1. SEs understand their employers' solutions.
2. SEs understand how their solutions interact with/integrate with other industry solutions.
3. SEs understand how their solutions impact customer IT goals and/or outcomes (e.g., performance, availability, TCO).
4. SEs understand how their solutions impact customer app/business unit goals and/or outcomes (e.g., provide analytics capabilities to the business).

5. SEs understand how their solutions impact customer business goals and/or outcomes (e.g., market share, profit, stock price).
6. SEs connect technical solutions to measurable outcomes associated with customer executive/board-level business goals.
7. SEs are responsible for research and discovery of customer executive/board-level business goals.
8. IT vendors identify solutions as their own products rather than from the customer perspective.
9. SEs are aligned across the entire technology lifecycle, from design through deployment to validation of success in production/value recognition.

The third section contained three sets of five questions prompted by the statement "Please select your level of agreement with each of the following statements describing an ideal future state of presales," with five-point Likert scale response options of strongly disagree, somewhat disagree, neither agree nor disagree, somewhat agree, and strongly agree. The questions were as follows:

Question Set 1:

1. Presales should start with a customer problem, working backwards to build a solution.
2. SEs should consider the entire ecosystem when building solutions, inclusive of competitive offerings.
3. Presales, delivery, and customer success should be merged into a single organization that handles the entire technical lifecycle for customers.
4. Presales should be compensated on the success of solution rather than the success of the sale.

5. SE should be trained to consult on the process changes required to implement new technologies.

Question Set 2:

6. SEs should be trained to understand customer business goals and/or outcomes (e.g., market share, profit, stock price).
7. SEs should connect their solutions through value chains to larger goals and outcomes (IT, application/business unit, and business).
8. SEs should outnumber account managers, with a focus on deep customer partnership and discovery.
9. SEs align the vast majority (>75%) of their focus on business value, with limited focus (<25%) on speeds, feeds, and technical details.
10. SE compensation should be on par with account manager (sales) pay.

Question Set 3:

11. SE variable pay should consist of a mix of short term (revenue) and long term (customer outcomes) metrics.
12. When there is a conflict, the SE's bias should be for the customer, not the vendor.
13. Customer feedback (e.g., NPS) should have influence on SE variable compensation.
14. SEs should have veto authority for any customer proposal that does not benefit customer goals and/or outcomes.
15. SE training should be equally balanced between vendor solutions, industry/ecosystem solutions, and business value/discovery.

The final question was optional, asking respondents to share any comments that they would like to add. No personally identifying information was collected, and the Qualtrics option to enable "anonymize responses" was selected so that respondent IP addresses, location data, and contact information were not collected.

Results & Analysis: Current State

To evaluate my current state analysis, respondents were asked to "select the frequency that you believe is most appropriate for each statement regarding the current state of presales," with five-point Likert scale response options of never, sometimes, about half the time, most of the time, and always. The response breakdown was as follows:

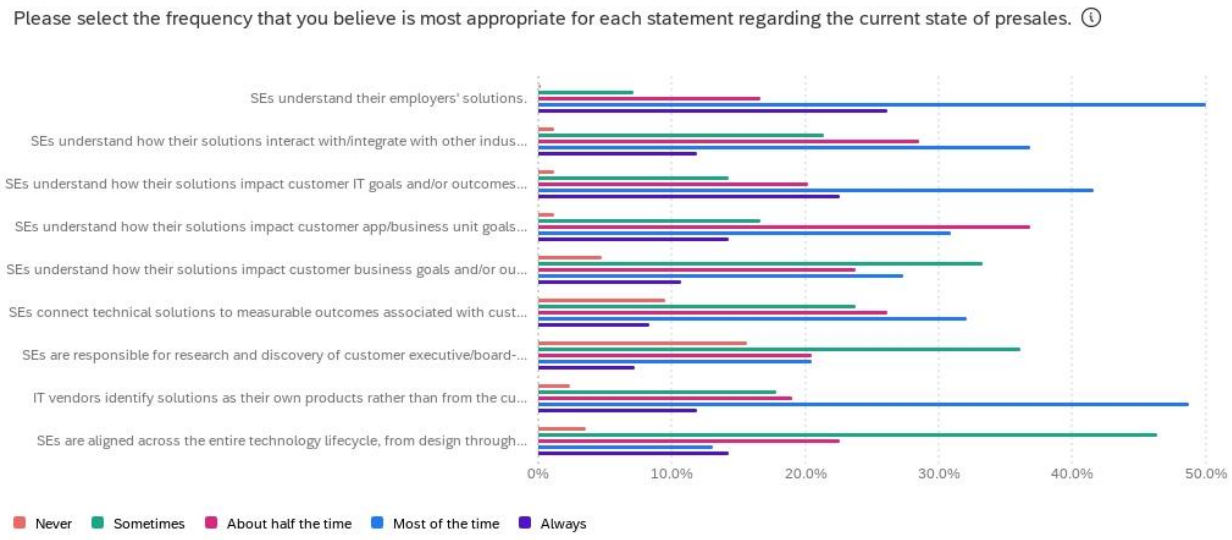

Figure 4.3: Current State Question Responses

Detailed response breakdowns and analyses for each question are as follows:

SEs understand their employers' solutions.	Never	0.0%
	Sometimes	7.1%
	About half the time	16.7%
	Most of the time	50.0%
	Always	26.2%

With 76.2% of respondents answering “most of the time” or “always,” the group agrees with my assertion that in the present reality, SEs generally know their own solutions well.

SEs understand how their solutions interact with/integrate with other industry solutions.	Never	1.2%
	Sometimes	21.4%
	About half the time	28.6%
	Most of the time	36.9%
	Always	11.9%

This response is mixed, though weighted towards agreeing with the statement. This indicates that the respondents are more likely to believe that SEs are ecosystem aware, at least from a technical perspective, though the number of “sometimes” responses demonstrates that this is not universal.

SEs understand how their solutions impact customer IT goals and/or outcomes (e.g., performance, availability, TCO).	Never	1.2%
	Sometimes	14.3%
	About half the time	20.2%
	Most of the time	41.7%
	Always	22.6%

A majority of respondents believe that SEs understand the impact of their solutions on IT outcomes. This aligns with my assertion that in the present reality, high performing SEs demonstrate impact against IT goals.

SEs understand how their solutions impact customer app/business unit goals and/or outcomes (e.g., provide analytics capabilities to the business).	Never	1.2%
	Sometimes	16.7%
	About half the time	36.9%
	Most of the time	31.0%
	Always	14.3%

Regarding understanding the impact of technical solutions on application and business unit goals, the responses are split with a bias towards SE competence in this area. This result is skewed by respondent role as follows:

	Presales Professional (Systems Engineer, Sales Engineer, Solutions Architect, etc)	Presales Leader (SE Manager, Director, VP, etc)	Sales Professional (Account Manager, etc)	Sales Leader (Sales Manager, Director, VP, etc)	IT practitioner (Architect, Administrator, Manager, etc)	IT executive (VP, CIO, etc)	Line of business practitioner or owner (outside of IT)	Other
Never	0.0%	0.0%	0.0%	0.0%	7.7%	0.0%	0.0%	0.0%
Sometimes	6.3%	8.3%	0.0%	37.5%	38.5%	100.0%	0.0%	50.0%
About half the time	37.5%	45.8%	0.0%	37.5%	38.5%	0.0%	0.0%	0.0%
Most of the time	34.4%	29.2%	75.0%	25.0%	15.4%	0.0%	0.0%	50.0%
Always	21.9%	16.7%	25.0%	0.0%	0.0%	0.0%	0.0%	0.0%

This distribution indicates that SEs and salespeople believe they frequently understand the application or business unit impact of their work while SE leaders and sales leaders believe they do less often. IT practitioners and executives do not agree, responding that SEs understand these connections no more and likely less than half of the time.

