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Achieving Operational Integrity: A Case Study of A Long-Term Care Operation

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Abstract

This dissertation explores the phenomenon of operational integrity (OI), defined here as the congruence between planned operational tasks and their execution by employees. I seek to answer the question of "how is OI achieved in human-reliant operational systems" on the premise that if the operational tasks are not executed as planned, the desired outcomes (e.g., service quality) are less likely to be realized resulting in the exposure of an organization to operational risks. To date, the literature pertaining to OI relies heavily on the notion of reliability particularly in manufacturing settings characterized by machine-based production systems. While few studies offer valuable insight into the execution of planned operational tasks in service operations, the understanding of OI within a system wherein the employees–as opposed to machines– are central to the value creation is rather underdeveloped.

To build a greater understanding of OI and provide rich descriptive analysis of how it is achieved, I embarked on an interpretive study to understand the phenomenon in a Canadian long-term care facility. During 48 episodes of visits, I spent nearly 280 hours in the field to collect data from over 45 key informants through interviews and meetings (seven sessions), shadowing and observation (41 sessions), and archival documents (100 pages). The findings revealed during the planning process, when planning the tasks that are thought to reflect strategic priorities, three challenges emerge: the challenges of cognitive barriers, insufficient resources, and interdependent decisions. These are dampened by the organizational counteractions of tackling cognitive barriers, offsetting insufficient resources, and coordinating the function of decision-makers. During the execution process, where employees act on planned tasks, there are challenges resulting from both behavioural characteristics and operational system characteristics, and the organization reduces the negative impact of challenges through compliance-stimulant mechanisms and completeness-restorative mechanisms.

As such, achieving OI is a multilayered, multifaceted, dynamic process in which both employees and management craft plans and attempt to fulfill those plans while faced

with numerous barriers. This study expands the current understanding on executing planned operational tasks necessary for realizing critical desired outcomes and preventing operational risk, and opens up research avenues to scholarly efforts more attuned to everyday operational tasks. The research also offers key insights applicable beyond the context of study to achieving OI in human-reliant services.

Keywords

Operational integrity; planned operational tasks; compliance; qualitative methods; human behaviour

Dedication

To my parents: Effat and Shakour

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When I embarked on my journey through the Ph.D. program, I was unaware that this journey would be one of the most challenging and, at the same time, rewarding experiences of my life. My journey has been a full steam intellectual process that has indispensably changed the way that I view the world. During this process I realized how truly blessed I am to be surrounded by the most supportive people. Their inspiration, encouragement, and guidance played a significant role in shaping the trajectory of my dissertation. I owe a debt of gratitude to these people and would like to take this opportunity to acknowledge them.

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Chapter 1 Introduction

1.1 Motivation for the Study

What do organizations do to ensure that their operational tasks are executed by their employees as planned? This question became a central focus of this thesis as the result of seeing repeated examples of gaps between planned operational tasks and executed operational tasks. Consider the following three instances of the gap between planned operational tasks and executed operational tasks, in an educational setting, a health care provision center, and a police station, caused by human failure in strictly adhering to the planned operational tasks.

In the first instance, a Limestone District School Board teacher who was supposed to chaperone a male and a female student to a conference, failed to follow the school's requirements for supervising students during a field trip. Despite Limestone School's clear procedures for field trips, which require teachers ensure the hotel rooms are assigned to students by gender, the teacher allowed two students of the opposite sex to share a hotel room, and even permitted them to drink alcohol (Ontario College of Teachers, 2016). In another example, a nurse in Glasgow's Princess Royal Maternity Hospital was accused of negligence and contributing to the death of a premature baby by failing to perform the planned operational task. Allegedly, the nurse admitted that on the day of incident he forgot to activate a humidifier designed to help the premature baby breathe normally before he went on a break (Glasgow Live, 2016). In a different case, a murder suspect broke out of a police station in Las Vegas, Nevada because the policemen failed to adhere to the planned operational task of watching the live feed from a surveillance camera that was recording the events in the interrogation room (Chia and Konstantinides, 2016). In these examples organizations required their employees to follow predefined operational tasks, pertaining to the provision of services, however, on occasion, employees failed to accomplish the tasks, due to forgetfulness and other reasons such as heavy workload, or lapses in judgment. Furthermore, the gap between planned and executed operational tasks is manifested in form

of various operational risks such as compromised safety of the employees or customers, eroded quality of service offerings, and environmental and community hazards.

As seen in these examples, while accomplishing the operational tasks might be taken for granted, anecdotes reveal that in the day-to-day business practices of organizations it is often possible that the employees fail to execute operational tasks fully and correctly as planned. This phenomenon which occurs in practice provided the motivation for this thesis. I define operational integrity (OI) as an operating characteristic that represents the degree of congruence between planned operational tasks and executed operational tasks by operations employees. The premise of the study is that achieving OI is the key to realizing desired outcomes and reducing operational risk.

When instances of OI lapses occur, such as in the examples presented here, the operations employees have failed to strictly comply with some aspects of operational tasks and, as a result, a planned function, which is supposedly value-added for an organization and/or its stakeholders, is executed incompletely, incorrectly, or not executed at all. The planned operational tasks encompass processes, procedures, or plans that are to be executed by employees to accomplish the delivery of service offerings to the customer (Chase and Stewart, 1994; Tucker, 2004). These tasks are designed to bring about certain operational outcomes in terms of ensuring safety of employees and/or customers, fulfilling the customers' quality and delivery promises, minimizing resource usage during the production process, hedging information security risk, and meeting the regulatory requirements to preserve environment and community.

The OI lapses prevent organizations from realizing their desired outcomes in creating value for the organization and its stakeholders. These OI lapses manifest themselves in the form of additional operational risk for the organization and its stakeholders, i.e., employees, customers, the environment, and the community. The magnitude of operational risk resulting from OI lapses depends upon the desired outcome of the planned operational tasks which were not executed fully or correctly. For instance, the repercussions of the teacher's failure in executing the planned operational tasks related to field trips were not particularly severe, and were mostly manifested by way of

dissatisfaction of the students' families. On the other hand, the failure of the nurse to execute the planned operational task of turning on the humidifier was more severe in that the life of the premature baby was dependent on executing this planned task. Finally, in the third example, the failure of the policemen in executing the planned operational task of watching the live feed of the surveillance camera allowed the murder suspect to flee, steal a truck, and hide for a week before he was rearrested (Chia and Konstantinides, 2016). While in the third example the only adverse outcome was stealing the truck, which was recovered later, the OI lapses could have been potentially more hazardous to the general community. Hence, the criticality of achieving OI emanates from the fact that the congruence between planned operational tasks and their execution contributes to realizing the desired outcomes of the planned operational tasks (e.g., in terms of customer safety), and reduces operational risk.

Given the criticality of achieving OI for preventing operational risks, this qualitative inquiry seeks to advance our understanding of achieving OI. To understand this phenomenon, my early attempts to review operations failure literature revealed that, over the last few decades, a large body of knowledge has emerged for addressing how system failure is managed in highly complex operational contexts in which the lack of congruence between planned and executed operational tasks typically has catastrophic consequences (Perrow, 2011; Weick and Sutcliffe, 2011; Weick, Sutcliffe, and Obstfeld, 2005). A majority of this literature falls under the banner of process reliability and risk management research and investigates machine-based manufacturing operational systems (Chase and Stewart, 1995; Lewis, 2003; Sutton, 2013). In these manufacturing operations, the congruity of planned and executed tasks is achieved by preventing the failure of the system component, using a variety of interventions such as built-in redundancies (e.g., Bergman and Klefsjo, 2010), preventive maintenance (e.g., Flynn, Sakakibara, and Schroeder, 1994 and 1995), failure mode and effect analysis (e.g., Pari, Kumar, and Sharma, 2008), and fault tree analysis (e.g., Labib, 2015), to name a few.

While some of these mechanisms are prescribed for preventing human failure in service operational systems as well (e.g., Chase and Stewart, 1994), there is not much evidence in the literature about how OI is achieved in human-reliant operational systems,

where human beings – as opposed to machines– are central to the value creation. I define human-reliant systems as operational systems in which production tasks are mainly executed by human beings, and the role of machinery in the production process is minimal. Examples of human-reliant system include government services, health care provision organizations, educational institutions, hospitality services, consulting services, retail organizations, and research institutions.

In the area of service failure, the main stream literature is focused on mitigating the negative consequences of employees' failures in meeting the requirements of customers and offers suggestions on service recovery initiatives (Craighead, Karwan, and Miller, 2004; Hess, Ganesan, and Klein, 2003). While these studies provide valuable insights into the failure phenomenon, they fail to attend to the causes of the frontline employees' failure. Only some of the literature pays attention to prevention of frontline employees' failures while providing fairly simple and practical recommendations for designing and managing error-free operational systems (Stewart and Chase, 1999; Tucker 2004). However, these studies also suffer from an unrealistic implicit assumption that presumes employees have the intention to execute the operational tasks exactly as planned.

Drawing on a theoretical foundation of behavioural operations research, this thesis contends that the human actors in organizations have free will and their intentions and actions are impacted by various environmental, cognitive, and behavioural factors (Froehle and Roth, 2004; Hu, Dinev, Hart, and Cooke, 2012). As such, this study seeks to advance an alternative perspective to think about the operational failure of frontline employees when executing planned operational tasks by investigating the following research question:

> *Research Question 1: How is operational integrity achieved in human-reliant systems?*

Framed this way, this research question demands attention be given to how operational integrity unfolds in a natural setting while leaving scope for understanding both why it is and is not achieved. In addition, this broad research question requires observing and understanding the contributing practices and factors that influence operational integrity. As the research proceeded, I found that to acquire a better understanding of the OI

phenomenon, I needed to extend my research to investigate the planning process, during which the planned operational tasks are crafted. Thereafter, the following research question emerged from analyzing the field data:

Research Question 2: How are planned operational tasks designed?

1.2 Empirical Approach

Given our limited understanding of operational integrity in human-reliant systems, it is still early to undertake a hypothesis-testing study. Thus, it is necessary that this study be exploratory in nature. An interpretive single-case study approach allows the researcher to understand a phenomenon which is in the early stages of scientific development (Benbasat, Goldstein, and Mead, 1987; Gioia, Corley, and Hamilton, 2013). Usage of an interpretative single-case study approach is usually appropriate if the case is: 1) revelatory in nature that reveals insights of an understudied situation, 2) extreme or unique in describing an exceptional situation, or 3) critical for testing a pre-formulated theory (Yin, 2003; Eisenhardt, 1989a).

In this study, the single-case design strategy is used for revelatory purposes to provide insights about the understudied phenomenon of operational integrity. The selected case study is a long-term care home facility, the Private Elderly Care Company (PEC Co., hereafter), located in a large town in Ontario, Canada. The purpose of this study is to understand how organizations achieve OI by designing a system in which individuals comply with the planned operational tasks. To study the OI phenomenon, it is imperative to select an organization that is highly human-reliant. As such, selecting a nursing home was a strategic choice to ensure the proposed research question could properly be addressed.

In addition, dealing with the lives of human beings makes a nursing care facility an ideal setting to study OI. When operational integrity lapses occur, the frontline employees have failed to execute some planned operational tasks correctly or fully. Hence, the desired outcomes of these operational tasks are not realized as planned. When the employees fail to act upon planned operational tasks designed for delivering care services to the residents

of nursing homes, the desired outcome of the task for ensuring the wellbeing of the residents is not achieved. For example, failure of the nurses to administer the residents' medicine on time and in the correct quantity might endanger the lives of residents. The managers of the nursing home know that as a result of a resident's (i.e., customer's) compromised safety, the organization might be exposed to major operational risk (e.g., exorbitant fines). To avoid this operational risk, the management at PEC Co. consciously and dutifully works on minimizing the gap between planned and executed operational tasks by putting various mechanisms into practice to ensure compliance of frontline staff with the requirements of operational tasks. Thus studying PEC Co.'s operations can substantially enrich our understanding of various aspects of the OI phenomenon.

For more error-sensitive operations, such as the administration of medication, infection control, shift hand-offs, or fall prevention where lapses in OI might bring about serious harm to the senior residents, the organization is particularly concerned with achieving OI. Therefore, to narrow down the focus of study to a more manageable set of operations, I selected medicine administration operations along with fall prevention and management operations to conduct this inquiry.

As this study is concerned with the operations employees' actions and decisions, I applied an interpretive approach for data collection and analysis purposes. This approach has allowed me to illuminate the social meanings situated at specific culture, beliefs, and values of the individuals that shape their intentions (Roth and Mehta, 2002). My purpose is to repeatedly observe frontline employees make sense of the challenges that they face in adhering to planned operational tasks during the service and delivery stage. In addition, I seek to unveil the mechanisms through which the management team supports and encourages the frontline employees to comply with the requirements of the tasks. This research strategy entailed triangulation of data through the shadowing of staff and managers, observing daily service delivery work, formal and informal conversations with individuals, and archival data. The course of data collection process occurred from June 2014 through April 2015. I spent nearly 280 hours in the field, collecting data from over 45 key informants through interviews and meetings (seven sessions), shadowing (20 sessions), observation of service delivery (21 sessions), and archival documents (100

pages). This process yielded in over 400 pages of transcribed data which was coded and analyzed using NVivo 10 Software.

1.3 Study Findings

The result of this study reveals that frontline employees do not always execute the assigned tasks as planned. As a result, a gap between planned and executed operational tasks emerges. The reason for the emergence of this operational integrity gap is two-fold. First, certain *operational system characteristics* create substantial challenges for the employees and prevent them from accomplishing the operational tasks fully and correctly. Operational system characteristics are related to particular characteristics of planned operational tasks, service delivery processes, and the people within the system that, in combination, limit the ability of employees to comply with the requirements of the task, despite their intentions to perform the task as planned. Second, the presence of certain *behavioural characteristic,* related to employees' system of beliefs, emotions, risk perception, and peer-influence impacts their decision for compliance and may result in the intentional violation of requirements.

To alleviate the negative impact of operational system characteristics, managers have developed *amendment* mechanisms and *curtailment* mechanisms for compensating for shortages and trimming off excesses in the system. In order to reduce the negative impact of behavioural characteristics on the congruence between planned and executed operational tasks, *alignment* mechanisms are applied to align the preferences and interests of the staff with those of organization. In addition, *enforcement* mechanisms are utilized to reinforce compliance by constant and transparent surveillance of employees' functions.

In addition to the above challenges in the execution process, there are some challenges in the planning process which prevent decision-makers from crafting planned operational tasks that adequately reflect the intended competitive priorities. In other words, my findings revealed that the full and correct execution of planned operational tasks does not necessarily result in realizing the desired outcomes, because the tasks are not always crafted correctly. Challenges identified in the planning process can be divided into the three categories of *cognitive barriers*, *resources deficiency*, and *interdependence of decisions*.

To reduce the impact of these challenges on congruence between intended priorities and planned operational tasks, the managers have developed three counteractions of *tackling cognitive barriers*, *offsetting insufficient resources*, and *coordinating the function of decision-makers*. The emergent framework reveals that while achieving OI is highly challenging, it is essential for achieving intended operational competitive priorities. In other words, the accomplishment of planned operational tasks holds strategic importance for the organization.

1.4 Study Contribution

The contribution of this study is three-fold. First, the findings of this research challenges unrealistic assumptions about why employees do not execute tasks as planned. The operations failure literature makes implicit assumptions regarding the motives and intention of employees to comply with the requirements of the planned tasks and associates employees' failure in executing the tasks to cognitive factors or environmental factors (Tucker and Edmonson, 2003; Tucker, Heisler, and Janisse, 2013; Stock, McFadden, and Gowen III, 2007). Yet studying medicine administration and fall management operations at PEC Co. reveals that due to behavioural characteristics, individuals sometimes intentionally choose to deviate from the requirements of planned tasks.

Additionally, the study results offer a more complex, nuanced insight into the congruence between planned and executed tasks by identifying challenges present in the planning process, that contribute to the OI gap in the execution process. The planned operational tasks designed during the planning process are highly unstable, and as a result the frontline employees have difficulty in complying with frequently changing requirements. Studying the planning process reveals that this instability in some extent is the result of cognitive limitations of the decision-makers in planning operational tasks. Uncertainties and complexities surrounding elderly care make it overly difficult for the decision-makers, involved in the planning process, to correctly estimate the outcomes of implementing the planned tasks. Consequently, as the outcomes of their decisions are revealed gradually, the decision-makers find out about their mistakes and re-design planned operational tasks. This highly dynamic environment causes substantial instability in the planned tasks, which in turn increase the likelihood of unintentional errors by the

frontline employees during the execution process.

The second important contribution of this study is identifying the linkage between the executions of planned operational tasks by frontline employees and the realization of intended operational competitive priorities. By illuminating various challenges which contribute to gaps in the execution and planning processes, this study offers worthwhile contributions to an emergent stream of operations strategy literature which investigates micro-level processes of operations strategy formation (Kim, Sting, and Loch, 2014; Sting and Loch, 2016). The findings suggest that during the planning process, presence of challenges in the forms of cognitive barriers, insufficient resources, and interdependence of decisions reduces the congruence between intended priorities and crafted planned operational tasks. As a result, by executing these tasks the intended priorities that organizations envision might not necessarily be realized. Moreover, facing the execution challenges of the operational system characteristics and behavioural characteristics, the frontline employees have difficulty in fully and correctly implementing the planned tasks. Hence, the realized outcomes from implementation of the planned operational tasks might not necessarily be aligned with the intended priorities of the organization.

Third, the extant literature in areas of human failure and safety often study operational failures in terms of the bundle of planning failures and execution failures (Gowen III, McFadden, Hoobler, and Tallon, 2006; McFadden, Henagan, and Gowen III, 2009). Consequently, the suggested causes of human failure and remedies for their elimination remain at the abstract level. By unbundling planning mistakes and execution errors, this study provides fine-grained recommendations for preventing human errors and opens up avenues for specifying the causes and remedies with respect to each of these two forms of failures in the literature.

1.5 Dissertation Outline

The composition of the study is as follows. In the second chapter a review of the extant literature that informs the concept of integrity is presented. First the conceptualizations of planned operational tasks and OI phenomenon are discussed, and then the concept of OI is grounded in the failure literature that fall at the intersection of service marketing, service

operations management, and service safety in operations. Finally, the behavioural underpinnings of the OI phenomenon are discussed. In the third chapter, the methodology of research based on the application of the case study approach to develop new insights from the investigated nursing home is argued. This chapter entails discussions on the processes of data collection and data analysis. The fourth chapter presents a detailed account of my findings. It starts by providing a description of the nature of planned operational tasks at the studied long-term care facility. Afterwards, rich narratives are delivered to provide answers to the first research question. The fifth chapter addresses the second research question on planning process, and the sixth chapter elaborates on contributions to research, ending with a discussion on research limitations and future research opportunities.

Chapter 2 Literature Review

The purpose of this chapter is to ground the operational integrity (OI) phenomenon in the extant literature. The OI phenomenon was defined as the congruence between planned operational tasks and executed operational tasks by operations individuals. From this definition the following research question emerged: "how is OI achieved in human-reliant operational systems?" To provide the theoretical ground for studying the phenomenon, this chapter reviews prior studies that inform the phenomenon of OI. To this end, this chapter starts with laying out an argument on the nature of the planned operational tasks. The second section presents an argument on the conceptualization of the OI phenomenon in this study. In this section, I argue why achieving OI is important to manage operational risk. In the third section, I specify the failure literature at the intersection of service marketing, operations management, and service safety fields that illuminate some aspects of the OI phenomenon. Finally, in the last section, drawing on the theoretical foundation of behavioural operations literature, the importance of considering human intentions in studying the OI phenomenon is highlighted.

2.1 Conceptualization of Planned Operational Tasks

In the service operations management context, Chase and Stewart (1994) are among the earliest scholars who discuss the concept of *task*. The authors distinguish between tasks to be performed, treatment of the customers in service encounters, and the tangible things in the environment to conceptualize various forms of errors during the service delivery process. Planned operational tasks are necessary for accomplishing the delivery of service and represent "the work that must be done" by the employees to deliver the service. Managing planned operational tasks is outlined in the context of traditional process management literature such as service blueprinting, process mapping, scheduling, and production planning (Chase and Stewart, 1994; Stewart, 2003). As such a planned operational task can be conceptualized as a process, procedure, or plan that is executed by employees to accomplish the delivery of service to the customer (Chase and Haynes, 2000; Tucker, 2004). This conceptualization illustrates four major characteristics of the planned operational tasks: (i) being value-added, (ii) having various outcomes, (iii) being connected

to strategy, and (iv) being executed repeatedly. These characteristics are discussed below.

Value-added

First a planned operational task is value-added. Presumably, as a process, procedure, or plan, a planned operational task has been designed to create value. From lean manufacturing principles we know that if a planned operational task is not value-added, technically, it should be removed from the production process, as it is considered a type of waste (Shah and Ward, 2003). Value is a desired outcome and it is realized when the planned operational tasks are executed.

An important caveat here is that it is possible that the planned operational tasks are fully and correctly executed by the employees, but that the desired outcomes, i.e., the desired values sought from the planned operational tasks are not realized. In other words, the error might occur in the planning process not in the execution process. As Reason (1990, 1995, 2000) argues sometimes actions are fully congruent with the plans, but the desired outcomes are not created because of planning errors that he calls "mistakes". In other words, the planned operational tasks might be inadequate for realizing the desired value. As Reason (1995, page 81) states, planning mistakes are the failures of intention: "… the actions may go entirely as planned, but the plan itself deviates from some adequate path towards its intended goal. Here the failure lies at a higher level: with the mental processes involved in planning, formulating intentions, judging, and problem solving." Hence the plan's being correct is the key for realizing the desired outcomes of the planned operational tasks. As such by realizing planned operational tasks, we can only increase the likelihood of achieving the desired outcomes.

Various Desired Outcomes

The planned operational tasks might have various desired outcomes, and realizing customer value is only one of the desired outcomes. Traditionally, the value of processes for business organizations is assessed in terms of their contribution to the "customer-defined value" (Blocker, Flint, Myers, and Slater, 2011; Liker and Morgan, 2006). However, it is arguable that the desired value that organizations seek to realize by executing the planned operational tasks is not limited only to customer value. Some of the planned

operational tasks are not designed to create value for customers. For instance, safety procedures that must be followed by employees are not designed to create value for the customers. In fact, following safety procedures creates value for the organization and its employees by ensuring the safety of individuals. Thus the desired outcomes of planned operational tasks can have various foundations.

Some planned operational tasks are developed by organizations based on the requirements of regulatory bodies. The regulatory bodies are the institutions that, to minimize the risk of organizations' operations for employees, consumers, environment, and society, set the operational rules for an industry, monitor the organizations to ensure their compliance with the rules, and impose sanctions in case of noncompliance (Ruef and Scott, 1998; Scott, 2008). The purpose of regulations is increasing the transparency of organizations and holding the decision-makers responsible for the harm that might be caused for shareholders and stakeholders (Baldwin, Cave, and Lodge, 2012; Saleh, Marais, Bakolas, Cowlagi, 2010). For example, in the banking industry, to enhance the banking regulatory framework, the Basel Committee on Banking Supervision (BCBS) set out three Basel Accord international banking regulations to mitigate the risk of credit and liquidity risks (Alexander, 2003; McNeil, Frey, and Embrechts, 2015). A few other examples of such requirements in Ontario include the Occupational Health and Safety Act set out by the Ministry of Labour, the Public Hospitals Act set out by the Ministry of Health and Long-Term Care (MOHLTC), The Long-Term Care Act, also set out by MOHLTC, and the Fire Protection and Prevention Act set out by the Ministry of Community and Social Services.

Organizations translate the regulatory requirements into specific sets of actions that must be taken by various actors at various levels of organization, including at the operational level where the products and services are produced (Rodríguez, Schleicher, Daniel, Casati, Leymann, and Wagner, 2013). A simple example of a planned operational task developed to address a regulatory requirement is a procedure that the employees are required to follow when the fire alarm sounds. Another example is an incident report procedure that most organizations require their employees to follow after an incident occurs. Thus some planned operational tasks originate from regulatory requirements, and

the desired outcome of accomplishing these tasks is fulfilling the regulatory bodies' requirements and avoiding hefty penalties.

For some planned operational tasks, the desired outcome is efficient resource usage at the service delivery process. For instance, the desired outcome of a planned operational task that requires nurses to place surgical instruments and tools in standard places after each surgery minimizes the set up time for the next surgery team. Likewise, a planned operational task that requires a hospital nurse to administer medication to a certain number of patients during one shift has the time efficiency element embedded in it. By administering medication to all patients, the desired outcome with respect to the time consumed to deliver the service is realized. On the other hand, a planned operational task that requires the employees' responsible use of service provision goods (e.g., paper) is designed to create value for the organization by keeping the cost of production down.

Finally, with the recent advancement in information technology over the last few decades, organizations are conscious about information security more than ever before. More importantly, the research reveals that employees are considered a major risk to security of information (Herath and Rao, 2009; Bulgurcu, Cavusoglu, and Benbasat, 2010). As a result, the information security policies of organizations require individuals at all levels strictly comply with the planned operational tasks that are designed to ensure security of organizational information (Hu, et al., 2012). As such, the desired outcome of these planned operational tasks is to minimize the risk of insider abuse of organizational information.

Connected to Strategy

Planned operational tasks are connected to the strategic priorities of organizations. As stated in Skinner's (1974, p.121) seminal work on focused factory, operational tasks are the "offspring of a corporate strategy and marketing program." Skinner's basic assumption was that in the absence of an alignment between the operations strategy and organizational priorities, the frontline operations employees will lack the necessary guidance to perform their everyday tasks. Supposedly, everyday operating decisions are made based on the guiding principles and driving forces of the management philosophy on how the

organization plans to compete (Hayes and Wheelwright, 1984; Wheelwright, 1984). As such, strategic structural and infrastructural decisions establish the context for everyday production line decisions and activities that are actually involved in production of goods and services in various operating units (Kim, et al., 2014; Sting and Loch, 2016).

Likewise, the planned operational tasks in services are connected to the strategic intentions of organization. In other words, the high-level strategic priorities of service organization are translated into structural and infrastructural decisions that establish the context for delivery of planned operational tasks. Particularly, the infrastructural decisions that are related to the choices regarding best practices, policies, workforce scheduling, and performance measurement (Roth and Menor, 2003; Voss, Roth, and Chase, 2008) create the foundation of planned operational tasks by establishing the requirements for everyday business practice. Thus, the desired outcomes of planned operational tasks that an organization has envisioned when designing the tasks, is in fact closely related to the strategic priorities of the organization.

Executed Repeatedly

The execution of planned operational tasks is assigned to the frontline employees. Thus, these tasks are repeatedly executed when products and services are produced. While the majority of the operational tasks are planned to be executed on a daily basis, some operational plans are repeated weekly, monthly, or quarterly. For instance, a weekly planned operational task that requires the operator to perform an autonomous maintenance procedure is repeated regularly but not on a daily basis.

Additionally, daily planned operational tasks might be repeated a number of times every day. For instance, a nurse who performs the planned operational task of administering medicine, a receptionist in a hotel who performs check ins and check outs, a clerk at a retail store who rings up the customer, or a bank teller who deposits customers' money in their accounts all repeat their planned operational tasks over and over, as many times as needed by their customers every day. For these individuals attending monthly staff and managers meetings are planned operational tasks which are executed every month.

In conclusion, the planned operational tasks in this study are conceptualized as processes, procedures, and plans which are designed to bring about certain desired outcomes in terms of ensuring safety of employees, fulfilling the customers' demands promises, minimizing resource usage during the service provision process, hedging information security risk, and meeting regulatory requirements. If an employee fails to execute a planned operational task completely and correctly, the desired value of the task is not realized for the organization and its stakeholders. However, even if the employee executes the planned operational task completely and correctly, the desired outcome of the task is not necessarily realized. In other words, the congruence between planned and executed operational tasks only increases the likelihood of realizing the desired outcomes and desired value for various stakeholders.

2.2 Conceptual Development of Operational Integrity

Generally speaking, the word integrity is commonly used to refer to any entity or state that has the following characteristics: 1) completeness: being whole and undivided (Palanski and Yammarino, 2007; Palanski and Yammarino, 2009), 2) soundness: being in an unimpaired condition (Erhard, Jensen, and Zaffron, 2009; Clark and Fujimoto, 1990), or 3) incorruptibility: adhering to moral qualities (Brown, Treviño, and Harrison, 2005). The last synonym, i.e., incorruptibility, is distinguishable from the first two in that it implies adherence to virtuous codes of conduct and moral qualities. The first two characteristics do not entail morality and ethics. In other words, a person or an organization might hold immoral and unethical views, while functioning with integrity (Palanski and Yammarino, 2009; Simons, 2002). Accordingly, application of the word integrity in management and organizations literature is divided into two categories of normative and positivist studies (Erhard, et al., 2009). A summary of the management literature on the integrity concept is presented in Table 2.1.

Table 2.1 A Summary of Management Literature in Integrity Concept

Normative Studies	Integrity Definition	Conceptual/ Empirical	Independent Variable	Dependent Variable	Level of Analysis
Guerrette (1986)	The extent to which decisions related to corporate goals, design of product and processes, marketing and advertising are moral.	Conceptual	Corporate integrity	Corporate social responsibility	Organizational
Howell & Avolio (1992)	Having internal consistency, acting in concert with own values and beliefs.	Empirical	Integrity	Charismatic leadership effectiveness	Individual
Becker (1998)	Wholeness: one can be the same person and hold the same ethical values at home and at work.	Conceptual	Universal moral principles	–	Individual
Craig & Gustafson (1998)	Adherence to rules that maximize the interests of the majority of individuals.	Empirical	Perceived leader integrity	Leadership effectiveness	Individual
Weaver & Trevino (1999)	Wholeness: one can be the same person and hold the same ethical values at home and at work.	Empirical	Value orientation of ethics program	Personal perceived integrity	Individual
Silverman (2000)	Organizational compliance with moral values, alignment of espoused moral values and enacted values.	Conceptual	Organizational integrity	Corporate social responsibility	Organizational
Parry & Proctor-Thomson (2002)	Commitment in action to a set of morally justifiable principles and values.	Empirical	Perceived leader integrity	Transformational leadership, leader and organization effectiveness	Individual
Bews & Rossouw (2002)	Adherence to a clear set of ethical principles and code of conduct acceptable to both trustor and trustee, which are predictable and reliable and which lead to equity.	Empirical	Ethical behaviours (including)	Trustworthiness	Individual
Worden (2003)	Consistency (adherence to morally justifiable principles) and wholeness (sustaining an integral whole being through commitment to moral principle facing adversity).	Conceptual	Planning orientations of strategic leadership, leader's integrity	Reputational capital, credibility, leadership vision (financial gains)	Individual
Peterson (2004)	Adherence to rules that maximize the majority of individuals' interests.	Empirical	Perceived leader integrity	Ethical attitude of subordinates	Individual
Koehn (2005)	Compassionate and receptive work of making the self whole and enduringly happy through critically and assiduously separating who we truly are from the false ego.	Conceptual	Individual integrity	Business survival, healthy stakeholder relationship, effective sale, openness to diverse ideas, and creativity	Individual
Davis & Rothstein (2006)	Alignment of the manager's words and deeds (assuming that the words spoken are ethical).	Empirical	Perceived leader integrity	Job satisfaction, organizational commitment	Individual
Prottas (2008)	Alignment of the words and deeds (assuming that the words are ethical).	Empirical	Perceived leader integrity	Job and life satisfaction, stress, health, absenteeism	Individual
White & Lean (2008)	Adherence to rules that maximize the majority of individuals' interests.	Empirical	Perceived leader integrity	Team member's ethical intentions	Individual
Maak (2008)	The state of being undivided, being morally sound.	Conceptual	Managing corporate integrity	–	Organizational
Heineman, (2008)	Adopting and adhering to formal, legal, financial, and voluntarily ethical rules.	Conceptual	Corporate integrity	Profitability, risk mitigation	Organizational

Positivist Studies	Integrity Definition	Conceptual/ Empirical	Independent Variable	Dependent Variable	Level of Analysis
Gowans (1984)	Consistency between what is believed and what is said.	Conceptual	Integrity	Sale and advertising performance	Individual
Kirkpatick & Locke (1991)	Correspondence between words and deeds; the virtue of having some basic principles and standing by them.	Conceptual	Honesty/Integrity	Effective leadership	Individual
Mayer, Davis, & Schoorman (1995)	Adherence of trustee to a set of principles that is acceptable by trustor.	Conceptual	Moral integrity	Trust	Individual
Kaptein (1999)	Aligning all functions with internal and external expectations.	Conceptual	Organizational integrity	–	Organizational
Simons (1999)	Employees' perception of managers' alignment of words and deeds.	Conceptual	Behavioural integrity (BI)	Transformational leadership, trust, creditability	Individual
Guinn (2000)	Corporate compliance with regulatory requirements.	Conceptual	Corporate integrity	–	Organizational
Simons (2002)	Employees' perception of manager's adherence to psychological contracts, mission statements, corporate value, individual values, priorities, or management styles, and simple follow-through on expressed commitment.	Conceptual	Manager's actual word-deed alignment	Behavioural integrity, employee trust	Individual
Dineen, Lewicki, and Tomlinson (2006)	Employees' perception of managers' alignment of words and deeds.	Empirical	BI and supervisory guidance	Organizational citizenship and ethical behaviour of subordinates	Individual
Simons et al. (2007)	Employees' perception of managers' alignment of words and deeds.	Empirical	Race and BI	BI, trust, interpersonal justice, satisfaction, commitment, and intent to stay	Individual
Palanski & Yammarino (2007)	Congruence of an acting entity's words and actions.	Conceptual	Integrity	–	Individual
Palanski & Yammarino (2009)	Congruence of an acting entity's words and actions.	Conceptual	Integrity	Trust and performance (at all levels), employee's satisfaction with leaders	Individual, team, organizational
Erhard et al. (2009)	Honouring own words, by first keeping own words on time as promised and second, attempting to clean up the mess that might be created as the result of not honouring the words.	Conceptual	Integrity	Workability, performance	Individual, team, organizational
Sutton (2010)	Performing reliably as expected, at no surprise atmosphere.	Book	Operational Integrity Management	–	Operational
Palanski & Yammarino (2011)	Congruence of an acting entity's words and Actions.	Empirical	Leader's and follower's BI, and trust	Satisfaction and performance	Individual
Palanski et al. (2011)	Congruence of team's words and actions.	Empirical	Transparency, team's BI	Trust and performance	Team

2.2.1 Integrity Concept in Management Literature

In the normative realm possessing and exhibiting integrity is evaluated subjectively based upon adherence of individuals (Parry and Proctor-Thomson, 2002; White and Lean, 2008) or organizations (Heineman, 2008; Maak, 2008) to principles, policies, procedures, and plans that are designed based on ethical values and norms. The positive realm, on the other hand, ascribes no attribute, ethical or unethical, to conduct and strictly focuses on the congruence between actions and espoused principles, policies, procedures, and plans of individuals (Dineen, Lewicki, and Tomlinson, 2006; Palanskiand and Yammarino, 2011) or organizations (Erhardt et al., 2009; Guinn, 2000).

While two streams of literature are common in the level of analysis, i.e., individual and organizational, they differ in the conception of integrity characteristic. In clarifying the distinction, at the individual level, Simons (2002, p.19) states: "a colleague who openly advocates self-interest, rather than the common good, as a basis for personal actions might be despised if one does not share his values. However, such a colleague might be seen as having high behavioural integrity if one can see clear alignment between word and deed." Thus, while in both views the concept of integrity is deemed to be the congruence between actions and principles, in the normative view it is necessary to infuse the principles with ethical values, whereas in the positivist view the principles may or may not be ethical[1].

2.2.2 Positivist View of Integrity

Inspired by the positivist view of integrity, this study conceptualizes operational integrity as an operating characteristic that represents the degree of congruence between planned operational tasks and executed operational tasks by operations employees. While, the positivist studies do not investigate integrity at the operational system level per se (see Table 2.1), they provide the grounds for understanding the underpinning problem in the instances that OI lapses occur in real world organizations, as in the examples provided in

[1] At the organizational level, the difference between positivist and normative views might be clarified by comparing Guinn's (2000) study with Heineman's (2008). Guinn (2000) conceptualizes organizational integrity simply as the congruence between organizations' actions and regulatory requirements. On the other hand, Heineman (2008) argues organizational integrity in terms of adoption of regulatory and voluntary ethical standards and acting based on these requirements.

chapter 1.

First of all, as argued above, the positivist view is not concerned with morality and only investigates the congruence of the realized actions with the espoused principles, policies, procedures, and plans. In the examples presented in chapter 1, the planned operational tasks for turning on the humidifier and observing the live feed of the surveillance camera have no associated moral aspects and are merely designed to ensure the safety of the baby and the community respectively. On the other hand, in the example of the Limestone School field trip, the planned operational tasks to chaperone co-ed students are designed to address the ethics of the field trip. However, regardless of the moral aspects of these tasks, all of them are required to be executed in accordance to the plans, so that their desired outcomes become realized. In other words, at the operational level all that matters is the congruence between the planned and executed operational tasks. As such, this study views the concept of integrity at the operational level from the positivist perspective and is not concerned with the ethics of the operational tasks.

Second, the positivist literature might facilitate understanding the causes of OI lapses. This stream of literature introduces a variety of factors that result in individuals or organizational integrity lapses, i.e., incongruence between actions and plans. These factors include: unrealistic goals and plans (Erhardt et al., 2009; Simons, 1999), lack of consistent operating priorities (Dinen et al., 2006; Simons, Friedman, Liu, and McLean Parks, 2007), constant changes in plans (Palanski and Yammarino, 2011; Simons 2002), top-down cascading integrity lapses in organization (Simons et al., 2007), misalignment between the interests of internal and external stakeholders and lack of sanctions or rewards (Kaptein, 1999), and lack of knowledge and awareness of the principles and plans (Leroy, Palanski, and Simons, 2011; Tomlinson, Lewocki, and Ash, 2014). While, these factors specifically address the integrity lapses at either the individual or organizational level, some of those might inform the operational integrity lapses as well.

Third, the positivist view contends that integrity, characterizing a state of being whole, unbroken, unimpaired, and sound, brings about the capability of realizing the desired outcomes (Erhard et al., 2009; Palanski and Yammarino, 2007). As the integrity of

the entity (e.g., an individual, a team or an organization) declines, the likelihood of realizing its outcomes diminishes proportionally. Thus, for an operational system as an entity, achieving operational integrity is a necessary condition for realizing the desired outcomes of operations.

2.2.3 Operational Risk

As discussed in section 2.1, planned operational tasks are designed to create desired outcomes such as ensuring safety of employees and customers, fulfilling the customers' quality and delivery promises, minimizing resource usage during the production process, hedging information security risk, and meeting the regulatory requirements to protect the consumers, environment, and community. In addition, the operational tasks are linked up to the strategic purpose of organization. Hence, lapses in OI prevent organizations from realizing their desired outcomes and, potentially, could harm employees, customers, the environment, and the community. Therefore, the manifestation of OI lapses is a form of additional operational risk for the organization.

The operational risk is referred to as any potential losses (e.g., operational costs, customer satisfaction, litigation, etc.) emanating either from failed/inadequate operational system elements– i.e., provider elements, procedural elements, or physical elements – or from external events (Hora and Klassen, 2013; McNeil, et al., 2015). When instances of OI lapses occur, the provider elements of operational systems, i.e., the frontline employees, fail to accomplish some of the operational tasks as planned. As such, some tasks which are designed to create desired outcomes for some stakeholders (e.g., customers) are executed incompletely, incorrectly, or not executed at all. Therefore, failure or inadequacy of the frontline employees in accomplishing the planned operational tasks exposes organizations to pure risk (i.e., there is no upside).

The magnitude of this risk depends upon the nature of the planned operational task that is not accomplished fully or correctly. For instance, if a planned operational task, designed by a research institute for process control purposes, requires the scientists to place the experiment plates and instruments in standardized places after each use, the failure of a scientist in accomplishing the task might not necessarily translate into immediate

operational risk. Yet, if the same organization requires its scientists to follow certain planned operational tasks for conducting experiments on pathogens, the failure of the scientists to comply with the required procedures can expose the organization to substantial operational risk. A case of such an OI lapse has actually occurred at one of the Center for Disease Control and Prevention (CDC) labs, when a scientist failed to follow the planned operational tasks required for sterilizing the sample plates after finishing an experiment. While nobody actually contracted the anthrax virus, the lapse in OI exposed as many as 80 scientists and staff to it (Ford, 2014).

2.2.4 Concluding Remarks

In summary, the conceptualization of OI in this study is highly influenced by the positivist view of integrity characteristic. The positive stream of integrity literature facilitates the conceptualization of the operational integrity concept first by defining integrity as the congruence between actions and plans, second by introducing the causes of integrity lapses in individual and organizational levels, and third by identifying the consequences of lack of integrity in terms of risk. As such, the present study conceptualizes operational integrity as the congruence between planned and executed operational tasks by employees and contends that the lapses in operational integrity expose organizations to additional operational risk. Further, the magnitude of the operational risk resulting from OI lapses depends upon the criticality of the planned operational tasks which are not executed fully or correctly.

Finally, as previously discussed in this section, the main levels of analysis in integrity literature are either individual or organization (see Table 2.1). The only exception at the operational level is a book by Sutton (2010), which is a thorough reference on operational integrity in process-based industries such as oil refineries. Sutton (2010) defines an operational setting that operates with high integrity as one which operates as expected without failure. Sutton also argues an array of process risk and reliability management initiatives, such as reliability, availability, maintainability, and statistical process control to manage operational integrity. This conceptualization of operational integrity in terms of failure prevention guided the attention of the remainder of this chapter to review failure literature in order to explore the operational integrity phenomenon in

human-reliant systems.

2.3 Positioning of OI in the Failure Literature

The concept of failure has been one of the fundamental subjects of research in fields of marketing, operations management, and service safety. Marketing scholars investigate failure in terms of expectations of customers from service outcomes and the service delivery process (McCollough, Berry, and Yadav 2000; Zeithaml, Berry, and Parasuraman 1993). Operations management scholars study failures in operational systems in terms of the gap between planned and executed operational processes, i.e., conformance quality (Sousa and Voss, 2006; Voss, Roth, Rosenzweig, Blackmon, and Chase, 2004). Service safety scholars assess operational failure in terms of employees errors (McFadden, Towell, and Stock, 2004; Stock, et al., 2007).

2.3.1 The Failure Concept in Marketing Research

The key construct that is studied by marketing researchers in the failure context is "service failure", which represents differences between a customer's expectations with their perception of delivered service offerings (Craighead et al., 2004; Holloway and Beatty, 2003; Parasuraman, Zeithaml, and Berry, 1985).

After each transaction at the service encounter, customers reach a satisfaction decision by comparing perceived service outcome or service delivery process with prior expectations about the service. The service encounter satisfaction in turn shapes customers' perceived subjective service quality judgment about the overall superiority of service quality of an organization (Bitner, 1990; Zeithaml, and Berry, Parasuraman, 1988). In addition the literature suggests service failure can result in losing customers, negative word of mouth (Bitner, Brown, and Meuter, 2000) and switching behaviour(McCollough, Berry, and Yadav 2000; Roos, 1999).

As such, service failure is considered a fundamental element in shaping customer satisfaction, service quality perception, and customer retention (Bitner et al., 2000; McCollough et al., 2000). As a result, a vast set of literature has emerged in the marketing area which provides suggestions for minimizing the impact of service failures through

service recovery efforts. Typically, the purpose of service recovery efforts is to compensate for the perceived losses of customers, e.g., in terms of their time or convenience, by providing some form of gain, e.g, assistance or compensation (Craighead, et al, 2004; Hess, et al., 2003; Surachartkumtonkun, McColl-Kennedy, and Patterson, 2015).

The common theme of this stream of research is identifying efforts that organizations put into their practices in order to minimize the failures' impact which arises from the discrepancy between customer expectations and the perceived service outcome or service delivery process. In other words, the majority of the literature in the service failure area in the marketing field addresses ex-post mitigating mechanisms with respect to service failure and is not engaged in studying operational and organizational antecedents of service failure (Lewis, 2003).

Having said that, there are a few exceptions in marketing research which, in fact, investigate the causes of service failure. The most important exception is a service quality gap series of studies, coauthored by Parasuraman, Zeithaml, and Berry (Parasuraman et al., 1985, 1988, and 1991; Zeithaml, et al, 1988 and 1993), wherein the authors argue the antecedents of the emergent gap between customer expectations and their perception of the received services. The authors identify four gaps in the system, that together, result in a fifth gap, i.e., the gap between customer expectations and perception of service. Among the identified gaps, gap number three (Gap 3), also known as service delivery gap, is concerned with the gap between service quality specifications and the actual service delivery, and suggests that interventions such as teamwork, employee-job fit, technology-job fit, perceived control, supervisory control, role conflict, and role ambiguity impact the size of Gap 3 (Parasuraman et al., 1991; Zeithaml, et al. 1988).

The conceptualization of OI lapses, in terms of lack of congruence between planned and executed operational tasks at the service delivery process, resembles Parasuraman et al.'s conceptualization of Gap 3. Thus the recommendations of the authors for narrowing Gap 3 can be leveraged in understanding the OI phenomenon. However an important caveat in the application of these recommendations is that, essentially, service quality in marketing research and operations management is conceptualized in two distinctive

manners. From a marketing lens, as mentioned earlier, service quality is determined by the size of the gap between customer expectations and their perceptions of the service offerings. But, from an operations management lens, service quality is defined by the perspective of the provider firm and is conceptualized in terms of the ability of the firm to meet the customer requirements consistently (Sousa and Voss, 2006; Voss, Roth, Rosenzweig, Blackmon, and Chase, 2004).

Another important consideration is that planned operational tasks are related to all service delivery tasks and their desired outcomes might be anything from achieving service quality, ensuring employee safety, minimizing resource usage, ensuring information security, or meeting regulatory requirements. In other words, Gap 3 emerges only when a service quality specification is not achieved, but an OI lapse emerges if any planned operational tasks (including tasks designed to realize the service quality specifications) are not executed fully or correctly. Thus by achieving operational integrity, Gap 3 also can be reduced. Yet, by narrowing Gap 3, operational integrity is not necessarily achieved.

In addition to the service quality gap series of studies, two other studies by Harris and Ogbonna (2002 and 2006) discuss the antecedents of service failure[2]. As these two studies argue the service failure antecedents in terms of operations employees' behaviour, those studies might be leveraged to illuminate some aspects of the OI phenomenon and, as a result, are included in this literature review. In these studies Harris and Ogbonna (2002 and 2006) conceptualize and then operationalize intentional deviant and antiservice behaviour of operations employees at service encounters as a service sabotage concept. The authors critique the extant literature in the area of service quality improvement and argue that these studies are largely premised on the implicit assumption that the frontline staff comply with the required principles. However, their qualitative (Harris and Ogbonna, 2002) and quantitative (Harris and Ogbonna, 2006) studies show that this assumption is simplistic, and that operations employees sometimes become involved in antiservice

[2] There is a stream of literature that explores the process of service failure from the perspective of customer dysfunctional behaviour (e.g. Fisk, Grove, Harris, Keeffe, Daunt, Russell-Bennett, and Wirtz, 2010). However, as these studies are not relevant to compliance of the frontline staff, they are excluded from this literature review.

behaviour.

Further, the authors identify some behavioural characteristics of service saboteur employees in terms of risk-taking proclivity, need for social approval, lack of desire to stay with an organization, and demographic factors. In addition, the authors argue various organizational and environmental factors, such as surveillance techniques and labour market conditions respectively, as other predictors of service sabotage behaviour.

Considering the fact that one of the plausible causes of OI lapse might be sabotage, the behavioural, organizational, and environmental factors identified by the authors are highly valuable for understanding the OI phenomenon and should be considered when collecting data within the field. A critical consideration here is that service sabotage is not equivalent to the lack of normative integrity, which was discussed in section 2.2. Lack of normative integrity represents a situation in which an entity's (e.g., an individual's or an operational system's) principles and plans are designed without accounting for moral values. Service sabotage depicts a situation in which the operational system has some principles and plans, which may or may not be ethical, but the employees intentionally choose not to comply with these principles and plans. At the same time, the reason for this intentional behaviour of the saboteur is the lack of normative integrity.

In other words, while from an operational system's perspective service sabotage represents the lack of positive integrity (incongruence between actions and plan), from individuals' perspectives there is a lack of normative integrity (lack of moral values on the part of the saboteur) as well. Thus, service sabotage portrays a particular case of operational integrity lapse in which the employees' intentional noncompliance emanates from their individual characteristic of lack of normative integrity. This raises criticality of being attentive to the instance of operational integrity lapses resulting from the lack of normative integrity of the employees when studying operational integrity in the field.

In sum, marketing research, with a few exceptions (such as Harris and Ogbonna's studies), assesses service failures almost exclusively from the standpoint of customers and offers solutions to compensate for the gap between customer expectations and service outcomes/processes through service recovery activities. This overemphasis on the

viewpoint of service consumers results in negligence of literature in accounting for operational aspects of failure that, in the first place, provide the grounds for service failure (Tucker, 2004).

2.3.2 The Failure Concept in Operations Research

In contrast to marketing research, however, operations management literature sees failure from the service providers' perspective (Voss et al., 2004). In other words, operations scholars assess failures in operational systems in terms of "operational failures", and argue how the gap between planned and executed operational processes can be reduced. In this context, the operational failures are referred to as the disruptions or errors in the supply of necessary materials or information that prevent the planned operational tasks to be fully and correctly executed by frontline employees (Tucker 2004).

In the context of manufacturing systems, the operational failure literature had mostly revolved around the concept of reliability, which, according to Meeker, Escober, Doganaksoy, and Hahn (1998) in Juran's Quality Handbook, is defined as "the probability that a system, vehicle, machine, device, or other product will perform its intended function under some specified operating conditions, for a specified period of time." Bridging quality management principles with the risk management techniques, these studies suggest various approaches, such as preventive maintenance (e.g., Ahuja and Khamba, 2008; Vaughan, 2005), Failure Mode and Effect Analysis (e.g., Bergman and Klefsjo, 2010; Meeker et al., 1998), and fail-proofing (Chase and Stewart, 1995; Robinson and Schroeder, 1990) to ensure the system performs its intended function consistently (Lewis, 2003; Sutton, 2013).

While the operations management field is replete with studies that argue how the probability of a machine-based production system to operate as planned is increased, studies which investigate similar concepts in service operations are nascent. In the context of service operations, the operational failure literature falls under two general categories. The first category includes the studies that have closely adopted the view of manufacturing research for preventing operational failures. This characteristic is perhaps most obvious in the works of Chase and coauthor (Chase and Stewart, 1994; Stewart and Chase, 1999) and its origin might be traced to the work of Levitt (1972), who used the service model of

McDonald's fast food restaurants to explore the implications of managing a service setting as a manufacturing plant. In Levitt's (1972) conceptualization, operations employees are considered as one of the inputs into the production system. Following Levitt (1972), Chase and Stewart (1994) prescribe the application of poka-yokes or fail-proofing mechanisms to service encounters, where services are coproduced by employees and customers, and argue that poka-yokes prevents employees, as well as customers from making errors during the service delivery process.

In their subsequent study, Stewart and Chase (1999) extend their argument to the "service failure" area and suggest that service quality outcomes can be improved by the application of poka-yokes mechanisms. Their study is considered to be a pivotal attempt in linking failure literature in marketing, operations management, and safety. Stewart and Chase's (1999) study contributes to filling the gap in service failure marketing literature by identifying operational antecedents of service failure, namely cognitive reasons of employees' and customers' errors. In addition, the authors adopt the Generic Error Modeling System (GEMS) lens (Reason, 1987) from safety literature, to build their argument around human (employees' and customers') cognitive failures in terms of mistakes and errors. As such, the study suggests that poka-yoke solutions might be applied at the service design stage to prevent various forms of mistakes, slips, and lapses. However, reliance on an application of the GEMS lens leads the authors to exclusively elaborate on cognitive failure prevention mechanisms. Thus the underlying behavioural aspects (such as violation) of failure remain unstudied in their research.

The second category of failure studies in the operations management field following Tucker (2004), conceptualizes operational failures in terms of interruptions or errors that prevent work from being completed by the frontline staff. The majority of these studies focus on learning from failure (Siemsen, Roth, Balasubramanian, and Anand, 2009; Tucker, Heisler, and Janisse, 2013; Tucker and Spear, 2006), suggest problem solving and continuous improvement initiatives after failures (Staats, Brunner, Upton, 2011; Tucker, 2007; Tucker, Edmondson, and Spear, 2002), illuminate the challenges causing failure (Tucker, 2004; Tucker et al., 2013), or raise the importance of safety culture for failure prevention (McFadden, Henagan, and Gowen III, 2009; Singer and Vogus, 2013; Vogus,

Sutcliffe, and Weick, 2010).

Learning and continuous improvement efforts initiate after the failure occurs. Operational integrity on the other hand, is concerned with failure prevention. Thus, from an operational integrity perspective it is important to understand why failure occurs and how it might be minimized. The answer to these questions, according to the above studies, can be understood by focusing on the challenges causing the failure and understanding the role of safety culture in failure prevention.

In terms of the challenges causing failures, Tucker (2004) raises the importance of the environmental context in which the employees operate. She argues that environmental challenges, such as time pressure, task uncertainty, and task interdependence, create conditions which make accomplishing the prescribed operational tasks overly difficult for hospital nurses. The author also prescribes designing operational systems in which information is easily accessible by individuals and teams to reduce the impact of challenges and eliminate operational failures. Similarly, Tucker et al. (2013) extend previous study of Tucker (2004) by conducting an extensive qualitative study to observe what factors contribute to failures of nurses in medical and surgical units. Three major organizational factors were introduced by the authors: insufficient work space, poor process design, and lack of integration in the internal supply chain.

While these findings are highly valuable for understanding the OI phenomenon, their application should be exercised cautiously. Tucker's studies are only concerned with which factors contribute to nurses' failures in *fully* accomplishing planned operational tasks and do not elaborate on factors which contribute to nurses' failures in *correctly* accomplishing planned operational tasks, which is where the focus of Stewart and Chase (1999) lies. As opposed to Tucker's studies, in current study, OI is conceptualized as the congruence between planned operational tasks and executed operational tasks by employees, and therefore investigates the underlying causes of employees' failure to *fully* and *correctly* accomplish planned operational tasks.

2.3.3 The Failure Concept in Service Safety Research

The failure studies which inform OI by identifying operational failure prevention, are rooted in the safety field and provide suggestions on how organizations can eliminate operational failure in terms of errors made by the staff to ensure the safety of service providers and consumers (e.g., McFadden et al., 2009; Vogus et al., 2010). Few studies were identified which fall under this category (Gowen III, McFadden, Hoobler, and Tallon, 2006; McFadden, et al., 2004; Stock, et al., 2007)[3]. A common thread shared by these studies is that they conceptualize operational failures in terms of the bundle of planning mistakes and execution errors and therefore do not distinguish which part of their recommendations is applicable to prevention of mistakes and which part is suitable for errors. This common thread is the result of the fact that these studies are deeply rooted in safety literature and high reliability organization literature where the bundle of planning mistakes and execution errors in general is considered as error (Singer and Vogus, 2013, Roberts, Bea, and Bartles, 2001).

As previously mentioned in section 2.1, Reason (1987, 1990, 1995, and 2000) suggests that system failure might be the result of planning mistakes or execution errors. Planning mistakes represent the failure to achieve desired outcomes by executing some planned tasks and are manifested in two forms: rule-based mistakes (application of inappropriate rules to a familiar situation) and knowledge-based mistakes (lack of accurate and complete mental model for solving an unfamiliar issue). Execution errors represent situations in which planned tasks are not executed as plans, and are demonstrated in the form of slips (unintentional failure to accomplish a planned task correctly), lapses (failure to accomplish a planned task fully), and violations (intentional deviation from the planned tasks). While slips and lapses are the result of some sort of distraction that disrupts the unconscious action, violations are often intentional.

As the research question in this study is concerned with how the congruence of

[3] Among many other studies at the intersection of operations management and the safety fields, these studies are the only ones which are relevant to the OI phenomenon and, as a result, are included in this literature review. For instance, Dobrzykowski, McFadden, and Vonderembse (2016) discuss the impact of lean operations orientations on the safety outcomes of hospitals, but as the findings of the study have no value for understanding how operational integrity is achieved, the study has been excluded from this literature review.

planned operational tasks and their execution is achieved, to answer it, it is necessary to distinguish the underlying causes of planning mistakes from execution errors. As such while some recommendations of these studies (Gowen III et al., 2006; McFadden et al., 2004; McFadden et al., 2009; and Stock et al., 2007), for example rich communication, safety culture, and incentive-based rewards might be applicable to the context of OI study, many of their other recommendations (e.g., customer satisfaction evaluation) are not applicable.

2.3.4 Concluding Remarks

In conclusion from this section, failure studies in marketing research primarily focuses either on service failure or on service recovery after the failure. The service failure concept, by definition is the opposite of service quality which is the congruence between customers' expectations from services and the actual delivered services by the organization. Essentially, the service quality gap is distinct from operational integrity lapse in the sense that service quality gap might be the result of customer's failure or service provider organization's failure. The operational integrity lapses are solely related to a certain form of service provider failure, wherein the frontline employees fail to comply with the planned operational tasks. Additionally, service quality gap is merely related to quality of services, while the operational integrity concept encompasses all planned operational tasks including tasks related to quality management. Therefore, although the prior literature in service marketing provides great insight into the operational integrity concept they are not sufficient to fully understand this phenomenon.

On the other hand, in the service operations management literature an underpinning assumption is that human actors in organizations are willing to perform the operational tasks exactly as planned, however, due to their cognitive limitations (Stewart and Chase, 1999) or due to challenges imposed by the operational system or the environment (Tucker 2004; Tucker et al., 2013), they fail to perform planned operational tasks correctly or fully. While these studies are highly worthwhile for understanding the OI phenomenon, they rule out the fact that human beings have freewill and that their actions and behaviour are impacted by social, cognitive, and emotional factors.

Likewise, the service safety literature in operations management field while provides rich insights on preventing human failure, fails to attend "intentional human failures", when the employees choose willingly not to follow the requirements of the planned tasks. Additionally, the operations safety literature conceptualizes the failure in terms of the bundle of planning mistakes and execution errors and therefore there is no clear directions regarding prevention of execution errors in this literature. In sum, there are major gaps in the failure literature that make studying operational integrity phenomenon a worthwhile effort to increase the field's understanding from the complexities surrounding the human failure.

2.4 Behavioural Underpinnings of Operational Integrity

From the discussions on conceptualization of operational integrity it is inferred that OI is a multi-layered phenomenon. Meaning that, while the OI lapses are manifested in the form of various operational risks resulting from lack of congruence between planned and executed operational tasks, in essence, they stem from the lack of compliance at the individual level. Put simply, failure of the employees in complying with the planned operational tasks results in OI lapses. Thus, the OI phenomenon is not thoroughly understood, unless the behavioural underpinnings of the individuals' compliance (or noncompliance) are identified.

The criticality of accounting for human beings' roles in achieving the goals of operational systems has long been acknowledged by operations management scholars (Boudreau, Hopp, McClain, and Thomas, 2003; Bendoly, Donohue, and Schultz, 2006). As a matter of fact, the emergence of a behavioural operations stream of literature is a testament to recognizing the enduring importance of human cognitive biases and emotional reactions for predicting operational outcomes (Gino and Pisano, 2008).

The primary assumption of behavioural operations literature is that human beings are not as rational and self-interested as predicted by economists (Urda and Loch, 2013). At the individual level, the core theme of this literature revolves around assessing decision-making behaviour by either customers (e.g., Hartman and Moeller, 2014) or employees (e.g., Tazelaar and Snijders, 2013). In essence, the studies that investigate customer

decision-making pinpoint social, behavioural, and emotional factors which shape customer behaviour in various contexts such as when waiting for service delivery (Seawright and Sampson, 2007), when interacting with other customers (Li, Choi, Rabinovich, and Crawford, 2013), when making service adoption decisions (Wunderlich, Kranz, Totzek, Veit, and Picot, 2013), and when reacting to unsustainable organizational behaviour (Hartman and Moeller, 2014). Studies that investigate employees' behaviour explicate the factors that shape the intentions and behaviour of employees when making various operational decisions such as purchasing (e.g., Eckerd, Hill, Boyer, Donohue, Ward, 2013), sharing knowledge (Siemsen, Roth, and Balasubramanian, 2008), and collaborating (Urda and Loch, 2013).

To understand the factors that shape behaviour, this literature heavily draws on individual decision-making theories, mainly attribution theory (Weiner, 1986), social exchange theory (Kelley and Thibaut, 1978), goal-setting theory (Locke and Latham, 1990), and theory of planned behaviour (Ajzen, 1991 and 2005). Operations studies that apply an attribution theory lens focus on behavioural choices of customers (e.g., Eckerd, et al., 2013) or employees (Li et al., 2013) after the occurrence of an event[4]. A social exchange lens is applied to study how using reciprocity and interdependence, organizations might promote collaborative behaviour among employees (e.g, Siemsen, Balasubramanian, and Roth, 2007; Yee, Yeung, and Cheng, 2010). Goal-setting theory is applied to study how setting challenging goals brings about enhanced performance of employees (e.g., Bendoly, Croson, Goncalves, and Schultz, 2010; Linderman, Schroeder, and Choo, 2006). Studies that apply theory of planned behaviour attempt to understand what factors predict customers' (e.g., Froehle and Roth, 2004) or employees' (Hu et al., 2012) intentions and, therefore, impact behaviour.

Although, any of these theoretical lenses can be applied to understand employees' compliance behaviour, the current study is particularly interested in theory of planned

[4] For instance, Hartman and Moeller (2014) use attribution theory to study how after an event of a firm's unsustainable behaviour (e.g. harvesting woodlands by Kimberly Clark's suppliers), the customers attribute causes (e.g. by holding the firm responsible) to the event and behave (e.g. boycotting decision) in reaction to the event.

behaviour (TPB), which posits that the individuals' behaviour is driven by their intentions (Ajzen, 1991 and 2005). According to TPB, individuals' intentions can be predicted by their attitudes, subjective norms, and perceived behavioural control, which in turn are predicted by individuals' beliefs (Armitage and Conner, 2001). For instance, Froehle and Roth (2004) adopt TPB lens to explain how in technology-mediated service contexts, customers' intentions for future use of service can be predicted by the favourable attitudes of the customer, which in turn is predicted by the beliefs of the customer that are shaped during service encounter.

While, the application of TPB in behavioural operations literature is scant (c.f. Froehle and Roth, 2004; Hu et al., 2012), this theory can provide valuable insights into operational integrity phenomenon by identifying the factors that shape the intentions of employees to comply (or not to comply). Application of this theory by Hu et al. (2012) to study the compliance of employees with information security policies, attests to the appropriateness of the application of this theoretical framework for employees' compliance context. The authors apply TPB to argue that top management, by harnessing values and norms, can develop a culture that influences the beliefs of employees regarding information security policies of organizations and, as a result, increase the likelihood of employees' intentional compliance with security requirements.

Thus, when studying operational integrity phenomenon in the field, it is crucial to account for compliance intentions of individuals and to be attentive to the beliefs, attitudes, and norms that might shape the employees' intentions. As Bendoly et al. (2006) argue, traditionally operations management literature often makes unrealistic assumptions regarding the intentions of individuals. For example, the presumption of the newsvendor problem is that the decision-makers intend to minimize the sum of expected holding cost and the stock-out cost. However, behavioural research reveals that due to personal characteristics, individuals systematically deviate from profit maximization intention (Moritz, Hill, and Donohue, 2012). Likewise, as discussed in this chapter, studies that investigate human failure often assume that employees have the intention to execute the operational tasks exactly based on the plans (e.g., Tucker et al., 2013). However, the application of a robust theoretical framework such as TPB allows diving into the

underlying behavioural facets of the operational integrity phenomenon and understanding the motives and intentions of individuals when choosing to comply with the requirements of planned operational tasks.

2.5 Conclusion

In conclusion, this study contributes to failure research by specifying how the congruence between planned operational tasks and their execution by frontline employees is achieved in human-reliant systems. The dominant paradigm in operations management literature in understanding how tasks can be executed to match with the plan comes from research on machine-based productions systems. As such, the research in the area of failure of human actors in the execution of planned operational tasks in human-reliant systems remains highly understudied. The current research in the area of service failure is mostly anchored in how the negative consequences of failure might be alleviated through service recovery efforts.

In operational failure studies, on the other hand, an underpinning assumption is that human actors in organizations are willing to perform the operational tasks exactly as planned, however, due to their cognitive limitations (Stewart and Chase, 1999) or due to challenges imposed by the operational system or the environment (Tucker 2004; Tucker et al., 2013), they fail to perform planned operational tasks correctly or fully. While these studies are highly worthwhile for understanding the OI phenomenon, they rule out the fact that human beings have freewill and that their actions and behaviour are impacted by social, cognitive, and emotional factors. In particular, from a review of the theoretical foundation of behavioural operations literature, it is concluded that the intentions of employees can be a critical predictor of their actual behaviour. Empirical evidence from studies such as Harris and Ogbonna's (2002 and 2006) also suggests that frontline staff might become engaged in intentional violation of operational principles.

The remaining relevant literature conceptualizes error in terms of bundle of planning and execution errors, and therefore does not specify how failures in execution might be prevented. In addition, the implicit assumption of these studies also is that employees have the intention to adhere to the planned operational tasks (e.g., McFadden et

al., 2009). Thus in sum, these findings from prior literature validate the effort of this research to explore how OI is achieved in human-reliant systems, where behavioural factors of human actors might have deterministic impact on achieving congruence between planned and executed operational tasks.

Chapter 3 Methods

In this chapter, I specify the process of study execution that was followed to answer the question "how is operational integrity achieved in human-reliant systems?" This study conceptualizes OI as the representation of the congruence between planned operational tasks and executed operational tasks. The aim of the study was to use qualitative data to inductively build a substantive theory on operational integrity that is grounded in field data (Strauss and Corbin, 1990). The research employs a single-case research strategy based on ethnographic data collected primarily through observations and shadowing of the organizational actors in a large, long-term care facility. The single-case based research design was selected to reveal the dynamics of humans' decisions and actions in their social environments. In this chapter, first the rationale related to the choice of the case study is presented, and then the details of data collection and analysis processes are described.

3.1 Research Design Considerations

In chapter 2, it was discussed that the major gap in our understanding of OI phenomenon lies in the environmental, cognitive, and behavioural factors that shape human actors' action and decisions in human-reliant systems. In particular, it was discussed that in operations management literature there is an implicit assumption that humans' actions are deterministic, predictable, emotionless, and independent of other factors (Boudreau, et al., 2003). Thus, the purpose of this inquiry is to fill this gap by understanding why the actors in a highly human-reliant system are challenged to operate with integrity on a day-to-day basis and how the actors strive to overcome the challenges they are presented with.

To address the research questions of "why?" and "how?" and to account for the shortcomings of our current understanding of the complexities surrounding humans' intention to perform as planned, it was necessary to explore the OI phenomenon closely and repeatedly in a field study. More precisely, the conceptualization of OI in terms of execution of planned operational tasks that are executed on a regular basis in organizations calls for adopting a research strategy that allows this repetition to be observed regularly. Leveraging an exploratory case study design that portrays the socially-embedded patterns

of decisions and actions of human actors who enact operational tasks daily (Dougherty, 2002) in a highly human-reliant system provides the ground for building an analytically generalizable theory on operational integrity.

To this end, it was imperative to select a narrow set of operations and a particular location in which I could see the execution of this set of planned operational tasks over a long period of time. In addition, in order to see how and why operational integrity lapses happen, it was necessary to closely and regularly follow various actors who were involved in the planning and execution of the selected operational tasks. As such, the single-case approach paved the way for prolonged and closer engagement with the study participants, which in turn allowed me to collect rich data reflecting the voice of the individuals who execute operational tasks.

Since in the single-case approach, the emergent theory is derived only from one field of study, it is imperative to select a case with revelatory potential (Bansal and Corley, 2012; Corley and Gioa, 2010). To be revelatory, the selected case for studying the OI phenomenon must essentially allow a comprehensive assessment of everyday decisions and actions of organizational actors. Thus, to meet this revelatory potential criterion, it was crucial to select a case study of an operating environment in which the discrepancy between planned and executed tasks generates substantial operational risk for the organization (e.g., in the form of compromised customer safety) resulting in managers consciously attempting to reduce the discrepancy. If the additional operational risks resulting from operational integrity lapses are not considered major, OI might be ignored. Therefore, a comprehensive picture of the phenomenon can be acquired from studying an operating environment in which managers have motivation for managing the integrity of their operations.

3.2 Theoretical Sampling

To ensure revelatory potential, I purposely selected a long-term care (LTC) facility in which I conducted this qualitative study on managing operational integrity. Studying a long-term care facility helped me to simultaneously meet two important criteria. Firstly, nursing care facilities are exemplars of highly human-reliant operational systems. As discussed in the previous chapter, reliability literature addresses the OI phenomenon in the

contexts of highly automated systems in which failure of the system is mostly driven by non-human factors. Thus, the novel insights on managing operational integrity can be acquired from a field study in which the system and its products or services are mostly human-reliant, as opposed to being automation-reliant. My aim was to understand how the individuals at all levels in the nursing home – managers and staff –strive to increase the congruence between planned operational tasks and their execution.

Secondly, in order to meet the revelatory criterion, the selected case study should allow me to acquire a comprehensive picture of managing the multilayered and multifaceted OI phenomenon. In the context of long-term care, like any other care provision sector, intentional or unintentional noncompliance with day-to-day operational requirements can bring about unwanted consequences. Health care studies in the area of patient safety and care providers' errors report on a vast range of undesirable repercussions, from exorbitant costs for the care provider organization (e.g., Cummings, Anderson, and Kaye, 2010), to increasing mortality rate amongst the patients (e.g., Frolkis, Zyzanski, Schwartz, and Suhan, 1998). Additionally, due to high operational risk, often health care provision sectors have to strictly adhere to the requirements of their regulatory bodies. This makes an Ontario-based nursing home which operates under enormous pressure from various institutions – such as the Ministry of Health and Long Term Care (MOHLTC) – an ideal environment for studying the operational integrity phenomenon.

The final consideration about sampling in this study was that while selecting a single nursing care facility was appropriate for achieving the objectives of this study, studying a large set of service delivery operations was neither a viable option nor a suitable one. During my early visits to the selected nursing home, I realized that there are some critical operational tasks in the organization that are more error-sensitive than others, in that if these tasks are not accomplished fully and correctly, the quality of life of the residents could be negatively impacted. The identified error-sensitive operations in the LTC sector are: medicine administration, shift hand-offs, infection prevention and control, and fall prevention and management operations. As any error in execution in these operations could potentially cause severe harm to the wellbeing of the residents, managers are highly mindful about managing compliance of the employees in these areas and

ensuring that the tasks are executed fully and correctly.

Among these operations, I found that fall prevention and management was an ideal area for studying compliance. Studying the falls was particularly interesting for me because according to the Centre for Injury Control and Research in Canada, one in three older adults will have a fall, and 40% of people in LTC homes are there because they suffered a severe fall before admission to the home (Canadian Patient Safety Institute, 2014). In addition, falls are among the leading causes of injury cost in Canada (Smartrisk report, 2009), therefore research that sheds light on better fall prevention is very valuable for our society and can impact the wellbeing of older adults[5].

Consequently, I embarked upon the research with the goal of understanding the operational integrity phenomenon in the context of fall prevention and management operations in the long-term care facility. However, once the data collection process began, I realized that at PEC Co., falls are rare occurrences, and prevention and management of falls comprises a small part of the day-to-day operations of the organization. On average, every month the organization reports 50 falls for a total of nearly 200 residents. Thus, the likelihood that I would be present at the moment of a fall instance was minimal, and drawing conclusions based on only a few fall instances was potentially problematic. Therefore, from the early stages of data collection, I recorded everything that I observed, including the fall prevention operations. Later, when analyzing the data, I also decided to incorporate the data on medicine administration operations into my study[6].

Hence, the unit of analysis was narrowed down to the congruence between planned and executed operational tasks, in which the operational tasks are designed to deliver medicine administration and fall prevention/management services to the residents by the frontline employees. Albeit, as will be discussed later in this monograph, I have collected information about and draw on various aspects of elderly care operations in this

[5] In 2004 the total cost of seniors' falls was estimated at nearly $2 billion CAD (Smartrisk report, 2009)

[6] As argued earlier, medicine administration is among the areas which are considered highly error-sensitive and therefore is suitable for studying OI.

dissertation. In order to study the congruence between planned and executed tasks, I had to be as close as possible to the frontline employees who execute planned operational tasks to observe them during the service delivery process. Thus, using an interpretive approach based on a single-case study was the most appropriate option for gaining a thorough understanding about operational integrity in medicine administration and fall prevention and management operations.

3.3 Field Characteristics

The long-term care facility that was studied for this thesis is a family-owned, for-profit[7] nursing home located in a large town in the province of Ontario. For the sake of preserving anonymity of the organization, I call this nursing home Private Elderly Care Company (PEC Co.)[8]. The organization is part of a large corporation, which we will call National Authentic Senior Homes (NASH) here.

NASH has had an established history in the long-term care industry for more than ten years. It owns and runs two other nursing homes located in two other large cities in Canada. In 2008, the owners decided to manage the home themselves, rather than hiring a third-party organization to manage the homes for them. They took over the management and hired Madelyn, a highly experienced registered nurse (RN) with over 20 years of experience in the nursing industry as the head of the operations department. Madelyn helped the owners to run the other two nursing homes and launch the third one. They also hired another highly experienced nurse, Sabrina, as the head of the clinical services department to help Madelyn in managing the operations of all three homes belonging to NASH.

Studying PEC Co.'s operation was particularly suitable for conducting an investigation on managing operational integrity for the following reasons: first, it reveals

[7] Although LTC services are subsidized, there is still a large array of exclusive services, such as hair dressing, foot care, and massage therapy, which are major sources of income for this for-profit nursing home.

[8] In addition to changing the name of the studied long-term home (and its parent organization), we have used pseudonyms instead of the real names of individuals in this monograph.

the strategic importance of OI and second, its particular characteristics make it suitable in terms of transferability of the research findings. Both of these reasons are argued in greater detail below.

First of all, as a newly opened nursing home, PEC Co. needs to establish itself in the LTC care providers' market. In particular, the owners of the home are willing to extend their markets to other cities and, therefore, the management team strives to create the ground for future expansion by ensuring compliance with the MOLHTC requirements. The LTC sector has a distinctive characteristic which makes compliance with the Ministry's requirements highly critical for a home that strategically seeks to expand. This characteristic is the lack of a set of salient marketing efforts in LTC homes. Indeed, there is a waiting list of potential elderly residents who are waiting to get rooms in nursing homes. This waiting list is managed by the local Community Care Access Centres (CCAC), which approve patients for nursing home care. Thus, LTC organizations cannot admit any patient unless he/she is already on the CCAC waiting list. Therefore, proactively marketing the homes to the public would not be necessary or helpful.

As a result, the management team is overly focused on ensuring compliance of individuals with day-to-day planned operational tasks' requirements to ensure the organization complies with the requirements of MOHLTC. Any instance of operational failure in terms of noncompliance that can be simply identified by the inspectors of the MOHLTC is published on the Ministry's website. The noncompliance citations on this website are what people look at when they are searching for a good nursing home to place their loved ones in. As such, high levels of compliance with the Ministry's requirements are one of the determinants of the business' survival. Any newly opened nursing home, and particularly PEC Co., consciously strives to manage compliance so that the number of noncompliance citations it receives from the Ministry's inspectors remains insignificant and thereby enables them to attract more residents. Thus, ensuring compliance with planned operational tasks has major strategic importance for these organizations.

Second, when the data collection process started, PEC Co. had already began its operations more than six months prior, and, according to the senior managers, the number

of noncompliance citations that it received over this period was near the industry average. This means that the organization was not an outlier and could represent the other nursing homes in the industry, which made this organization an ideal place for my research focus. Indeed, a moderate number of citations mean that PEC Co. is not an extreme case, and investigating the operational integrity phenomenon yields transferable knowledge, which is applicable to other human-reliant contexts, in particular to other health care provision settings (Corley and Goia, 2013). Additionally, PEC Co. might be considered a fairly large nursing home; it has nearly 200 residents and 200 employees[9]. As such, studying it provided a great opportunity for acquiring thick qualitative descriptions which can be utilized in answering the research question of "how is OI achieved?" Providing thick descriptive data is an essential step in producing transferable findings (Lincoln and Guba, 1985). In sum, PEC Co.'s particular specifications ensure its organizations mindfully manage the operational system, hence it being intentionally selected for theoretical sampling purposes in this study (Strauss and Corbin, 1998).

3.4 Data Collection Process

To gain familiarity with the field, I began with two formal meetings with two senior managers, i.e., the Managing Director (Head of Operations) and Director of Clinical Services in February 2014. Once access to the selected LTC was established in March, the ethics approval was acquired from the Western University Health Science Research Ethics Board[10]. Upon acquiring ethics approval, I began the formal data collection process. Tables 3.1 and 3.2 represent the participants and the type of collected data, and Appendix B contains details regarding the data collection process.

[9] In the LTC industry an organization with 200 residents is considered a large one, as the largest nursing homes in Canada have no more than 500 residents in a single residence.

[10] According to the Western University Ethics Board's requirements, any study that involves human subjects for data collection purposes must meet the requirements of the Ethics Board. The ethics approval notice (NMREB 105182) is attached as Appendix A.