SEs understand how their solutions impact customer business goals and/or outcomes (e.g., market share, profit, stock price).	Never	4.8%
	Sometimes	33.3%
	About half the time	23.8%
	Most of the time	27.4%
	Always	10.7%

Expanding the scope from application or business unit goals, the respondents were less likely to believe that SEs understand the connection between solutions and broader customer goals or outcomes most or all of the time, with 61.9% of responses indicating half the time or less and 38.1% responding most or all of the time. This agrees with my assertion that in the present

reality SEs do not consistently understand how their solutions impact customer business goals. Evaluating the distribution of the responses by respondent type reveals that SEs are more likely to believe they understand business outcomes than sales leaders, IT professionals, and IT executives.

	Presales Professional (Systems Engineer, Sales Engineer, Solutions Architect, etc)	Presales Leader (SE Manager, Director, VP, etc)	Sales Professional (Account Manager, etc)	Sales Leader (Sales Manager, Director, VP, etc)	IT practitioner (Architect, Administrator, Manager, etc)	IT executive (VP, CIO, etc)	Line of business practitioner or owner (outside of IT)	Other
Never	3.1%	4.2%	25.0%	12.5%	0.0%	0.0%	0.0%	0.0%
Sometimes	28.1%	33.3%	25.0%	37.5%	46.2%	0.0%	0.0%	50.0%
About half the time	28.1%	16.7%	0.0%	37.5%	15.4%	100.0%	0.0%	50.0%
Most of the time	34.4%	25.0%	25.0%	12.5%	30.8%	0.0%	0.0%	0.0%
Always	6.3%	20.8%	25.0%	0.0%	7.7%	0.0%	0.0%	0.0%

SEs connect technical solutions to measurable outcomes associated with customer executive/board-level business goals.	Never	9.5%
	Sometimes	23.8%
	About half the time	26.2%
	Most of the time	32.1%
	Always	8.3%

With respect to SEs connecting solutions to measurable executive or board-level goals, 59.5% of the respondents answered with half the time or less, validating my assertion that in the present reality, SEs do not consistently make these connections. The distribution of responses for this question indicate that SEs and salespeople believe they make these connections more often than customers believe they do.

	Presales Professional (Systems Engineer, Sales Engineer, Solutions Architect, etc)	Presales Leader (SE Manager, Director, VP, etc)	Sales Professional (Account Manager, etc)	Sales Leader (Sales Manager, Director, VP, etc)	IT practitioner (Architect, Administrator, Manager, etc)	IT executive (VP, CIO, etc)	Line of business practitioner or owner (outside of IT)	Other
Never	3.1%	4.2%	25.0%	25.0%	23.1%	0.0%	0.0%	0.0%
Sometimes	15.6%	33.3%	25.0%	25.0%	15.4%	100.0%	0.0%	50.0%
About half the time	37.5%	16.7%	25.0%	25.0%	23.1%	0.0%	0.0%	0.0%
Most of the time	34.4%	37.5%	0.0%	25.0%	30.8%	0.0%	0.0%	50.0%
Always	9.4%	8.3%	25.0%	0.0%	7.7%	0.0%	0.0%	0.0%

SEs are responsible for research and discovery of customer executive/board-level business goals.	Never	15.7%
	Sometimes	36.1%
	About half the time	20.5%
	Most of the time	20.5%
	Always	7.2%

With 72.3% of respondents answering half the time or less compared to 27.7% answering most or all of the time, the group agrees with my assertion that in the present reality SE are not frequently responsible for research and discovery of executive or board-level business goals of their customers.

IT vendors identify solutions as their own products rather than from the customer perspective.	Never	2.4%
	Sometimes	17.9%
	About half the time	19.0%
	Most of the time	48.8%
	Always	11.9%

60.7% of respondents agreed that in the present reality IT vendors most often identify solutions as their own products. With 39.3% answering that IT vendors do this less than half the time, including 30.8% of IT practitioners, there may be an indication that some vendors consistently offer a broader, ecosystem-based solutions perspective.

	Presales Professional (Systems Engineer, Sales Engineer, Solutions Architect, etc)	Presales Leader (SE Manager, Director, VP, etc)	Sales Professional (Account Manager, etc)	Sales Leader (Sales Manager, Director, VP, etc)	IT practitioner (Architect, Administrator, Manager, etc)	IT executive (VP, CIO, etc)	Line of business practitioner or owner (outside of IT)	Other
Never	3.1%	4.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Sometimes	15.6%	16.7%	25.0%	25.0%	23.1%	0.0%	0.0%	0.0%
About half the time	25.0%	16.7%	25.0%	12.5%	7.7%	100.0%	0.0%	0.0%
Most of the time	43.8%	54.2%	50.0%	50.0%	46.2%	0.0%	0.0%	100.0%
Always	12.5%	8.3%	0.0%	12.5%	23.1%	0.0%	0.0%	0.0%

SEs are aligned across the entire technology lifecycle, from design through deployment to validation of success in production/value recognition.	Never	3.6%
	Sometimes	46.4%
	About half the time	22.6%
	Most of the time	13.1%
	Always	14.3%

The majority of respondents agreed that SEs are not consistently aligned throughout the entire technology lifecycle, from design through deployment and recognition of success and value in production, with 71.6% answering that this happens half the time or less. One comment noted that “I engage with multiple vendors and the majority of them only want to make the sale and hand me over to support, that practice needs to stop.”

Results & Analysis: Ideal State

To evaluate the ideals that came from the design session, respondents were asked to “select your level of agreement with each of the following statements describing an ideal future state of presales,” with five-point Likert scale response options of strongly disagree, disagree, neither agree or disagree, somewhat agree, and strongly agree. The response breakdown was as follows:

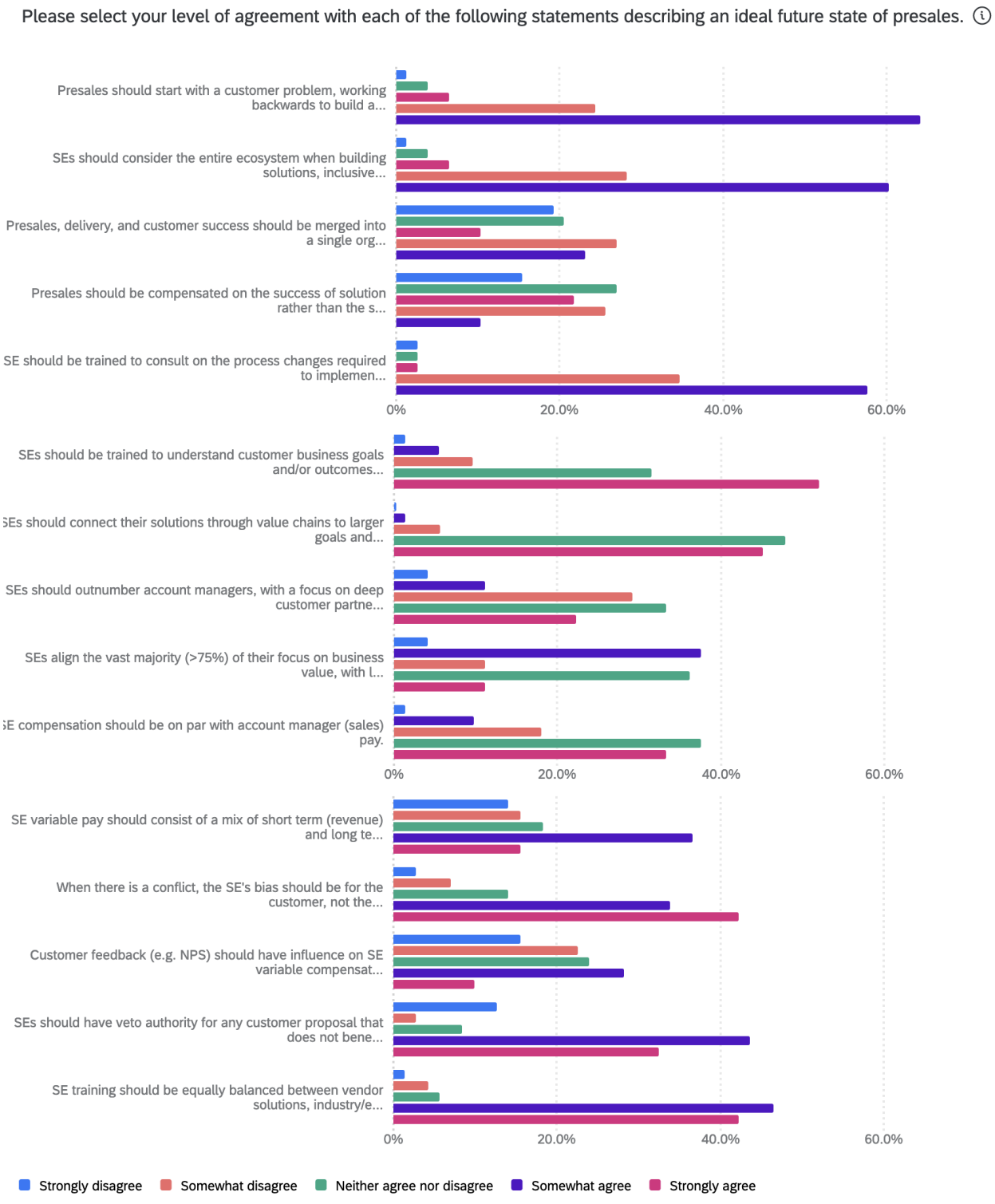

Figure 4.3: Ideal Future State Question Responses

Detailed response breakdowns and analyses for each question are as follows:

Presales should start with a customer problem, working backwards to build a solution.	Strongly disagree	1.3%
	Somewhat disagree	3.8%
	Neither agree nor disagree	6.4%
	Somewhat agree	24.4%
	Strongly agree	64.1%

88.5% of respondents either strongly or somewhat agreed that presales should start with a customer problem and work backwards to build a solution.

SEs should consider the entire ecosystem when building solutions, inclusive of competitive offerings.	Strongly disagree	1.3%
	Somewhat disagree	3.8%
	Neither agree nor disagree	6.4%
	Somewhat agree	28.2%
	Strongly agree	60.3%

88.5% of respondents either strongly or somewhat agreed that presales consider the entire ecosystem when building solutions, inclusive of competitive offerings.

Presales, delivery, and customer success should be merged into a single organization that handles the entire technical lifecycle for customers.	Strongly disagree	19.2%
	Somewhat disagree	20.5%
	Neither agree nor disagree	10.3%
	Somewhat agree	26.9%
	Strongly agree	23.1%

With respect to considering a merger of the solution lifecycle technical functions of presales, delivery, and customer success into a single organization, the respondents were split, with 50% somewhat or strongly agreeing and 39.7% somewhat or strongly disagreeing. This mirrors the disagreement on this topic during the design session that ultimately led to the decision that these decidedly different functions should remain organizationally distinct but share leadership and some, but not all, of their metrics and goals to ensure the view to the customer is unified. A respondent commented that any organizational or measurement change aligning presales with the solution lifecycle would only be successful if “sales is also aligned to long-term results” rather

than “just net new deals”; misalignment here will cause failure because the “friction will be too great.” Another comment agreed, arguing that “whatever org presales sits, they need to have the same compensation incentives as sales” and “If presales is paid on customer retention and sales on just new deals, they'll be constantly fighting each other.” Even without merging pre- and post-sales teams, compensation alignment is possible; one comment suggested that “perhaps the post sales teams should have a variable based on success.”

Presales should be compensated on the success of solution rather than the success of the sale.	Strongly disagree	15.4%
	Somewhat disagree	26.9%
	Neither agree nor disagree	21.8%
	Somewhat agree	25.6%
	Strongly agree	10.3%

On the topic of compensation, the respondents were split with 42.3% somewhat or strongly disagreeing that presales should be compensated on the success of the solution rather than the success of the sale and 35.9% somewhat or strongly agreeing. This spread of perspectives was present in the design session and influenced the decisions that presales compensation should be a mix of short- and longer-term metrics. One respondent who commented on this topic questioned the difficulty of implementation, referring to the limited control of SEs on project success, suggesting alternative indicators such as the attach rate of professional services might be appropriate. Another comment agreed with the first’s concern about limited control: “Asking an SE to pin their livelihood to people that have no experience or skill with a technology doesn't seem like a fair distribution of the responsibility for success.” Other comments were similar, indicating an agreement that solution success was vitally important, but compensation on variables at least somewhat in the SE’s control was similarly important. One such comment argued that “if the customer ‘knows enough to be dangerous’ and doesn’t take input from the SE, they can subconsciously sabotage their own implementation and/or environment with mistakes

they make believing they are correct and then blame it on the SE to save face with their leadership when things go off the rails."

A respondent commented that presales must not be alone holding responsibility for customer success; the entire sales team, including account executives, should be held responsible for this metric. This same respondent also suggested that the appropriate metric for customer success was continued sales, as customers "vote with their wallets." This aligns with another comment that argued that salespeople "are often focused on the short-term deal or what's going to happen this quarter. They don't have incentive to look at what's going to renew or upgrade 3-6 quarters from now," making it "tough for presales professionals to try to fight for the solutions that might be more expensive because it's what's going to be required for ongoing success."