Table 3.1 Description on Types and volume of Data

Data Type	Description
Formal Meetings (Four Sessions)	Introductory and interim meetings with managers to gain access to the field and to update them about the results of the study.
Interviews (Three Sessions)	Tape-recorded interviews based on semi-structured questions.
Shadowing (20 Sessions)	Following a predetermined key informant and recording all the details about the job the key informant executes.
Observations (21 Sessions)	Sitting at the nurse station and chronicling all the details of the events that occur within the home area.
Informal Conversations	Conversations which took place during observation or shadowing sessions with individuals I encountered (conversations with the subject of shadowing are excluded and labelled as shadowing).
Archival Data (1200 pages)	Any piece of organizational document accessible online or in hard copy format. Any piece of relevant publically available material in the Internet, such as regulatory requirements, nursing home news, and educational documents and videos.

Table 3.2 Summary of Visits, the Characteristics of Collected Data and Participants

Key Informants		**Data Collection Approach**
Sabrina (Director of Clinical Services)	3	Formal meetings
	1	Interview
Madelyn (Head of Operations)	2	Formal meetings
Tom (Administrator)	1	Shadowing
Melissa (Director of Care)	1	Interview
Mag (Associate Director of Care)	3	Observations
Maya (Associate Director of Care)	2	Orientation sessions
	1	Interview
	1	Shadowing
Felipe (Environment Manager)	1	Orientation session
Ben (Physiotherapist)	3	Observations
	2	Shadowing
Cam (Physiotherapist)	3	Observations
Nicole (Physiotherapist)	4	Observations
	1	Shadowing
Annabelle (Physiotherapy Student)	3	Observation
Kyla (Assistant to Head of Operations)	1	Archival data
Jordan	2	Shadowing
Anna (RN, Restorative Manager)	1	Orientation session

	6	Observations
	1	Shadowing
Jen (Restorative Aide)	3	Observations
	5	Shadowing
Vanessa (RPN morning shift, home area 1)	8	Observations
Larry (RPN evening shift, home area 1)	5	Observations
	1	Shadowing
Sue (RPN morning shift, home area 1)	1	Observation
Beatrice (RPN morning shift, home area 1)	1	Shadowing
Daniela (RPN morning shift, home area 3)	1	Observation
Jeanette (RPN morning shift, home area 2)	1	Observation
Kathy (RPN morning shift, home area 1)	1	Observation
Ashton (PSW morning shift, home area 1 and 2)	7	Observations
Nina (PSW morning shift, home area 1)	9	Observations
Artemis (PSW morning shift, home area 1)	5	Observations
Molly (PSW morning shift, home area 1)	9	Observations
	1	Shadowing
Caroline (PSW morning shift, home area 1, 2 and 3)	5	Observations
Gail (PSW morning shift, home area 1)	2	Observations
Maria (PSW evening shift, home area 1)	6	Observations
	1	Shadowing
Tucker (PSW evening shift, home area 1)	4	Observations
Alex (PSW evening shift, home area 1 and 3)	4	Observations
Michelle (PSW evening shift, home area 1)	3	Observations
Serena (PSW evening shift, home area 1 and 3)	2	Observations
Holly (RPN morning shift, home area 2)	5	Observations
	1	Shadowing
Alice (PSW morning shift, home area 2)	4	Observations
	1	Shadowing
Eva (PSW morning shift, home area 2)	5	Observations
Katharina (PSW morning shift, home area 2)	4	Observations
Lola (RPN evening shift, home area 2)	4	Observations
Mia (PSW evening shift, home area 2)	4	Observations
Grace (PSW evening shift, home area 2)	4	Observations
Emily (PSW evening shift, home area 2)	4	Observations
	1	Shadowing
Drake (PSW evening shift, home area 2)	4	Observations
Zara (RPN morning shift, home area 3)	2	Observations
Sophia (PSW morning shift, home area 3)	3	Observations
Jasmine (PSW morning shift, home area 3)	3	Observations
Kate (PSW morning shift, home area 3)	3	Observations

The theoretical sampling efforts were accomplished over 48 episodes, during ten months, and I spent nearly 280 hours in the field collecting data from over 45 key informants. Each of the key informants had been interviewed, shadowed, or observed at least once (see Table 3.2). The data collection was initiated in late June 2014 with a formal meeting and followed by a two-day orientation session in August. The purpose of the orientation sessions was to provide a quick background about the organization to the newly hired employees. During these two days, I was exposed to the mission and vision of the organization, its various internal policies and guidelines, its structure, roles and functions, common terminology and acronyms used in the LTC sector and in everyday business practice, and the regulatory organizations.

The orientation sessions were a very beneficial step in narrowing down the scope of the data collection, in that it allowed me to identify some fundamental elements corresponding to the overarching research objectives. First, I found that in nursing care, Registered Practical Nurses (RPNs) and Personal Support Workers (PSWs) are the frontline employees who are responsible for delivering direct care to the residents. I also identified the managers who are responsible for planning operational tasks. As such, the primary key actors in the execution and planning levels were identified during the orientation sessions.

Second, I discovered during these orientation sessions that not all operations are equally important for managers in terms of managing compliance of individuals. This allowed me to identify failure-sensitive operations and limit the scope of my data collection mainly to fall prevention and management operations as well as medicine administration operations. Third, during the orientation sessions I was given access to the online learning system, with which staff had to take mandatory courses. This online system contains a substantial amount of clinical and nonclinical information about all the details of elderly care provision. Also the policies and procedures of the organization as well as the regulatory guidelines are available in this system, which I used regularly over the course of data collection to retrieve archival data.

After the two-day orientation session, and following the recommendations of Charmaz (2014) and Urban and Quinlan (2014), I started to introduce myself to various organizational actors at all levels, from the top managers to the frontline workers. Initially, my intention was to build a trust-based relationship with potential key informants in order to conduct interviews. I started[11] with interviewing three managers separately: the Clinical Services Manager, Director of Care (DOC) Manager, and Assistant Director of Care (ADOC) to learn about the function of major managing roles in PEC Co. However, I soon realized that as all these individuals are fully occupied with their daily tasks for care provision, the interview approach would not serve as the primary data collection method.

In addition, I soon found that service delivery in nursing homes is continuous (24 hours, 7 days a week), and in order to understand how operational integrity is managed in this organization, it was necessary for me to be present on an ongoing basis and repeatedly during the service planning and service delivery points. Moreover, to account for the social environment in which the individuals were interacting with each other and making decisions in their daily lives, this was necessary to closely observe the employees while performing their daily tasks. An account of the behavioural norms and structure of employees' daily lives with respect to managing operational integrity could be acquired through an ethnographic study, where the goal is to "grasp the native's point of view, his relation to life, to realize his vision of his world" (Malinowski, 1922, p. 25).

I resumed the data collection process by focusing on observations and shadowing. For this purpose I asked Sabrina, the Senior Manager who was my primary contact person in the organization, to place me in one of the home areas. This nursing home is comprised of six home areas. The home is a three-story building and each floor contains two home areas. Each of the home areas has a nurse station, two storage rooms, one dining room, three washrooms, one bathroom, and 32 rooms for residents (each room has a bathroom). The Senior Manager placed me in one the home areas which, according to her, "had less tension" in comparison to other home areas. Over time, I realized that by "tension" she

11 See Appendix B for a detailed list of study participants and data collection methods ordered chronologically.

meant the level of aggression among the residents. Hence, the home area that I was placed in was a perfect place to start observation and shadowing.

I initiated data collection with the observation sessions to establish a trust-based relationship with the staff, whom I asked to shadow in future visits. For the first few days, I tried to be present both in the morning and the afternoon shifts and only observe individuals at service delivery points. During these observation efforts I had the chance to socialize with the RPNs and PSWs and soon developed friendships with many of them. The primary purpose of my observation was to understand to what extent staff members follow operational plans, and in particular the fall prevention procedures that exist in their daily practices.

For the first few days, I spent my time at the nurse station, from where I could see the daily interaction of the staff members with residents. At each home area the nurse station was located in the middle of an L-shaped corridor. Therefore, most of the individualized service delivery that was happening inside the residents' rooms could not be observed directly from the nurse station. However, many interactions among the staff were happening inside or around the nurse station, as this was the place that they had to stop by to retrieve supplies to deliver service, thus running into each other frequently. In addition, the nurse station overlooks the living room, where most of the residents sit, socialize, and watch TV during the day. Therefore, from the nurse station I could see many of the interactions happening between staff and residents and among the residents.

Soon thereafter, I was able to build the relationships necessary to shadow the staff. I started with shadowing the evening shift nurse and one of his PSWs. Throughout their shift I recorded all my conversations with them. I also wrote down all my observations about the events happening in the home area. By the end of data collection process, I had shadowed thirteen key informants. Some of these individuals were shadowed more than once, and in total I completed twenty shadowing sessions. As for observations, I tried to observe the service delivery operations several times in three of the home areas. I observed most of my key informants more than once. The staff observed only once were the part-timers who were only present at the home area occasionally. Most of the full-time staff on

the other hand, were observed up to nine times. I intentionally observed three out of six home areas at PEC Co. because I realized there are no significant differences between these home areas, and that in observing the other three home areas, no further insights into the phenomenon would be gained.

As for archival data, in total I collected over 1200 pages from the internal documents of the company and from the Internet. Retrieving the internal documents was simple, as all the internal policies and procedures are uploaded on the PEC Co.'s training website. During my first week I was given access to this website. The archives collected from the Internet were mostly collected either from the Ministry's website or from various news websites. The documents collected from the Ministry's website were mostly policies and regulations. For retrieving some of the outdated archives, such as the Long-Term Care Homes Program Manual, which was in place before the Act and is not easily accessible now, I had to ask for help from the librarians. As for the pieces of news that I found on the Internet, my focus was mostly on falls and other incidents. In addition to reading the news, I studied the comments of the readers at the end of articles. I studied carefully all of the collected archives, but formally coded 100 pages during the data analysis stage which were most relevant to the subject of this study. While studying the rest of the archives was necessary for me to understand complications of the geriatric health care system in Canada, not everything was relevant to managing fall prevention and management and medicine administration operations.

The course of data collection occurred from June 2014 through April 2015 (see Appendix B), and while all types of service delivery operations are considered as sources of data, particular attention was paid to fall prevention operations and management and medicine administration operations. In total, I spent nearly 280 hours at PEC Co. collecting data from over 45 key informants, during 48 episodes of visits. Each of the key informants had been interviewed, shadowed, or observed at least once. Majority of the key informants had been involved in data collection several times (up to a maximum of 10 times). To record the events during observational sessions and shadowing sessions I used a Microsoft Surface tablet to take notes. This helped me to organize my notes in the form of a data set, which is a primary step in establishing research rigour (Yin, 2003). After every visit, I

transcribed the notes into a Microsoft Word document, which later were transferred to NVivo for coding. The data collected through interviews and meetings (seven sessions), shadowing (20 sessions), observation of service delivery (21 sessions), and archival documents (100 pages) in total has yielded over 400 pages of transcribed data which was coded and analyzed using NVivo 10 Software.

3.5 Data Analysis Process

Before entering the field and following the recommendations of Miles and Huberman (1994), as well as applying the key concepts that were discussed in chapter 2, I developed a scheme of coding comprised of a dozen codes that were derived from my early efforts in the conceptualization of the operational integrity phenomenon. However, I soon realized that the detailed in-vivo coding brings about a large number of codes that could not be categorized in my predefined scheme of coding. Therefore, I used my initial coding scheme as the point of reference for comparison purposes. For example, I distinguished between two dimensions of planned tasks and executed tasks or between two dimensions of planning efforts and execution practices when coding data.

The detailed coding, also referred to as open coding, allowed me to retain the language of study participants whenever possible (Strauss and Corbin, 1998). The iterative process of open coding resulted in the emergence of the first-order categories (Gioia et al., 2013). As the research proceeded with analysis, I started seeking similarities and differences among various categories. Strauss and Corbin (1998) call this interpretive process axial coding, where each first-order theme is looked up across the entire collected data. Through these constant comparison processes of axial coding, eventually the number of categories generated in the open coding stage is reduced to a more workable number of codes, or so-called second-order themes. Once the final set of second-order themes were established, I aggregated the themes into “aggregate dimensions” (Gioia et al., 2013). The result of this process is the development of data structures presented in the findings of chapters 4 and 5.

As I was proceeding with the coding process, I was constantly consulting the relevant literature to review the previous theorizing in the domain of emergent themes from

data. The final goal was to develop a "vibrant inductive model that is grounded in the data", as stated by Gioia et al. (2013). During the coding processes, I created a matrix of relationships between the second-order codes which I used to develop the theoretical model of operational integrity presented in the findings chapters.

3.6 Notes on Rigour

The rigour of a grounded theory study is assessed in terms of its trustworthiness. Lincoln and Guba (1985), drawing on the logics of validity and reliability in the positivist paradigm, establish the criteria for assessing rigour in an interpretive paradigm. As the authors state: "… the basic issue in relation to trustworthiness is simple: How can an inquirer persuade his or her audiences (including self) that the findings of an inquiry are worth paying attention to, worth taking account of?" (Lincoln and Guba, 1985, P.290). They answer this question by outlining the four criteria of trustworthiness of interpretive research: credibility, transferability, consistency, and confirmability.

The credibility criterion is equivalent to internal validity in quantitative research, and if it is established, then that means that the findings of the study are congruent with reality. In other words, credible research adequately represents the perspective of the individuals who construct the reality (Lincoln and Guba, 1985). Utilizing a systematic methodology like grounded theory for executing research is one of the key factors for ensuring the congruency of the findings with social reality. In addition, as fully described in this chapter, the data collection through observation and shadowing approaches allowed me to learn about the socially-constructed reality in a long-term care context. It also allowed me to leverage the first-hand data acquired from the individuals who experience the phenomenon on a daily basis in order to theorize about the operational integrity phenomenon. Finally, after finishing the data analysis phase, I met with the Managing Director of the home and presented my findings. During this meeting, which lasted over three hours, I articulated the elements of the process model presented in chapter 6 and received the manager's feedback on each element.

The transferability criterion which is equivalent to external validity in quantitative research, requires the research findings to be transferable to other contexts (Gibbert,

Ruigrok, and Wicki, 2008). As indicated earlier in this chapter, the revelatory potential of a long-term care facility makes it an ideal choice for conducting a study on the operational integrity phenomenon. In fact, as the operations in nursing home are so compliance-sensitive, studying this setting can bring about a thorough picture from dynamics of operational integrity micro-processes. Therefore, our findings can be transferred to other human-reliant systems.

The dependability criterion is equivalent to reliability in quantitative studies, and it means that the findings of a qualitative study should be consistent or dependable. In order to maintain this criterion, a study should be replicable, meaning that if the research is repeated in the same context, and if the same methodology and data sources are applied, then the findings should be similar. To achieve dependability, transparency of research process is the key (Gibber et al., 2008). Such transparency should be established by providing a detailed account of data collection and analysis processes (Bansal and Corely, 2012). Throughout this document I tried to explain all the details of the study process to ensure that if this study is to be repeated, every detail of it is completely clear. In particular, in chapters 4 and 5, which are devoted to my findings, I offer a detailed account of how I draw conclusions about each key emergent theme from the data. Also, based on Yin's (2003) recommendations, a case study database was created in which all the acquired data from fieldwork was stored.

The confirmability criterion, which is equivalent to objectivity in quantitative studies, maintains that the research findings should be free from biases of the researcher and the participants in the study. In order to establish this criterion there should be intersubjective agreement (Lincoln and Guba, 1984). To minimize the bias resulting from the discrepancy between what people say and what they do, as fully described before, I have used triangulation to collect data from various sources, various approaches, and various instances. Finally, frequent meetings with my supervisor, which is known to serve as an implicit audit trail (Baxter and Eyles 1997), helped me to minimize my personal biases.

Chapter 4 Achieving Operational Integrity

In this chapter, I attempt to answer the research question "how is OI achieved?" by analyzing the previously described nursing home's data. For laying the foundation to answer the research question, I start by providing a description on where the planned operational tasks originate from in section 4.1. Then I proceed to answer the research question by distinguishing between the challenges that the organization faces in achieving operational integrity in section 4.2.1, and the counteractions that are applied by the organization to achieve congruence between planned and executed operational tasks at the execution process in section 4.2.2.

4.1 Planned Operational Tasks

In chapter two, a planned operational task was conceptualized as a process, procedure, or plan that is executed by employees to accomplish the delivery of service to the customer (Stewart, 2003; Tucker, 2004). It was also argued that planned operational tasks are value-added, meaning that accomplishing these tasks creates certain desired outcomes such as ensuring the safety of employee and customer, offering high service quality, minimizing resource usage, hedging information security risk, or meeting the regulatory requirements.

In the context of the Ontario-based nursing homes, the planned operational tasks are mostly driven by the requirements of the Long-Term Care Homes Act, 2007 (the Act henceforth) and are personalized for each resident based on his/her individual medical needs and wellbeing. The planned operational tasks related to medicine administrations are recorded in the individualized care plans and are generally executed by the Registered Practical Nurses (RPNs) on a daily basis. In addition, there are procedures regarding medicine administration which are designed by managers to meet regulatory requirements and which must be followed by the RPNs. The planned operational tasks related to fall prevention are also either individualized and recorded in the care plan, or are translated from the Act's requirements for fall prevention in the form of procedures. The fall prevention and medicine administration tasks are embedded in the care plan and translated

procedures which will be discussed here briefly[12].

Care Plan

As one of the fundamental requirements of the Act, upon the admission of the resident, either the Registered Nurse (RN) or the Director of Care (DOC) takes the medical history of the resident and enters this information into the Electronic Health Record system. This information constitutes the basis of the care plan, which establishes the backbone of planned operational tasks for delivering individualized services to the residents (The Act, 2007, c. 8, s. 6 (2)). Many nursing homes in North America, including all three homes of NASH long-term care, use the PointClickCare (PCC) system for recording resident information and handling the care plans.

The admittee to PEC Co. might have been transferred from other nursing homes or elderly care centres, from hospitals, or from their homes, and the full medical background of the resident is transferred with him/her. From this background information, the list of the resident's medications and treatments is derived and recorded in PCC and, if necessary, new medications ordered. Regardless of the available information transferred from previous caregivers, based on the Act, PEC Co. is responsible for evaluating the current clinical and nonclinical needs and preferences of the newly admitted residents. As the residents are oftentimes not cognizant, most of this information is acquired from the families of the residents (also known as Substitute Decision Makers (SDM)) and is recorded in the care plan. Thus, families provide large input to the care plan.

After the initial evaluation of resident condition, some goals are set and written into the care plan for each area that has room for improvement (e.g., the state of gait or balance of the resident). In using these evaluations risk factors (e.g., risk of choking, heart failure,

[12] In addition to the care plan and translated plans that emanate from the Act and its regulations, the long-term care providers have to comply with many other pieces of legislation such as the Occupational Health and Safety (OHS) Act, Workplace Safety and Insurance Act, Ontario Fire Prevention and Promotion Act, and the Nursing Act. Therefore, in planning for provision of services, all the basic requirements of the other regulations should also be taken into account. However, as the focus of this study is on fall prevention programs and medicine administration, the details of these requirements are not argued here.

or fall) are identified. Once all the information is entered into the system, the system itself calculates the risk automatically. For instance for risk of falls the system takes into account various comorbidities of the resident, the medications that he or she takes, previous fall records, the state of his/her gait, continence, and vision to identify the level of fall risk.

For any identified risk, such as risk of falling, a set of appropriate interventions to mitigate the risk is determined, which is also written in the care plan. In areas in which an expert's opinion is required for addressing certain risk factors, the RN or DOC who is involved in the admission process only develops an initial set of interventions based on the existing templates. Then in the future, at the first availability of the doctor, psychologist, physiotherapist, pharmacist, or other experts with specialized knowledge, the rest of the necessary interventions are developed and added to the care plan. For example, for fall prevention the final set of interventions is usually developed by a physiotherapist who has a Ph.D. degree in physiotherapy and also works as a therapy service supplier in the home two days a week.

Finally, during the admission process the resident (if cognizant) or his/her SDM are asked about the resident's habits, needs, and preferences. All the gathered information is registered in the care plan and accordingly, clear directions are given to the direct caregivers internally with the system (for a discussion on the details of how these operational tasks are executed on a daily basis by the frontline nurses and support workers, see Appendix C[13]). In addition to recording this information in the system, the critical information is communicated verbally to the staff. A binder containing the printed care plan is also generated for each resident and is placed inside a large file cabinet, accessible by all direct caregivers.

Based on the regulations, a care plan should be developed and communicated to the staff within 24 hours of a resident's admission. However, a care plan is not a static object. It constantly evolves as the condition of the resident changes, and the home is responsible

[13] The discussion in Appendix C is intended to provide a detailed account of the daily responsibilities of the frontline staff when rendering services to the residents. This discussion provides the background for understanding the emergent themes in data.

for updating the care plan all the time. Therefore, as soon as there is a change, even a trivial or temporary one, the employees who are aware of the change (e.g., the physiotherapist) should update the care plan accordingly. Not everyone, though, has access to the PCC system. For instance, Personal Support Workers (PSWs) have their own system (see Appendix C for detail) and, as they do not have credentials to offer clinical services, they cannot make any changes to a care plan. Yet, if PSWs notice changes in the condition of residents, they communicate this information to the nurse (RPN or RN) who can implement the necessary modifications in the care plan.

Constant evolution of a care plan is not only the result of changes in the condition of a resident, but also emanates from a requirement of the Act which requires the nursing home to reassess the resident's condition every six months (the Act, 2007, c. 8, s. 6 (10)) at minimum. At PEC Co., the reassessments are usually implemented quarterly. The purpose of reassessment is to review the goals set out in the last round of the care plan development, to evaluate the outcomes of the plan, and if necessary, to develop new sets of interventions. As the care plan is modified in the PCC system, the printed care plan also should be updated accordingly so that the PSWs who do not have access to the PCC system stay informed about the modifications in care.

Translated Procedures

The operational requirements of the Act and regulation are not limited to the care plan. The frontline employees, while sticking to the care plan for each resident, must follow many detailed standards on a daily basis during the service execution process. For instance, one of the primary requirements of the Act is to provide a safe environment for residents by designing fall prevention programs. These types of requirements have been translated by the senior management into the policies and procedures which must be followed by staff in the delivery of services.

It is noteworthy that while the directions for development of care plans are quite detailed and clear in the Act and its regulation, many other areas such as fall prevention are discussed broadly and are therefore completely open to the interpretation of managers. Hence these types of requirements have to be translated by the management into more

comprehensive instructions (as aforementioned regarding fall policy) which are executable by frontline staff. Consider the following requirement in the Regulation 79/10 for fall program:

> *Every licensee of a long-term care home shall ensure that when a resident has fallen, the resident is assessed and that where the condition or circumstances of the resident require, a post-fall assessment is conducted using a clinically appropriate assessment instrument that is specifically designed for falls. (O. Reg. 79/10, s. 49 (2))*

This requirement has been translated by the senior management into the following internal procedures (Reference: Post Fall Assessment Manual, Policy number: 09-02, Date: September 2013):

- *When a resident falls, Registered Staff will:*
    - *a) Immediately assess the resident including*
        - *i. Range of motion*
        - *ii. Pain (verbal/non-verbal signs)*
        - *iii. Skin integrity*
        - *iv. Vital Signs*
        - *v. Responsiveness*
        - *vi. Head Injury*
        - *vii. Ambulation, if applicable;*
    - *b) If there is any loss of consciousness call 911 and arrange to transfer the resident to hospital;*
    - *c) If there is no loss of consciousness, complete a head to toe exam as per above PRIOR to moving the resident;*
    - *d) If the resident is bleeding anywhere, apply pressure and send a staff member to get a cold pack;*
    - *e) Ensure the resident is able to move their limbs on their own (if normally able to do so) prior to moving the resident; staff are not to move the resident's limbs in case of fracture;*
    - *f) Ask if the resident is dizzy or lightheaded.*

- *If there are any concerns related to the wellbeing of the resident, examples include:*
    - *a) The resident is unable to move a limb without experiencing pain,*
    - *b) There is uncontrolled bleeding,*
    - *c) There is external rotation and shortening of either lower limb, have the resident remain where they are and call 911 for transfer to the hospital.*

- *If following assessment by the registered staff member or physiotherapist the resident appears okay, assist other staff with transferring the resident to standing position or to their bed or wheelchair. Unless the resident is independent, a mechanical lift will be used to lift the resident from the floor.*

- *If the resident has hit their head in the fall, implement Head Injury Routine (HIR). Unless otherwise ordered by the physician HIR is to be completed every 15min for first hour, and every 30min for next 2hrs, then hourly for next 4hrs, then if stable every 4hrs until 72hrs after the suspected head injury has been reached.*

- *Notification of Family/SDM:*
    a) *The resident, if cognitively able, who fell and is remaining in the home is to be asked if family can be called to inform them of the incident.*
    b) *If the resident is not cognitively able to understand this request, the family or SDM for care is to be informed of the incident.*

As inferred from this policy, the senior management translated the requirement of the Act into this detailed procedure for handling a fall occurrence (for an example of comparison between medicine administration policy and the requirement of the Act see Appendix D). All frontline employees are expected to follow all the details of these steps precisely when delivering care to the residents. This is how the organization ensures its compliance with the requirements of MOHLTC.

Thus, if the frontline employees fail to fully and correctly comply with the requirements of the translated procedures, the organization is exposed to the operational risk of noncompliance with the Ministry's requirements. More precisely, if any planned operational task, either in the form of the care plan or the translated procedures, is not executed correctly and fully, and if the Ministry's inspectors identify the lack of congruence between planned and executed tasks, the findings are cited on the MOHLTC website and the organization is compelled to take corrective actions.

4.2 Executed Operational Tasks and the Emerging OI Gap

Figure 4.1 is a simplified depiction of the service delivery environment that I observed at PEC Co. In this figure, planned operational tasks can be understood as the combination of the individualized care plans and the translated procedures, which were described in the previous section. In an ideal situation (see Figure 4.1.a), the operational systems function in a state of perfect operational integrity, in which the tasks are executed as correctly and fully as planned by the frontline employees. Therefore, in this ideal state there is a perfect congruence between planned and executed operational tasks.

Figure 4.1 Operational Integrity Lapse: Emergence of a Gap between Planned and Executed Operational Tasks

Figure 4.1.a. Perfect congruence in planning when no challenges exist.

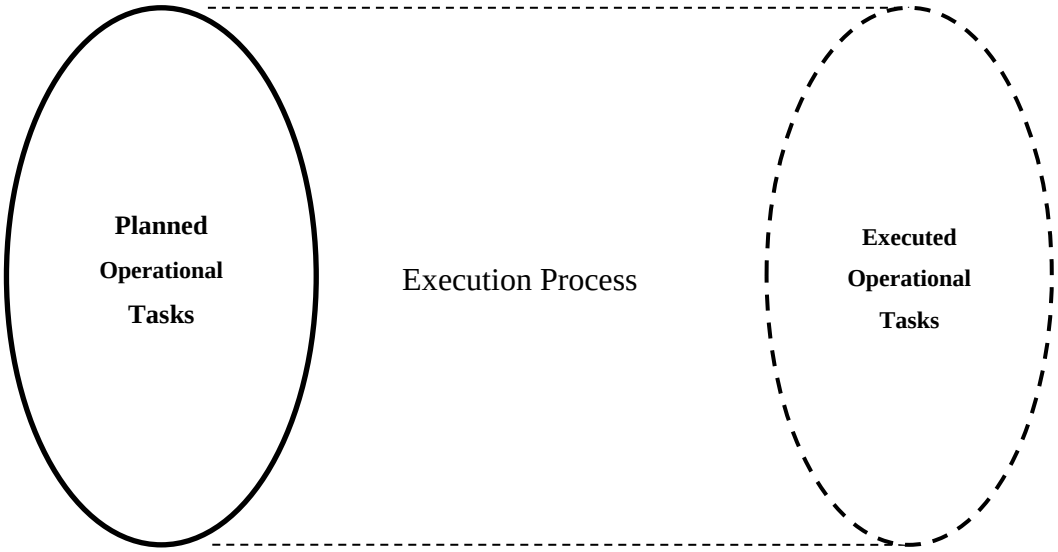
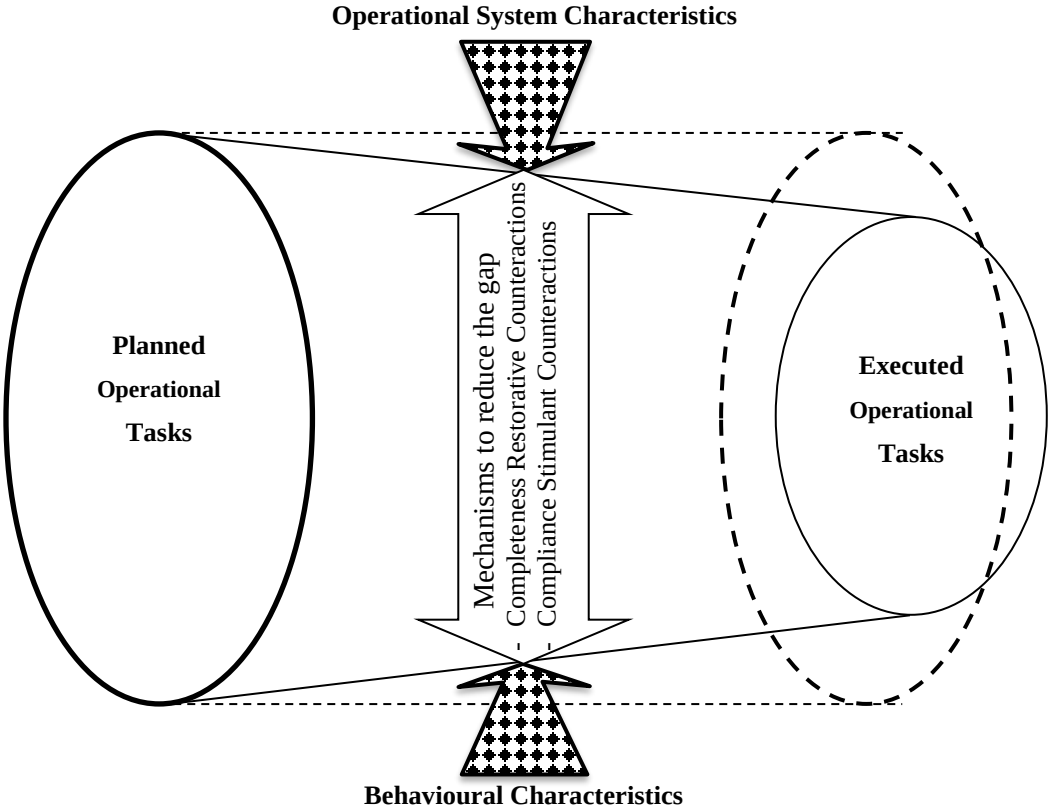


Figure 4.1.b. The gap emerges when challenges exist.



In Figure 4.1.a the congruence is shown using two parallel dotted lines, connecting two perfectly congruent ovals that depict planned operational tasks and executed operational tasks. Yet, such congruence is seldom ever achieved (see Figure 4.1.b). As a result, a gap between planned and executed operational tasks emerge. This section will discuss the study findings related to why such a gap emerges and how the managers attempt to return to a state of operational integrity.

During the service delivery process the tasks, which in the planning process are transformed into the care plans and translated procedures, are executed[14]. Analysis of data revealed that during this process there are challenges (in Figure 4.1.b this is illustrated with arrows in a harlequin pattern) that prevent the frontline staff from accomplishing the planned operational tasks fully and correctly. Thus, these challenges result in the executed operational tasks being incongruent with the plans. Sometimes the incongruence is the result of the executed operational tasks exceeding the planned operational task, a situation which is referred to as a positive OI gap in this thesis. Most other times, however, the executed operational tasks fall short of the planned operational tasks, a situation which is considered as a negative OI gap. The positive gap is shown in Figure 4.1.b by the area of the "Executed Operational Tasks" that falls out of the dashed oval.

In a positive gap situation, the employees, due to certain behavioural characteristics such as emotional bonds with the residents, go beyond their responsibilities and over-deliver services to a few residents. As their focus and attention is directed towards certain residents, though, they cannot execute the rest of their tasks exactly as planned and they

[14] At PEC Co. a large portion of the individualized care plan is executed by the RPNs and the PSWs who respectively deliver clinical and nonclinical services to the residents on a daily basis (for details of execution of clinical and nonclinical services see Appendix C). Having said that, the dietary manager, social worker, RN, physiotherapists, and doctors also get involved in care delivery but to a lesser extent in comparison to the RPNs and PSWs. For instance, at any given moment half of the residents of the home are in the physiotherapy program, which means that the physiotherapists deliver physiotherapy exercises and massages to half of the residents on daily basis and the remaining half of residents does receive indirect physiotherapy services. Most of the residents who are no longer in the physiotherapy program receive massages and exercises from the PSWs. As there are budgetary constraints, organizations can offer the physiotherapy services only to half of the residents, but when a resident leaves the program, the physiotherapists or the Restorative Aide teach the PSWs to continue working with the resident for the rest of his or her stay or as long as the resident is capable of following the exercises.

fall short in the execution of many other tasks. Thus even the positive gap situation results in a lack of congruence between planned and executed operational tasks. In a negative gap situation, the employees face challenges, emanating from the operational system characteristics or their own behavioural characteristics, and as a result they either intentionally or unintentionally do not comply with the planned operational tasks' requirements. In both positive and negative gap situations the employees' lack of compliance with the requirements of the tasks engenders OI lapses, i.e., lack of congruence between planned and executed operational tasks.

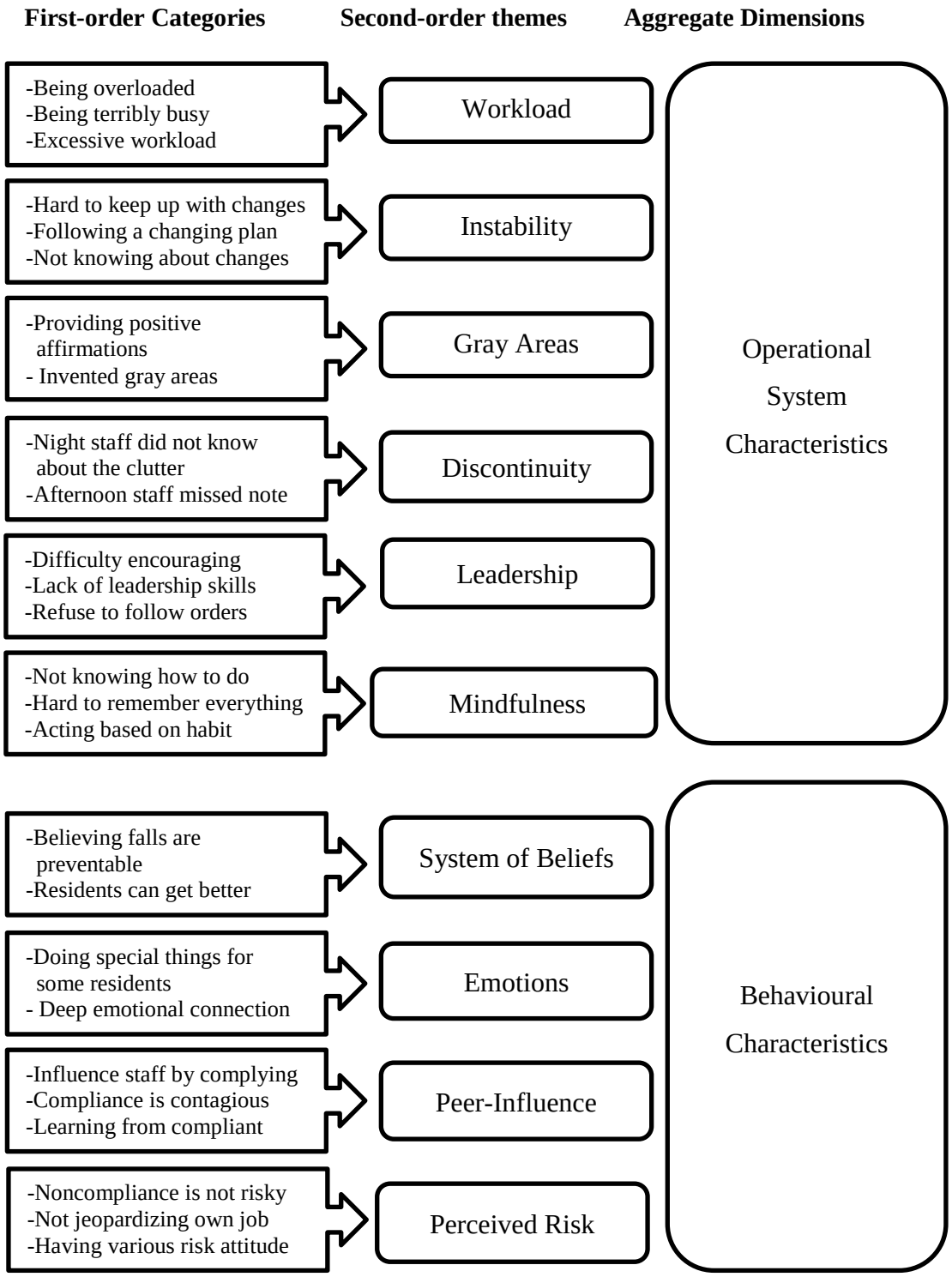
While these challenges breed incongruence in the operational systems, the managers and employees have developed some ex-ante (built-into the system) or in-process (developed and deployed as the tasks are executed) counteractions to dampen the pressure from the challenges and increase the congruence. As such, OI is a dynamic phenomenon which is the result of the interplay between two opposing forces of the execution challenges and the execution counteractions. The following two sections of this chapter discuss the challenges in the execution process and the counteractions in the execution process respectively.

4.3 Challenges in the Execution Process

During the service delivery process, planned operational tasks are executed by various actors in the organization, in particular by frontline staff. As briefly mentioned above, these individuals often experience difficulty in fully and correctly adhering to all planned tasks. From the data, two major aggregated dimensions emerged which clarifies these challenges in the execution process: (1) the operational system characteristics and (2) behavioural characteristics (see Figure 4.2). In this figure, the first-order categories are the result of my efforts during the open coding practice when I conducted a detailed in-vivo coding of all collected data (Gioia et al., 2013). Once all data was coded in detail, I then compared the first-order codes' similarities and differences. During this process, so-called axial coding (Strauss and Corbin, 1998), each first-order theme is looked up across the entire collected data. For example, for the first-order category of "being overloaded" I searched for any code that had a similar meaning and context, and grouped all these codes in a second-order theme of "workload", which is representative of the all the first-order categories. At the

end of this process I aggregated the second-order themes that explain the reasons for the gap between planned and executed operational tasks.