SE should be trained to consult on the process changes required to implement new technologies.	Strongly disagree	2.6%
	Somewhat disagree	2.6%
	Neither agree nor disagree	2.6%
	Somewhat agree	34.6%
	Strongly agree	57.7%

A large majority, 92.3%, of respondents somewhat or strongly agreed that SEs should be trained to work with their customers on the process changes required to implement new technologies.

SEs should be trained to understand customer business goals and/or outcomes (e.g. market share, profit, stock price).	Strongly disagree	1.4%
	Somewhat disagree	5.5%
	Neither agree nor disagree	9.6%
	Somewhat agree	31.5%
	Strongly agree	52.1%

Most respondents (83.6%) agreed that SEs should be trained to understand customer business goals and outcomes such as market share, profit, and stock price.

SEs should connect their solutions through value chains to larger goals and outcomes (IT, application/business unit, and business).	Strongly disagree	0.0%
	Somewhat disagree	1.4%
	Neither agree nor disagree	5.6%
	Somewhat agree	47.9%
	Strongly agree	45.1%

93% of respondents somewhat or strongly agreed that SEs should connect their solutions through value chains to larger IT, application or business unit, and business outcomes.

SEs should outnumber account managers, with a focus on deep customer partnership and discovery.	Strongly disagree	4.2%
	Somewhat disagree	11.1%
	Neither agree nor disagree	29.2%
	Somewhat agree	33.3%
	Strongly agree	22.2%

More than half (55.5%) of respondents somewhat or strongly agreed that SEs should outnumber account managers to deepen the focus of vendors on deep customer partnership and discovery, while only 15.3% disagreed. Nearly one third (29.2%), however, did not agree or disagree with this statement. One comment suggested that "SE's are extremely valuable to the process…more so than AE's in reality. You're not closing most deals without an SE but you can without an AE."

SEs align the vast majority (>75%) of their focus on business value, with limited focus (<25%) on speeds, feeds, and technical details.	Strongly disagree	4.2%
	Somewhat disagree	37.5%
	Neither agree nor disagree	11.1%
	Somewhat agree	36.1%
	Strongly agree	11.1%

With respect to SE's focus being aligned primarily to business value rather than technical details, the responses were split, with 47.2% agreeing and 41.7% disagreeing. This aligns with the conversation during the design session, where the cohort participants described that both a business value focus and a technical detail focus was required for successful presales.

SE compensation should be on par with account manager (sales) pay.	Strongly disagree	1.4%
	Somewhat disagree	9.7%
	Neither agree nor disagree	18.1%
	Somewhat agree	37.5%
	Strongly agree	33.3%

Many (70.8%) of the respondents agreed either somewhat or strongly that SE compensation should be equivalent to that of sales. One comment described the additional risk that salespeople take by being more leveraged against the business and having a lower base salary as an argument for their increased reward, but suggested offering SEs the option of more leveraged (50% base, 50% variable) plans versus the less leveraged (70%/30%) plans that are common in the present reality. Another comment suggested that offering account managers higher compensation opportunities than SEs doesn't make sense, as "most sales reps couldn't do their job without an SE." Similarly, one respondent argued that "SE variable compensation should closely mirror AE variable compensation since they [SEs] do most of the leg work in a deal."

SE variable pay should consist of a mix of short term (revenue) and long term (customer outcomes) metrics.	Strongly disagree	14.1%
	Somewhat disagree	15.5%
	Neither agree nor disagree	18.3%
	Somewhat agree	36.6%
	Strongly agree	15.5%

A slight majority (52.1%) of respondents agreed that SEs should be compensated on a mix of short- and longer- term metrics. The dissent here of 29.6% is an important set of constituents to consult with and develop buy-in from, as the ideal designed by the cohort includes compensation in this manner.

When there is a conflict, the SE's bias should be for the customer, not the vendor.	Strongly disagree	2.8%
	Somewhat disagree	7.0%
	Neither agree nor disagree	14.1%
	Somewhat agree	33.8%
	Strongly agree	42.3%

Most respondents, 76.1%, agree that SEs should bias towards the customer when there is a conflict.

Customer feedback (e.g. NPS) should have influence on SE variable compensation.	Strongly disagree	15.5%
	Somewhat disagree	22.5%
	Neither agree nor disagree	23.9%
	Somewhat agree	28.2%
	Strongly agree	9.9%

Roughly the same number of respondents (38.1%) agree at least somewhat that customer feedback should be included in the SE compensation as those who disagree (38%). The strongly agree group, however, is small, at only 9.9%. This is closely aligned to the other compensation questions, where comments suggest that the number of variables outside of SEs' control makes this kind of compensation potentially both unpalatable and unlikely to motivate the kind of behavior that the ideal environment is targeting. One comment suggested that compensation based on customer feedback may motivate some individuals to "game the survey system" and suggested measurement of continued or repeat sales as the indicator of customer satisfaction. Another comment suggested that it was critical for SEs to be measured against repeat and support renewals business to ensure lifecycle engagement rather than a "'drop off and run' situation."

SEs should have veto authority for any customer proposal that does not benefit customer goals and/or outcomes.	Strongly disagree	12.7%
	Somewhat disagree	2.8%
	Neither agree nor disagree	8.5%
	Somewhat agree	43.7%
	Strongly agree	32.4%

While more than ¾ of respondents agreed either strongly or somewhat that SEs should retain veto authority for proposals that do not benefit customer goals or outcomes, those that disagreed mostly did so strongly (12.7%).

SE training should be equally balanced between vendor solutions, industry/ecosystem solutions, and business value/discovery.	Strongly disagree	1.4%
	Somewhat disagree	4.2%
	Neither agree nor disagree	5.6%
	Somewhat agree	46.5%
	Strongly agree	42.3%

Most respondents (88.8%) agreed that SE training should be equally balanced between vendor solutions, industry or ecosystem solutions, and business value and discovery.

CHAPTER V
CONCLUSIONS AND RECOMMENDATIONS

Discussion & Conclusions

I have argued that maximizing the value of presales in IT infrastructure vendors requires a system redesign with a focus on identifying, understanding, and addressing customers' business outcomes. I took a multimethodological systems thinking approach to describe the current state and, using design thinking and consumer idealized design, worked with a cohort of representative constituents to design the ideal future of presales, answering the following research questions:

1) What are the characteristics of the current common presales organization
2) What are the characteristics of an ideal presales organization?

To validate the description of the current state and the design ideals captured by the cohort, I solicited feedback from the interested community. This feedback was generally consistent with my description of the present reality and the design ideals that the cohort delivered, with a few points of divergence that may inform future design questions.

A majority of responses agreed that "SEs understand how their solutions impact customer IT goals and/or outcomes (e.g., performance, availability, TCO)" which aligns with my argument that high-performing SEs understand customers' IT goals and how their solutions impact those goals. When we expand the view to include application or business-unit goals, however, fewer individuals agree that SEs understand and connect their solutions to them. The more interesting divergence is between SEs and salespeople, who believe they do understand application and business unit goals and build solutions to address them, and their leadership and customers who

do not believe that SEs understand. A similar situation, though less skewed towards agreeing that SEs understand, occurred when considering broader business outcomes. This indicates a potential perception problem on the part of customer facing individuals about the value and impact they bring. This perception gap presents a potential challenge with performance improvement, but also an opportunity for SEs and salespeople to listen more closely to what their customers believe their impact is.

This discrepancy did not occur during the design session, where there was a strong consensus that in the present reality SEs were not business unit or business at large outcome focused. Similarly, there was consensus that disconnects between vendor departments (presales, sales, delivery, and support organizations) across the solution lifecycle caused challenges for customers. My hypothesis was primarily focused on business outcomes and the earlier stages of the sales process, and while the cohort agreed and designed to eliminate these challenges in the present reality, they added a much stronger emphasis on post-sales and the solutions lifecycle than I expected or proposed. This heavily influenced the ideal design by highlighting that follow-through, solution lifecycle, and change management of customer processes surrounding solutions have a strong connection to achieving and measuring business impact.

With this focus on business outcomes, combined with a deep investment in ecosystem and process discovery and integration as well as solution lifecycle (see Figure 4.1, SE Coaching Through Engagement and Solution Lifecycle), the design cohort produced a set of ideals that framed an ideal design of the presales system. This ideal design informed an engagement and coaching process that leverages sales-district aligned resources to provide coaching through the stages of the sales process, including research, discovery, solutioning, deployment, and ongoing operations. To empower SEs across this lifecycle, three senior coaches are described: SE

managers for coaching, customer engagements, and escalations regarding deployment and operations, senior technologists for coaching and customer engagements regarding customer research, discovery, solutioning, and alignment of solutions to value, and workload experts regarding industry research, discovery of workloads and relationships outside of IT, and workload focused solutioning. This coaching is supported by a sales district centric organizational structure (see Figure 4.2) that matrix aligns deployment and operations resources into the SE manager, bringing the full solutions lifecycle into the purview of presales while avoiding the challenges of merging pre- and post-sales organizations. Training is a strong focus of the design with the intent of increasing SEs' credibility and their ability to connect solutions to business outcomes. Finally, a compensation model is included that is designed to encourage a lifecycle focus and eliminate conflicts of interest between sales and presales.

Potential Impacts

Grasso (2020) defines digital transformation as "the systems-level restructuring of economies, institutions, and society that occurs through digital diffusion." He further describes the steps of digitization, "the conversion of products to digital format" and digitalization, "the innovation of business models and processes that exploit digital opportunities," as precursor steps to digital transformation. Accenture (n.d.) offers a similar but simpler definition of digital transformation as "the process by which companies embed technologies across their businesses to drive fundamental change." Adoption of these technologies and therefore innovation, however, is hindered by technical debt, or "the price companies pay for short-term technological fixes" which "accrue and compound" and "[divert] precious investment in innovation and new capabilities" (Burden, et al., 2018). As IT vendors vie for business, a self-centered approach that does not fully address the business outcomes that customers are attempting to achieve helps only

to accrue and compound technical debt. An outcome-oriented approach as described in this dissertation forces vendors, and presales organizations as their representatives, to identify the impact of their solutions on business outcomes inclusive of the increase or decrease of technical debt. For that reason, vendors that take advantage of this type of presales approach can become drivers of digital transformation for their customers.

The impact of digital transformation is enormous. The International Telecommunication Union of the United Nations describe the impacts from digital transformation as follows:

> Digital transformation impacts society at several levels. On the production side of the economy, digital transformation enables the automation of business operations, yielding operational efficiencies, such as reduction of transaction costs, with an impact on productivity. Similarly, digital transformation provides new business opportunities, impacting employment and entrepreneurship. Regarding the delivery of public services, digital transformation enhances the provision of health and education, while improving the way citizens interact with their governments. Finally, digital transformation has an impact on human relationships and individual behavior, facilitating social inclusion and communication. It should be noted, however, that digital transformation could also result in potential negative effects, such as workforce disruption, the disappearance of companies, cybercrime and social anomie. (Katz, 2017, p. 6)

Despite the potential negative effects of digital transformation at a societal level, embracing digital transformation is an imperative for companies to survive and thrive and for their

employees to maintain their livelihoods. Those vendors that empower their customers digital transformation journeys rather than increasing their technical debt will have a net positive impact on society in addition to reaping the financial rewards from increased revenue and margin.

Recommendations & Future Actions

The presales design presented in this dissertation is a synthesis of the ideals determined by the design cohort and influenced by my more than twenty years of experience working in IT infrastructure presales. It serves as a framework for system design that can be directly implemented by vendors in the IT infrastructure industry to partner with their customers to deliver measurable outcomes, and likely by vendors in similar or adjacent industries where technical presales serves as a key part of customer engagement. The design includes changes required of closely adjacent systems, including sales, delivery, and support, as well as the integration of presales and these adjacent systems to impact the entire customer solution lifecycle. Additional work is required to understand the full scope of outcome-centric redesign. In this broader redesign, systems closely adjacent to presales and their containing systems should receive the same level of design scrutiny, as should those more distantly adjacent including product management and engineering. This holistic redesign will make it more likely that IT infrastructure vendors "design and sell user experience systems, not products or services" (Monat et al., 2020, p. 13).

The design documented in chapter four includes ideals for systems engineer training and enablement. This description addresses the ideals for training SEs to be outcome oriented but does not enumerate all of the specific interventions required to ensure SE outcome orientation. Further work is required to create actionable assessment and learning paths. Because systems

thinking forms the foundation for understanding the impact of relationships, interactions, engagements, and solutions, measuring systems thinking in systems engineers and candidates may be a valuable exercise. Dolansky and Moore's (2013) systems thinking scale is one instrument that may be used for such an assessment; Dolansky et al. (2020) demonstrated the instrument's validity through psychometric analysis.

Measuring systems thinking capability alone does nothing to improve it; Bacon et al. (2018) argue that complex problem solving exercises can improve such thinking as demonstrated by higher systems thinking scale scores. The exercises that they use offer "the opportunity to practice real-life problem solving" followed by "discussion and reflection" that "promoted synthesis of knowledge gained" (p. 689). This kind of problem-solving training differs from common SE training that is primarily technical and focused on vendor products and competitive offerings. Different as well is the focus on practice; common in the present reality is one-way training without the opportunity to practice skills in simulated environments. Building interventions to develop systems thinking capabilities and programs to allow SEs to practice is a clear next step to maximize the value of the outcome-oriented presales system.

Systems thinking as a foundation for outcome-oriented SEs, however, may not be enough. During the design session the discussion included concern over alienating those in IT when attempting to discover and work directly with business units and executives outside of IT. This concern extends beyond IT, as alienation and misunderstandings are possible at any part of an organization. Those customers who lack systems thinking capabilities may struggle to understand the points of connection in the value chain from technology to business outcomes even when SEs create clear documentation and presentation of the linkages. Creating enablement and training for customers IT and non-IT personnel to develop their systems thinking capabilities

and to view technology as building blocks for their business outcomes may be a beneficial endeavor to enhance the impact of outcome-oriented presales. IT infrastructure vendors may consider creating their strategic services organizations or partnering with strategic consulting firms who offer ends-planning and the definition of desirable business outcomes for their customers as part of a holistic approach of business outcome ends planning with technology as the basis for means planning.