Figure 4.2 Data Structure – Challenges of Execution



Each of the two aggregated dimensions contain certain organizational factors (operation and individual characteristics of organization) that make achieving congruence between planned and executed operational tasks highly challenging. Distinguishing the final aggregated dimension was fairly straightforward in that the emergent second-order themes for each dimension were clearly distinctive in the type of characteristics that they represent.

With respect to the operational system's characteristics, the service delivery employees have the intention to follow the requirements, but due to the specific characteristics of the operational systems, they are unable to follow the planned operational tasks correctly and fully. Whereas, in the case of the challenges associated with individuals' behavioural characteristics, the lapses in operational integrity are the result of conscious choice of the care providers and are considered as intentional violations of the requirements. As such the major difference between these two categories is the intention of the person who delivers the care. Each aggregated dimension of operational system characteristics and behavioural characteristics is explained in detail in the following two subsections.

4.3.1 Challenges in the Execution Process: Operational System Characteristics

A firm's operational system encompasses the aligned configuration of physical (e.g., plant, parts), procedural (e.g., processes, policies) and provider (e.g., people, partners) elements that, supposedly, fit with the intended business strategies and capabilities and determines the likelihood of attaining appropriate operational performance outcomes (Roth and Menor, 2003). In a nursing home care context, an operational system represents the elements of a care services delivery system, i.e., the daily care plans, the care delivery processes, and the people involved in delivery of the care plan[15].

The characteristics of the operational system that cause operational integrity lapses are as follow: (1) workload, (2) instability, (3) gray areas, (4) discontinuity, (5) leadership, and (6) mindfulness. Following an inductive approach, I have clustered these six second-

[15] As the system is highly human-reliant, the physical elements such as equipment and machinery are not part of the operational system.

order themes as the aggregated dimension of "operational system characteristics" for two reasons. First, all of the first-order codes in these categories represent a specific challenge in the operational system that prevents the frontline employees from being capable of accomplishing tasks fully and correctly. Second, all the first-order codes were common in terms of the compliance intention of the staff. In all of these instances, the frontline employees who performed the assigned task actually had the intention to fully and correctly execute the task but, because of these challenges in the operational system, failed.

While all the first-order categories were common in the compliance intention of the frontline employees, they were distinguished and therefore categorized in these six distinctive second-order themes based on the specific type of challenge that they represent. The coded first-order categories representing "workload" all have the connotation of some sort of excessive workload that prevents the employees from executing their tasks fully or correctly. These first-order codes are easily distinguishable from those which are related for example to "instability" that have the connotation of some sort of constant alteration in the care plan. On the other hand, the first-order categories which are grouped as "gray areas" are different from those grouped as workload and instability because these are related to a part of a care plan that is first created and individualized by directed caregivers and second, are not written in the care plan. That being said, all of the first-order categories in these three second-order themes characterize the plan element of an operational system.

Likewise, the first-order codes that are clustered in the second-order theme of "discontinuity" are different from other codes in that these are pieces of data that depict the frequent interruptions (over shift hand-off) in work processes. In addition, discontinuity of the work clearly is a characteristic of the work processes, and it does not characterize the plans or the provider elements (i.e., managers and employees) of an operational system. On the other hand "leadership" and "mindfulness" both illustrate a lack in the system that emanates from the provider element of the operational system. However, the first-order codes representing leadership are clearly related to the lack of skill on the part of managers in managing their subordinates, but the first-order codes representing lack of mindfulness are related merely to the lack of attention on the part of the frontline employees in executing assigned tasks.

In total, I identified over 30 instances[16] in which the challenges that the frontline employees faced in accomplishing the tasks were emanating from the characteristics of the operational systems. The most frequent second-order theme was workload representing 11 instances, followed by discontinuity of work processes and instability (seven instances each), mindfulness (five instances), leadership (four instances). As will be discussed in greater detail, workload, instability, and gray areas represent the characteristics of the planned operational tasks. The discontinuity of the work characterizes the service delivery processes, and the lack of leadership skills and mindfulness characterizes the individuals involved in service provision.

Workload

One of the major challenges that individuals face in executing the planned operational tasks is that the tasks are not well-crafted in the planning process, and as such, are actually infeasible. The planned operational tasks that are designed during the planning process overload the employees who are supposed to carry out the task. Therefore, despite the willingness of the staff to execute the tasks fully and correctly, some aspects of the tasks always remain unexecuted. Consider the following excerpt (a more comprehensive set of representative data underlying the emergent themes is provided in Appendix E):

> *While I'm waiting for Jen [Restorative Aide] to feed Tara [a resident], I start talking with Vanessa [an RPN]. She's administering medications during lunch. She says she's so stressed out today: "Usually my Tuesdays are terribly busy because I have to attend the care conference to discuss the status of one of the residents with their family and change the care plan... So I fall behind the schedule in medicine administration"... Now she went to give Amanda [a resident] some pills and she left her with the pills. She arrives back to the medicine cart and answers "yes" to medicine questions in the PCC system [meaning that the medicines are administered as planned] ... As Vanessa is answering these questions, I see Amanda took the three pills all at once, but then she dropped one of those and swallowed the other two. I told Vanessa about this and she immediately jumped and found the pill on the floor and gave it to Amanda. Then she left her again. Again Amanda dropped the pill…. I again told Vanessa that she'd dropped the pill. She sighed and went and found the pill on the floor and gave it to her again and waited for her to take it. I told her, I guess you'll be better off if you wait for her to take the pill... She answered:*

[16] Each of these instances either was a case of unintentional noncompliance that I observed during shadowing or observational sessions, or an insight, illustrating why fall incidents or medicine errors happen that was shared by a key informant during interviews, observation, or shadowing sessions.

> *"technically I should wait for her to take it anyway, but I'm way behind schedule; I have to rush." (Shadowing Restorative Aide, informal conversation with RPN, Apr/22/2015)*

As illustrated in the above excerpt, in order for the medicine administration tasks to be fully executed as planned, the nurse is supposed to wait for the resident to swallow the medications before she leaves. In this instance, however, the nurse was in such a hurry that she skipped the waiting part of her task. While this is one of those instances that the lapse of operational integrity did not result in any major risk, it could be potentially harmful for the resident. In addition, if the Ministry inspectors find a stray pill, it might be cited as a major quality issue for the nursing home.

During a majority of my visit at PEC Co., I witnessed cases of slips or lapses in the execution of the planned tasks due to the infeasibility of tasks in terms of the work overload. The overload is perhaps the most challenging obstacle in the delivery of care services. In all of my memos related to shadowing data, I found notes about how it was difficult to shadow an RPN or a PSW as they were running around all day long for at least eight hours, almost without any break. Quite often, at the end of each day when my shadowing subjects were charting, they would tell me that there were many things that they were actually supposed to do during the day, but which they did not have enough time to accomplish. Here is an excerpt from shadowing a PSW:

> *Some nursing homes, the non-profit ones, have sometimes six or seven staff every shift. I'm sure they can provide excellent care. We can't. As long as the managers leave us with three or four PSWs we won't be able to do everything... The issue is money. The nursing homes want to make money and that's why they're always understaffed… So if you ask me why too many falls happen in this home or generally in nursing homes, everywhere, I should tell you, in th first place, this is the Ministry's fault that it doesn't give enough money to the homes, and second it's the manager's fault that can't understand with this level of workload I can't take good care of the residents; I can't make sure Jason [a resident] is walking around with his walker or make sure he has not left his walker somewhere else, while I'm giving a bath to another resident. But actually the care plans want me to do both simultaneously. (Shadowing a PSW, Apr/02/205)*

In the majority of cases, the employees are genuinely willing to perform as planned to provide the best possible care, with all its details, to the residents. However, they are under a great deal of pressure due to time constraints and heavy workloads. The reason for this overload and time pressure is that the management team has obligations towards the owners of the company to maximize their return on investment. Besides, the nursing homes are

generally co-funded by the residents and the Ministry. The residents are required to pay for their accommodation based on the prices that MOHLTC has set for all homes – public and private – in the province. The Ministry on the other hand pays for the cost of care service offered by the home[17].

Thus, the managers have to use the residents' copayment and the Ministry's funding to run the home and provide profit for the homeowners. Therefore, managers constantly strive to keep the operating cost as low as possible, and use resources in the most efficient manner to increase the return on investment of the owners. As can be inferred from the PSW's comment though, the managers of non-profit homes have no obligation to maximize profit and hence they can afford to hire more staff. Generally speaking, understaffing is a common problem among privately-held nursing homes in Ontario (Hsu, Berta, Coyte, and Laporte, 2016; Tanuseputro, Chalifoux, Bennett, Gruneir, Bronskill, Walker, and Manuel, 2015). As such, for running private nursing homes, the managers have to keep the direct labour cost at the lowest possible level to be able to create a surplus and generate revenue for the investors.

Finally, as indicated earlier, any factor that contributes to the failure of the frontline employees in accomplishing their tasks fully and correctly can potentially compromise the safety of the residents, either in the form of occurrence of a fall or medicine error incident:

> *Suddenly Holly [RPN] started yelling: "stop dragging him he's gonna fall." I looked back and I saw Ashton [a PSW] had taken the left hand of Peter [a resident] and was pulling him towards the door of the dining room, and Peter actually had a "near fall" situation. Ashton answered: "I'm sorry but it's getting too late for lunch and most of the residents are still in the living room." Holly whispered "idiot". (Shadowing an RPN, Mar/09/2015)*

The PSWs are supposed to accompany the residents who are prone to falls to the dining room. The purpose is to ensure that the residents are not going to have a fall during the

[17] The care services fee is funded through a per-day amount, the so-called the Level of Care Per Diem funding system, and is paid by the Local Health Integration Networks (LHINs) to the nursing homes. The Level of Care Per Diem is determined by adjusting the Base Level of Care that is the total per diem subsidy (Ministry of Health and Long-Term Care, 2012). The Base Level of Care Per Diem is determined by the Ministry considering all the nursing homes in Ontario. This funding is comprised of the four envelops: Nursing and Personal Care $94.37, Program and Support Services $9.41, Raw Food $8.03, and Other Accommodation $53.93. These funding amounts are based on the most recent (as of April 1st, 2016) LTCH Level-of-Care Per Diem Funding Policy of the Ministry.

transfer. However, in the face of time pressure the PSW had to rush and, more precisely, drag the resident instead of accompanying him, and as a result the resident had a near fall incident. As such the overloaded frontline employees who are dealing with tremendous time pressure occasionally fail to adhere to the operational tasks that are designed to prevent falls or medicine incidents, and instead expose the resident and therefore themselves and the organization to potential operational risk.

To summarize, the care plans crafted during the planning process often are not feasible, as the workload is quite disproportionate to the number of staff. The understaffing problems emanate from the lack of financial resources coupled with the obligation of the managers to generate proper returns on investment for the nursing home owners. As a result of understaffing, accomplishment of all planned operational tasks fully and correctly, is infeasible. This finding is supported by the safety literature (Brown, Willis, Prussia, 2000; French, Bedford, Pollard and Soane, 2011; Pagell, Klassen, Johnston, Shevchenko, Sharma, 2015) that raises the issue of excessive overload and pressure for higher productivity levels as major contributors to unintentional noncompliance of employees with safety requirements. Finally, the workload problem has been discussed in the lean operations literature as a form of waste or "muri" that result in a poor working condition (Hines, Found, Griffiths, and Harrison, 2011; Radnor, Holweg, and Waring, 2012).

Instability

Another characteristic of the planIned operational tasks at PEC Co. is the instability and volatility of the tasks. A care plan is constantly evolving. Supposedly, the nursing care is required to help the resident with their daily functions, and as the physical and mental health conditions of the residents change, care plans should be adjusted to reflect their needs. As a result, various planners at the organization, such as the doctors, dietitians, social workers, or physiotherapists constantly have to change the care plan based on the daily requirements of the resident. In particular, the medications are constantly changing as the residents' health conditions change. Likewise, the fall prevention tasks evolve over time. For instance, if a resident is not a high risk when he/she is admitted, the fall prevention program only focuses on working on increasing the mobility and strength of the resident. However as soon as a fall happens, the Restorative Manager and her assistant in

collaboration with the physiotherapists make new plans for addressing the fall incidents. In addition, the families of residents have some input into the care plan, and they might have their own specific requirements, which might also be changing over time. For instance, as a resident's dementia was progressing faster the family asked the caregivers to encourage their father to take part in the physical and social activities, hoping that he would be less restless and therefore decrease his chance of falling.

As a result of the instability of the planned tasks, it is often difficult for the direct caregivers to remain updated about the changes and to follow the most recent plans of care exactly. The PSWs have their own system of Point of Care (POC), and the managers and RPNs have access to their own system of PCC (for details see Appendix C). But the care plans are developed and modified in the PCC system, and the PSWs have no access to this system to see the changes made within it. Hence, when changes occur in a care plan the PSWs hear about the changes from their RPN or managers. Some individuals who change the care plan (e.g., Restorative Manager) usually leave notes in the 24-hr report binder for the PSW in addition to verbally informing them. There is also a binder of individualized care plans for each of the residents in the meeting room of each home area. If the PSWs have a question about the detail of care they can always check the resident's binder. It is the responsibility of the RPN to keep the binders updated. Bearing that in mind, most of the time the nurses are behind in updating the binders, as an RN once explained. The following excerpt from an interview with a senior manager might clarify this point:

> *There are studies that actually prove nurses make medicine errors due to the changes that constantly happen in the patients' care plans … Everybody thinks our job is so routine and boring … Actually our days are very exciting here. I was saying to someone the other day that we should really do a reality show because we really open people's eyes to what goes on. So in reality this is so challenging to provide care for patients that are so dynamic, I mean they change all the time and so their care changes too, so the staff should deal with this dynamic nature of care, and this is tough for many considering their heavy workload (Interview with a senior manager, Aug/28/2014)*

This is a requirement by the Ministry to always keep the care plan updated. However, considering constant time pressure that the frontline employees face, keeping up with the modifications of care plans and adhering to the day-to-day changing requirements are highly challenging. In particular when the staff members do not work with residents in an ongoing manner, it is even more difficult for them to keep up with the changes. As the staff

members cannot work more than five days a week, one shift per day in the home, the organization has to hire part-time staff who are at the home occasionally. Therefore, the part-timers are less likely to be aware of the most recent changes in the residents' conditions. On one occasion, after a resident's fall, the Restorative Manager decided to add hip protectors to the care plan of the resident, but even the full-time staff had difficulty in following the plan initially as they were not at the home when the change happened over the weekend.

In sum, because of the changes in the health status of the residents, care plans are unstable. As changes happen so fast and as frontline employees are not at the home seven days a week 24 hours a day, keeping up with the changes is extremely difficult. As a result, the frontline employees tend to follow the tasks that they are used to performing, and therefore some aspects of care plans which have been changed remain unaccomplished. In this context the changes in the health conditions of the residents represents a "variability" characteristic of the operational system of care delivery. Traditionally in operations management literature the concept of variability is considered as a negative factor for producing consistent and high quality outcomes (Hopp and Spearman, 2001; Klassen and Menor, 2007). In particular, as Schmenner and Swink (1998) argue, the greater the random variations in the production process steps or in the input to the process, the less productive the process is. This implies that as the variability increases, the speed with which the items are processed in the system decreases. At PEC Co., the changes in the health conditions of the residents are like variations in the process input, and the changes in the care plans represent the variations in the production steps. Therefore, the changes either cause some tasks that are unknown to not be accomplished or it reduces the speed of the employees in delivering the care services. As the employees are already overloaded and under time pressure, the impact of changes on productivity make their adherence to the planned tasks more difficult.

In addition, as the changes in care plans are made to address some risk for residents, following the changes is critical for ensuring residents' safety. By failing to follow the dynamics of the changes, the caregivers create the grounds for adverse events to happen to residents. For instance, continuing to administer a medication whose usage is supposed to

be discontinued, or failure to put on a hip protector can be potentially harmful for the resident. As such, the congruence between planned operational tasks and their execution is highly contingent on the level of volatility of the planned tasks; the more the tasks are changing, the more challenging it becomes for the staff to execute those as planned.

Gray Areas

Based on the recommendations of Strauss and Corbin (1998), whenever possible I retained the language of the key informants. The term "gray areas" is used at PEC Co. by some of the frontline staff to refer to certain types of planned operational tasks that are invented by the direct caregivers to improve the quality of the care. These planned tasks are absolutely individualized based on the needs and habits of the residents, and often are not written anywhere in the care plans. The direct caregivers, over time, gradually understand the needs and habits of the residents, and based on the individual characteristics of the resident, develop some rules and routines to improve the quality of their care. These rules and routines, if followed by all caregivers, result in the provision of higher quality care services.

Some of the gap between planned and executed operational tasks arises from the fact that this tiny, but impactful, part of the care is not followed by everyone. Oftentimes, only the full-time direct caregivers who have developed these rules and routines are aware of these gray areas. I asked a few managers about these rules and routines and none of them were aware of such, but they all found these gray areas creative and helpful in terms of improving the care quality. One of the senior managers indicated her willingness to find ways to make sure everyone is aware of these gray areas. Here is an example from the field about one of these rules and routines:

> *Larry [RPN] gave Jesse [a resident] medicine but she refused to take it. Then Vanessa [the RPN from the previous shift] said, "You know what Jesse, I talked with Dr. Hamilton this morning. he told me that Jesse should take these medications, it's really important". Jesse immediately said, "Okay. if he said that, I'll take it"… When Larry came back to the nurse station he explained: Dr. Hamilton used to be Jesse's family doctor. He's died long ago, but according to Jesse's family she trusted him so much. It's been a while since she started to refuse to take her medications. Vanessa thought that we might use this trick to make her take medicines, because without these drugs, she could experience heart failure. So we tried various tricks until we found this one and it really works… I call these types of tricks "gray areas" because we invented those and we know that those are so impactful… without these the care would be incomplete (Shadowing RPN, Oct/24/2014)*

The above excerpt is from shadowing an RPN. As seen in the excerpt, this unwritten plan is developed to "trick" the resident and encourage her to take the medication. This planned operational task actually works and is highly impactful in terms of increasing the quality of the care and ensuring the safety of the resident. But the issue is that these types of planned operational tasks are not known by everyone. Perhaps the reason is that these are not written anywhere, so many of part-time staff members are not aware of them. Most importantly, when there is a change in staffing, for example when a full-time staff member moves to another shift in another home area, the knowledge about these types of planned operational tasks is lost. In fact, regarding the aforementioned resident, I witnessed that when Larry changed his work shift and switched to another home area, the new RPN was not aware of this gray area rule and sometimes she struggled when giving medicine to Jesse.

Thus in conclusion, the lapses in operational integrity sometimes are the result of the fact that some of the planned operational tasks are not written into a care plan, and that many caregivers are not aware of the missing information. The creation of these unwritten rules and routines can have important safety and quality implications for the residents. Yet, as these gray areas are not written in the care plans, the frontline employees have no obligation to follow them. The Act only requires the full and correct execution of the care plan. Thus, following anything that is not written in the care plan does not add value in terms of compliance of the organization with the requirements of the regulations. However, adhering to the requirements of gray areas brings about a positive gap in operational integrity, where the accomplished tasks for a resident exceeds the planned tasks. This finding is particularly interesting in that it illuminates how subtle interactions between caregivers and the residents can create a positive OI gap and simultaneously improve service quality outcomes. However, such positive gaps do not improve the organizational compliance with the requirements of the Act.

The problem solving efforts of the frontline staff resemble "continuous improvement initiatives" which have been discussed in lean and quality management literature (e.g., Shah and Ward, 2003 and 2007). This literature emphasizes fostering the problem solving initiatives of the frontline staff as a key to improve quality outcomes

(Bhuiyan and Baghek, 2005). These type of effort are also discussed by organizational theorist (e.g. Moorman and Miner, 1998; Weick, 1998) in terms of improvisation and are known as the source learning and improvement (Bernstein, 2012; Miner, Bassoff, and Moorman, 2001). While operational integrity in gray areas does not impact the overall compliance of the organization with the regulatory requirements, it is necessary for improving service quality and safety, and therefore customer satisfaction. But, as the managers are not aware of these initiatives at the frontline, there is no mechanism to facilitate the information sharing about the gray areas. As a result, often the knowledge about gray areas remains unshared.

Discontinuity

Nursing homes provide around-the-clock services for their residents. In other words, as one shift of work for the staff ends, operations do not cease. In addition, each of the staff members can work only one shift a day in one nursing home. Hence, the nursing homes rely heavily on the services of part-time staff who are at the home a few times a week. The part-timers usually do not belong to a particular home area and are moved around based on the staffing needs of the day. All of these factors combined – shift changes, five shifts a week, and the part-time staff– engender a discontinuity or interruption in the service delivery, which imposes some variations in the system. As a result of this discontinuity, often some parts of the planned operational tasks are not followed correctly. Consider the following excerpt from a Fall Committee:

> *Anna [Restorative Aide]: When Jeff [a resident] fell he was supposed to have a hip protector. But he actually didn't have it and sadly he has a hip fracture now.*
>
> *Ben [physiotherapist]: Why shouldn't he have the hip protector on?*
>
> *Anna: Because the PSWs in the morning shift put the hip protector inside the washing machine and they expected the afternoon shift to know that they should take it off, dry it inside the dryer, and then put it on for the resident. But the PSWs in the afternoon shift never saw the note in the 24-hr report and didn't take out the hip protector from the machine. So when Jeff fell his hip protector was inside the washing machine. (Fall Committee meeting, Feb/24/2015)*

The major issue with discontinuity of the work is that the planning of the tasks often happens during the day – between 8:00 a.m. and 5:00 p.m. – when the managers, who are largely the main decision-makers, are around. This period of time in which the managers

are at the home has overlap with most of the morning shift and a few hours of the afternoon shift. Therefore the major issue arises from the fact that often the information about the planned operational tasks gets lost when the decision-makers leave at the end of their shifts. The following example from shadowing an RN might clarify this issue:

> *Now Jordan [the RN] said: "Let's go to Orchid [name of a home area] I need to talk with the nurse, we should report an incident"… On our way he explained that the part-time RPN has discovered that over the last four days that she was not in this home area, the other RPNs have mistakenly continued to administer a medicine to a resident that was supposed to stop four days before. The medicine should be administered for 12 days, but it was actually administered for 17 days. When we arrived, the RPN explained to him that five days ago when she was at Orchid last time she realized the pharmacist had mistakenly sent an extra antibiotic in Jake's [the resident] medicine plastic bag. She double checked the doctor's note and found that the antibiotic should be given for only 12 days, and this was the 13th day, but the pharmacist had still sent another pill for that day. So she thought that the pharmacist had made a mistake only that day. Then when she came today to Orchid she realized the pharmacist had continued sending the medicine for another four days, and none of the nurses during the last four days realized this mistake, and they wrongly administered the medicine. (Shadowing RN, Mar/14/2015)*

This excerpt clearly shows the complications surrounding achieving operational integrity in an environment in which the service delivery is characterized by discontinuation. As seen in this case, the issue with discontinuity of the work is often exacerbated by other matters. In this case, the RPN made a simple assumption that the pharmacist's error had been a one-time event, so she did not communicate the problem to the rest of the nurses. Additionally, as the RPN was a part-timer, she was not at this home area for four days, and only realized when she came back that her assumption was wrong.

In this case, a medication error incident happened that could have been simply avoided if the RPN did not make an assumption, or if she were actually a full-time staff member who was at the home area and could see that the pharmacist was continuing the error. In addition, as the planned operational task changed from the 13th day, it had been difficult for the entire organizational actors, i.e., the RPNs of three shifts over the last four days as well as the pharmacist, to adjust to the new planned operational task. Finally, this case also reveals the difficulty in the coordination of a large number of players, which has been discussed in previous literature in operational failure (e.g., Tucker et al., 2013).

In sum, one of the major challenges that prevents the frontline employees from fully

and correctly complying with the planned operational tasks is the discontinuity and interruption that occurs three times a day during shift changes. In addition, using the services of part-timers as well as having the full-time staff only five times a week fosters more discontinuity in work processes. As a result of discontinuity, the flow of information is disrupted constantly and there is always the chance of losing some critical information that is necessary for provision of a correct and complete service. Unfortunately, as a result of this discontinuity, the residents' safety is highly compromised and the quality of the service offerings decreases substantially.

Similar findings were reported by Tucker (2004) who found that disruptions in the flow of information cause the failure of frontline staff in accomplishing some prescribed tasks. Likewise, previous research on shift hand-off provides evidence of adverse events resulting from information disruption during the shift hand-off (e.g., Cook, Woods, Miller, 1998). It is also noteworthy that any incident must be reported to the Ministry which will hold the home and its managers responsible for the adverse event. Thus discontinuity of the service delivery not only causes operational integrity lapses, but also exposes the organization to major operational risks.

Leadership

Another shortcoming that adds to the complications of operating with integrity emanates from the lack of leadership skills of the RPNs, RNs, and even the leadership team. As one of the senior managers clarified once, nursing education is inadequate in terms of preparing the nurses for handling organizational relationships and managing a care that should be compliant with the requirements of the Ministry. The following two excerpts from shadowing two different RPNs reveal how the nurses struggle with the lack of leadership skills in terms of encouraging their staff to comply with the operational tasks:

> *My PSWs don't get along well…and they never fully finish their work... At the end, these are residents who don't receive the service that they should receive, and I can't change this situation because I don't know how to encourage them to do what I want… Sometimes the residents ring the call bell 10 times to ask for help with using the washroom, but they don't show up, and finally the resident attempts to do it alone, and this means huge risk of falling… but I couldn't convince the staff to answer the call bells immediately. (Shadowing an RPN, Nov/12/2014)*

> *We have a resident, Tania, she eats really slowly ... I tell the girls [PSWs] please take Tania for lunch before anyone else… they can start the morning shift with preparing her first. But they'll follow what I want for two days and then on the third day, again they forget... I explained to them, so long as Tania is not done with her food I can't leave the dining room. I have to wait for her to finish, this is policy, I should wait until everybody stops eating before I can leave the dining room. They say okay and then again a few days later, the same problem…. Because they don't follow my orders, every single day I leave the dining room at least 15 minutes after the meal is over and I am always late in medicine administration… Now Maya [ADOC] is working with me to improve my leadership skills. (Shadowing RPN, Mar/09/2015)*

As inferred from the above two excerpts, the lack of leadership skills on the part of the RPNs prevents them from being able to persuade their subordinates to comply. As a result of this lack of leadership skills, the operational integrity lapses emerge in fall prevention operations and medicine administration operations respectively. In the first instance, as the RPN fails to encourage her PSWs to answer to the residents' call bells timely, the residents become exposed to falling risk. In the second instance, the RPN's time is wasted by waiting at least 15 minutes two times a day, once in the morning for breakfast and once in the afternoon for lunch. One of the translated procedures requires the nurses to stay in the dining room because if a resident has an issue, such as choking during the meal, the nurse should be available to assist immediately. But as the PSWs do not follow her orders, the RPN cannot leave the room and accordingly she falls behind her schedule. As she is already so overloaded, she has no excess time to waste on waiting.

Thus, the congruence between planned operational tasks and their execution is highly dependent on how well the supervisors and managers can encourage their staff to comply. At PEC Co., the managers at all levels of organization struggle with persuading their staff to comply. This problem arises from the fact that generally nursing training in universities is focused purely on care delivery education. This finding is supported by nursing literature that highlights the lack of leadership on the part of the nurses and its impact on care quality outcomes (Grindel, 2003; Robbins & Davidhizar, 2007).

Mindfulness

The care provider's lack of mindfulness is another common reason for the discrepancy between the planned and executed operational tasks. I have witnessed many instances in which a caregiver was not aware of a certain requirement of either the care plan or the

translated procedures, and as a result naturally failed to follow it. A newly hired RPN once explained this issue as follows:

> *It was during my first few weeks here that I had my first resident admission. I couldn't do it correctly. I didn't know that I should check the list of previous falls with the resident's doctor and family. So I left the risk module unfinished, my bad luck the very first day that the resident arrived he had a fall. Everybody found that I messed up and Maya [ADOC] got so mad and told me we spend so much money for training staff here and we expect them to learn during orientation, but I tried to explain to her that the orientation was too overwhelming, there were so many new things to learn that I couldn't keep everything in my mind (Observation, informal conversation with RPN, Apr/08/2015)*

As seen in this excerpt, the RPN had the intention to follow the operational tasks exactly as planned. However, as she was new and she was performing an admission task for the first time, she failed to follow the requirements of the task correctly. In particular, she forgot to perform a particular part of the task. As a result of the nurse's failure in adhering to the fall prevention requirements in developing the care plan, the resident had a fall incident.

The frontline employees' lack of mindfulness often falls into two general categories. First the employees sometimes have received the knowledge about the requirements in some way, but when delivering the care they cannot recall what they are supposed to do. During one of my visits when shadowing the ADOC, I attended the leadership meeting where the managers were discussing the case of a fall which was followed by noncompliance on the part of two PSWs. After a resident fell, the two PSWs panicked and forgot the procedure. Consequently, they attempted to help the resident to get up immediately. This is completely against the post-fall procedure of the organization which requires that before anything else, the RPN and or RN assess the resident's health condition and make sure there is no head injury. Only thereafter should the PSWs help the resident get up only using the mechanical lift. As I personally attended the orientation session, I know that the PSWs receive specific training about post-fall procedures during the orientation. So the PSWs had simply forgotten to follow the correct procedure.

The second category of employees' lack of mindfulness is related to habitual actions. In other words, staff members do in fact possess the knowledge about the correct

way of doing something, but in practice they execute the work the way that they used to do it before. Consider the following excerpt:

> *Then we saw her [Beatrice, the RPN] in the living room rubbing treatment on Clyde's [a resident] leg. Maya [ADOC] immediately… got close to Beatrice and told her, "Beatrice you can't rub the ointment here, that's against the Act's requirement for preserving the dignity of the resident. You've rolled up his pant legs to rub the ointment- you can't do this in front of everyone." Beatrice immediately stopped rubbing the ointment and answered, "I'm so sorry. I forgot that it's not allowed in this home to administer the treatments in public. In the other home that I work in it's okay to do this." (Shadowing ADOC, Oct/31/2014)*

The RPN intended to deliver the clinical care correctly based on the requirements of planned operational tasks, but she instead acted based on habit. As the ADOC explained to me, if the Ministry inspectors were at home and they saw that the RPN was administering treatment in a public area, that would definitely be a noncompliance citation for the organization. More importantly, if the organization receives such a citation, the managers have to invest a lot of time and money on designing and implementing a correction plan that is approved by the Ministry.

In summary, many of the unintentional failures of frontline employees in adhering to planned operational tasks are the result of lack of mindfulness in the form of forgetfulness or habitual action. Both cases represent the cognitive failure of the human actor in accomplishing the planned tasks. Borrowing Reason's (1999) terminology of cognitive errors, the unintentional failure to follow the tasks either is in the form of incorrect actions, i.e., slips (taking wrong steps in accomplishing the task, as in the case of the RPN who took the wrong steps in administering the treatment to a resident in a public area), or in the form of incomplete actions, i.e., lapses (missing some or all steps in performing a task, as in the case of PSWs who missed the waiting for an RN step after a resident's fall).

According to Chase and Stewart (1999), individuals use information in the environment about a task as the input to their "cognitive black box" and process the task in their mind. For processing the information in their cognitive black box, individuals select appropriate rules or routines and apply them to the task. The output of this cognitive

processing of information is the action that is taken. Slips and lapses occur when some degree of mindfulness is required to perform a task, but due to habitual actions or forgetfulness the outcome of cognitive information-processing does not match correctly or fully with the planned task. As such, lack of mindfulness results in the gap between planned and executed operational tasks.

Conclusion

In summary, there are certain operational system characteristics that contribute to the frontline employees' failure in accomplishing the planned operational tasks related to fall prevention or medicine administration. These operational system characteristics of workload, instability, gray areas, discontinuity of services, lack of leadership skills, and lack of mindfulness are associated with various elements of operational system, i.e., the plans, processes, and providers. The presence of these operational system characteristics increases the likelihood of the unintentional slips and lapses in the service delivery process by the frontline employees.

Therefore, for an operational system with these characteristics, emergence of a gap between planned and executed operational tasks is inevitable. Moreover, as a result of this gap, some of the value-added tasks are not performed fully or correctly, and hence their desired outcomes are not realized. Consequently, the operational integrity lapses expose the organization, its employees, and its customers to some degree of operational risk. Finally, as a result of individuals' unintentional noncompliance, most often operational integrity lapses are in the form of negative gaps. A negative gap represents a situation in which some planned operational tasks remain unaccomplished. In a few instances, however, a positive gap emerges, which represents a situation in which an unplanned operational task is executed and creates extra value for the customer.

4.3.2 Challenges in the Execution Process: Behavioural Characteristics

In addition to the characteristics of the operational system, the behavioural aspects of human nature also contribute to the difficulty of achieving congruence between planned and executed operational tasks. Behavioural characteristics represent a deeper cultural problem in the organization that results in intentional noncompliance of the employees.

The identified behavioural characteristics themes that cause operational integrity lapses are as follow: (1) system of beliefs, (2) emotions, (3) peer-influence, and (4) perceived risk. In total, I identified over 20 instances in which the challenges that the frontline employees faced in accomplishing the tasks were emanating from the behvioural characteristics of the caregivers. The most frequent second-order theme was emotions representing 12 instances, followed by peer-influence (five instances), perceived risk (four instances), and system of beliefs (three instances).

As mentioned earlier in section 4.3, the two aggregated dimensions of operational system characteristics and behavioural characteristics were distinguished by considering the intention of the employees when a case of noncompliance occurs. What I found common among four second-order categories of behavioural characteristics was that they cause certain types of operational integrity lapses in which noncompliance was intentional.

The first-order categories of each theme could be distinguished from the other themes by accounting for the connotation that each category bears. For instance, all the first-order categories that are categorized as "system of beliefs" are representing the world view of the frontline staff and how this view impacts their actions. Two obvious world views about "aging" could be seen in the data. The first view is related to the employees who see the elderly residents at the final stages of their life and see no hope for their improvement. The second view, on the other hand, is held by the employees who are optimistic about the result of the interventions that are applied for improving the wellbeing of the elderly resident. The second group sees aging as a stage of human life that is not necessarily painful and one which can even turn into a pleasant experience.

The second-order theme of "emotions" emerged when I noted that some intentional noncompliance cases resulted from emotional interactions between the caregivers and the residents. I also understood the emotional factors impacting the noncompliance decisions of the employees is not limited to the caregiver-resident relationships, but also extends to the relationships among the caregivers themselves. For the second-order theme of "peer-influence", the commonality of the first-order categories was that the compliance decision of an employee was impacted by the compliance or noncompliance of others. Finally, all

the first-order categories that are grouped in the second-order theme of "perceived risk" represent the behaviour of the frontline staff when encountering risk. I could see clearly that some employees are risk averse and some others are not.

An important consideration here is that none of the emergent second-order themes in data represent sabotage behaviour. In service sabotage, an intentional behaviour is applied by an employee to affect service standards and outcomes (Harris and Ogbonna, 2006). At PEC Co., I never witnessed or heard of sabotage behaviour where the intention was to disservice. The intentional violations that emerged in the behavioural characteristics aggregated dimensions all represent violations that are intentional, but without the purpose of causing harm to the organization or the residents. The following discussions on each of the emergent themes clarifies this distinction. These subsections discuss each of the emergent second-order themes (for more representative raw data on each theme see Appendix E).

System of Beliefs

A major behavioural challenge in achieving operational integrity is the system of beliefs that the caregivers hold about seniors and aging, about care, and about themselves in relationship to the senior care. People in this organization come from various backgrounds and nationalities. As the Administrator explained, there are PSWs among the frontline staff that used to work as workers in car assembly lines. I also met a number of highly educated PSWs who had immigrated to Canada due to unfavourable conditions within their home countries and had to start everything from scratch. So they had to accept entry level jobs. Due to such varying backgrounds, individuals hold different systems of belief.

In my various encounters with individuals, I realized some of them are very hopeful about the residents. They proactively plan to keep the residents mobile and they constantly work towards realizing their plans. I witnessed how this attitude helped one of the residents become healthier and happier, which his family was very appreciative of. When I entered to organization, this person had just been admitted and was in a wheelchair. With the persistence of the Restorative Manager and Restorative Aide combined with the positive attitude of the physiotherapist, this resident made the switch from wheelchair to

walker. The following excerpt from informal conversation with one of the physiotherapists reveals how some individuals have a positive view on fall prevention efforts and are hopeful about the impact of their efforts on residents' lives:

> *I absolutely agree that there is still hope for the residents. I believe as long as they breathe they're alive and we should do our part in improving their health… I really believe falls can be prevented substantially if we work with the residents. The reason for their falls is really complicated, there are many, many factors. But what I learned over years is that body alignment is the key to balance and fall prevention, and I've seen how residents who had several falls before can get better if you continue working with their gait and alignment. I once worked with an 83 year old woman who had developed really bad back pain because of the compromised spinal alignment. I worked with her for six months. Not only did she not have back pain anymore, but she also started to walk upright just like you and me. So there is hope for old people, we should never give up. (Observation, informal conversation with a physiotherapist, Mar/10/2015)*

While some individuals such as restoratives and physiotherapists have hope for the residents' wellbeing, other individuals in organizations hold a very different view. The latter group often assumes that the residents are never going to get better. While I have heard several times from various people at various levels that the residents are deteriorating and there is no hope for them, I did not directly observe a situation in which individuals violate the care plan or translated procedures because they have no hope for the resident. However I have heard a story of an incident that occurred due to this pessimistic view of one of the staff members. As the PSWs who shared the story pleaded me not to publish the story itself, here I present only a part of the excerpt that clarifies the nature and impact of these negative beliefs:

> *It really hurts when I see some PSWs here don't do massages or don't follow the daily workouts with the resident. Jen [Restorative Aide], Anna [Restorative Manager], and physiotherapists work really hard to keep the residents active, but some of the PSWs are not quite helpful. Sometimes I ask them why you don't do your job, it's your responsibility to help me when I take a resident for a walk or when I do exercises with them. And they answer what's the point of doing all these things? The residents will not get better anyway, why should I hurt my back? But that's not right, I've seen residents that really get better if we help them. (Shadowing a PSW, Apr/02/2015)*

In sum, at PEC Co. the employees' efforts to execute the planned operational tasks are impacted by the view that they hold about the seniors. The employees that believe falls can be prevented work more diligently toward executing the fall prevention tasks. On the other

hand, the employees who believe there is no hope for residents to get better might intentionally refuse to perform the tasks because they see no value in doing them.

In addition, the very fact that the employees are clearly separable into two categories of optimists and pessimists – with respect to seniors' wellbeing and aging generally – reveals that the shared values, attitudes, and general culture of compliant care has yet to be built. Currently some of operational tasks are not executed as planned because the pessimistic employees see no value in performing certain tasks. They do not believe performing the interventions might actually help the senior residents and improve their quality of life. Unfortunately, due to the pessimistic view of the second category of employees, the wellbeing of the residents is impacted substantially, as they do not receive the service that they are supposed to.