Final Thoughts

Adam Smith, credited by many as the "founder of modern economics" (Pirie, 2019), began his 1759 *The Theory of Moral Sentiments* arguing that people naturally derive pleasure from the success of others:

> How selfish soever man may be supposed, there are evidently some principles in his nature, which interest him in the fortune of others, and render their happiness necessary to him, though he derives nothing from it, except the pleasure of seeing it. (Smith, 2022, p. 19)

Despite this natural tendency for empathy, Smith argues that people and their impact on commerce is generally self-interested, but this self-interest leads to mutual benefit for both producer and buyer:

> It is not from the benevolence of the butcher, the brewer, or the baker that we expect our dinner, but from their regard to their own interest. We address ourselves, not to their humanity, but to their self-love, and never talk to them of our own necessities, but of their advantages. (Smith, 2002, p. 44)

Vendors in the IT infrastructure space describe solutions as customer centric, attempting to gain mutual benefit from mutual success, but often fail to understand what success really means for their customers. With their technical acumen, experience understanding complex technical systems and the interactions of their parts, and relatively selfless dispositions, systems engineers are the ideal individuals to bridge the gap between vendor solutions and real outcome success for customers. This work sets the framework for a redesign of the presales system and its connections to adjacent systems to take maximal advantage of the capabilities of SEs and to deliver this kind of customer-centric but mutually beneficial impact.

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APPENDIX A

DESIGN COHORT SIGN UP & CONSENT FORM

Intro Block

My dissertation research in the Doctor of Management in Strategic Leadership program at Thomas Jefferson University is focused on redesigning the presales engagement process in IT infrastructure sales, with a target of focusing on larger, business impacting outcomes rather than the more traditional speeds and feeds approach to sales engineering.

To accomplish this, I'm hosting a design cohort that will leverage Consumer Idealized Design, a systems thinking based practice, to build the for a desirable present without the encumbrances of the current situation. For more information on the process, see here.

I estimate that the design cohort will have a single meeting of approximately 3 hours to consider and discuss the ideal design. The design cohort will include:

- IT executives
- IT practitioners/decision makers
- Sales engineers/SE leaders
- IT salespeople/sales leaders

There may be some follow-up questions after the design session, but the session itself is the primary commitment. I do realize this is a significant investment in time, however I believe your input will lead to a situation that will benefit the practice of presales and, if implemented, may eventually improve the yield from your customer-vendor relationships.

Thank you for your interest in participating in the design cohort. Please complete the following brief form, including your availability for the design session, and I will be in touch soon.

Your name (first & last)

Your email address

Your current role

IT executive

IT practitioner/decision maker

Sales engineer

SE leader

IT salesperson

Sales leader

Your previous role(s)

IT executive

IT practitioner/decision maker

Sales engineer

SE leader

IT salesperson

Sales leader

Availability Block

Please select all time slots that you could be available for design cohort scheduling. You may select as many slots as you would like; once a design cohort is selected, the session will be scheduled based on mutual availability of all participants.

Friday, April 15, 2022

8 AM - 11 AM EDT / 5 AM - 8 AM PDT

9 AM - 12 PM EDT / 6 AM - 9 AM PDT

10 AM - 1 PM EDT / 7 AM - 10 AM PDT

11 AM - 2 PM EDT / 8 AM - 11 AM PDT

Monday, April 18, 2022

2 PM - 5 PM EDT / 11 AM - 2 PM PDT

3 PM - 6 PM EDT / 12 PM - 3 PM PDT

4 PM - 7 PM EDT / 1 PM - 4 PM PDT

5 PM - 8 PM EDT / 2 PM - 5 PM PDT

Monday, April 25, 2022

8 AM - 11 AM EDT / 5 AM - 8 AM PDT

9 AM - 12 PM EDT / 6 AM - 9 AM PDT

10 AM - 1 PM EDT / 7 AM - 10 AM PDT

11 AM - 2 PM EDT / 8 AM - 11 AM PDT

12 PM - 3 PM EDT / 9 AM - 12 PM PDT

1 PM - 4 PM EDT / 10 AM - 1 PM PDT

2 PM - 5 PM EDT / 11 AM - 2 PM PDT

3 PM - 6 PM EDT / 12 PM - 3 PM PDT

4 PM - 7 PM EDT / 1 PM - 4 PM PDT

5 PM - 8 PM EDT / 2 PM - 5 PM PDT

Tuesday, April 26, 2022

8 AM - 11 AM EDT / 5 AM - 8 AM PDT

9 AM - 12 PM EDT / 6 AM - 9 AM PDT

10 AM - 1 PM EDT / 7 AM - 10 AM PDT

11 AM - 2 PM EDT / 8 AM - 11 AM PDT

12 PM - 3 PM EDT / 9 AM - 12 PM PDT

1 PM - 4 PM EDT / 10 AM - 1 PM PDT

2 PM - 5 PM EDT / 11 AM - 2 PM PDT

3 PM - 6 PM EDT / 12 PM - 3 PM PDT

4 PM - 7 PM EDT / 1 PM - 4 PM PDT

5 PM - 8 PM EDT / 2 PM - 5 PM PDT

Thursday, April 28, 2022

8 AM - 11 AM EDT / 5 AM - 8 AM PDT

9 AM - 12 PM EDT / 6 AM - 9 AM PDT

10 AM - 1 PM EDT / 7 AM - 10 AM PDT

11 AM - 2 PM EDT / 8 AM - 11 AM PDT

12 PM - 3 PM EDT / 9 AM - 12 PM PDT

1 PM - 4 PM EDT / 10 AM - 1 PM PDT

2 PM - 5 PM EDT / 11 AM - 2 PM PDT

Friday, April 29, 2022

8 AM - 11 AM EDT / 5 AM - 8 AM PDT
9 AM - 12 PM EDT / 6 AM - 9 AM PDT
10 AM - 1 PM EDT / 7 AM - 10 AM PDT
11 AM - 2 PM EDT / 8 AM - 11 AM PDT
12 PM - 3 PM EDT / 9 AM - 12 PM PDT
1 PM - 4 PM EDT / 10 AM - 1 PM PDT
2 PM - 5 PM EDT / 11 AM - 2 PM PDT
3 PM - 6 PM EDT / 12 PM - 3 PM PDT
4 PM - 7 PM EDT / 1 PM - 4 PM PDT
5 PM - 8 PM EDT / 2 PM - 5 PM PDT

Monday, May 2, 2022

8 AM - 11 AM EDT / 5 AM - 8 AM PDT
9 AM - 12 PM EDT / 6 AM - 9 AM PDT
10 AM - 1 PM EDT / 7 AM - 10 AM PDT
11 AM - 2 PM EDT / 8 AM - 11 AM PDT
12 PM - 3 PM EDT / 9 AM - 12 PM PDT
1 PM - 4 PM EDT / 10 AM - 1 PM PDT
2 PM - 5 PM EDT / 11 AM - 2 PM PDT
3 PM - 6 PM EDT / 12 PM - 3 PM PDT
4 PM - 7 PM EDT / 1 PM - 4 PM PDT
5 PM - 8 PM EDT / 2 PM - 5 PM PDT