More importantly, identifying these types of intentional violations is not possible for the managers. The PSWs when charting, sometimes do not tell the truth about the task that they have not actually accomplished, and there is no way for the managers to verify and see if anything remains unaccomplished. Even the Ministry's inspectors cannot verify all these details. However, when a fall happens for a resident who was supposed to receive comfort rounds for example, the fall might be an indicator of an operational integrity lapse in the area of comfort rounds. Yet, as there are many other possible explanations for falls, holding the PSWs accountable for a fall is often impossible.

Emotions

An often neglected area causing intentional violations of the requirements is related to the emotions of the caregivers towards the residents and their colleagues. In one of my visits I witnessed a near fall incident that was caused by one of the PSWs who was rushing a resident to the dining room (I have described this incident in an excerpt presented in Workload in section 4.3.1). After the incident when the RPN and I were heading to the dining room, I asked the RPN whether she was going to file an incident report about the near fall incident (technically based on the translated procedure of falls she should report the incident) and she answered:

I can't report that Ashton [the PSW] caused a resident to fall. He's going to be fired. Then

> *how is he supposed to feed his four children? I have no choice other than ignoring this incident and many other incidents similar to this one. If I want to report everything, half of my staff will be gone by the end of the week. (Shadowing an RPN, Mar/09/2015)*

Clearly, the RPN decided to violate the fall procedure that requires her to report a near fall incident. She made this intentional violation because she knew that the consequences of her compliance with the procedure would be costly for her colleague. In particular, she emphasized that the PSW has four children to take care of, and that if she reports the near fall incident caused by him when rushing a resident, the management would not hesitate to fire him. Being present at the moment that both noncompliance cases (the PSW's and the RPN's noncompliance) occurred, I felt the RPN's noncompliance was emanating from her emotion of sympathy toward a colleague. She chose to violate the procedure to protect the PSW and his family. More importantly it is obvious from the excerpt that she observes many instances of noncompliance or near miss incidents but chooses not to report them and remain silent.

As seen here clearly, the relationship with her colleague takes precedence for the nurse, and despite the fact that she is absolutely unhappy with the mistake of the PSW (as she calls him "idiot"), she shows sympathy and ignores his error. This finding shows that despite the fact that the research in service operations implicitly assumes that the human actors have the intention to comply (e.g., Cook, Bowen, Chase, Dasu, Stewart, and Tansik, 2002; Grout and Toussaint, 2010; Stock et al, 2006), in reality there are emotional considerations that impede employees from complying with the operational tasks. Similar emotional decisions and actions can be seen in the relationship between the caregivers and the residents. Interestingly, in many cases due to emotions, the employees do more than what they are supposed to do for the residents. Consider the following excerpt:

> *I think the managers here are overly obsessed with compliance. They can't understand employees are not machines, they're human beings and they have emotions and feelings... We shouldn't ignore the depth of relationship that caregivers have with the residents… Have you ever noticed that some staff members take better care of some specific residents? … The nurses get closer to some patients and they become more affectionate toward them, and because of this feeling and bond they provide better services for them compared to other patients… We see this happening here quite frequently and I would say the majority of falls, pressure ulcers, and medication errors could be avoided if the caregivers had a deep emotional relationship with every single resident, but of course they don't have that with everyone… They have preferences and they do better when they provide care for their*

preferred residents (Shadowing RN, Apr/11/2015)

This excerpt clarifies that there are a lot of subtle emotional interactions between the residents and their caregivers which sometimes impact the decisions and actions of the caregivers when they deliver daily services. The more they feel a connection and compassion toward the resident, the more they act affectionately and take better care of them. The RN here even mentioned that he believes that if the caregivers had this sense of compassion and strong emotional connection with all the residents, the majority of errors in various areas, including falls and medicine incidents, would be considerably reduced.

This excessive attention and care that the caregivers pay due to compassion toward certain residents also implies that almost invariably some other residents receive less attention and care than what they are supposed to. Thus, the emotional connection of the staff to the residents sometimes results in operational integrity lapses in the form of delivering a service that either exceeds the care plan for some residents or falls behind the care plans for some other residents.

In sum, there are emotional factors that impact the way that the frontline employees make decisions about executing the planned operational tasks. The emotional factors might be related to the relationship between the caregivers and residents or might be related to the relationships among the caregivers. In either case the employees' decisions are, to some extent, driven by their emotions. The emotions associated with the connections between resident and the caregiver are often translated into performing the operational tasks more accurately/fully for some residents, and less accurately/fully for others.

Likewise, the emotions that arise from the relationship among the caregivers might cause the employees to violate requirements to protect their colleagues. A critical consideration here is that, as a result of the sympathy that the colleagues show to one another while not reporting the near misses, some operational integrity lapses occur, as well as the organization losing the opportunity for learning important lessons from incidents. Tucker and Edmonson (2003) in studying why organizational learning does not happen properly in hospital settings, found that the minor operational failures remain unreported, and therefore the knowledge about what causes the incidents is lost. Reason

(2004) also raises the criticality of preventing the near misses, which he calls "active failures", and suggests that these failures pave the way for sentinel events.

Thus, while human actors might be considered as rational beings who follow their assigned tasks as planned, my observation reveals that employees at PEC Co. sometimes choose to violate plans or procedures because of certain emotions such as sympathy and compassion. As a result of these emotions, there are always some areas of planned operational tasks that are not fully complied with by the employees, and therefore a part of the gap between planned and executed operational tasks emanates from the decisions and actions that are made based on emotions.

Peer-Influence

Another behavioural aspect of human actors that contributes to operational integrity lapses in the service delivery process is related to peer–influence. At PEC Co. the employees are very adaptive in terms of following each other's behaviour. In other words when there are individuals who do their work perfectly, the rest of the employees around them feel an obligation to follow their example and work hard as well. In contrast, if they see their colleague try to find ways to work around their responsibilities or who are noncompliant, they also feel more comfortable in acting irresponsibly and non-compliantly. The following excerpt from a shadowing session shows how the presence of a highly responsible caregiver might impact the behaviour of others:

> *Among the nurses that I worked with I think Holly [an RPN] is the most responsible one. When she started at this home area, I already had been at this home area for six months and I had worked with a couple of RPNs... When Holly came, I remember every morning as she was preparing medicines to give to the residents, she used to check the residents' rooms for clutter. At the beginning we didn't know what her purpose was and honestly sometimes I felt she's too bossy. But gradually we understood that she does this because it really impacts the number of falls. Our home area has the least number of falls and I think the main reason is that we learned from Holly to check for clutter every morning. (Shadowing a PSW, Apr/02/2015)*

As seen in this excerpt, the presence of a highly diligent nurse who checks for clutter every morning encourages other staff members to follow and be conscious of clutter, which is one of the major causes of falls in nursing homes. One of the requirements of fall prevention procedures of organizations is to ensure there is no clutter around and that

everybody, in particular the frontline employees, is required to make sure that the residents' rooms are clutter-free. The nurse's responsible and compliant behaviour every morning encouraged the rest of the staff members in the home area to be more mindful in terms of complying with this requirement.

By and large, the presence of diligent employees such as Holly can improve the congruence between planned and executed operational tasks in each home area. The compliant behaviour of peers creates the expectation of other employees to comply. As a result of this expectation, the others feel an obligation to follow the requirements. More interestingly, the scope of peer-influence is not limited to imitating the behaviours of cohorts, but also is extended to mimicking the approach of managers. In the following excerpt one of the senior managers explains her view on this:

> *I always tell other managers it's our responsibility to be compliant and show off our compliance because if we are not, how would we expect the staff to be compliant? We're the role model for many of them... They copy everything, good or bad… Whenever I go for walkabouts I stop by the residents' rooms and look inside to see if there is any clutter in the rooms… this is the best way to influence them; compliance is contagious: I comply, they comply too. I've seen this behaviour in all nursing homes that I've worked with. (Interview with a senior manager, Aug/28/2014)*

This quote perfectly shows the influence of managers' behaviour on the frontline employees' decisions to comply with requirements. As the senior manager stated, "compliance is contagious", therefore by observing the compliant behaviour of cohorts or even managers, the employees learn to comply too. As such, overall, the congruence between planned and executed operational tasks is highly driven by the presence of compliant individuals at every level of organization.

At management level, the compliance of the managers represents alignment between their words and deeds and shows their behavioural integrity. In particular, the managers' behavioural integrity positively impacts their employees' willingness to promote and implement the managers' espoused values. (Simons, 2002; Leroy, Dierynck, Anseel, Simons, Halbesleben, 2012). At PEC Co. the espoused value of the managers is the provision of high quality and compliant care. If such values are shared by all the organizational actors, then it is more likely that employees will act according to the

requirements of care plans or procedures to ensure the care delivery is compliant and high quality. Having said that, while this positive influence is an ideal that organizations try to achieve, in reality not all the managers follow the values of the organization. For instance, during one of my early visits I realized that some of the caregivers sometimes talk behind the backs of the residents. In one of these instances, the topic of the gossip was the amorous behaviour of a female resident. In the midst of their conversation one of the middle managers arrived at the nurse station and upon hearing them speak about this topic, joined them and contributed to the conversation. The caregivers are strictly prohibited from gossiping and sharing news about the private lives of residents. This behaviour on the part of the caregivers and the manager not only goes against the internal policies of the organization, but also violates the requirement of the Act for preserving the residents' dignity.

To summarize, operational integrity is a function of peer-influence. If the cohorts or the managers comply with the requirements, other employees are more likely to follow the requirements. Conversely, if the cohorts or the managers do not comply, it is more likely that others will follow their pattern of behaviour and violate rules. The literature in the area of compliance with information technology security requirements reveals similar conclusions. For example, Herath and Rao (2009) find that if employees believe that other organizational actors, i.e., managers and staff comply and expect them to comply too, they are more likely to comply.

Perceived Risk

The final behavioural aspect that emerged in data and which contributes to the gap between planned and executed operational tasks at the service delivery process is related to the risk attitude of the frontline staff. Naturally individuals have different perceptions about risk. Some employees are more prone to noncompliance because they are less concerned about the risk associated with their noncompliance. Here is an excerpt from the shadowing of an RPN during one of my early visits:

> *Now Maya [ADOC] was here and told Beatrice [the RPN] that one of the residents has missed the flu shot last week and asked her to do the injection… now we're here, I'm waiting for her outside the room, but I can see that she didn't put on gloves, mask, or gown despite the fact that there is a warning sign on the door of the resident's room… Now I*

> *asked her the meaning of the sign on the door and she explained this is a warning to say that the caregivers who might touch the bodily fluids of the resident should use gloves and masks when treating the resident, because the resident has a contagious illness. I asked her why she didn't put on this equipment when injecting the flu shot, wasn't it so risky for her? She replied because it was a quick shot, it didn't take that long so no it was not risky. (Shadowing RPN, Nov/06/2014)*

The RPN is supposed to administer medicine, and as the medicine was in the form of a shot, she was required to use protective equipment. In my later visits I realized that it is imperative for all caregivers to use this equipment when they might be exposed to bodily fluids, as they might otherwise contract any diseases residents might have. Thus apparently, the nurse was a risk taker and was not afraid of the consequences of her noncompliance. On the other hand, there are employees who are highly risk averse who do their best to avoid any risk by perfectly complying with the requirements. In one instance I offered help to one of the PSWs [Nina] who was assisting a resident to stand up. She immediately answered:

> *No, I can't let you help; you haven't received the necessary training for two people transfer and if the resident falls, they [referring to management] will hold me responsible. I'll wait for Molly [another PSW] (Observation, informal conversation, Feb/10/2015)*

During another later visit I offered to help another PSW [Caroline] during a transfer, and she accepted my help. Then I described to her my encounter with Nina and she confirmed that for transfer the PSWs should have received training, but she also added:

> *She [referring to Nina] chickened out. ... I can assure you the resident will never fall; I won't let this happen (Observation, informal conversation, Feb/23/2015)*

These excerpts reveal how two PSWs might have very different perceptions of risk. While Nina was more risk averse, Caroline was more of a risk taker. As a result of being risk averse, however, Nina fully complied with the requirement for transfer. Whereas Caroline, due to her risk taking personality, chose to allow me to help and violated the procedure. The major difference in behaviour between these two individuals emanates from their expectations about the outcomes of their action. The risk averse Nina, is afraid that her noncompliance with the requirement might result in major risk for the resident (falling) and for herself (getting fired). On the other hand the risk taker, Caroline, considers her

noncompliance as a safe act both for the resident and for herself.

In sum, the more employees are open to taking risks, the more likely it is that they do not fully comply. Therefore, risk taking behaviours increase the chance of operational integrity lapses and expose the employees, the residents, and the organization to operational risks. This finding is supported by risk behaviour literature (e.g., Nicholson, Soane, Fenton-O'Creevy, and Willman, 2005; Paul and Maiti, 2006; Sitkin and Pablo, 1992) which argues first that employees are different in the level of their risk taking behaviour, and second that those who become involved in risk taking behaviour often fail to evaluate and anticipate the outcomes correctly. Moreover, the literature suggests that as a result of risk taking behaviours, risk takers are more prone to incidents (Christian, Bradley, Wallace, and Burke, 2009; Khanzode, Maiti, and Ray, 2012).

Conclusion

To summarize, there are certain behavioural characteristics that contribute to the frontline employees' failure in accomplishing the planned operational tasks related to fall prevention or medicine administration. The behavioural characteristics of system of beliefs, emotions, peer-influence, and perceived risk impact the intentions of individuals to comply. As the result of individuals' intentional noncompliance, oftentimes operational integrity lapses are in the form of negative gaps. However, when due to emotional closeness, employees favour some residents over others, typically a positive gap emerges, which represents a situation in which employees execute more than planned tasks, which creates extra value for the residents.

These findings are in agreement with the core tenets and empirical tests of theory of planned behaviour (TPB) that advocate individuals' behaviour is shaped by their intentions (Hu et al., 2012). The extant literature that applies a TPB lens to explain individuals' behaviour, considers constructs of belief and emotions as the predictors of the intention for behaviour (French, Sutton, Hennings, Mitchell, Wareham, Griffin, Hardeman, and Kinmonth, 2005; Perugini and Bagozzi, 2001). In this study too, the data revealed that both system of beliefs and emotions impact the intent of employees to comply with the requirements of the planned tasks. If the employee believes that there is no hope for the

residents to get better, they are more likely to do not accomplish the planned tasks. Conversely, believing that aging is a natural and joyful phase of human beings' lives often causes the employee to follow the requirements of the tasks. Likewise, when employees have emotional connections to the residents, when they find their coworkers and managers highly compliant, or when they have risk-averse personalities they are more likely to comply with the requirements of the tasks.

TPB literature also makes an association between subjective norms and the intention (Armitage and Conner, 2001). Azjan (1988) defines subjective norm as individuals' perceptions of social pressure to perform or not to perform a behaviour, and argues that when individuals feel their "significant others" (e.g., their colleagues) approve of the behaviour, they are more likely to intend to perform it. The emergent theme of peer-influence represents subjective norms in TPB. The analysis of data revealed that when the cohorts or managers follow requirements other employees feel the obligation to follow the requirements as well because they feel their noncompliance would be unacceptable. Also, the top management is aware of the positive impact of peer-influence and tries to serve as the role model (of compliance) for employees. However, when the cohorts or the managers do not comply, other employees also feel free to not to comply.

Finally, the findings of this study revealed that the emergent theme of perceived risk impacts employees' intentions to comply. While perceived risk is not among the main constructs explained by TPB, there is growing empirical evidence in the literature that advocates for the importance of perceived risk in shaping the intentions of individuals to perform or not perform a behaviour (Liao, Lin, and Liu, 2010; Quintal, Lee, and Soutar, 2010).

4.4 Managerial Counteractions to Reduce the Gap

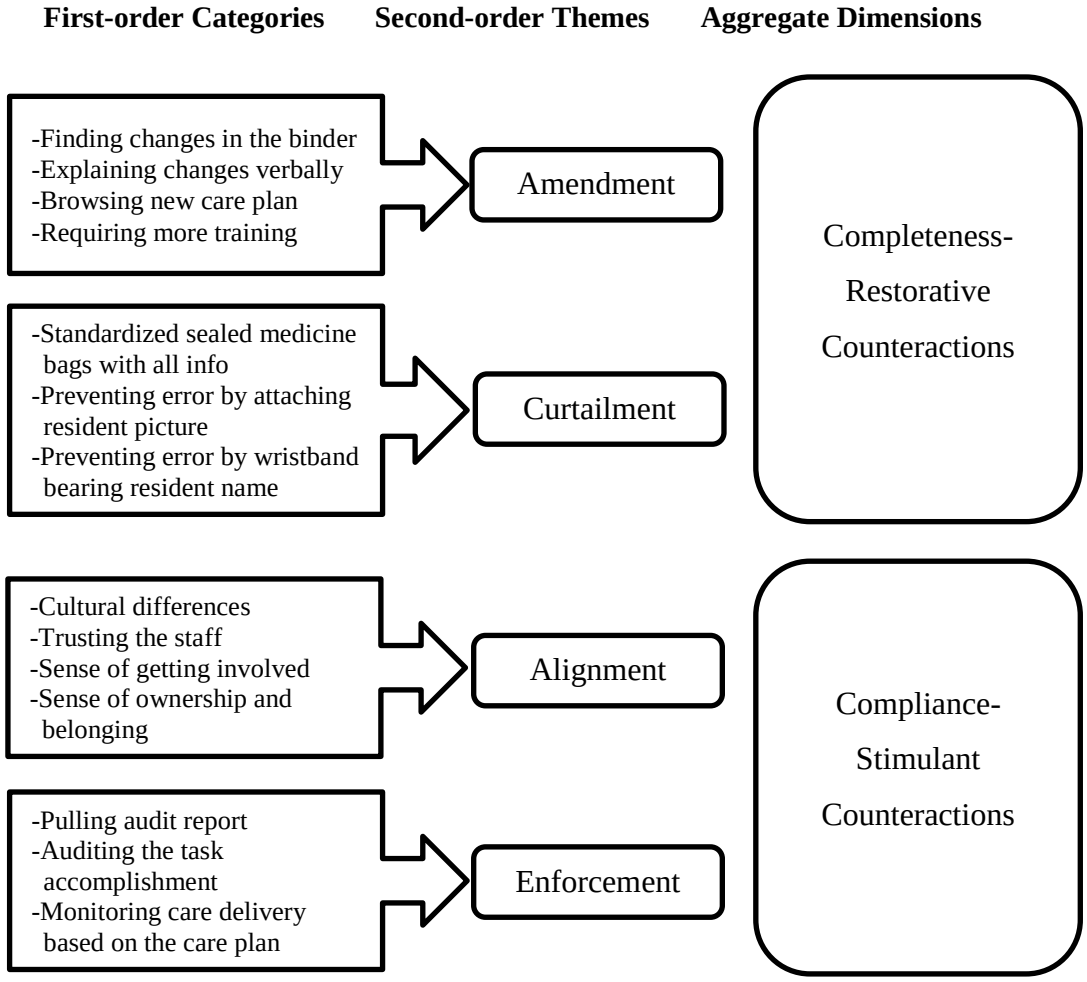
As discussed in the challenges of execution, the organization deals with two types of challenges, i.e., operational system characteristics and behavioural characteristics, in managing the frontline employees' compliance with planned operational tasks. The management team was aware of some of these complications surrounding compliance and developed mechanisms to push back the challenges and increase the congruence between

planned and executed tasks. This study concluded that these mechanisms could be called execution counteractions. The purpose of the counteractions in the execution process is to help and encourage the direct care providers to comply with the requirements. Two aggregate dimensions emerged in data (Figure 4.3) which represent the counteractions at the execution process: (1) completeness-restorative counteractions and (2) compliance-stimulant counteractions.

In Figure 4.3, the first-order categories are the result of open coding practice, and the second-order themes emerged during an axial coding process when the first-order codes were compared for similarities and differences and grouped into higher-order categories (Gioia et al., 2013, Strauss and Corbin, 1998). Here, all of the first-order categories represent a solution for noncompliance problems. To group the first-order categories into second-order themes, I constantly asked myself "what type of noncompliance problem does the mechanism solve?", and answering this question led me to identify four second-order themes. Then by comparing the second-order themes' meanings, I categorized them into two aggregated dimensions.

All of the first-order categories that are clustered as the second-order theme of "amendment", represent solutions for overcoming some type of "shortage" in the operational system (e.g., instability of the care plan) that causes operational integrity lapses. Conversely, the first-order categories that are grouped as "curtailment" represent solutions for overcoming some sort of "excess" in the operational system (e.g., overload). Both shortage and excess in the operational system causes individuals to fail to operate as planned, despite having the intention to do so. Thus, in aggregation these mechanisms represent the efforts of the organization to restore a condition of completeness in which no shortage or no excess in the system can prevent the individuals from operating as planned. As such, I grouped amendment and curtailment mechanisms as the aggregate dimension of completeness-restorative counteractions. Overall, I identified 11 instances representing amendment and six instances representing curtailment mechanisms.

Figure 4.3 Data Structure – Counteractions of Execution



On the other hand, all the first-order categories that represent a solution for intentional noncompliance (resulting from behavioural characteristics of individuals) are grouped together. These codes have been further grouped into two distinctive second-order themes of “alignment” and “enforcement”. The alignment mechanisms are applied by the managers as the solution for intentional noncompliance cases that stem from the lack of alignment between the preferences and interests of employees to the preferences and interests of organization. The purpose of managers in applying these mechanisms is to create a culture in which the values about the criticality of compliance are shared among all employees. The enforcement mechanisms are applied by the managers to resolve the intentional noncompliance by forcing the employees to comply. The assumption of the

managers is that by taking enforcement mechanisms such as auditing or disciplinary actions, the employees are more likely to comply. In total, 13 instances of alignment and seven instances of enforcement emerged in the data.

4.4.1 Completeness-Restorative Counteractions

Earlier, it was discussed that at PEC Co. the challenges regarding the operational system characteristics manifested in the form of imperfect planned operational tasks (i.e., infeasible, changing, and unwritten planned operational tasks), discontinuity of the work processes, and shortcomings of mindfulness and leadership skills of employees and managers. In response to these challenges emanating from the characteristics of operational systems, the organization has developed some mechanisms to restore the system into a complete condition in which, despite the presence of these challenges, the planned operational tasks can be accomplished fully and correctly.

The completeness condition indicates that to perform tasks as planned, all the necessary elements of a system should exist, should be complete, and should be sufficient (neither shortage nor excess is allowed). Two second-order emergent themes, representing completeness-restorative counteractions, include (1) amendment and (2) curtailment. Each of these themes is discussed here using the data from the field (for more representative raw data, see Appendix F).

Amendment

I define amendment as the set of mechanisms which are applied by managers to compensate for the *shortage* in the operational system that constrains adherence of employees to the planned operational tasks. As can be inferred from the discussion on the aforementioned challenges of execution, the shortage in the operational system is related to the lack of stability in the planned operational tasks, lack of communication mechanisms for unwritten tasks, lack of continuity of the work, lack of sufficient leadership skills of managers, and the lack of work knowledge on the part of frontline staff. The managers at PEC Co. are aware of most of these shortcomings (except the issue of lack of communication means for unwritten tasks), and therefore support their frontline staff by applying amendment mechanisms for compensating for these shortcomings.

In order to reduce the challenges related to the changes in operational tasks, the organization has contrived some repetition processes to ensure that everyone stays updated with the changes in care plans. For instance, care plans are not only updated in the PCC system every time a new change is introduced, but also its updated version is printed out and is inserted into a binder that is kept in the nurse station. Likewise much of the information that is produced during the day and is updated in the care plans is also published inside the 24-hrs binder. Here is an excerpt from shadowing a PSW:

> *Alice saw Eve [a resident] looked so sleepy while she was sitting on the edge of her walker. Suddenly she said no no no this is not good and approached Eve and politely asked her to get up from the walker and sit on the couch. She explained to her she might fall if she sleeps like that… Now Alice said I have to leave a note in the 24-hrs report for the PSWs about Eve. Lately, I have noticed she's doing this, and this can be dangerous, so hopefully the PSWs of the next shift will also be careful about this… but unfortunately not everyone bothers to check the 24-hrs report always and not everyone bothers to leave these types of important notes for others… Every morning when I arrive the first thing that I do is check the PSW's 24-hrs report. (Shadowing a PSW, Apr/02/2015)*

Application of repetition mechanisms, such as a 24-hrs report binder that facilitates the transfer of information not only tackles the issue of the instability of care plans, but also reduces the problems with respect due to the discontinuity of the work. Both of these shortcomings become problematic when the information exchange is weak. Therefore, the organization by contriving these types of mechanisms that facilitate information exchange, reduces the impact of instability of planned operational tasks and discontinuity of the work. However, there is always the chance that the RPNs who are responsible for updating the care plans fail to complete the updates, or that the PSWs who are required to share their information in written notes in 24-hr reports forget to leave such.

In addition to the instability of the tasks and discontinuity of the work as discussed before, the lack of leadership skills is another shortcoming in the operational system at PEC Co.. Coming from nursing schools, the nurses are not educated well in terms of managing the frontline staff, which creates problems with regard to encouraging staff compliance with requirements. To offset this shortcoming in their operational system, the managers use two approaches. First the top managers constantly look for middle managers and supervisors who show good leadership skills to promote them. Here is an excerpt from

the interview with a senior manager which clarifies this:

> *So you find someone who is really strong on the floor and you start promoting them up…we know how you promote them, like so what we try to do is come from a charge nurse position to the ADOC position. So as Director of Clinical Services, I have a very clear vision for all our three homes, what our succession plan is going to be. The homes may not necessarily know what those are, though. (Interview with a senior manager, Aug/28/2014)*

In addition, managers strive to build the required leadership using internal resources. For this purpose, they have designed a so-called leadership program through which they are intended to gather the RPNs with their teams to teach them to be leaders, and the PSWS to be good team players. This program is designed for two purposes: first infusing the organization with leadership skills, and second increasing the sense of belonging of the frontline staff. The details regarding the second purpose are argued in the alignment mechanisms.

The second approach that organizations apply to address the issue of insufficient leadership skills is to get directly involved in hiring. Similar approach has been adopted by many lean organizations, based on Toyota Talent program, to ensure the hired employees have the appropriate skillset (Liker and Morgan, 2006). The hiring process of managers requires a couple of rounds interviews that the top managers get involved in and even seek external help for:

> *We need experienced managers here. They know the policies and they know the importance of compliance. Most importantly they're good leaders. Good leaders know how to make their staff comply… that's why I personally get involved in the hiring process. I have done a large majority of the recruitment since we have started our work. For managers positions I highly rely on the recommendations of Madelyn and Sabrina [senior managers]… currently we are looking for a good DOC, and to make sure we find the right one we have hired an HR expert as a consultant. (Shadowing the administrator, Nov/18/2014)*

The final problem with the shortcomings in the operational system is related to the lack of mindfulness of the frontline staff. As discussed in the execution challenges, the staff on the floor might fail to adhere to the daily operational requirements either because they forget the requirements or they act based on habit. A number of mechanisms are used by the managers to support the staff in this respect. First of all, the organization highly values education. Managers, at all levels of organization, get directly involved in training and

mentoring others. Any newly hired staff or managers first are trained during the orientation session and then receive some additional specialized necessary training by shadowing a cohort. For instance when I asked one of the RNs whether I could shadow him, he explained to me that the best day for shadowing him would be a day in which he would be shadowed by a newly hired RN to gain hands-on education. On this day in particular he is supposed to teach all aspects of the admission process to this new employee.

In addition to the education that the employees receive when they are hired, there is compulsory education on the job that the Ministry requires all nursing homes to provide. Many homes, including PEC Co., use an online platform for offering this on-the-job training. Having said that, the effectiveness of the trainings, in particular the online one, is not quite apparent. I did some of the online trainings during orientation, and I found them very simplistic. In an informal conversation with a senior manager, I asked her if she really believes this on-the-job training is helpful, to which she answered "no". I also saw how employees were always sarcastic about the value of the online training. For instance during one observation session, two of the PSWs were doing their online training in the nurse station, and after one of them was done, she said while laughing:

> *I'm the book of knowledge now. You can ask me any question about the care and I know everything, only in my wildest dreams. (Observation, Mar/03/2015)*

In addition to training, the managers constantly are around to provide mentoring on the spot for the frontline staff. The following excerpt from an interview with the DOC helps to illustrate the importance of the mentoring:

> *Mellissa [DOC]: It's kind of on the spot mentoring and coaching. If I find things [referring to cases of noncompliance] I'll say … [to] whoever happens to be the nurse or a PSW, you know this is what I've found, and this is why it isn't correct, and this is what we need to be corrected….*
>
> *Interviewer: Can I ask you to give me one example of such an incident?*
>
> *Mellissa:… it's just when they [the staff] are very much into a task and task-driven, sometimes it takes that mentoring… when I go for walks I stop by the nurse station and ask them what they're doing and whether they need help… like if a nurse is new I sit with her, show her how she does things, like how to request medicine using e-MAR [electronic Medication Administration Record documentation system]. When they're hired they get the training for e-MAR and other stuff, but they forget that soon, so yea, I found mentoring*

more thought provoking (Interview with DOC, Sep/04/2014)

All the managers go for "walkabouts" daily, which means that they go inside various home areas and wander around, like "gemba walks" in lean organizations (Mann, 2009), first to show that they are watching the staff, and second to provide mentoring to the PSWs and RPNs to support them in doing their jobs correctly. Finally, the last mechanism utilized for overcoming the work knowledge shortage on the part of frontline staff is the application of the electronic health record system of Point of Care or POC (for PSWs) and PointClickCare or PCC (for RPNs) in everyday service delivery function. As already discussed in detail in section 4.4, these computerized systems contain the lists of all the care requirements that an RPN or a PSW is supposed to deliver for a resident during a shift. Therefore it is used as a guideline of the daily work for the staff. As one of the RPNs explained about the importance of POC and PCC in delivering high quality and compliant care:

> *Even in some nursing homes in Ontario these systems are installed on tablets or cell phones of the caregivers, and they can carry these items all day long and use the information regarding the job as a guideline for delivering care that is exactly based on the care plan. (Shadowing, informal conversation, Nov/12/2014)*

While these systems are very effective in terms of compliance of the employees, at PEC Co. the employees are required to absolutely avoid carrying their cell phone during the day, as the managers consider cell phones a distraction which might increase the chance of operational failures. But the POC system is installed on three tablets: one in each corridor and one in the dining room of each home area (for details see Appendix B). Additionally, the computer in the nurse station has both PCC and POC. The nurse also has PCC installed on a laptop.

In summary, at PEC Co. the amendment mechanisms are applied to reduce the impact of shortages in the operational system, thereby helping the frontline staff to operate as planned. The shortages in the system in the form of instability, unwritten rules, process discontinuity, lack of leadership skills and staff's lack of mindfulness, and the variety of amendment mechanisms are applied to compensate each of these shortages in the system (except for the unwritten rules). The amendment mechanisms that use repetitive communication means (e.g., publishing information in various binders and systems), help

the frontline staff to remain updated about the most recent changes in the care plans. These mechanisms are useful in terms of dampening the adverse impact of discontinuity of the work processes on operational integrity. Long-term care facilities provide around-the-clock services for the residents, all year long. While the service delivery happens on a continuous basis, the staff cannot work more than one shift a day and five shifts a week. In addition, as the staff only work five days a week, the organization meets a portion of its staffing needs by hiring part-timers. These factors in combination cause discontinuity of operations and disruption in the flow of information in service execution.

Contriving repetitive communication artifacts improves information sharing opportunities. As the variety of information sharing means increases, the chance of information dissemination and its assimilation by the direct caregivers increases too. Therefore, while instability of the tasks or discontinuity of processes prevent some of the caregivers from knowing about all details of planned operational tasks, enriched information dissemination increases the likelihood that the caregivers receive the necessary information and act accordingly. As such, some of amendment efforts of managers to increase the congruence between planned and executed operational tasks are directed toward creating a system in which information is readily accessible.

In addition to the characteristics of the plans (instability) and the characteristics of the processes (discontinuity), the characteristics of the individuals in the operational system also contribute to operational integrity lapses. First of all, the managers have nursing backgrounds and therefore are not quite familiar with the principles of leadership. Thus the system has a shortage in terms of leadership skills, which makes managing a large facility with many staff members quite challenging. The criticality of leadership in preventing operational failures is discussed in the extant literature as well. For example McFadden et al. (2009) consider transformational leadership as one of the key factors contributing to patient safety outcomes in hospitals.

To minimize the impact of this shortage on operational integrity, three types of amendment mechanisms are applied at PEC Co. First, the management keeps an eye on the strongest leaders in the organization and promotes them. Second, the top managers get

involved in the process of hiring and even receive help from external consultants in hiring charismatic leaders. Third, the management strives to build a leadership program to provide the managers with the necessary training for being good leaders.

In addition, the challenges of managers' lack of leadership skills are exacerbated by the frontline staff's lack of mindfulness. According to the data, sometimes employees' actions are based on habits that might not be fully aligned with the standards and requirements of the organization for everyday work. The literature in high reliability organizations (HROs) also considers mindfulness, i.e., a human agent's attentiveness to the operations processes, as a key for avoiding system failures (Rerup and Levinthal, 2014; Weick and Sutcliff, 2011; Weick, Sutcliff, and Obstfeld, 2006).

As indicated earlier in section 4.3.1, the unintentional failures to comply with planned operational tasks that result from cognitive shortcomings of individuals are either in the form of erroneous actions i.e., slips (taking the wrong steps in accomplishing the task), or in the form of incomplete actions, i.e., lapses (missing some or all the steps in performing a task). To minimize the impact of habitual and mindless actions of employees, and to reduce slips and lapses during the service delivery process, three types of amendment mechanisms are applied at PEC Co.: on-the-job training, on-the-spot mentoring, and documenting planned operational tasks in the form of work list in the POC and PCC systems. Similar findings are suggested by Chase and Stewart (1999) who suggest the slips and lapses in the system might be eliminated by the application of various poka-yoke systems to prevent cognitive failure of the employees.

Curtailment

As discussed in section 4.3.1, another major issue in the execution process is that the planned operational tasks are not perfect for execution. In particular the amount of overload that is the result of imperfect planning makes the tasks infeasible. I define curtailment as the set of mechanisms that are applied by managers to reduce the *excess* in the system that, in form of overload, restricts the ability of the frontline employees in fully and correctly executing the operational tasks.

First the managers often formulate the work processes into a few short steps in a

document and leave hard copies of these documents on the board, in the nurse station, and inside the 24-hrs binders. The following excerpt from shadowing the Restorative Manager illustrates how the application of these documents helps the staff to do their job correctly:

> *When I started as the fall manager, I realized one of the key issues with noncompliance of the RPNs is that they are so overloaded, that doing things like assessing the resident after a fall and filling in the assessment sheet is very difficult to be accomplished. They give priority to the most important tasks, such as medicine administration that needs a lot of focus. So I thought how I may help them in this process, and I came up with this idea that if I create a formula for doing the post-fall assessments, that's going to be a lot easier to do this task. So I did that, I made a sheet in which I summarized all the necessary steps that a nurse should take after a fall, and I'm planning to make another sheet for the PSWs' tasks after falls. (Shadowing restorative manager, Mar/30/2015)*

This type of formulation of the work process can be seen in many other areas of the organization. For instance when browsing the binders in the nurse station, I realized that some binders contain a few documents in which the tasks are formulated into a few steps. Here is an example of one of my notes on archival data:

> *There is another page with some instructions about Annie [a resident]. It explains her behavioural issues in three bullet points and recommends that whenever she feels lonely or she wakes from sleep, the staff should comfort her by first telling her that her family loves her and second if it's during the day, they should call the family members to let her talk with them to comfort her. There are also these papers for Mable, John, and Al [residents]. They all have some sort of behavioural issues, and the documents clearly state the type of the issue and the possible set of actions that the staff should take in confrontation… For John, the document emphasizes that when he gets restless there should be at least one PSW around to comfort him; apparently his previous falls are all associated with getting restless (Archival data, Oct/30/2014)*

As seen in this piece of data, the document summarizes all required steps to counter certain situations that might potentially cause an adverse event. Behavioural issues of the residents are considered as major causes for falls. Due to their physical or mental conditions, the residents become restless, which provides the ground for adverse events such as falls to occur. To prevent this, the managers (Restorative Manager, DOC, ADOCs, and the social worker) have designed protocols to calm down the residents. To simplify implementation of these protocols for the staff, they have formulated those into a few steps which are easy to follow (given time pressure). Thus, as soon as the employees encounter a situation in which the resident is restless, they follow these few steps and are able to prevent falls.

The second approach in reducing the workload of staff is standardization of the workplace. This means the items used by staff in accomplishing daily work are assigned certain places. By doing so, the nurses and PSWs do not waste any time finding these items and instead can stay on schedule. Here is an excerpt from a senior manager explaining how this approach in another organization has contributed to the efficiency of work:

> *So everything is in the exact place.... They organize all the shelves the same because it was found that nurses spend 35% of their time looking for stuff and by doing that, they improve the efficiency tenfold…That's one of the things we try to do here… when we started this home we purchased medication carts that are designed to keep the medicine, treatments, bandages, everything the nurse needs in one place and organized. So if a nurse today works, let's say at Orchid, and tomorrow at Jasmine she knows where to find stuff. (Interview with a senior manager, Aug/28/2014)*

This standardization of the workplace can be seen in every corner of organization. Everything has a specific place, and when something is needed everybody knows exactly where the item is. For instance, as indicated earlier regarding the residents who have communicable illnesses, there are warning signs on the doors of the residents' rooms stating that caregivers are required to use gloves, masks, gowns, or sometimes goggles when treating residents. To simplify the access to this equipment there is a drawer right next to the door outside each resident's room which contains all of these items. So as soon as the service delivery staff members see the warning sign on the door, they can immediately open the drawer and take any items that they need. This standardization of the workplace not only allows the staff to work more efficiently, but also allows the home to stay hygienic and orderly.

Another example is the storage room in the basement area where all the incontinence products, wound care products, and nursing equipment is kept nice and tidy on the shelves. Likewise, the items required for fall prevention (e.g., fall mats, wheelchairs, belts, and trays) as well as physio exercise items are all well-organized in the physiotherapy room. Hence, the physiotherapists or Restorative Aide and her manager must never look for the equipment they require for performing their tasks.

The third approach is application of redundant processes, which are processes designed to ensure that if one process fails, the others will work. This approach follows the

reliability management principles (Stewart and Grout, 2001) precisely. For instance, one of the primary tasks of the PSWs is to check whether there is fall prevention equipment in the storage room in each home, and if the equipment works properly, signing the checklist that hangs from the wall next to the equipment.

As the managers know that the PSWs are so heavily overloaded, they have already anticipated that PSWs sometimes might fail to check the equipment and sign the checklist. So one of the responsibilities of the RN is to check all the checklists in a home and to make sure that they are all signed. If there is no signature, the RN is responsible for checking the equipment and signing the checklist. In addition, the ADOCs are responsible for double checking the checklists within a home, so if in case the RN also has failed to sign, the ADOC checks the equipment and signs the checklist. By applying this redundant approach the planned operational tasks that are deemed highly critical are always executed as planned.

In summary, to reduce the impact of overload the managers have developed curtailment mechanisms that are related to reducing the excess of the work by formulating the work processes into standardized operating procedures. To further minimize wasted time for frontline staff, the workplace is highly standardized; all items are placed in predetermined places so staff do not waste their time searching for items needed during service delivery. Finally, some redundant processes are built into the system so in case the frontline employees do miss critical tasks, the RN or other managers will see to it that the task is accomplished. The application of these mechanisms is also recommended in operations management literature for reducing human errors. Stewart and Grout (2001) for example suggest that for mistake-proofing operations, there should be simplified standards in place that determine the correct set of actions for employees.

4.4.2 Compliance Stimulant-Counteractions

As discussed earlier, some of the major challenges in achieving congruence between planned and executed operational tasks arise from the behavioural aspects of the individuals who perform the work. It was discussed that as the result of these behavioural characteristics, sometimes caregivers intentionally choose to violate the requirements. In

response to these challenges emanating from the characteristics of human beings, the managers have developed two mechanisms to stimulate compliant behaviour: (1) alignment and (2) enforcement. Each of these mechanisms is discussed below (for more raw data on second-order themes see Appendix F).

Alignment

I define alignment as the set of managerial mechanisms through which the management attempts to align the preferences and interests of the employees with the preferences and interests of the organization. For this purpose, the managers are focused on building a culture of compliance. In most of my formal and informal conversation with the managers, they expressed their views about an ideal state in which individuals understand the value of compliance for themselves, for the residents, and for the organization, and act precisely based on the requirements. Sometimes their view was not exactly realistic. For instance, the following excerpt from an interview with an ADOC shows how she perceives the state of compliance culture at the home:

> *Interviewer: Do you believe people should be rewarded for compliance? I mean do you reward your staff here for complying?*
>
> *ADOC: Everybody is supposed to be complying, there is no way, we don't do this, we don't reward people for what they are supposed to do. Complying is our culture, this is about lives, peoples' lives, so everybody has to be in compliance, everybody, and there is no reward for that. This is our way. (Interview with ADOC, Sep/04/2014)*

Yet, as my findings revealed over the course of research, in reality compliance culture was an ideal goal that the organization was still investing in. While the ADOC was not quite aware of this fact, the senior managers knew that they have a long way to go in building that culture. For instance, the following excerpt from an interview with one of the senior managers illustrates how the organization is struggling currently to build a culture of compliance:

> *You really have to spend a lot of time and resources on building a culture, because the staff will quickly go to place the blame, or try to outdo each other so that it doesn't fall on them, rather than really addressing the root of the issue … given the fact that everyone is pushed to the max and working to their full capacity at every level of the organization, where do you build that in? How do you build that in? ... Obviously what we are doing right now isn't working, so what could we be doing differently? (Interview with a senior manager,*

Aug/28/2014)

More importantly this excerpt reveals that one of the aspects of building the culture of compliance is empathizing with the staff members and acknowledging their feelings. But again, in reality this is not happening. The following excerpt from shadowing one of the key informants[18] might clarify this point even further:

> *I asked [him/her]: why everybody says XYZ nursing home is the best in the industry? [he/she] explained: first of all these two homes are almost similar in terms of compliance with the Ministry requirements, both can meet 60-80% of the requirements every year. The requirements are so irrational that no home can achieve 100%. What is not good about here is the wide distance between the managers and employees… [during a Christmas dinner party] all the managers sat at one table together, and throughout the dinner, none of them got up from that table and joined the staff tables. Then [he/she] opened [his/her] Facebook profile and showed me a couple of pictures in which [he/she] was tagged at the DOC of XYZ home's picture and explained to me that the pictures are from the New Year's party. [He/she] explained that the individuals dancing together on the dance floor were from all ranks PSWs, RPNs, DOCs, and Administrator, and all were dancing together, and in other pictures they were sitting or standing together in all photos…When I just started working at XYZ home I found that the management send you nice and encouraging messages and they thank you for your efforts. Here nobody thanks you for anything… Here I was told that Molly [a PSW] works very diligently, and I decided to write her a letter in which I thanked her for her hard work here because I knew that nobody will appreciate her efforts. But this is not my job, the management should identify these individuals and thank them and encourage them if they want to have a better culture.*

As illustrated in this excerpt, despite the fact that managers recognize the importance of acknowledging the feelings of their staff in making compliance happen, in reality they fail to do so effectively. Therefore while they intend to build a culture of compliance, they have not accomplished this yet. Two approaches that are used to build compliance culture are discussed here.

The first way managers attempt to align the incentives of staff with the preferences of the organization is through building a sense of belonging and ownership. Since the home began its work, the senior management team has been working on a leadership program to forge the identity of teamwork, and to create a sense of belonging to a team and to the

[18] To ensure the identity of this person is preserved, I do not mention the position of this individual within the organization. I also do not provide the reference to the date of data collection.

organization. In this program the frontline employees of each home area are given the chance to work together and accomplish tasks as a team in which the RPNs are leader. Here is an excerpt from an interview with a senior manager:

> *We did create a leadership program, and it started out with everyone together for the first four modules. The program's aim was to bring all the staff members in each home area, each shift together, and to appoint the RPN as the leader of the team so everyone could feel … I mean they're part of this whole organization so they should… work toward realizing the goals together. (Interview with a senior manager, Aug/28/2014)*

Second, the managers often strive to give individuals a sense of ownership of the home and all the things that happen within it. Consider the following excerpt from shadowing the Restorative Manager:

> *At the end of each day I write down the number of falls occurred during the day and put it on the board before I leave the home. Also every month I count the entire number of falls for each home area and print it out and place it on each home area's board so that they know how well they've done in managing falls. By doing this I try to get them involved, giving them a sense of ownership they'll feel responsible, they'll be mindful about the consequence of their actions. (Shadowing RN, Mar/30/2010)*

In sum, the alignment mechanisms are directed to building a culture of compliance by giving the sense of belonging and ownership to employees and motivating them to operate more diligently, responsibly, and compliantly. Previously, it was discussed that there are two behavioural factors contributing to noncompliance: system of beliefs and peer-influence. The employees have differing views on the seniors' wellbeing and they might refrain performing their tasks with the assumption that the seniors are not getting better. The peer-influence, on the other hand, has a deterministic role on encouraging or discouraging employees in complying.

By giving the sense of belonging and ownership, the managers attempt to align the values and beliefs of the employees with those of the organization and make employees more mindful of the negative impact of their actions on the wellbeing of the residents. In addition, by giving a sense of belonging and ownership, the managers try to establish norms and expectations (e.g., a reduced number of falls) and motivate individuals to act based on requirements using the peer-influence.

As opposed to the recommended alignment mechanisms in the agency literature that emphasize rewarding (Eisenhardt, 1989b; Fama and Jensen, 1983), PEC Co. managers strive to achieve alignment by creating a culture of compliance and by inducing a sense of belonging and ownership. However, as the organization is young and it does not have enough resources, managers have not been entirely successful in terms of building compliance culture so far.

Enforcement

I define enforcement as the set of mechanisms that are directed towards reinforcing compliance by constant and transparent surveillance of employees' functions. The enforcement was the most obvious mechanism that was used by the managers to manage everyday compliance of individuals and resembles to the concept of "kamishibai" audit in lean operations (O'Reilly et al., 2016). The managers constantly audit the home to find the areas that might not be considered as compliant, and to provide feedback to RPNs and their teams. Moreover, they can use the PCC system to pull up reports that show whether a nurse or a PSW has accomplished all his or her daily tasks. During the interview with the DOC, she showed me how she can pull up an audit report using PCC and explained that:

> *So it is not only the fact that you go to the floor and watch what they are doing at the moment, but you have a system that gives you all the information almost whatever that you require.(Interview with DOC, Sep/04/3014)*

In addition, as mentioned earlier, every day the managers go for walkabouts within the home to closely watch the frontline staff when they are delivering care. If they observe any cases of noncompliance, they often start by giving feedback, and if necessary by setting goals. This is often done during a performance appraisal session, as explained by the home administrator:

> *Each of us [referring to managers] does the performance appraisal for those who report to us… in case of PSWs, their performance is evaluated by the ADOCs and they get feedback frequently, and if necessary the ADOC and their associated supervisor [referring to RPN] sit with them and they plan for improvement. For every individual they set goals and do follow ups, and 30-40% of the time this approach is constructive and the individual really grows. This is better than nothing. (Shadowing the administrator, Nov/18/2014)*

Finally, if an individual continues to perform without strictly adhering to the requirements,

the managers consider taking disciplinary action, as explained by DOC:

> *So kind of the first step is always the friendly, you know what, this is what I have noticed, you can see and you get their excuses and you reeducating, you document that you have reeducated and you have proof usually and their reply you have, but if those patterns continue, then it becomes a disciplinary, it becomes a performance issue (Interview with DOC, Sep/04/2014)*

In sum, the enforcement mechanisms are designed to create transparency in work processes that minimizes the chance for opportunistic behaviour by the frontline staff. As indicated in section 4.2.1, one of the major issues related to intentional noncompliance emanates from risk taking behaviour of the frontline staff. The enforcement mechanisms are mostly directed toward preventing these types of behaviours, and therefore reduce the opportunity for the risk takers to be noncompliant.

The managers also want to make sure that the staff do not sabotage and abuse the residents. However, as I mentioned earlier, I never witnessed any instance of sabotage or abuse. The reason might be fact that at PEC Co. the surveillance is quite transparent and employees are aware that the managers constantly monitor their functions. According to Harris and Ogbonna (2002), when there is no monitoring system around, the employees are more prone to exhibit sabotage behaviour. Therefore, if the employees are sure that they are being monitored, the risk of their sabotage reduces substantially.

4.5 Conclusion

From the findings presented in this chapter it can be concluded that the execution process is highly dynamic. During the execution process, intentions and actions of employees in complying with the requirements of tasks emerges from the tension between the two opposing forces of challenges and counteractions. As a result of this dynamic process, which happens at an individual level, the multilayered OI phenomenon emerges at an operational level. Figure 4.4 depicts this relationship.

Figure 4.4 Multilayered Operational Integrity Phenomenon

This figure shows that in the human-reliant system of PEC Co., the combination of challenges in the form of operational system characteristics and behavioural characteristics shapes the decisions of employees on whether or not to comply. On the other hand, the completeness-restorative and compliance-stimulant counteractions are introduced into the system to impact employees' decisions and help and encourage them to comply. As a result of this dynamic process, the planned operational tasks are either executed correctly, and at operational level the congruence between planned and executed tasks emerges, or the employees cannot accomplish the tasks fully and correctly, and a gap between planned and executed tasks emerges.

It is noteworthy that the gap can be positive or negative. As the findings reveal, while in the majority of cases the employees fail to accomplish the planned tasks fully, there are some instances where employees over-execute the tasks. For instance the gray areas that are developed by the staff to improve the quality of care for some residents are not recorded in the care plan, and therefore their accomplishment is not necessary.

However, the employees choose to comply with those to ensure that the resident receives better care. Likewise, certain emotions that the caregivers might harbour towards some residents may result in an operational integrity lapse in the form of delivering a service that exceeds the care plan for some residents. However, exceeding the care plan in some areas almost exclusively means underperforming in other areas of care delivery.

Additionally, from the findings it might be concluded that the identified challenges, i.e. operational system factors and behavioural factors, might have combined effects. For instance, the combined effect of "workload" with "instability" prevents the RPNs from being able to constantly update the care plan binders for each resident and, as a result, the PSWs are not capable to follow the most updated plan of care. As another example, the lack of mindfulness of the staff is exacerbated by the lack of leadership skills in the part of the managers, contributing to the emergence of operational integrity gap.

Finally, the findings reveal that the managers actively attempt to reduce the operational integrity lapses by using mechanisms that help or impel individuals to execute operational tasks fully and correctly as planned. However, currently the mechanisms that are developed to overcome challenge, i.e. the operational system characteristics and behavioural characteristics, and to minimize slips, lapses, and violations are inadequate. Ashby's (1958) law of requisite variety provides the theoretical ground for understanding why the current mechanisms are inadequate for creating congruence between planned operational tasks and executed operational tasks. According to Buckley (1968, page 495), the law of requisite variety states that "the variety within a system, must be at least as great as the environmental variety against which it is attempting to regulate itself. Put more succinctly, only variety can regulate variety."

When applied to this study, the law of requisite variety means that the sophistication of managerial counteractions for minimizing the negative impact of environmental challenges on congruence should be at least as complex as the environmental challenges. While it might be less challenging for the managers to design a system that overcomes the execution process complexities related to the operational system characteristics, the data shows that reducing the negative impact of human behaviour characteristics is overly

challenging for the organization. In particular I could not identify any mechanism to tackle the noncompliance cases which resulted from emotional interactions between employees and residents and among the employees.

Likewise, the attempts of the managers to build a culture of compliance in which the values and beliefs about compliance with care requirements are shared among all employees have, thus far, been futile. The reason for this claim is that from the data on execution challenges, I clearly saw that individuals hold two completely differing views about elderly care, and if such compliance culture exists, I should not have been able to make this observation. In sum, as long as the managers cannot create a system in which the variety of the managerial counteractions are at least as sophisticated as the challenges of the execution process, a gap between planned and executed operational tasks will continue to exist.

Chapter 5 Congruence in the Planning Process

In chapter 4, I answered the first research question by identifying the challenges that cause incongruence between planned and executed operational tasks, and the counteractions taken by the organization to dampen the impact of challenges during the service delivery process. During the course of data collection and analysis to answer the research question, I oscillated back and forth between the literature and the data to understand the operational integrity phenomenon. This process led me to understand three important facets of the OI phenomenon that called for my further attention and extension of data collection and analysis. These facets are: (1) OI lapses partially emanate from the dynamic nature of the planned operational tasks crafted during planning process, (2) the frontline employees might perform a planned task fully and correctly but still the desired value of the task is not achieved, and (3) OI lapses impact the realization of competitive prioirties of organizations.

As discussed in section 4.3.1, some of the challenges in the execution of tasks is related to the nature of the plans designed during the planning process. In particular, the plans are highly unstable and dynamic, and keeping up with the changes is challenging for the frontline staff. This finding directed my attention to the planning process to understand its connection to the execution process and OI. During this process, I realized that there is a clear distinction between the errors which occur in the execution of tasks and those during the planning of tasks. The data revealed that sometimes the execution of planned operational tasks does not result in realization of intentions, not because the execution of the task happened incompletely or incorrectly, but because the planned task was not correct. Therefore executing planned tasks, even fully and correctly, does not necessarily bring about the envisioned intentions.

In particular, as discussed in chapter 2, the literature predominantly discusses failure in terms of the bundle of planning mistakes and execution errors. Thus, I took this opportunity to use the emergent insights about planning mistakes to unbundle the failures in the planning and execution processes. In doing so, I extended my investigations to

answer the emergent research question of "how are the planned operational tasks designed?" Answering this question allowed me to fully distinguish between the challenges in the execution and planning process which result in failure. In addition, as will be discussed in full detail in this chapter, I found that similar to the execution process, in the planning process, employees and managers develop and deploy various counteractions to minimize the impact of challenges and increase the congruence between the intended priorities and the planned operational tasks.

Additionally, these findings revealed to me that operational integrity is a part of a larger phenomenon, strategic in nature. More precisely, during the planning process the purpose is to craft planned operational tasks which, if executed correctly and fully, realize the intended competitive priorities of the firm. However, for the reasons discussed in chapter 4, many planned operational tasks are not fully and correctly executed. In addition, due to the reasons outlined below, the planned operational tasks are not crafted correctly and therefore do not adequately reflect the intended competitive priorities of the organization.

I start this chapter by laying out the foundation of the strategic intention that the organization seeks to achieve. Then I present the emergent themes from the field that clarify which challenges during the planning process cause planned operational tasks to be crafted poorly. I further discuss the emergent themes on the counteractions that are developed by the employees and managers to tackle the challenges.

5.1 Strategic Intentions

The strategic outcomes for PEC Co. entail what the organization is strategically intended to achieve through its operational efforts and delivering planned operational tasks. In the operations management field, traditionally such strategic priorities are viewed as the competitive priorities through which the organization distinguishes itself from rivals in the targeted market. The organization's intended strategic outcomes can be divided into two general categories of operational competitive priorities and organizational priorities.

At an operations strategy level, the most transparent competitive priority of PEC

Co. is to deliver high quality care service that conforms to the requirements of the Ministry and keeps the residents and their families satisfied. With this intention as the primary strategic goal of operations, the main endeavours of organizational actors at every level revolve around designing and delivering a service concept that meets two criteria simultaneously: first it is in complete compliance with the requirements of the MOHLTC and second, it meets and even exceeds the expectations of residents and their families. These two operational priorities are linked up to the organizational priorities of PEC Co., which include organizational reputation, return on investment, future expansions, and survival.

At an organizational level, the managers work diligently to build a good reputation for quality and compliance in their industry. According to Sabrina, one of the senior managers, for a nursing home "reputation is everything"; it takes so much effort to build it, and with the smallest mistake it is damaged and gone. Most importantly once a reputation is damaged, it is so difficult, if not impossible, to restore it again. Considering that the operations of nursing homes are highly transparent (due to documentation and frequent inspections), operational failures are easily revealed and exact a toll on organizational reputation. By focusing on service quality and compliance, managers aim to build a good reputation, which in turn brings about more return on investment for the home owners and paves the road for future expansions.

Having said that, if the service offerings are not perceived as high quality and compliant, then the organization will not be able to meet its occupancy targets, which would lead to economic repercussions. First, if the families deem the home as noncompliant and low quality they are not likely to select the home for placing their loved ones in. As such, as the quality of the services diminishes, the number of residents might drop too. Thus, every empty bed, and in particular every empty private room, would be a direct loss of revenue. Second, if the occupancy targets are not met, the Ministry might want to apply an "occupancy factor" in the calculation of the Level of Care Per Diem, i.e., the nursing home's budget. Lastly, as the number of residents decreases the usage of the peripheral services (such as hairdressing) offerings will be affected as well. Hence quality and compliance issues will directly impact the organization's revenue through reducing the

number of service-consumers. As a result, achieving high quality services which are fully compliant with the requirements of the Ministry is the key to creating value for the organization.

5.2 Congruence between Competitive Priorities and Planned Operational Tasks

Here I define the function of planning as choosing the right course of planned operational tasks that is supposed to be executed during the care service delivery process. In this context, the right tasks are referred to as those that adequately reflect the priorities of the organization, in particular providing high quality and compliant care services, as discussed above. Therefore, if the right operational tasks are planned, and if the operational tasks are executed correctly and fully as planned, the intended priorities of the organization are realized. A simplified depiction of the relationship between operational priorities and the planned operational tasks is presented in Figure 5.1.

Figure 5.1 The Emerging Gap in the Planning Process

Figure 5.1.a. Perfect congruence in planning when no challenges exist.

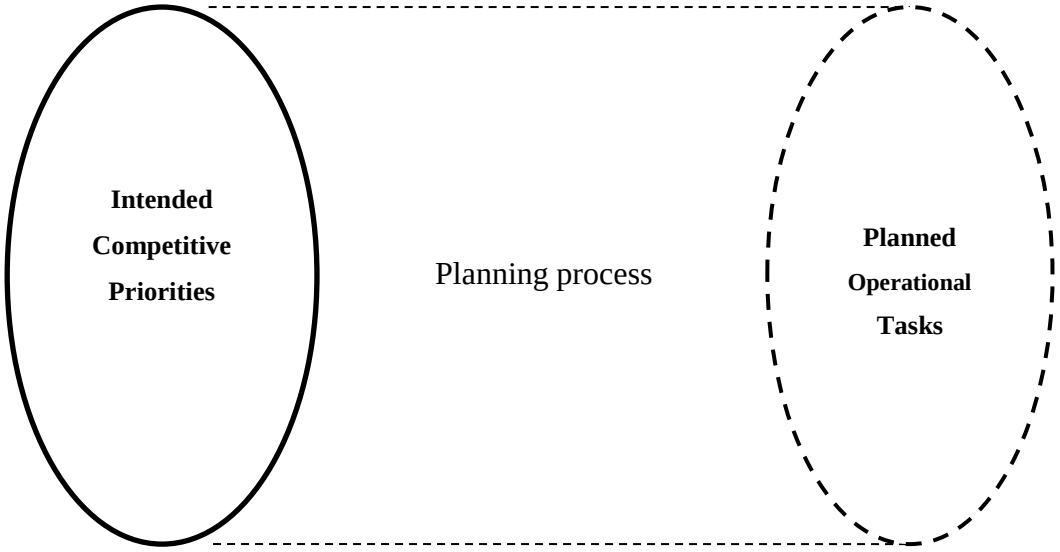
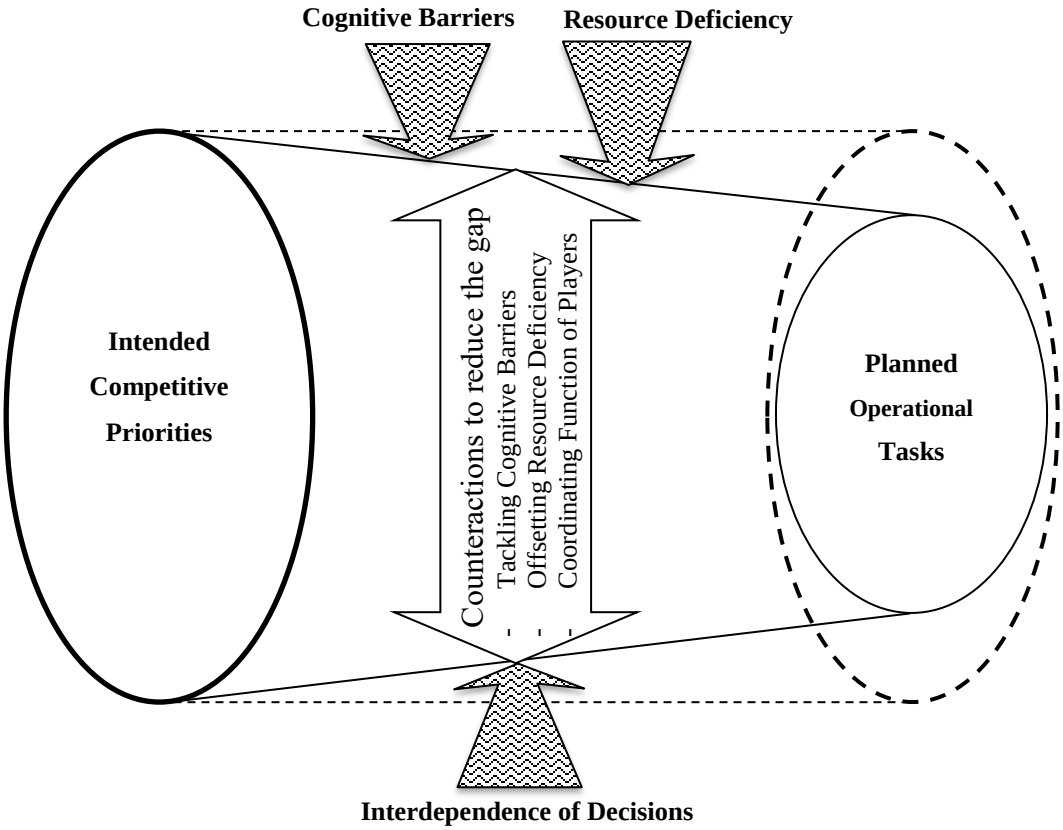


Figure 5.1.b. The gap emerges when challenges exist.



Under perfect conditions (Figure 5.1.a) where there are no challenges in the planning process, the planned operational tasks adequately reflect the operational priorities of the organization. Therefore the intended competitive priorities and the planned operational tasks are congruent. This perfect condition demonstrates a situation in which the decision-makers face no challenges in designing the planned operational tasks that adequately reflect the intended priorities of the organization, i.e., delivering high quality services which are compliant with the Ministry's requirements.

However, according to what analyzed data revealed, at PEC Co. there are challenges (shown by arrows with a zigzag pattern in the Figure 5.1.b) that result in the intended priorities not adequately being translated into the planned operational tasks. As a result of this, a gap between the priorities and planned tasks occurs, which is called a planning gap here. In response to the challenges and to minimize the gap, the managers

apply some counteractions, referred to as planning counteractions here. Planning counteractions are not necessarily reactive. In other words, they might have been designed into the system and be proactive in nature (ex-ante). The following section presents an argument on how challenges cause the planning gap. This section is followed by presenting the findings on the mechanisms that the organization applies to counteract the challenges and increase congruence between competitive priorities and planned operational tasks.

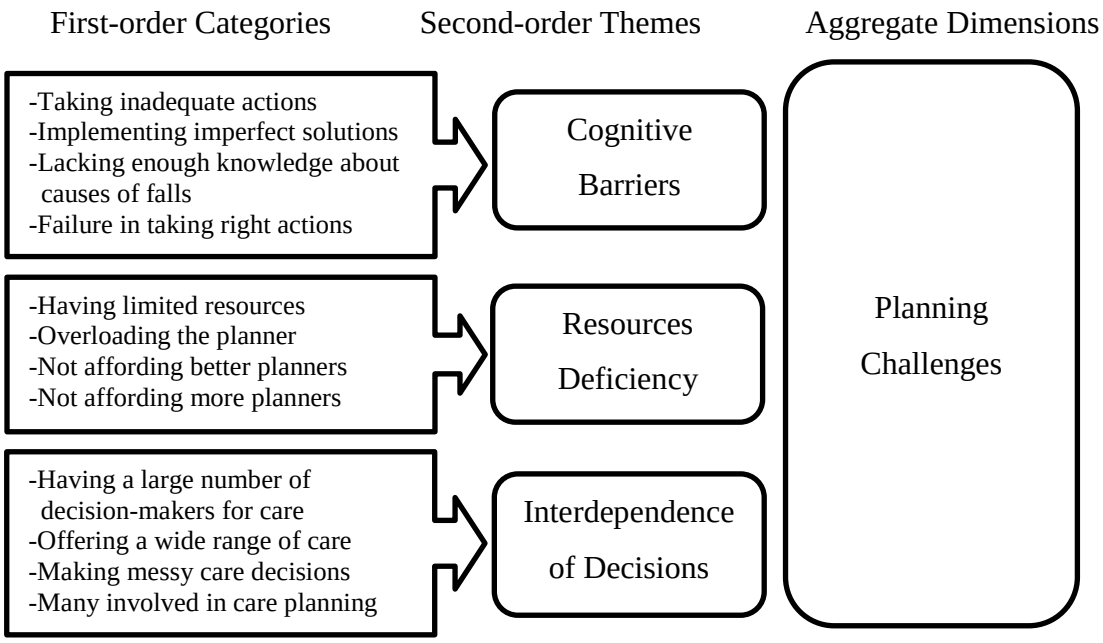
5.3 Challenges in the Planning Process

During the process of translating the strategic intention for offering high quality and compliant services into the planned operational tasks for service delivery, the presence of some challenges makes the decision-makers who craft the planned operational task fail to adequately account for strategic intentions. As a result of these challenges the generated planned operational tasks do not adequately reflect the intentions or priorities of the organization, hence a gap emerges in the planning process.

As shown in Figure 5.2, three main subthemes of planning challenges emerged from the analysis, which explains why crafting a perfect congruence between competitive priorities and planned operational tasks is challenging: (1) cognitive barriers; (2) insufficient resources; and (3) interdependence. Here, the first-order categories are the result of open coding, while the second-order themes emerged during the axial coding process (Gioia et al., 2013, Strauss and Corbin, 1998). The common point among the first-order categories here was that they represent a type of challenge for the decision-makers who are involved in planning operational tasks. As a result of these challenges, the decisions made do not adequately reflect the intended priorities of the organization. Therefore, these challenges cause incongruence between intended competitive priorities and the planned operational tasks.

To distinguish between the first-order categories based on their differences when grouping them into second-order themes, I identified the type of challenge that the decision-makers face when planning the care. This led me to identify three second-order themes, which in aggregation represent the challenges of planning.

Figure 5.2 Data Structure – Challenges of Planning



All of the first-order categories that are clustered as the second-order theme of "cognitive barriers" represent the cognitive difficulty that the decision-makers face in making the right decisions to result in desired outcomes. As a result of lack of knowledge in the area of decision-making (about falls prevention or medicine administration), the decision-makers cannot evaluate the outcomes of their decisions. For example, a certain planned operational task that is made for preventing falls might sometimes have the opposite impact intended, even if the task is implemented fully and correctly. This lack of knowledge emanates from the complexity of the decision area and therefore cannot be compensated for by purchasing more resources.

On the other hand, the first-order categories that are grouped as "insufficient resources" represent the lack of necessary resources to make decisions that adequately reflect the intended priorities. The difference between cognitive barriers and insufficient resources is that the challenges resulting from insufficient resources can be overcome if the organization can afford to purchase more and better resources. But acquiring more or better resources does not help the decision-makers to overcome the cognitive challenges, as the decision-making area is complex and uncertain.

The last emergent second-order theme representing challenges of planning is the "interdependence of the decisions". The distinction of this theme from the other two themes emanates from the fact that all of the first-order categories grouped under this theme indicate a large number of individuals are involved in making highly interdependent decisions about care for residents. As a result of this interdependence, extensive collaboration and integration is necessary for aligning the decisions that are made by the various decision-makers. In the absence of collaboration, the decisions that are made are suboptimal, and therefore the gap between intended priorities and planned operational tasks widens.

In total, I identified over 15 instances[19] representing the challenges that the decision-makers faced when planning the tasks. The most frequent second-order theme was insufficient resources representing eight instances, followed by cognitive barriers (five instances), and interdependence of decision (four instances). The following discussions elaborate on each of the themes and ground those in raw data from the field (for more representative data see Appendix G).

Cognitive Barriers

According to the data, the decision-makers at PEC Co. have insufficient knowledge about the issues for which they are planning. The decisions about the planned operational tasks for providing care services are complicated. In particular, older adults falling is not a very well understood phenomenon among health care practitioners (Health Canada, 2002). Due to the complexity and uncertainty of the decision's subject matter, it is often difficult for the decision-makers to clearly interpret the decision-making situation and anticipate the outcomes of their decisions.

As seen in this excerpt, the decision-makers in the Fall Committee have to make decisions about an unfamiliar area with imperfect knowledge about the consequences of

[19] Each of these instances was either a case of a planning mistake that I observed during shadowing or observational sessions, or was an insight that was shared by the key informants during interviews, observation, or shadowing sessions. As such, each instance contains at least one first-order code representing a second-order theme. In the majority of cases, however, each instance has many first-order codes representing a second-order theme.

their decisions. They cannot clearly make accurate estimates about the outcomes of their decisions. Sometimes implementing the planned tasks results in realizing the desired outcomes, while other times it does not.

If the result is not what the planners had envisioned, the quality of care offerings, the intended priorities of the organization, are not realized. Thus, the cognitive limitations of the decision-makers can widen the gap between intended priorities and the planned operational tasks. However, only after the implementation of the planned operational tasks, when the outcomes are revealed, is this incongruence manifested. Consider the following excerpt from shadowing the Restorative Aide which shows how the incongruence between intended priority (service quality) and the planned operational task (working on muscle strength and mobility of a resident) is manifested over time:

> *Bob's daughter: Jen, I'm really disappointed. I had heard so much good stuff about this home … he [Bob] has been here for less than a month and over this period he had three falls... he never had a fall before coming to this home in his entire life.*
>
> *Jen: … We're trying our best here to help Bob to stay strong and functional… Bob might have had no falls in his previous nursing home because no one was trying to help him gain his strength back and again become an independent person…*
>
> *When we left Bob's room Jen told me that she thinks Bob's daughter was right: … I know what exactly the issue is, my plan was not correct, I constantly encouraged him to walk and this gave him the wrong impression that now he is independent… I should change my approach... (Shadowing the Restorative Aide, Dec/17/2014)*

This example reveals how implementing an inappropriate plan in a familiar situation can result in unintended outcomes. The decision area is familiar because the resident gradually had lost his muscle strength. The purpose of the decision-maker, in this case the Restorative Aide, was to work on increasing the muscle strength and mobility of the resident and thereby minimize the probability of his falls. This is the typical solution for such a situation. In this case, however, inappropriate application of this solution resulted in frequent falls for the resident. As a result, the resident's daughter was highly dissatisfied with the service that PEC Co. provided for fall prevention. In fact, implementing the planned tasks for the resident had the opposite outcome and caused him to fall. As a result of Bob's frequent falls, which only started after his admission to this home, his daughter's expectations of the

service offerings differed greatly from her perception of what they were in reality. Therefore, the intended service quality was not achieved.

While the planned tasks for working on Bob's mobility were designed by the Restorative Aide, before implementation it should always be approved by the Restorative Manager who also consults with the Physio Manager. However, none of these individuals could estimate that the consequences of implementing the planned operational task could be negative. They did not know that encouraging the resident to stay mobile would give him a misperception about his abilities and strength, which would subsequently cause him to fall.

As illustrated in this example, the data shows that it is not only the senior managers whose efforts contribute to the congruence between competitive priorities and planned operational tasks. The planning choices of the staff, even at the floor level, impact this congruence. As long as the staff member is delegated some sort of decision-making role for planning the care – just as in the case of the Restorative Aide who is a PSW delegated for planning for some fall prevention tasks – his or her choices impact the planning gap.

To summarize, all decision-makers at all levels of the organizational hierarchy impact the congruence between intended priorities and the planned operational tasks. This finding is in line with an emerging stream of operations strategy literature that advocates the key role of the frontline staff in the strategy formation process (Kim, Sting, and Loch, 2014). In particular the cognitive limitations of the decision-makers regarding complicated care problems do not allow them to properly evaluate the consequences of their decisions. Therefore they might design tasks, which if implemented, result in unintended outcomes in terms of meeting the customer service quality requirements or in compliance with the Ministry's requirements. However, the incongruence between the intended priorities and the planned operational tasks is manifested only after the tasks are executed.

Insufficient Resources

According to the data, one of the primary factors contributing to the gap in the planning process is a lack of resources. Three major resources that PEC Co. lacks are time, financial resources, and skilled human resources. These three resources are essentially interrelated.

As the Ministry's funding is so limited, and as the managers are responsible for creating value for the home owners, they face tremendous budgetary constraints. As a result, they have to be mindful of the available budget when making decision on their human resources. Here is quote from Sabrina, a senior manager:

> *Sabrina: We take really great nurses… phenomenal in nursing… but … when it comes to planning… when it comes to managing quality…they struggle...*
>
> *Interviewer: There are…nurses with MBA degrees ... Why don't you hire those?*
>
> *Sabrina: Well we would love to and you know what? Those positions pay very well too…they have an excellent benefits package…get five weeks vacation… nurses will tell you, oh I don't want to go to a long-term care because I don't want to lose my skills, but they don't understand… So it's a disservice because people think it's like a cushy job… so the young new grads are really scared to lose their skills. (Interview with a senior manager, Aug/24/2014)*

As inferred from this quote, the management cannot hire highly skilled people. In addition the scarcity of skilled human resources represents the lack of another major resource, i.e., the unfavourable reputation of the LTC sector as an employer. According to the data, among health care practitioners, nursing homes are not reputable in terms of the sophistication of their service offerings. This negative perception of nursing homes, coupled with a lack of sufficient financial resources, causes the managers at PEC Co. to face major challenges in attracting skilled people, who might be more successful in translating the intended competitive priorities into the planned operational tasks. As a result, the decision-makers, such as Restorative Managers, are overloaded with too many tasks. Hence, the plans that they design cannot perfectly reflect the intended priorities of the organization. Consider the following excerpt from shadowing the Restorative Manager:

> *If you want to understand falls, you should study XYZ Nursing Home… their homes are the most successful ones in terms of managing falls. They have a fall manager with a Ph.D.…She has built an excellent fall program… In most other homes fall management is under the heading of restorative care, and this is exactly the issue. The restorative managers usually do not have so much time to put together a comprehensive program for addressing fall problems. (Informal conversation with a Consultant, Nurse Practitioner, Oct/31/2014)*

The nurse practitioner works with various nursing homes in Ontario and provides them with consultations on residents' health care. As she indicated in this excerpt, the most successful nursing home in Ontario in terms of managing falls has a fall manager who has a Ph.D. degree. However, hiring a specific manager for managing only falls and in particular with a Ph.D. degree would be an exorbitant cost for PEC Co..

According to the nurse practitioner, XYZ Nursing Home has a large number of nursing homes all over Canada, and their fall manager is responsible for managing falls in all of their nursing homes. In other words while the fall manager's work is limited to merely managing falls, the XYZ Nursing Home fully utilizes the capacity of this position. At PEC Co., however, the organization cannot afford to let their Restorative Manager focus only on managing falls, and therefore her capacity is fully utilized by overloading her with other responsibilities. As a result, she is not able to spend enough time on planning the correct fall prevention operational tasks which adequately reflect the service quality requirements for minimizing falls.

To recap, insufficient financial resources coupled with nursing homes' unfavourable reputation in the nursing industry limits the choice of the management at PEC Co. in hiring competent nurses who have the required expertise for planning operational tasks. As a result, the operational tasks planned by inexpert decision-makers who lack the necessary skills for making the right decisions in key areas such as fall prevention, do not adequately reflect the intention of the organization to provide high quality and compliant care. In addition, given the financial constraints, the managers fully exploit the decision-makers' capacity to ensure efficiency. Hence, the decision-makers do not have enough time to spend on designing better operational tasks that adequately reflect the quality and compliance requirements. Thus, the lack of various resources, whether money, time, or skilled human, widens the gap between intended competitive priorities and the planned operational tasks.

Interdependence of the Decision

According to individuals who have hands-on experience in the area of elderly care, the needs of the residents are currently very complex, and high quality care requires extensive

knowledge on the part of the care practitioners. As the residents need a variety of care services, the number of individuals who are involved in planning and executing the care is also large in comparison to other health care provision settings. In particular the long-term care facilities provide a combination of clinical and nonclinical services for their residents. Therefore, the decisions that are made by each of the individuals involved in planning might impact the efforts of other planners. Consider the following excerpt from shadowing the Restorative Manager

> *If a doctor prescribes some medications that increase the risk of falls… all that Jen [Restorative Aide] and I do here for fall prevention will be useless. (Shadowing the Restorative Manager, Mar/30/2015)*

This excerpt shows the interdependence of decisions. The incongruence between desired outcomes and the planned operational task happens when highly interdependent decisions are made without coordination with other key decision-makers. The following excerpts reveal an instance of an unintended outcome (a fall) as the result of lack of coordination among the key decision-makers:

> *Ben [Physio Manager] is talking with Zara [the RPN] about readmission of Matt [a resident], who was in the hospital due to a hip fracture (because he had a fall). Ben asked Zara to contact Matt's doctor and explain to him that Matt's medication is problematic and to ask him if there is any option for substituting another medicine. Jordan [the RN] joined the conversation and … attempted calling the doctor but he couldn't be reached, so he left a message. (Observation Apr/09/2015)*

> *[Two days after] Jordan said … he hadn't received an answer from the doctor yet and apparently he can't find any records on the documents about the response from the doctor's office. (Shadowing RN, Apr/11/2015)*

This case reveals an instance of a planning mistake in which an interdependent decision had been made by a doctor without collaborating with other decision-makers, i.e., fall manager and physiotherapy manager. The decision that the doctor made for prescribing a certain medication caused a fall and hip fracture of a resident. In order to prevent the resident from falling again, the medication should be immediately discontinued. However, after two days there was no answer from the doctor's office.