Tuesday, May 3, 2022

8 AM - 11 AM EDT / 5 AM - 8 AM PDT
9 AM - 12 PM EDT / 6 AM - 9 AM PDT
10 AM - 1 PM EDT / 7 AM - 10 AM PDT
11 AM - 2 PM EDT / 8 AM - 11 AM PDT
12 PM - 3 PM EDT / 9 AM - 12 PM PDT
1 PM - 4 PM EDT / 10 AM - 1 PM PDT
2 PM - 5 PM EDT / 11 AM - 2 PM PDT
3 PM - 6 PM EDT / 12 PM - 3 PM PDT

Wednesday, May 4, 2022

8 AM - 11 AM EDT / 5 AM - 8 AM PDT
9 AM - 12 PM EDT / 6 AM - 9 AM PDT
10 AM - 1 PM EDT / 7 AM - 10 AM PDT
11 AM - 2 PM EDT / 8 AM - 11 AM PDT
12 PM - 3 PM EDT / 9 AM - 12 PM PDT
1 PM - 4 PM EDT / 10 AM - 1 PM PDT
2 PM - 5 PM EDT / 11 AM - 2 PM PDT
3 PM - 6 PM EDT / 12 PM - 3 PM PDT
4 PM - 7 PM EDT / 1 PM - 4 PM PDT
5 PM - 8 PM EDT / 2 PM - 5 PM PDT

Informed Consent Block

Informed Consent

You are being asked to take part in a study. The information collected by this study is not considered personal information, but you it remains important that your consent to participate is based on an understanding of what is involved.

Voluntary Participation

You do not have to take part in this study. It is your choice whether or not you want to take part. If you choose not to take part or choose to stop taking part at any time, there will be no penalty.

Purpose

The purpose of this study is to redesign the presales engagement process (limited to IT infrastructure sales) focused on maximizing value to both customers and vendors, focused on connecting technical solutions to larger scale business outcomes than are traditionally associated with the work of SEs. This phase of the study leverages consumer idealized design, which takes a design-thinking approach but empowers members of the design cohort as designers rather than influencers as they would be in a focus group scenario. A subsequent phase will validate the inputs and outputs of the design via an industry questionnaire.

Duration

You will be in this study for about three hours in one session, but you may be asked to participate in follow-up sessions and conversations should they be required.

Procedures and Risks

There are no identified risks to this study. Your ideas that are discussed among the design group may be documented and published as part of the output of this study, Andrew Braverman's dissertation.

Possible Benefits

You may or may not personally benefit from taking part in this study. Some of the possible benefits may include a design framework to build or rebuild IT infrastructure presales organizations in the future.

Alternatives to Taking Part in this Research

You may choose to not take part in this study with no consequence.

Costs

There are no costs to participate in this study.

Payment

You will not be paid for taking part in this study.

Privacy and Confidentiality

Information will be collected about you for this study. The information will be seen by the people involved with this study.

To do this study, we need to collect, use, and share your information, though the information collected is not considered personal information. This form will explain why your information is being collected, what information will be collected, and who will have access to it. By signing, you are giving us permission to use your information as described in this form.

The information that may be collected, used, and shared for this research includes:

- Your name
- Your title
- Your employer
- Your likeness on the recorded Zoom design session(s)
- Your ideas and perspectives on the sales engineering engagement process

Your information will be used by and shared with the following:

- Personnel at Thomas Jefferson University and its affiliates for the purpose of this study
- Institutional Review Boards (ethics committees that review research) including Thomas Jefferson University Office of Human Research
- Others as required by law
- Your name and title only may be reported in the research results

This authorization does not have an expiration date. Please inform the investigator in writing if you want to end your permission to collect information. Please note that anything already collected will still be used and you may not be able to continue in this study.

The information from this study may be published in scientific journals or presented at scientific meetings, but you will only be identified as a member of the design group.

Contacts

Andrew Braverman, Doctoral Candidate, Investigator
Email: andrew@bravernet.net
Phone: 212-677-2244

Joel Adler, PhD, Advisor, Principal Investigator
Email: joel.adler@jefferson.edu
Phone: 610-910-1941

Signatures

By electronically signing this form, you are agreeing that:

- You were given the opportunity to read this form.
- All of the information in this form was discussed with you by an investigator or other study personnel to your satisfaction.
- All your questions have been answered to your satisfaction.
- You were not pressured and you voluntarily agree to take part in this study.

Today's Date

Powered by Qualtrics

APPENDIX B

INDUSTRY VALIDATION SURVEY QUESTIONS

Intro Block

My dissertation research in the Doctor of Management in Strategic Leadership program at Thomas Jefferson University is focused on redesigning the presales engagement process in IT infrastructure sales, with a target of focusing on larger, business impacting outcomes rather than the more traditional speeds and feeds approach to sales engineering.

This questionnaire is to validate two elements of my dissertation:

- The current state of IT infrastructure presales
- Presales redesign ideas created by a cohort of industry professionals

For the purposes of this survey, the term SE is used to describe all presales professionals regardless of their respective titles.

Your responses are anonymous and your personal information will not be collected.

Thank you very much for taking the time to answer this questionnaire.

Please direct any questions or comments to me:
Andrew Braverman
andrew.braverman@jefferson.edu

Please direct any concerns to my advisor:
Joel Adler, PhD
joel.adler@jefferson.edu

Respondent Information Block

What best describes your role?

Presales Professional (Systems Engineer, Sales Engineer, Solutions Architect, etc)

Presales Leader (SE Manager, Director, VP, etc)

Sales Professional (Account Manager, etc)

Sales Leader (Sales Manager, Director, VP, etc)

IT practitioner (Architect, Administrator, Manager, etc)

IT executive (VP, CIO, etc)

Line of business practitioner or owner (outside of IT)

Other

Current State Validation Block

Please select the frequency that you believe is most appropriate for each statement regarding the current state of presales.

	Never	Sometimes	About half the time	Most of the time	Always
IT vendors identify solutions as their own products rather than from the customer perspective.	○	○	○	○	○
SEs connect technical solutions to measurable outcomes associated with customer executive/board-level business goals.	○	○	○	○	○
SEs understand their employers' solutions.	○	○	○	○	○

Current State Validation Block

Please select the frequency that you believe is most appropriate for each statement regarding the current state of presales.

	Never	Sometimes	About half the time	Most of the time	Always
IT vendors identify solutions as their own products rather than from the customer perspective.	○	○	○	○	○

SEs connect technical solutions to measurable outcomes associated with customer executive/board-level business goals.	○	○	○	○	○
SEs understand their employers' solutions.	○	○	○	○	○
SEs understand how their solutions interact with/integrate with other industry solutions.	○	○	○	○	○
SEs are aligned across the entire technology lifecycle, from design through deployment to validation of success in production/value recognition.	○	○	○	○	○
SEs understand how their solutions impact customer business goals and/or outcomes (e.g. market share, profit, stock price).	○	○	○	○	○
SEs are responsible for research and discovery of customer executive/board-level business goals.	○	○	○	○	○

SEs understand how their solutions impact customer IT goals and/or outcomes (e.g. performance, availability, TCO).	○	○	○	○	○
SEs understand how their solutions impact customer app/business unit goals and/or outcomes (e.g. provide analytics capabilities to the business).	○	○	○	○	○

Design Validation Block

Please select your level of agreement with each of the following statements describing an ideal future state of presales.