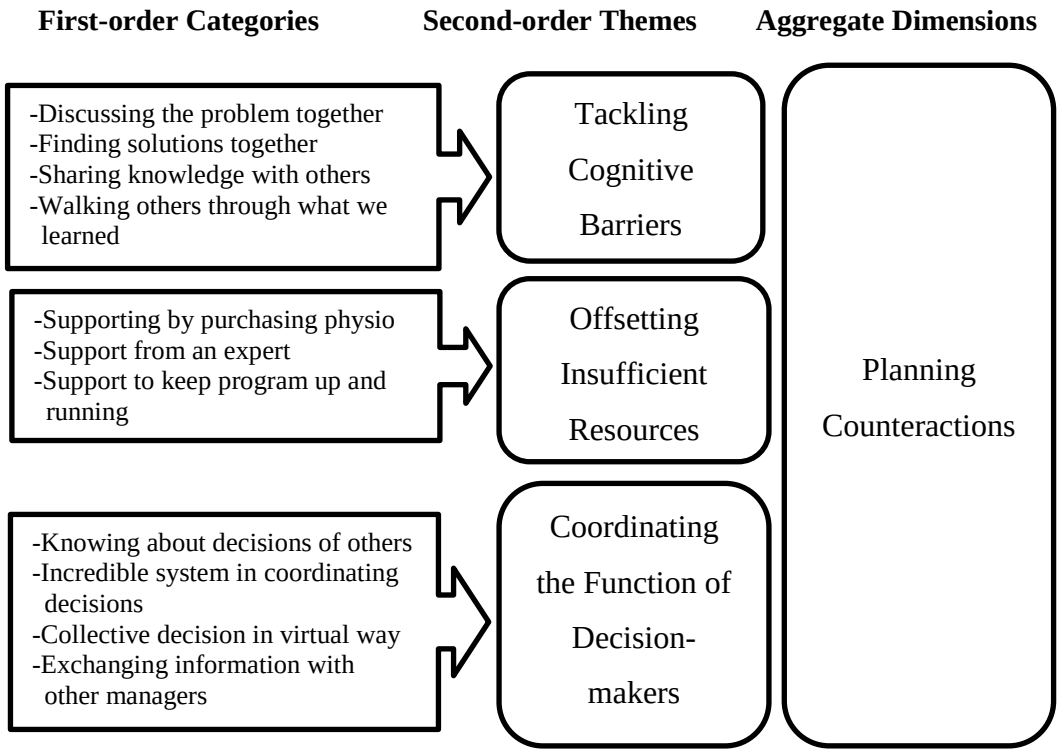
This reveals that interdependent decisions require extensive collaboration between decision-makers. Without collaboration, the decisions made are suboptimal and actually might cause adverse events such as falls. Since the residents' care is highly complex, a large number of interdependent decisions are made by various decision-makers. If the interdependent decisions are made in isolation without collaboration, the desired outcomes may not be realized, hence the gap between intended priorities and planned operational tasks is widened. This finding is in line with the literature in operations and supply chain that suggests a lack of integration among silos within an organization has negative impacts on performance (Flynn, Huo, and Zhao, 2010; Kim, 2009; Swafford, Ghosh, and Murthy, 2008).

5.4 Managerial Counteractions to Reduce the Gap of Planning

Up to this point, it was discussed that the decision-makers at PEC Co. constantly struggle with making the right choices for planning operational tasks for everyday service delivery. Yet, the managers are aware of the complications surrounding decision-making, and when designing plans, they proactively developed some mechanisms to push back the planning challenges and increase the congruence between intended priorities and planned operational tasks. This study refers to these mechanisms as "planning counteractions". While many of these counteractions are built into the system, there are some counteractions developed by the decision-makers or managers reactively in response to the challenges.

The purpose of the planning counteractions is to help planners in making the right decisions which are adequately aligned with the intended competitive priorities of the organization, namely delivering high quality and compliant services. The following second-order themes emerged in data (Figure 5.3) that represent the counteractions of the planning process: (1) tackling the cognitive barriers; (2) offsetting the resource insufficiency; and (3) coordinating the function of decision-makers. Overall, more than 20 instances were identified in data that represent the counteractions which are developed by the organization to minimize the impact of challenges and increase the congruence between intended priorities and planned operational tasks. The most frequent second-order theme was coordinating the function of decision-makers representing nine instances, followed by tackling cognitive barriers, and offsetting insufficient resources (six instances each).

Figure 5.3 Data Structure – Planning Counteractions



The convergence point of all the first-order categories here is that they represent a counteraction that in one way or another helps the decision-makers to come up with better planned operational tasks aligned with the intended strategic priorities of the organization. The divergent point for these categories is the type of mechanism that each of those represent. The second-order category of "tackling cognitive barriers" represents all the counteractions that are applied currently by the organization to help the decision-makers, despite having cognitive barriers make decisions that are more likely to result in better outcomes.

The second-order category of "offsetting insufficient resources" represents all the counteractions which help decision-makers overcome the issue of lack of expertise and lack of time. The second-order category of "coordinating the function of decision-makers" represents the counteractions that allow the decision-makers to design operational tasks in such a way that the tasks are aligned with other decision-makers' plans. In other words, application of these mechanisms allows the decision-makers to not neutralize each other's

planned tasks. Below, each of the themes is grounded in raw data from the field (for more representative data see Appendix G).

Tackling Cognitive Barriers

As discussed in planning challenges, the decision-makers frequently struggle to make the right choices because often there is no way that they can evaluate the consequences of their choices in highly uncertain care decision areas, such as fall prevention. The data reveals that at the system design level, the managers have designed a number of meetings in which highly uncertain decision areas can be discussed by the decision-makers to collectively find a solution for the decision area. The following excerpt from shadowing the Restorative Manager shows how the collective sense making in leadership meetings helped her in making plans for a highly complex and unfamiliar fall situation:

> *They [other managers] help me a lot. Falls decisions can be sometimes so complicated ... I raised the problem at the leadership meeting and we sometimes spend an hour discussing the issue until we find a solution together. Like once I had a high risk resident... I didn't know what to do with a resident like this… We [at the leadership meeting] discussed it and everybody suggested something. At the end when I came back to the office I knew what I should do. (Excerpts from shadowing Restorative Manager, RN)*

As is inferred from the excerpt, sometimes the decisions regarding fall prevention are so complicated that the manager has to take the issues to the leadership meeting where the management team tries to make sense of the situation collectively. In this specific instance, the resident suffers from highly advanced dementia and gradually started to forget how to walk. According to the Restorative Manager, this situation is extremely unfamiliar to her, and she considered it a complicated decision area. Thus instead of individually making a decision on the fall prevention tasks, she asked for help from other managers during their leadership meeting. This meeting is held every morning for about 45 minutes, and its purpose is to provide a forum for the managers to discuss the current state of the home and evaluate possible solutions problems within it. Most of the time, all of the managers of the home including the Administrator, DOC, ADOCs, RN, dietary manager, occupational therapy manager, social worker, and Restorative Manager attend the meeting.

Before the meeting starts, each of these individuals reads the last 24-hrs report of the home. During the meeting all the critical nursing care issues such as falls, infections,

and dehydration are discussed. They also discuss the areas that might be problematic from the Ministry's perspective. If there is an unfamiliar decision topic, as in the case of the above excerpt, all of the individuals who are present at the meeting provide their opinion on the decision topic, so that a collective decision can be reached.

The majority of coded data from the leadership meetings observations corresponds with collective decision-making in various areas. In essence the leadership meeting is a brainstorming session in which the managers try to overcome their cognitive limitations by collectively making sense of a situation and pooling their understanding of a given decision area. By doing so, the decisions made are more likely to be aligned with the requirement of the organization for providing high quality and compliant care, and the congruence between intended priorities and planned operational tasks increases[20].

While collective decision-making in the leadership meeting has been designed to overcome individual decisions-makers' cognitive limitations in highly uncertain and unfamiliar areas, many of other uncertain decisions regarding care tasks are made individually. The help the decision-makers receive during leadership meetings is limited. Therefore for many other decision areas characterized by uncertainty, decision-makers use heuristics to make decisions about daily operational tasks when their knowledge about the decision-making area is incomplete. Consider the following excerpt from observation of a Fall Committee meeting:

> *Restorative Manager: We've asked the staff to watch her [Emilie] closely and tell us about the common trends in her falls. But so far we haven't found a trend yet… as long as we don't know the underlying cause, we have to go with trial and error and introduce restraints gradually. For now we'll start with a wheelchair to see what happens. (Fall Committee meeting, Oct/29/2014)*

[20] In addition to leadership meetings, there are two nursing meetings, the so-called "huddle meetings", which are held twice a day; one for the morning shift after the leadership meeting at 10:30 a.m., and the other for the evening shift at 3:30 p.m. The purpose of huddle meetings is essentially similar to the purpose of leadership meeting. As such, the decision topics that are discussed in the huddles are characterized by complexity and require a collective evaluation about possible options. The only difference between the leadership and huddle meetings is in their participants. While some of the managers attend the huddle meetings, none of the nurses attend the leadership meetings. Accordingly, the decision areas in the huddle meetings are limited only to nursing issues.

As illustrated in this excerpt, the decision-makers have to make an imperfect choice. In this instance, the Restorative Manager is unaware of the underlying cause of the resident's falls. Therefore in order to introduce intervention to prevent the resident's falls, she has to start with prescribing a wheelchair as the most viable option for managing the falls. At the same time she asks the staff to scrutinize the resident and try to find the pattern of falls. While implementing these decisions might not necessarily bring about the best possible outcomes, the decision-makers have to try these and then if necessary adjust their plans again. Borrowing Herbert Simon's (1947, 1956, and 1979) terminology, their decisions are satisficing. They choose among familiar alternatives because their knowledge in the area that they are planning for is not perfect, and they cannot perfectly evaluate the consequences of their choices.

As a result, the decision-makers highly value any piece of information which might increase their ability to better evaluate the outcomes of their decisions. For instance, in the following excerpt from shadowing an RPN, it can be inferred that the information provided by the PSWs is very valuable in terms of reducing the decision-makers' cognitive barriers in making appropriate decisions for fall prevention:

> *The PSWs are our eyes and ears. They're closest to the residents and they see things that we can't see… the PSWs spend at least 40-50 minutes with each resident every day… Nursing homes…rely on the information of frontline staff for making decision about their fall programs. Here Anna [Restorative Manager] and Jen [Restorative Aide] after every fall ask us what happened, what did you see, what was new, what was repetitive… I think our information is really important in terms of reducing the number of falls. All we need to do is to communicate our information with all the details to the managers. (Shadowing an RPN, Nov/6/2014)*

Finally, to support the decision-makers, the management relies substantially on sharing internal resources for teaching and empowering the decision-makers. Here is an excerpt from shadowing the Restorative Manager which should clarify the importance of resource sharing for learning about fall prevention operations and increasing the congruence between intended priorities and planned operational tasks:

> *The DOC asked Anna [Restorative Manager] to teach Ellie [Restorative Manager of NASH's other home] by describing the details of the restorative function at this home... When Ellie left, Anna explained: "They send people from the other NASH homes to learn*

how we do things here. If the senior managers find they sometimes are doing better than we do here, they'll send us there too to learn from them… We share any fall interventions that we find effective" (Excerpts from shadowing Restorative Manager, RN)

This excerpt shows how the organization leverages internal resources to help the key decision-makers in planning for fall prevention. Each of the three nursing homes of NASH has a Restorative Manager who does a majority of the planning related to fall prevention tasks. While each of these individuals works on fall prevention in separate homes, the managers collaborate to share their knowledge about the most effective fall prevention operations and learn from each other.

In summary, at PEC Co. the issue of cognitive barriers of the decision-makers is tackled by applying mechanisms that allow the decision-makers to go beyond their own cognitive limitations and make better choices regarding the care provision tasks. These mechanisms are either built into the system, i.e., leadership meetings which allows for the decisions to be made collectively, or are developed by the managers and decision-makers, i.e., sharing knowledge among decision-makers, applying heuristics for decision-making, and relying on the frontline staff's information about the residents. Applying these mechanisms in combination, the decision-makers make more informed decisions in areas in which the outcomes of implementing plans are highly uncertain. By this means, the likelihood that they make better plans which are more aligned with the intended priorities of the organization increases, thereby decreasing the gap in planning.

Offsetting Resource Insufficiency

As indicated earlier, one of the major challenges in making the correct decisions, decisions aligned with the priorities of the organization, is the lack of sufficient resources. The managers at PEC Co. are mindful of this lacking and accordingly try to support their key decision-makers by purchasing external services.

For instance, the organization supports the Restorative Manager in managing falls by purchasing the services of a physiotherapy service provider organization, PHY Co. Many nursing homes in Ontario purchase physio services from PHY Co. which is considered a major supplier of highly-skilled physiotherapists. PEC Co. has hired four physiotherapists from PHY Co. and has appointed one of these individuals, Ben, as the

Physio Manager. Ben has a Ph.D. degree in physiotherapy specialized in the area of fall prevention, therefore his services are so costly that the organization cannot afford to hire him as the full-time fall manager. That being said, his presence is a substantial help to the Restorative Manager, whose specialty is not fall prevention. Consider the following excerpt from shadowing the Restorative Manager and Physio Manager during fall walks:

> *Tina [PSW] to Anna [Restorative Manager] and Ben [Physio Manager]: this morning when I entered Brad's [a resident's] room I found the floor was wet everywhere, he had urinated all over the floor of his washroom.*
>
> *Anna [Restorative Manager]: He could slip and fall, we're so lucky that he didn't fall…I think we have to start using pads.*
>
> *Ben [Physio Manager]: But he's not really incontinent, is he?*
>
> *Anna: I guess this is the first time we see this, but it's so risky.*
>
> *Tina: No, he's continent, he just urinated on the floor Maybe he was sleepy. I know him. I would say he's going to hate it to use pads, he's so independent…*
>
> *Ben: I suggest for now tell the girls he must be on comfort rounds at least every 15 minutes. Don't let him use the washroom alone. Somebody must be with him in that washroom. Ask him if he needs anything.*
>
> *Anna: Yea, I think you're right… Let's do this for at least the next 72 hours and see the result. (Shadowing Restorative Manager and Physio Manager, Dec/15/2014)*

As seen in the above excerpt, the Restorative Manager's quick decision about using pads was not the best possible solution for a resident who is accustomed to being independent. Most importantly, this resident was not really incontinent, however to prevent him from falling, made a hasty decision which was inappropriate. The presence of Ben and his recommendation for using comfort rounds instead of incontinence products helped her to make the right choice for the resident.

As seen in this example, by purchasing the physiotherapist's services, the organization helps the decision-makers make decisions more likely to meet the requirement of the customers. Hence, this approach allows the organization to increase the likelihood that the plans made realize the intended priorities of the organization in providing high quality services. As such, purchasing specialized services from suppliers might reduce the

gap between intended priorities and planned operational tasks which result from resource deficiency. Considering the fact that the Restorative Manager does not have enough education in the area of fall prevention, purchasing part-time services from PHY Co. offsets the lack of her expertise. At the same time, as the organization only purchases 10 hours per week of the Ph.D. physiotherapist's services, the cost associated with purchasing this service is less than hiring a full-time Ph.D. physiotherapist as the fall manager. Thus, by purchasing the physiotherapy services, the organization acquires the needed expertise to make appropriate decisions at a lower overall cost.

To summarize, in order to reduce the impact of resource deficiency in the area of fall prevention, the organization purchases the services of part-time physiotherapy experts from a physiotherapy supplier organization. This approach is highly effective in terms of ensuring that the Restorative Manager, despite lack of time and specialized expertise in the area of fall prevention, chooses appropriate operational tasks aligned with the intended priorities of the organization. At the same time, as the part-time suppliers work only 10 hours a week in this home, purchasing their services allows the organization to keep costs down. In this way, while overcoming the resource insufficiency, the organization can increase the likelihood of achieving congruence between intended priorities and planned operational tasks.

Coordinating Function of Decision-makers

As indicated in planning challenges, due to the complexity and multidimensionality of the care services for the elderly, a high number of individuals are involved in the process of planning the care, which means that residents' care decisions are highly interdependent. When the decisions are made without collaboration among various decision-makers, the designed operational tasks are suboptimal and might cause adverse events such as falls. Therefore, if the decisions regarding operational tasks for complex areas such as fall prevention are made in isolation, the chance of achieving the desired outcomes decreases, subsequently widening the gap between intended priorities and planned operational tasks.

To overcome this challenge, the managers at PEC Co. have developed information-processing mechanisms to accommodate the diversity of decision-makers in complex

decision contexts. The purpose is to facilitate coordination by applying electronic and non-electronic information-processing systems allowing information to be easily stored, disseminated, and retrieved by decision-makers. The richness of information produced by the decision-makers is handled by storing information within the electronic health record system of PCC (Point Click Care system) and by physically recording the decisions inside binders. The following excerpt from the shadowing of a Restorative Manager clarifies the criticality of an information system in making appropriate decisions:

> *We are not working like a team with doctors or pharmacist, they are not based here. But none of us should make a decision without considering the recommendations of others. Otherwise we might neutralize each other's efforts. Fortunately though we have the PCC and that connects us all together. It allows us to work like a team... When Dr. Bratt is here… she will first check the resident's care plan in the PCC, and if she wants to prescribe a medicine, such as something for high blood pressure which might increase the risk of fall, she first will look at the risk assessment of the resident in the care plan. If it's absolutely necessary to prescribe the medication she'll leave us a note in the system, so I know I should modify the fall plans accordingly. (Excerpts from shadowing Restorative Manager, RN)*

According to the Restorative Manager, the decisions made should absolutely be communicated to other decision-makers. Otherwise there is the possibility that one of the decision-makers makes a decision that, while correct in isolation, does not properly match the rest of the care plan. The information-processing technology of PCC allows various decision-makers to make interdependent decisions in virtual collaboration with each other. Therefore, implementing the plans that are made by the decision-makers are more likely to result in desired outcomes. In addition to PCC, application of other information-processing mechanisms, such as information binders, also facilitate coordination of the decision-makers' functions:

> *The recommendations of other managers, nurses, RNs, doctors and physiotherapists all go inside this binder... Whenever I do quarterly assessments I take a look at this binder too, just in case I missed something in PCC (Excerpts from shadowing Physio Manager)*

While PCC is highly effective in terms of facilitating communication, the organization uses various binders as an auxiliary approach for coordination purposes. As inferred from the above excerpt, there is a specific binder for communicating physiotherapy information between various decision-makers. When other decision-makers visit a home area for any

reason, they often take a look at the newest modifications and comments in the binders so that their decisions remain aligned with the others'.

To recap, the most important tool that an organization uses to coordinate decision-makers is the electronic health record system, PCC. Essentially, application of a computerized health record system in all nursing homes in Ontario is a requirement by the Ministry. Besides PCC, an organization applies other information-processing means such as binders to improve the flow of information and help decision-makers plan operational tasks in alignment with each other. Therefore, the execution of planned operational tasks is more likely to result in the desired outcomes (e.g., fall prevention).

5.5 Conclusion

The findings of this chapter revealed that in the human-reliant system of PEC Co., the planning process is highly dynamic, and is not a simple translation of priorities into tasks. The planned operational tasks crafted during the planning process constantly evolve because the decision-makers encounter highly complex and uncertain decision areas, such as fall prevention and management, in which there is a general knowledge gap in the elderly care field. Therefore, as the outcomes of complex and uncertain decision areas are revealed, the decision-makers adjust their planned tasks accordingly to improve the outcomes.

As a result, the generated planned tasks are highly unstable and the frontline employees unintentionally fail to accomplish the requirements of the modified tasks. This indicates that the OI phenomenon is not merely related to the execution process, but is linked to planning processes as well. In addition, the planning process entails substantial collaboration and coordination among various actors in the organization. Collaboration and coordination not only helps interdependent decision-makers to make more informed decisions, but also allows the frontline employees to overcome some of the challenges regarding the dynamic nature of the planned tasks. Thus, contrary to the initial conceptualization of OI, which thought of OI as an execution-based phenomenon, some facets of OI exist in the planning process as well. In conclusion, achieving operational integrity is a multilayered, multifaceted, dynamic process in which both employees and management construct plans to be executed while facing numerous ambiguities, and

attempting to fulfill those plans through executing tasks while faced with numerous barriers.

It is also noteworthy that there are some interesting symmetries between the findings of this chapter on the planning mistakes and the findings of the previous chapter on execution errors. As discussed in this chapter, the findings reveal that one of the major challenges encountered by decision-makers are the cognitive barriers which illustrate that some of the mistakes are the result of the decision-makers' bounded rationality on a given decision area. A similar cognitive limitation is also seen in the execution process, where the frontline employees' lack of mindfulness results in unintentional noncompliance and subsequently execution errors.

While this symmetry might be considered an obvious finding, it provides the grounds for unbundling the planning mistakes and execution errors, as well as the counteractions which might be applied to tackle those mistakes and errors. As discussed in chapter 2, a majority of literature in the area of safety operations management follows the tradition of safety literature and study errors in the form of the bundle of the planning and execution errors. The findings of the current research reveal that while there are some commonalities in terms of the reasons planning mistakes and execution errors occur, specific causes for planning mistakes, such as interdependence of the tasks, which are not directly considered as execution challenges, cause execution errors as well. Therefore, it is necessary to distinguish between the counteractions for tackling the planning mistakes and execution errors.

Finally, the findings revealed that planned operational tasks do not always reflect the intended competitive priorities of an organization. The operations' competitive priorities are the basic intended operational outcomes linking the daily operations of the firm to its higher organizational purpose (Skinner, 1996; Hayes, and Pisano, 1994). At PEC Co. the operations strategy revolves around delivery of high quality service offerings in accordance with the requirements of MOHLTC for fall prevention and management operations, as well as for medicine administration operations. However, achieving these outcomes requires planning that accurately translates the intended competitive priorities

into appropriate operational tasks that, if executed fully and correctly, can bring about the desired outcomes. However, given the challenges that decision-makers face during the planning process, creating such accurate plans is very challenging.

An important implication of these findings is that the process of operations strategy formation and achievement is not merely a top-down approach, wherein the top level managers make all the decisions regarding strategy while other individuals in the hierarchy of organization implement said strategy. This top-down approach had been the dominant view among operations strategists for more than three decades (e.g., Marucheck Pannesi, and Anderson, 1990; Menda and Dilts, 1997; Schroeder, Anderson and Cleveland, 1986; Swamidass, 1986; Ward, Bickford, and Leong, 1996; Ward and Duray, 2000).

A more recent stream of operations strategy literature postulates that the process of strategizing is not limited to the function of top management, but also might be impacted and formed by the everyday practice of the middle-level managers and even the frontline staff (Kim et al., 2014; Slack and Lewis, 2008). As seen in the case of PEC Co., in reality formation of competitive priorities is a complicated process, wherein the bounded rationality of individuals, deficiency of resources, and interdependence of the decisions in the planning process all limit the realization of priorities.

Chapter 6 Contributions

This thesis highlighted operational integrity as an understudied phenomenon in human-reliant operational systems and took the first step to unpack the phenomenon. In doing so, the study contributes to the operations strategy literature by accentuating the criticality of achieving operational integrity to realize the intended competitive priorities, since these come from operations plans which employees must execute. Our current understanding about realization of operations' competitive priorities is limited by the narrowed focus of the mainstream literature, which studies the surface of the operations strategy process. This leaves out a range of actions and decisions made by the middle-managers and the frontline staff, simmering beneath the surface of top management intentions and plans which in fact, are what generate the actual outcomes. Conceptually, it is accepted that long-term and medium-term decisions establish the context for everyday operations (Hayes and Wheelwright, and Clark, 1988; Skinner, 1969; Wheelwright, 1984), however the impact of everyday decisions and actions of employees within the black box of operations strategy process is less understood.

This thesis suggests that the challenge faced by decision-makers in the planning process reduces the congruence between intended priorities and planned operational tasks, and that the execution of these tasks might not necessarily result in the realization of intended outcomes. Moreover, the challenges in the execution process prevent the staff from fully and correctly implementing the tasks, thus a gap between the planned and executed operational tasks emerges. Hence, the realized outcomes from implementation of the planned operational tasks might not necessarily be aligned with the intended priorities of the organization. In this chapter, I elaborate on these contributions and attempt to cast future research about them in the form of high-level propositions. The chapter is concluded by a discussion on the limitations of this study and future research opportunities.

6.1 Process of Realizing Strategic Priorities

Conventionally in operations management, competitive priorities are conceptualized at the strategic planning level and represent strategic emphasis of organization in developing

certain intended outcomes, i.e., cost, quality, delivery, and flexibility (Boyer and Lewis, 2002; Peng, Schroeder, and Shah, 2011). While operations strategists acknowledge the distinction between intended priorities and realized outcomes (e.g., Roth and Jackson 1995; Roth and Menor, 2003; Voss, Roth, and Chase, 2008), the literature primarily assumes that top management's structural and infrastructural investments result in realization of intended competitive priorities (Boyer, 1998; Ritzman and Safizadeh, 1999; Safizadeh, Ritzman, and Mallick, 2000, Peng et al, 2011).

Conceptually, this view of competitive priorities represents a top-down approach to the process of operations strategy realization, in which the top management translates the overall business strategy into key performance areas and invests specifically in those areas (Barnes, 2002; Boyer, Swink, and Rosenzweig, 2005; De Meyer and Loch, 2008; Kim and Arnold, 1996; Swamidass, Darlow, and Baines, 2001). The operations strategy process entails the dynamics of realizing the intended competitive priorities (Slack and Lewis, 2008; Swink and Way, 1995). Triggered by top management's intentions to realize certain competitive outcomes, the top-down approach represents "macro-level" operations strategy processes (Kim, et al., 2014).

While this is the dominant view among the majority of operations strategists, a nascent stream of this literature has yielded important insights on the "micro-level" processes that lie within the black box of strategy realization (Kim et al, 2014; Mihm, Loch, Huberman, Wilkinson, 2010; Gorm Rytter, Boer, Koch, 2007; Sigglekow and Rivkin, 2005; Sting and Loch, 2016; Sting, Mihm, and Loch, 2011). In this view, the day-to-day decisions made by low-level actors in the hierarchy of organization, i.e., the middle managers and the frontline staff, contribute to the realization of outcomes that might not necessarily be aligned with what the top management envisions. This discrepancy between the intended competitive priorities and realized outcomes is the result of the gap between managerial intentions and the employees' decisions and actions in the day-to-day function of an organization.

The findings of this thesis resonate with these novel theoretical developments in operations strategy literature and advance them by specifying the planning mistakes and

execution errors of the employees that widen the discrepancy between intended competitive priorities and the realized strategic outcomes. The extant literature in operation strategy process has started unpacking the micro-level processes of strategy realization by introducing the impact of the middle managers' and the frontline staff's decisions on realization of strategic outcomes (e.g., Sting and Loch, 2016).

However, as the discrepancy is not central to these studies, they do not elaborate on specific factors contributing to the gap between managerial intentions and the day-to-day decisions and actions of employees. In particular, the close link between the execution of operational tasks and the realization of intended competitive priorities remains underexplored in this literature (e.g., Barnes, 2002; Kim et al, 2014; Sting and Loch, 2016; Gorm Rytter, Boer, Koch, 2007).

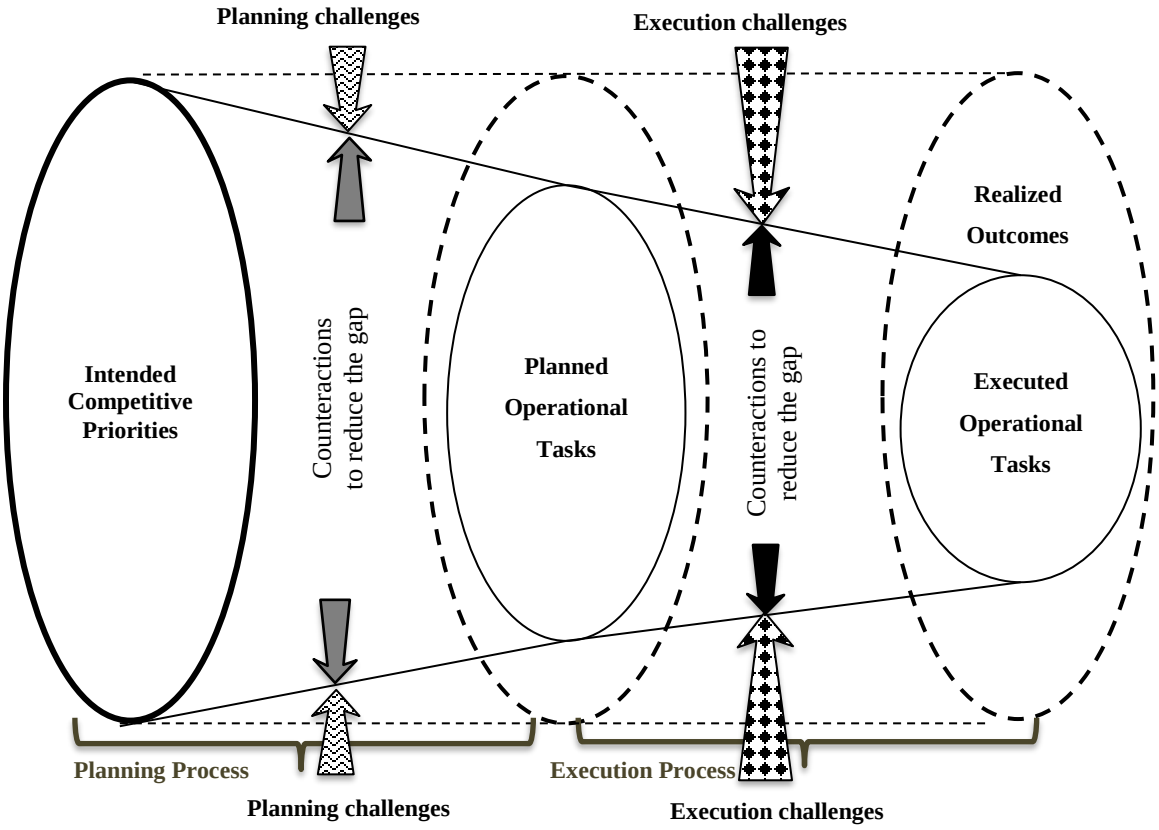
Building on operational failure research, my study postulates that the impact of the middle managers' and the frontline staff's decisions and actions is more complex than scholars have emphasized. More precisely, in addition to their planning mistakes, employees are prone to make execution errors and fail to perform operational tasks fully and correctly based on the plans. As the planned operational tasks translate the firm's strategy into everyday tasks of operations (Boyer et al., 2005; Hayes, Wheelwright, and Clark, 1988; Roth and Menor, 2003; Skinner, 1996; Wheelwright, 1984), the middle managers' and the frontline staff's deliberate or indeliberate errors in implementing tasks prevent top managers from achieving their intended strategic outcomes. As such, this thesis advances our understanding about operations strategy realization processes by illustrating micro-level dynamics in the planning and execution processes. The framework shown in Figure 6.1 represents a process model of operations strategy realization that stipulates the relationship between realization of competitive priorities and employees' mistakes and errors.

Gap between Intended Priorities and Planned Operational Tasks

First, the findings revealed that in the planning process decision-makers at PEC Co. face major challenges that prevent them from crafting perfect operational tasks which adequately reflect the management's strategic intentions of delivering high quality and

compliant services. In Figure 6.1, the planning challenges are shown with zigzag patterned arrows in the planning process. The presence of planning challenges reduces the congruence between intended competitive priorities and the planned operational tasks.

Figure 6.1 Gap between Intended Competitive Priorities and Realized Outcome



The absence of planning challenges provides an ideal situation in which the competitive priorities might be adequately translated into everyday planned operational tasks (in Figure 6.1 shown by a dotted oval around planned operational tasks that is perfectly congruent with the intended competitive priorities). As this ideal situation does not exist at PEC Co., the managers and staff have developed mechanisms (shown by gray arrows in Figure 6.1) to reduce the impact of challenges and increase the likelihood of making correct decisions – in accordance with intended priorities – despite the presence of planning challenges.

The result from the analysis of PEC Co. data indicates that during the process of translating the strategic intention for delivering high quality and compliant services to the

planned operational tasks, decision-makers face three major challenges: cognitive barriers, insufficient resources, and interdependence of the decisions. As elderly care is highly complex, the decision-makers at PEC Co. have to design planned operational tasks with insufficient knowledge about the issues that they are planning for. In particular, when it comes to making decisions on operational tasks for preventing falls, the decision-makers have no means to evaluate the consequences of their decisions. Thus, while they are aware that the purpose is to design tasks that meet not only the requirements of the Ministry but also the quality requirements of the residents, they struggle to plan tasks that are aligned with these strategic intentions.

The current insights from the micro-level processes of operations strategy posit that the discrepancy between operational plans and the strategic intentions is, in part, the result of interpretations of middle-managers, and the frontline staff, of the directions of the organization. But these organizational actors' interpretations might not accurately match with the overarching strategic intentions of the top managers (Kim et al., 2014). However, at PEC Co. the issue is not related to the employees' lack of understanding about the directions of the organization. In fact, the decision-makers know that the number of falls in the home is one of the quality indicators of a nursing home. Likewise, they know that the MOHLTC constantly audits nursing home facilities, and that to survive, a nursing home has to fully comply with the Ministry's requirements.

But decision-makers' cognitive barriers do not allow them to plan operational tasks which, if executed as planned, necessarily satisfy the residents, their families, and the Ministry. Operations strategists (e.g., Boyer et al 2005; Loch and Terwiesch, 2008; Sting and Loch, 2016) often cast the cognitive barriers of decision-makers as bounded rationality and argue that organizations distribute decision-making tasks among numerous boundedly rational individuals, who might not have the necessary knowledge to make the correct decisions aligned with the strategic intentions.

To counter this challenge, at PEC Co. the managers and decision-makers have adopted three mechanisms to reduce planning mistakes emanating from the cognitive barriers. First, when a certain decision subject is outside a particular decision-maker's

realm of knowledge, decisions are made collectively. The literature on patient safety also makes similar recommendation about accumulating knowledge to ensure the right decisions are made regarding patient safety (Stock, McFadden, and Gowen III, 2010). Likewise, the operations strategy process literature identifies collaborative decision-making as a means to solving organizational problems (Sting and Loch, 2016; Sting, Mihm, and Loch, 2011).

Moreover, the decision-makers often have to suffice to the satisficing decisions (Cyert and March, 1963; Simons, 1956), which are not optimal but instead satisfactory. In other words, due to cognitive barriers, decision-makers cannot endlessly search for better alternatives; instead they end the search when they consider a solution as reasonably acceptable. Finally, decision-makers seek out any new information in the environment to reduce their uncertainty about the subject area in which decisions are to be made. As information increases, the uncertainty about the decision-making subject decreases (Daft and Lengal, 1986; Daft and Weick, 1984). These findings are summarized in the following proposition:

> **Proposition 1.** The presence of planning challenges in the form of cognitive barriers of decision-makers create a gap between competitive priorities and the planned operational tasks.

> **Implication 1.** To increase the congruence between competitive priorities and the planned operational tasks, the organizations must address cognitive barriers.

In addition to the cognitive barriers of the decision-makers, lack of sufficient resources widens the gap between intended competitive priorities and the planned operational tasks. This challenge is deeply rooted in insufficient funding packages that the Ministry provides for the operations of nursing homes. As a result of financial constraints, the organization cannot hire highly skilled decision-makers who are experts in the areas in which decisions are being made. Additionally, due to funding shortages, the organization has to overload individuals with work, including the key decision-makers, to ensure efficiency. As a result,

decision-makers have neither the required expertise nor the required time for making proper decisions.

To overcome the negative impact that insufficient resources have on decision-making, the managers have hired part-time expert suppliers in the area of physiotherapy to help the Restorative Manager in making decisions on fall management. The supplier organization is a highly specialized service provider that provides physiotherapy services for a large number of nursing homes in Ontario. As a result, it has accrued asset specificity –in terms of valuable specialized knowledge of physiotherapy– that can be purchased at a reasonable price due to economy of scale. Asset specificity is defined as the transferability of an asset (Holcomb and Hitt, 2007). Therefore acquiring this knowledge from the market is more economical than building it internally within the organization. The following proposition is generated from these findings:

> **Proposition 2.** The presence of planning challenges in the form of resource deficiency creates a gap between competitive priorities and the planned operational tasks.

> **Implication 2.** To increase the congruence between competitive priorities and the planned operational tasks, organizations require offsetting resource deficiency.

The final planning challenge is related to interconnectedness of the decisions. This interconnectedness stems from the fact that the long-term care homes provide a broad spectrum of nonclinical and clinical care services and, hence, a large number of diverse and independent individuals are involved in the decision-making process. The diversity of decision-makers makes the coordination among these individuals extremely difficult (Dobrzykowski et al., 2016; Tucker, 2004). In particular, the key decision-makers constantly face uncertainty in terms of making decisions supporting the rest of the care provision plan. As operations strategy process literature highlights, when the domain of decision-making is interdependent, generating independent plans may cause incompatibility (Mihm, et al., 2010; Rivkin and Siggelkow, 2003; Sigglekow and Rivkin,

2005).

Considering that these interdependent organizational actors are not really involved in teamwork, the coordination of their efforts should be facilitated by the organization. Thus, to overcome this challenge, managers have developed information-processing mechanisms by utilizing electronic and non-electronic information systems that allow the information to be easily stored, disseminated, and retrieved by decision-makers. The richness of information produced by a diverse and large number of decision-makers is handled by storing information in the electronic health record system of PCC and by recording the decisions in binders. This type of rich communication media, built in the operational systems, is the key for reducing uncertainty (Daft and Lengal, 1986). Thus:

> **Proposition 3.** The presence of planning challenges in the form of interconnectedness of the decisions creates a gap between competitive priorities and the planned operational tasks.

> **Implication 3.** To increase the congruence between competitive priorities and the planned operational tasks the organizations require coordinating the interdependent decisions.