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
Presales, delivery, and customer success should be merged into a single organization that handles the entire technical lifecycle for customers.	○	○	○	○	○

Presales should be compensated on the success of solution rather than the success of the sale.	○	○	○	○	○
SEs should consider the entire ecosystem when building solutions, inclusive of competitive offerings.	○	○	○	○	○
SE should be trained to consult on the process changes required to implement new technologies.	○	○	○	○	○
Presales should start with a customer problem, working backwards to build a solution.	○	○	○	○	○

Please select your level of agreement with each of the following statements describing an ideal future state of presales.

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
SEs should be trained to understand customer business goals and/or outcomes (e.g. market share, profit, stock price).	○	○	○	○	○
SE compensation should be on par with account manager (sales) pay.	○	○	○	○	○

SEs should connect their solutions through value chains to larger goals and outcomes (IT, application/business unit, and business).	○	○	○	○	○
SEs align the vast majority (>75%) of their focus on business value, with limited focus (<25%) on speeds, feeds, and technical details.	○	○	○	○	○
SEs should outnumber account managers, with a focus on deep customer partnership and discovery.	○	○	○	○	○

Please select your level of agreement with each of the following statements describing an ideal future state of presales.

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
When there is a conflict, the SE's bias should be for the customer, not the vendor.	○	○	○	○	○
Customer feedback (e.g. NPS) should have influence on SE variable compensation.	○	○	○	○	○

SE training should be equally balanced between vendor solutions, industry/ecosystem solutions, and business value/discovery.	○	○	○	○	○
SEs should have veto authority for any customer proposal that does not benefit customer goals and/or outcomes.	○	○	○	○	○
SE variable pay should consist of a mix of short term (revenue) and long term (customer outcomes) metrics.	○	○	○	○	○

Comments Block

(Optional) Please enter any comments you would like to add.

APPENDIX C

IRB DOCUMENTS

Kyle Conner March 22, 2022 at 10:29 AM

RE: IRB Inquiry - SCPS DMGT Dissertation

To: Andrew Braverman Details

Hi Andrew--

Based on what I've read in the documents, this does not appear to fit the federal definition of human research, because you are not collecting personal information from your participants. While I did not see a questionnaire or focus group outline, I presume that what you intend to collect is opinion about professional service. This does not qualify as personal information.

Unless you are collecting personal information, i.e., information that individuals would not generally feel comfortable sharing in a professional environment, you can use the attached OHR-34 (items 4 & 7) to document this determination and present to any who query the need for IRB review.

Best,

Kyle

Kyle Conner, MA, CIP
Associate Director, Office of Human Research
Adjunct Faculty, Jefferson College of Life Sciences
Instructor, JeffMD Humanities Selectives
Co-Editor-in-Chief, Evanescent: A Journal of Literary Medicine
Thomas Jefferson University
1020 Locust St., suite M-34
Philadelphia, PA 19107
(215) 503-8966

Pronouns: he/him/his

JEFFERSON—Office of Human Research

Research Not Requiring IRB Review: A Checklist

Version Date – FOR OHR USE: 11/11/21

STUDY TITLE: REDESIGNING THE INFORMATION TECHNOLOGY INFRASTRUCTURE SALES ENGINEERING ENGAGEMENT PROCESS

PRINCIPAL INVESTIGATOR: Joel Adler, PhD

TELEPHONE #: 610-910-1941 **E-MAIL: joel.adler@jefferson.edu**

Instructions: Use this form as a checklist to certify that the research you intend to conduct fits completely into one or more of the following categories. These categories do not meet federal definitions of human subjects research as cited in HHS and FDA regulations at 45 CFR 46.102 & 21 CFR 50.3, respectively, and, therefore, do not fall under IRB purview and do not require IRB review.

Please check the applicable categories of research you intend to conduct:

_____ (1) Scholarly and journalistic activities (e.g., oral history, journalism, biography, literary criticism, legal research, and historical scholarship), including the collection and use of information, that focus directly on the specific individuals about whom the information is collected.

____ (2) Public health surveillance activities, including the collection and testing of information or biospecimens, conducted, supported, requested, ordered, required, or authorized by a public health authority. Such activities are limited to those necessary to allow a public health authority to identify, monitor, assess, or investigate potential public health signals, onsets of disease outbreaks, or conditions of public health importance (including trends, signals, risk factors, patterns in diseases, or increases in injuries from using consumer products). Such activities include those associated with providing timely situational awareness and priority-setting during the course of an event or crisis that threatens public health (including natural or man-made disasters).

____ (3) Quality assurance or quality improvement projects in which the data collected will be used only to verify, alter or improve quality of care or efficiency within the Jefferson entity. (If external publication or public presentation of data is intended, project may require IRB review. Please consult with Office of Human Research)

_X__ (4) Information-gathering interviews, questionnaires & surveys where questions focus on factual information and opinions about processes, services, or policies, and do not gather personal information about living individuals, or; research gathering factual information from source texts.

____ (5) Research involving cadavers, autopsy materials or bio-specimens from deceased individuals. Note: HIPAA does not exempt decedent research. Please complete and email the OHR-17 to the Privacy Office at privacyoffice@jefferson.edu.

____ (6) Coded or anonymous private information or biological specimens that were not collected originally for the currently proposed research and that cannot be re-identified by the Investigator. (Note: This research requires that you submit OHR-19 form to the Office of Human Research.)

_X__ (7) Research that does not involve collection of private information about living individuals. (This category excludes observation of public behavior, which is considered a category 2 exemption, for which you should submit OHR-18 to the IRB.)

____ (8) Research where Jefferson is not engaged in the research. Examples of this include: when Jefferson's employees or agents 1) act as consultants or provide paid service for research but at no time obtain, receive, or possess identifiable private information, or 2) inform prospective subjects about the availability of research. (Note: this is not a complete list of examples.)

____ (9) Case reports of one or two cases. (Three or more case reports in one series require IRB review). While one or two case reports do not require IRB review, they do require review by the Privacy Office.

____ (10) Collection and analysis of information, biospecimens, or records by or for a criminal justice agency for activities authorized by law or court order solely for criminal justice or criminal investigative purposes.

____ (11) Authorized operational activities (as determined by the relevant federal agency) in support of intelligence, homeland security, defense, or other national security missions.

By signing below, the Principal Investigator certifies that the entirety of his/her research fits into one or more of the above categories.

Joel Anderson 3/27/2022

Principal Investigator Date

WRITTEN DETERMINATIONS

If a determination is required by a funding agency or sponsor, the investigator may submit a request for written confirmation along with the OHR-34 to the IRB, which will provide a written response.