As such, currently the top managers and lower-level decision-makers apply collective decision-making, making satisficing decisions, searching for new information, hiring part-time suppliers, and coordinating the function of decision-makers to overcome planning challenges. However, the congruence between intended strategic priorities and the planned operational tasks can only be achieved if these mechanisms effectively offset the impact of the challenges. According to the data from PEC Co., while these mechanisms are helpful in terms of increasing the congruence in the planning process, they are not sufficient. Particularly, complexity of the planning challenges is not only related to the decision-makers' cognitive limitations, but also to the complications of residents' wellbeing. Considering current resource limitations, overcoming these challenges is not plausible. Thus, to ensure congruence in the planning process, it is imperative for organizations to ensure that the mechanisms used to lessen the impact of challenges are effective:

Proposition 4. Achieving congruence between the intended competitive priorities and the planned operational tasks hinges on the adequacy of the mechanisms that are adopted to address the planning challenges.

Gap between Planned Operational Tasks and Executed Operational Tasks

Second, the findings revealed that regardless of planning challenges, there are major challenges in the execution process (shown with harlequin patterned arrows in Figure 6.1). These challenges prevent the frontline staff from adhering fully and correctly, to the planned operational tasks that resulted from the planning process. The presence of execution challenges reduces the congruence between planned and executed operational tasks thereby causing a gap in operational integrity to emerge. The absence of planning challenges provides an ideal situation in which the everyday planned operational tasks are executed completely and correctly based on plans, creating perfect operational integrity (in Figure 6.1 shown by a dotted oval around executed operational tasks which is perfectly congruent with the dotted oval around planned operational tasks).

Since this ideal situation does not exist at PEC Co., the managers and staff have developed mechanisms (shown by black arrows in Figure 6.1) to reduce the impact of execution challenges and increase the likelihood of performing the operational tasks fully and correctly as planned. These mechanisms that increase the congruence between planned and executed operational tasks allow us to achieve operational integrity.

The human-reliant operational systems of PEC Co. encompass three elements of the daily care plan, the care delivery processes, and the people involved in delivery of the care plan. The operational integrity gap is partly the result of the characteristics associated with these three elements. In response to these challenges emanating from the characteristics of operational systems, PEC Co. has developed mechanisms to restore the system to a "complete condition" in which, despite the presence of these challenges, the planned operational tasks can be accomplished fully and correctly. The completeness condition stipulates that to perform tasks as planned, all necessary elements of a system should exist, should be complete, and should be sufficient (neither shortage nor excess is allowed).

First, the findings revealed that the care plans, as the main constituent of the planned operational tasks, are poorly crafted in terms of accounting for the workload of the frontline employees. Despite the fact that many employees are willing to fully adhere to their assigned tasks, they are so heavily overloaded that the accomplishment of all the details of the daily plans hardly ever happens. The root cause of this problem is that the for-profit nursing homes have to make money using the surplus from the Ministry funding. Thus, in order to create satisfying returns on investment for the home owners, they have to run the home by utilizing minimum resources in every area, including that of frontline staffing.

To reduce the impact of overloading and to restore completeness of the operational system, curtailment mechanisms are applied to reduce the excess of work done by employees. This is achieved by formulating work processes into standardized operating procedures, standardizing the work place, and designing redundant processes to ensure the operational tasks are executed as planned. The application of these mechanisms is also recommended in operations failure literature for reducing human errors that are the result of cognitive shortcomings (Stewart and Grout, 2001).

Apart from the excess in service delivery systems resulting from overload, there are shortages in the system in the form of unstable planned operational tasks, lack of communication mechanisms for unwritten tasks, lack of continuity of the work, lack of sufficient leadership skills of managers, and the lack of work knowledge on the part of frontline staff. These combined factors widen the gap between planned and executed operational tasks. In response to these challenges, a variety of amendment mechanisms are applied to compensate for these shortcomings in the system and thereby increase the likelihood that staff can comply with the planned tasks. For example, to minimize the impact of a lack of work knowledge and to reduce slips and lapses during the service delivery process, on-the-job training, on the spot mentoring, and documenting planned operational tasks in the form of work lists can be applied. Hence:

> **Proposition 5a.** The presence of execution challenges in the form of operational system characteristics creates a gap between planned operational tasks and executed operational tasks.

Proposition 5b. To increase the congruence between planned and executed operational tasks, the organizations require adopting completeness-restorative mechanisms.

The results of the environmental challenges relating to operational systems characteristics are mostly slips and lapses (Reason, 1990, 1995, and 2000). In other words, the noncompliance cases that occur as a result of these system characteristics are not intentional, and in cases where the staff really could have complied, they would have; however, due to the aforementioned characteristics of the operational systems, they cannot. Contrarily, the noncompliance cases associated with human behaviour characteristics are intentional (the employee chooses not to comply), and take the form of behavioural violations. The human behavioural characteristics that cause operational integrity lapses are: system of beliefs, emotions, peer-influence, and risk attitude.

To overcome behavioural violations, the management uses the compliance-stimulant mechanisms of alignment and enforcement. Alignment mechanisms are designed to align the interests and preferences of the employees with the interests and preferences of the organization. As opposed to the recommended alignment mechanisms in the agency literature that emphasize rewarding (Eisenhardt, 1989b; Fama and Jensen, 1983), PEC Co. managers strive to achieve alignment by creating a culture of compliance and by inducing a sense of belonging and ownership. Enforcement mechanisms on the other hand, are designed to create a transparency in work processes that minimizes the chance of opportunistic behaviour by the frontline staff (Williamson, 1985; Harris and Ogbonna, 2002). Thus:

Proposition 6a. The presence of execution challenges in the form of behavioural characteristics creates a gap between planned operational tasks and executed operational tasks.

Proposition 6b. To increase the congruence between planned and executed operational tasks, the organizations require the adoption of compliance-stimulant mechanisms.

Finally, the findings reveal that while completeness-restorative and compliance-stimulant mechanisms are highly impactful in terms of enhancing operational integrity, the current mechanisms are not adequate for fully addressing the intentional and unintentional errors. For example, even though amendment mechanisms are used to reduce the negative impact of overload, the employees struggle with accomplishing their tasks. Thus, they have no choice but to prioritize their tasks and accomplish those they perceive as high-risk. The high-risk tasks are those that endanger employees' jobs if they fail to fully and correctly execute them. Prior research has accentuated that frontline staff follow organizational priorities when executing the planned operational tasks. For instance, depending on the priorities of the organization, the staff might give higher priority to productivity requirements over safety requirements (Pagell et al, 2015; Zohar 2010).

As another example, sometimes the floor employees develop rules and norms for increasing the quality of care, but as these plans are not formally developed by the key decision-makers, they are not written inside the care plan and are therefore not considered as part of the planned operational tasks. As such, those individuals who are not involved in the process of developing these rules, i.e., gray areas, are often unaware of them and therefore cannot execute them as planned by the developers. Unfortunately, the managers are not aware of these unwritten plans, and no procedure has been designed for facilitating the information dissemination of these unwritten plans. As is inferred from these two examples, the mechanisms that are developed to overcome the execution errors (slips, lapses, and violations) are not adequate. From Ashby's (1958) law of requisite variety perspective, the current mechanisms are inadequate for creating congruence between competitive priorities and planned operational tasks, as well as between planned operational tasks and their execution. The application of law of requisite variety is prevalent among operations management scholars (e.g., Fransoo and Wiers, 2006; Kristal, Huang, and Roth, 2010; Menor, Roth, and Mason, 2001). When applied to this study, the law of requisite variety implies that the sophistication of managerial counteractions for minimizing the negative impact of challenges on operational integrity should be at least as complex as the challenges. Particularly, while it might be less challenging for the managers to design a system that effectively overcomes the execution process, for complexities related to the operational system characteristics, the data shows that reducing the negative

impact of human behaviour characteristics is overly challenging for an organization.

> **Proposition 7.** Achieving operational integrity hinges on the adequacy of the mechanisms that are adopted to address the execution challenges.

Gap between Intended Competitive Priorities and Realized Outcomes

The operations' competitive priorities are the basic intended operational outcomes that link the daily operations of the firm to its higher organizational purpose (Skinner, 1996; Hayes and Pisano, 1994). However, achieving these outcomes requires planning that accurately translates the intended competitive priorities into appropriate operational tasks that if executed fully and correctly, bring about the intended outcomes. Given the challenges that the decision-makers face during the planning process however, making such accurate plans is challenging. In addition, while the counteractions of planning can reduce the impact of cognitive barriers, insufficient resources, and interdependence of decisions, they cannot completely neutralize these challenges. As such the crafted planned operational tasks do not adequately reflect the intended priorities of the organization.

Moreover, in human-reliant operational systems, where employees are central to value creation and realization, achieving congruence between intended strategic priorities and realized strategic outcomes is more challenging. While it is fairly straightforward to program and adjust machinery to operate as planned, human beings have free will and are not programmable. The findings revealed human beings' actions unfold based on the system conditions and their behavioural conditions, and it is more challenging for the organizations to ensure the congruence of their actions with the management's intentions.

Therefore, for realization of the intended priorities of quality and compliance the managers at PEC Co. must meet two conditions simultaneously: first, they should manage the congruence in planning by designing a system at least as complex as the challenges of planning, and second they should achieve operational integrity by designing a system at least as complex as the challenges of execution. The current operational system at PEC Co. cannot meet either of these two conditions. Thus:

> **Proposition 8.a.** Achieving congruence between competitive priorities and

planned operational tasks is a necessary condition for realizing the intended competitive priorities.

Proposition 8.b. Achieving operational integrity is a necessary condition for realizing the intended competitive priorities.

6.2 Limitations and Future Research

This study is limited due to its specific research methodology. First of all, application of observations and shadowing data collection approaches might have limited the findings of the study in that these approaches can potentially alter the actual behaviour of the key informants (Burke, McKee, Wilson, Donahue, Batenhorst, and Pathak, 2000). In other words, as this study is concerned with service execution errors, the study participants might have shown much less noncompliance than what they normally show when executing planned operational tasks. Additionally, qualitative interpretive methods based on observation and shadowing data is potentially subject to the researcher's system of beliefs and biases that influence the content of recorded notes from the field (Miles and Huberman, 1994). Thus, the data cannot provide an objective picture of the realities of the organization, its processes, nor the function of its employees.

To address these potential biases this study relied on collection and analysis of multiple sources of data. While observation and shadowing had been the primary source of data appearing throughout this dissertation, collection and analysis of archival data and interviews allowed triangulation and minimized (if not eliminated) the potential for biases resulting from behaviour alteration of employees.

Second, the data collection process started when the organization was fully functional. Thus a majority of structural and infrastructural decisions that were made to fail-proof the system happened at the new service development process before the organization started its operations and before I started data collection. Therefore, my understanding of the underlying logic of the senior managers in the application of certain mechanisms (e.g., information-processing) remains limited. More importantly, as the senior managers were extremely busy, it was not possible for me to hold long and detailed

conversations with them to verify all the details of my understanding of their designed system. However to reduce the negative impact of this shortcoming, after data analysis finished I presented the details of my findings to the Managing Director of the organization and received her feedback regarding the conclusions.

Finally, application of in-depth research strategy in a single-case study of health care provision organization exposed me to a highly challenging area in which I had no prior experience. As I was not familiar with the medical context of the organization, I could not record all the details of conversations and events that I witnessed. In addition, the medical context of the organization restricted my ability to extend the data collection efforts to the customers, i.e., the senior residents. Extending the research scope to collect data from the residents and families could make study findings more accurate and interesting. In particular, I could acquire a better understanding about service failure.

Despite these limitations, I believe that the benefits of an in-depth study of the nursing home operation outweigh the aforementioned concerns. More specifically, the insights from this study might be leveraged for future research in the area of operational integrity, operational failure, operational risk, service failure, and patient safety. The findings of this research also open up an opportunity to develop a survey instrument for testing hypotheses on the relationships between operational integrity and concepts such as service failure, operational risk, and competitive priorities. In addition, future research can extend the data collection process to the service consumers to gain a more comprehensive picture of the phenomenon, and in particular, to investigate how operational integrity impacts the intended organizational and operational outcomes. Ideally, future research should compare various human-reliant operational settings to shed light on the commonalities and differences between the challenges and operational integrity mechanisms specific to each industrial context. Finally, the future research might investigate the combined effect of identified planning and execution challenges.

6.3 Managerial Implications

The findings of this study have major implications for managers of human-reliant systems such as government services, health care provision organizations, educational institutions,

hospitality services, consulting services, retail organizations, and research institutions. First of all, the study reveals that achieving high-level organizational intentions such as return on investment, reputation, and future expansions is closely linked to everyday operations of the organization. Every mistake in planning the operational tasks and every slip, lapse, or violation in execution of the operational tasks, reduces the likelihood of achieving high-level organizational outcomes.

Second, the key decision-makers who design the planned operational tasks must be identified and assisted. Contrary to the conventional wisdom that advocates decision-making as the function of top managers and execution the function of the staff, this study revealed that decision-makers are not necessarily the managers, and that sometimes non-expert individuals might be in charge of planning everyday tasks. By identifying these individuals, organizations can support them. For example, at PEC Co., decision-makers are supported through collective decision-making and hiring part-time experts.

Third, in order to reduce errors in the execution process, the organizations need to incorporate a combination of mechanisms that allows them to control the behavioural aspect of noncompliance and the cognitive shortcomings of individuals. In particular, a culture of compliance is required for reducing intentional violations. In addition, organizations should be mindful that some of the intentional errors occur because the employees are overloaded. Thus, for highly sensitive operational tasks, for which operational failure might have considerable adverse effect on the organization, managers need to be more careful in terms of overloading the frontline staff.

Lastly, in order to prevent errors in both the planning and execution processes, organizations require developing mechanisms that are at least as complicated as the complexities of their environmental challenges. For example, the institutional environment in the educational services is more sophisticated than the institutional environment of the hospitality industry. Thus, each of these human-reliant operational systems requires developing organizational and industry-specific remedies for achieving congruence in the planning and execution processes.

References

Alexander, C., 2003. Operational risk: regulation, analysis and management. Prentice Hall–Financial Times, London.

Ashby, W.R., 1958. Requisite variety and its implications for the control of complex systems. Cybernetica 1(2), 83–99.

Ahuja, I.P.S. and Khamba, J.S., 2008. Total productive maintenance: literature review and directions. International Journal of Quality and Reliability Management, 25(7), pp.709–756.

Ajzen, I., 1991. The theory of planned behavior. Organizational Behavior and Human Decision Processes, 50(2), pp.179–211.

Ajzen, I., 2005. Attitudes, personality, and behavior. McGraw–Hill Education (UK).

Armitage, C.J. and Conner, M., 2001. Efficacy of the theory of planned behaviour: A meta-analytic review. British Journal of Social Psychology, 40(4), pp.471–499.

Baldwin, R., Cave, M. and Lodge, M., 2012. Understanding regulation: theory, strategy, and practice. Oxford University Press.

Bansal, P., Corley, K., 2012. Publishing in AMJ–Part 7: What's Different about Qualitative Research?. Academy of Management Journal, 55(3), pp.509–513.

Barnes, D., 2002. The complexities of the manufacturing strategy formation process in practice. International Journal of Operations and Production Management, 22(10), pp.1090-1111.

Baxter, J., and Eyles, J. 1997. Evaluating qualitative research in social geography: establishing 'rigour' in interview analysis. Transactions of the Institute of British

Geographers, 22(4), pp.505–525.

Becker, T. E., 1998. Integrity in organizations: Beyond honesty and conscientiousness. Academy of Management Review, 23(1), pp.154–161.

Benbasat, I., Goldstein, D. K., and Mead, M., 1987. The case research strategy in studies of information systems. MIS Quarterly, 11(3), pp.369–386.

Bendoly, E., Donohue, K. and Schultz, K.L., 2006. Behavior in operations management: Assessing recent findings and revisiting old assumptions. Journal of Operations Management, 24(6), pp.737–752.

Bendoly, E., Croson, R., Goncalves, P. and Schultz, K., 2010. Bodies of knowledge for research in behavioral operations. Production and Operations Management, 19(4), pp.434–452.

Bergman, B., and Klefsjo, B., 2010. Quality: From customer needs to customer satisfaction, Lund: Studentlitteratur.

Bernstein, E.S., 2012. The transparency paradox a role for privacy in organizational learning and operational control. Administrative Science Quarterly, 57(2), pp.181–216.

Bews, N.F. and Rossouw, G.J., 2002. A role for business ethics in facilitating trustworthiness. Journal of Business Ethics, 39(4), pp.377–390.

Bhuiyan, N. and Baghel, A., 2005. An overview of continuous improvement: from the past to the present. Management Decision, 43(5), pp.761–771.

Bitner, M.J., 1990. Evaluating service encounters: the effects of physical surroundings and employee responses. The Journal of Marketing, 54(2), pp.69–82.

Bitner, M.J., Brown, S.W. and Meuter, M.L., 2000. Technology infusion in service encounters. Journal of the Academy of Marketing Science, 28(1), pp.138–149.

Blocker, C.P., Flint, D.J., Myers, M.B. and Slater, S.F., 2011. Proactive customer orientation and its role for creating customer value in global markets. Journal of the Academy of Marketing Science, 39(2), pp.216–233.

Boyer, K.K., 1998. Longitudinal linkages between intended and realized operations strategies. International Journal of Operations and Production Management, 18(4), pp.356–373.

Boyer, K.K. and Lewis, M.W., 2002. Competitive priorities: investigating the need for trade-offs in operations strategy. Production and Operations Management, 11(1), pp.9–20.

Boyer, K.K., Swink, M. and Rosenzweig, E.D., 2005. Operations strategy research in the POMS journal. Production and Operations Management, 14(4), pp.442–449.

Boudreau, J., Hopp, W., McClain, J.O., Thomas, L.J., 2003. On the interface between operations and human resource management. Manufacturing and Service Operations Management 5(3), pp.179–202.

Brown, M.E., Treviño, L.K. and Harrison, D.A., 2005. Ethical leadership: A social learning perspective for construct development and testing. Organizational Behavior and Human Decision Processes, 97(2), pp.117–134.

Brown, K.A., Willis, P.G., Prussia, G.E., 2000. Predicting safe employee behaviour in the steel industry: the development and test of a socio-technical model. Journal of Operations Management 18(4), pp.445–468.

Buckley, W., 1968. Society as a complex adaptive system. In Walter Buckley (ed.), Modern Systems Research for the Behavioral Scientist: 490–513. Chicago: Aldine.

Bulgurcu, B., Cavusoglu, H. and Benbasat, I., 2010. Information security policy compliance: an empirical study of rationality–based beliefs and information security awareness. MIS Quarterly, 34(3), pp.523–548.

Burke, T.A., McKee, J.R., Wilson, H.C., Donahue, R.M., Batenhorst, A.S. and Pathak, D.S., 2000. A comparison of time-and-motion and self–reporting methods of work measurement. Journal of Nursing Administration, 30(3), pp.118–125.

Canadian Patient Safety Institute, 2014. Resource Guide on Fall Prevention. http://www.patientsafetyinstitute.ca/en/toolsResources/HomeCareSafety/Documents/Resources%20for%20home%20care%20providers%20-%20Resource%20guide%20on%20falls%20prevention.pdf

Campbell, J., 2007. Why would corporations behave in socially responsible ways? An institutional theory of corporate social responsibility. The Academy of Management Review, 32(3), pp.946–967.

Centers for Disease Control and Prevention, July 2014, Report on the Potential Exposure to Anthrax. https://www.cdc.gov/about/pdf/lab-safety/Final_Anthrax_Report.pdf

Charmaz, K. (2014). Constructing grounded theory. Sage.

Chase, R.B. and Stewart, D.M., 1994. Make your service fail-safe. Sloan Management Review, 35(3), pp.35–45.

Chase, R.B. and Stewart, D.M., 1995. Mistake-proofing: designing errors out. Productivity Press, Portland, OR.

Chase, R.B. and Haynes, R.M., 2000. Service operations management: A field guide. Handbook of Services Marketing and Management, Sage, Thousand Oaks, CA.

Chia, J. and Konstantinides, A., 2016. The great escape: Moment murder suspect broke out

of handcuffs with his bare hands in police interview room and climbed through ceiling to freedom http://www.dailymail.co.uk/news/article-3779082/Las-Vegas-murder-suspect-captured-breaking-handcuffs-escaping-prison.html#ixzz4LDhnyUZG

Christian, M.S., Bradley, J.C., Wallace, J.C. and Burke, M.J., 2009. Workplace safety: a meta-analysis of the roles of person and situation factors. Journal of Applied Psychology, 94(5), pp.1103–1127.

Clark, K. B., and Fujimoto, T.,1990. The power of product integrity. Harvard Business Review, 68(6), pp.107–118.

Cook, L.S., Bowen, D.E., Chase, R.B., Dasu, S., Stewart, D.M. and Tansik, D.A., 2002. Human issues in service design. Journal of Operations Management, 20(2), pp.159-174.

Cook, R.I., Woods, D.D. and Miller, C., 1998. A tale of two stories: contrasting views of patient safety. Chicago: National Patient Safety Foundation, (Report from a workshop on assembling the scientific basis for progress on patient safety; available as PDF file via www.npsf.org)

Craighead, C.W., Karwan, K.R. and Miller, J.L., 2004. The effects of severity of failure and customer loyalty on service recovery strategies. Production and Operations Management, 13(4), pp.307–321.

Craig, S. B., and Gustafson, S. B., 1998. Perceived leader integrity scale: An instrument for assessing employee perceptions of leader integrity. The Leadership Quarterly, 9(2), pp.127–145.

Cummings, K.L., Anderson, D.J. and Kaye, K.S., 2010. Hand hygiene noncompliance and the cost of hospital–acquired methicillin–resistant Staphylococcus aureus infection. Infection Control and Hospital Epidemiology, 31(04), pp.357–364.

Cyert, R.M. and March, J.G., 1963. A behavioral theory of the firm. Prentice–Hall Englewood Cliffs, NJ.

Daft, R.L. and Lengel, R.H., 1986. Organizational information requirements, media richness and structural design. Management Science, 32(5), pp.554–571.

Daft, R.L. and Weick, K.E., 1984. Toward a model of organizations as interpretation systems. Academy of Management Review, 9(2), pp.284–295.

Davis, A.L. and Rothstein, H.R., 2006. The effects of the perceived behavioral integrity of managers on employee attitudes: A meta–analysis. Journal of Business Ethics, 67(4), pp.407–419.

De Meyer, A. and Loch, C.H., 2008. Technology strategy. Handbook of New Product Development Management, pp.27–49.

Dineen, B. R., Lewicki, R. J., and Tomlinson, E. C., 2006. Supervisory guidance and behavioral integrity: relationships with employee citizenship and deviant behavior. Journal of Applied Psychology, 91(3), pp.622–635.

Dobrzykowski, D.D., McFadden, K.L. and Vonderembse, M.A., 2016. Examining pathways to safety and financial performance in hospitals: A study of lean in professional service operations. Journal of Operations Management, 42, pp.39–51.

Dougherty D., 2002. Grounded theory building: Some principles and practices. Baum J. A. C., ed. Companion to Organizations, (Blackwell Publishers, Oxford, UK), pp. 849–867.

Eckerd, S., Hill, J., Boyer, K.K., Donohue, K. and Ward, P.T., 2013. The relative impact of attribute, severity, and timing of psychological contract breach on behavioral and attitudinal outcomes. Journal of Operations Management, 31(7), pp.567–578.

Eisenhardt, K.M., 1989a. Building theories from case study research. Academy of Management Review, 14(4), pp.532–550.

Eisenhardt, K.M., 1989b. Agency theory: An assessment and review. Academy of Management Review, 14(1), pp.57–74.

Erhard, W., Jensen, M. and Zaffron, S., 2009. Integrity: a positive model that incorporates the normative phenomena of morality, ethics and legality. Unpublished working paper. available at: www.papers.ssrn.com/sol3/papers.cfm?abstract_id=920625

Fama, E.F. and Jensen, M.C., 1983. Separation of ownership and control. The Journal of Law and Economics, 26(2), pp.301–325.

Fisk, R., Grove, S., Keeffe, D.A., Daunt, K.L., Russell-Bennett, R. and Wirtz, J., 2010. Customers behaving badly: A state of the art review, research agenda and implications for practitioners, Journal of Services Marketing, 24(6), pp. 417–429.

Flynn, B.B., Huo, B. and Zhao, X., 2010. The impact of supply chain integration on performance: A contingency and configuration approach. Journal of Operations Management, 28(1), pp.58–71.

Flynn, B.B., Schroeder, R.G. and Sakakibara, S., 1994. A framework for quality management research and an associated measurement instrument. Journal of Operations Management, 11(4), pp.339–366.

Flynn, B.B., Sakakibara, S. and Schroeder, R.G., 1995. Relationship between JIT and TQM: practices and performance. Academy of Management Journal, 38(5), pp.1325–1360.

Ford, D., 2014. CDC: Up to 86 workers possibly exposed to anthrax, CNN News, http://www.cnn.com/2014/06/19/health/cdc-possible-anthrax-exposure/

Fransoo, J.C. and Wiers, V.C., 2006. Action variety of planners: Cognitive load and requisite variety. Journal of Operations Management, 24(6), pp.813–821.

French, S., Bedford, T., Pollard, S.J. and Soane, E., 2011. Human reliability analysis: A critique and review for managers. Safety Science, 49(6), pp.753–763.

French, D.P., Sutton, S., Hennings, S.J., Mitchell, J., Wareham, N.J., Griffin, S., Hardeman, W. and Kinmonth, A.L., 2005. The importance of affective beliefs and attitudes in the Theory of Planned Behavior: Predicting intention to increase physical activity. Journal of Applied Social Psychology, 35(9), pp.1824–1848.

Froehle, C.M. and Roth, A.V., 2004. New measurement scales for evaluating perceptions of the technology–mediated customer service experience. Journal of Operations Management, 22(1), pp.1–21.

Frolkis, J.P., Zyzanski, S.J., Schwartz, J.M. and Suhan, P.S., 1998. Physician noncompliance with the 1993 national cholesterol education program (NCEP-ATPII) guidelines. Circulation, 98(9), pp.851–855.

Gibbert, M., Ruigrok, W. and Wicki, B., 2008. What passes as a rigorous case study?. Strategic Management Journal, 29(13), pp.1465–1474.

Gino, F. and Pisano, G., 2008. Toward a theory of behavioral operations. Manufacturing and Service Operations Management, 10(4), pp.676–691.

Gioia, D.A., Corely, K.G., and Hamilton, A.L., 2013. Seeking qualitative rigour in inductive research: Notes on the Gioia methodology. Organizational Research Methods, 16(1), pp.15–31.

Glasgow Live. 2016. Nurse admits that fatal mistake contributed to premature baby's death in Glasgow http://www.glasgowlive.co.uk/news/glasgow-news/nurse-admits-fatal-mistake-contributed-11754567

Gorm Rytter, N., Boer, H. and Koch, C., 2007. Conceptualizing operations strategy processes. International Journal of Operations and Production Management, 27(10), pp.1093–1114.

Government of Ontario, 2016. Find a long-term care home. https://www.ontario.ca/page/find-long-term-care-home#section-3%20

Gowen III, C.R., Mcfadden, K.L., Hoobler, J.M. and Tallon, W.J., 2006. Exploring the efficacy of healthcare quality practices, employee commitment, and employee control. Journal of Operations Management, 24(6), pp.765–778.

Gowans, C.W., 1984. Integrity in the corporation: The plight of corporate product advocates. Journal of Business Ethics, 3(1), pp.21–28.

Grindel, C.G., 2003. Mentoring managers. Nephrology Nursing Journal, 30(5), p.517–522.

Grout, J.R. and Toussaint, J.S., 2010. Mistake-proofing healthcare: Why stopping processes may be a good start. Business Horizons, 53(2), pp.149–156.

Guerrette, R.H., 1986. Environmental integrity and corporate responsibility. Journal of Business Ethics, 5(5), pp.409–415.

Guinn, D. E., 2000. Corporate compliance and integrity programs: The uneasy alliance between law and ethics. HEC Forum, 12(4), pp.292–302.

Harris, L.C. and Ogbonna, E., 2002. Exploring service sabotage the antecedents, types and consequences of frontline, deviant, antiservice behaviors. Journal of Service Research, 4(3), pp.163–183.

Harris, L.C. and Ogbonna, E., 2006. Service sabotage: A study of antecedents and consequences. Journal of the Academy of Marketing Science, 34(4), pp.543–558.

Hartmann, J. and Moeller, S., 2014. Chain liability in multitier supply chains? Responsibility attributions for unsustainable supplier behavior. Journal of Operations Management, 32(5), pp.281–294.

Hayes, R.H. and Pisano, G.P., 1994. Beyond world-class: the new manufacturing strategy. Harvard Business Review, 72(1), pp.77–86.

Hayes, R.H. and Wheelwright, S.C., 1984. Restoring our competitive edge: competing through manufacturing. Wiley, New York.

Hayes, R.H., Wheelwright, S.C., and Clark, K.B., 1988. Dynamic manufacturing: Creating the learning organization. Simon and Schuster.

Heineman, W., 2008. High performance with high integrity. Harvard Business Press.

Hess, R.L., Ganesan, S. and Klein, N.M., 2003. Service failure and recovery: the impact of relationship factors on customer satisfaction. Journal of the Academy of Marketing Science, 31(2), pp.127–145.

Herath, T. and Rao, H.R., 2009. Protection motivation and deterrence: a framework for security policy compliance in organizations. European Journal of Information Systems, 18(2), pp.106–125.

Hines, P., Found, P., Griffiths, G. and Harrison, R., 2011. Staying Lean: thriving, not just surviving. CRC Press.

Holcomb, T.R. and Hitt, M.A., 2007. Toward a model of strategic outsourcing. Journal of Operations Management, 25(2), pp.464–481.

Holloway, B.B. and Beatty, S.E., 2003. Service failure in online retailing a recovery opportunity. Journal of Service Research, 6(1), pp.92–105.

Hopp, W.J. and Spearman, M.L., 2004. To pull or not to pull: what is the question?. Manufacturing and Service Operations Management, 6(2), pp.133–148.

Hora, M. and Klassen, R.D., 2013. Learning from others' misfortune: Factors influencing knowledge acquisition to reduce operational risk. Journal of Operations Management, 31(1), pp.52–61.

Howell, J. M., and Avolio, B. J., 1992. The ethics of charismatic leadership: submission or liberation?. The Executive, 6(2), pp.43–54.

Hsu, A.T., Berta, W., Coyte, P.C. and Laporte, A., 2016. Staffing in Ontario's Long-Term Care Homes: Differences by Profit Status and Chain Ownership. Canadian Journal on Aging/La Revue canadienne du vieillissement, 35(2), pp.175–189.

Hu, Q., Dinev, T., Hart, P. and Cooke, D., 2012. Managing employee compliance with information security policies: The critical role of top management and organizational culture. Decision Sciences, 43(4), pp.615–660.

Jensen, M. C., 2009. Integrity: Without it nothing works. Rotman Magazine: The Magazine of the Rotman School of Management, pp.16–20.

Kaptein, M., 1999. Integrity management. European Management Journal, 17(6), pp.625–634.

Khanzode, V.V., Maiti, J. and Ray, P.K., 2012. Occupational injury and accident research: A comprehensive review. Safety Science, 50(5), pp.1355–1367.

Kim, J.S. and Arnold, P., 1996. Operationalizing manufacturing strategy: an exploratory study of constructs and linkage. International Journal of Operations and Production Management, 16(12), pp.45–73.

Kim, Y.H., Sting, F.J. and Loch, C.H., 2014. Top–down, bottom–up, or both? Toward an

integrative perspective on operations strategy formation. Journal of Operations Management, 32(7), pp.462–474.

Kirkpatick, S.A. and Locke, E.A., 1991. Leadership: do traits matter?. The Executive, 5(2), pp.48–60.

Klassen, R.D. and Menor, L.J., 2007. The process management triangle: An empirical investigation of process trade-offs. Journal of Operations Management, 25(5), pp.1015–1034.

Koehn, D., 2005. Integrity as a business asset. Journal of Business Ethics, 58(1–3), pp.125–136.

Labib, A., 2015. Learning (and unlearning) from failures: 30 years on from Bhopal to Fukushima an analysis through reliability engineering techniques. Process Safety and Environmental Protection, 97(1), pp.80–90.

Lapré, M.A., 2011. Reducing customer dissatisfaction: How important is learning to reduce service failure?. Production and Operations Management, 20(4), pp.491–507.

Levitt, T., 1972. Production–line approach to service. Harvard Business Review, 50(5), pp.41–52.

Leroy, H., Dierynck, B., Anseel, F., Simons, T., Halbesleben, J.R., McCaughey, D., Savage, G.T. and Sels, L., 2012. Behavioral integrity for safety, priority of safety, psychological safety, and patient safety: A team–level study. Journal of Applied Psychology, 97(6), p.1273–1281.

Leroy, H., Palanski, M.E. and Simons, T., 2012. Authentic leadership and behavioral integrity as drivers of follower commitment and performance. Journal of Business Ethics, 107(3), pp.255–264.

Lewis, M.A., 2003. Cause, consequence and control: towards a theoretical and practical model of operational risk. Journal of Operations Management, 21(2), pp.205–224.

Li, X. and Zhou, E., 2013. Influence of customer verbal aggression on employee turnover intention. Management Decision, 51(4), pp.890–912.

Liao, C., Lin, H.N. and Liu, Y.P., 2010. Predicting the use of pirated software: A contingency model integrating perceived risk with the theory of planned behavior. Journal of Business Ethics, 91(2), pp.237–252.

Liker, J.K. and Morgan, J.M., 2006. The Toyota way in services: the case of lean product development. The Academy of Management Perspectives, 20(2), pp.5–20.

Lincoln, Y. S., and Guba, E. G. 1985. Naturalistic Inquiry. Beverly Hills, Calif.: Sage Publications.

Linderman, K., Schroeder, R.G. and Choo, A.S., 2006. Six Sigma: The role of goals in improvement teams. Journal of Operations Management, 24(6), pp.779–790.

Loch, C.H. and Terwiesch, C., 2008. 12 Coordination and information exchange. Handbook of New Product Development Management, p.315–345.

Locke, E.A. and Latham, G.P., 1990. A theory of goal setting snd task performance. Prentice–Hall, Inc.

Maak, T., 2008. Undivided corporate responsibility: Towards a theory of corporate integrity. Journal of Business Ethics, 82(2), pp.353–368.

Malinowski, B., 1922. Argonauts of the western Pacific. New York: Dutton.

Mann, D., 2009. The missing link: lean leadership. Frontiers of health services management, 26(1), pp.15–26.

March, J.G. and Simon, H.A., 1958. Organizations. New York: Wiley.

Mayer, R. C., Davis, J. H., and Schoorman, F. D., 1995. An integrative model of organizational trust. Academy of Management Review, 20(3), pp.709–734.

Marucheck, A., Pannesi, R. and Anderson, C., 1990. An exploratory study of the manufacturing strategy process in practice. Journal of Operations Management, 9(1), pp.101–123.

Meeker, Escober, Doganaksoy, and Hahn, 1999, in Juran, J.M. (1999), Juran's Quality Control Handbook, McGraw–Hill, New York, NY.

Menda, R. and Dilts, D., 1997. The manufacturing strategy formulation process: linking multifunctional viewpoints. Journal of Operations Management, 15(4), pp.223–241.

Menor, L.J., Roth, A.V. and Mason, C.H., 2001. Agility in retail banking: A numerical taxonomy of strategic service groups. Manufacturing and Service Operations Management, 3(4), pp.273–292.

McCollough, M.A., Berry, L.L. and Yadav, M.S., 2000. An empirical investigation of customer satisfaction after service failure and recovery. Journal of Service Research, 3(2), pp.121–137.

McFadden, K.L., Towell, E.R. and Stock, G.N., 2004. Critical success factors for controlling and managing hospital errors. The Quality Management Journal, 11(1), p.61–74.

McFadden, K.L., Henagan, S.C. and Gowen III, C.R., 2009. The patient safety chain: Transformational leadership's effect on patient safety culture, initiatives, and outcomes. Journal of Operations Management, 27(5), pp.390–404.

McNeil, A.J., Frey, R. and Embrechts, P., 2015. Quantitative risk management: Concepts, techniques and tools. Princeton University Press.

Mihm, J., Loch, C.H., Wilkinson, D. and Huberman, B.A., 2010. Hierarchical structure and search in complex organizations. Management Science, 56(5), pp.831–848.

Miles, M. B., and Huberman, A. M., 1994. Qualitative Data Analysis : An Expanded Sourcebook, (2nd ed.). Thousand Oaks, Calif. London: Sage.

Ministry of Health and Long-Term Care, 2012. LTC Cash Flow Policy http://www.health.gov.on.ca/en/public/programs/ltc/docs/cash_flo_policy.pdf

Miner, A.S., Bassof, P. and Moorman, C., 2001. Organizational improvisation and learning: A field study. Administrative Science Quarterly, 46(2), pp.304–337.

Moorman, C. and Miner, A.S., 1998. Organizational improvisation and organizational memory. Academy of Management Review, 23(4), pp.698–723.

Moritz, B.B., Hill, A.V. and Donohue, K.L., 2013. Individual differences in the newsvendor problem: Behavior and cognitive reflection. Journal of Operations Management, 31(1), pp.72–85.

Nicholson, N., Soane, E., Fenton-O'Creevy, M. and Willman, P., 2005. Personality and domain-specific risk taking. Journal of Risk Research, 8(2), pp.157–176.

Ontario College of Teachers, 2016. Professionally Speaking Magazine. September 2016. http://professionallyspeaking.oct.ca/

O'Reilly, K., Ruokis, S., Russell, K., Teves, T., DiLibero, J., Yassa, D., Berry, H. and Howell, M.D., 2016, March. Standard work for room entry: Linking lean, hand hygiene, and patient-centeredness. Healthcare. 4(1), pp. 45–51.

Pagell, M., Klassen, R., Johnston, D., Shevchenko, A. and Sharma, S., 2015. Are safety and operational effectiveness contradictory requirements: The roles of routines and relational coordination. Journal of Operations Management, 36(1), pp.1–14.

Palanski, M. E., and Yammarino, F. J., 2007. Integrity and leadership: clearing the conceptual confusion. European Management Journal, 25(3), 171–184.

Palanski, M.E. and Yammarino, F.J., 2009. Integrity and leadership: A multi-level conceptual framework. The Leadership Quarterly, 20(3), pp.405–420.

Palanski, M. E., Kahai, S. S., and Yammarino, F. J., 2011. Team virtues and performance: An examination of transparency, behavioral integrity, and trust. Journal of Business Ethics, 99(2), pp.201–216.

Palanski, M. E., and Yammarino, F. J., 2011. Impact of behavioral integrity on follower job performance: A three-study examination. The Leadership Quarterly, 22(4), pp.765–786.

Parasuraman, A., Zeithaml, V.A. and Berry, L.L., 1985. A conceptual model of service quality and its implications for future research. The Journal of Marketing, 49(4), pp.41–50.

Parasuraman, A., Zeithaml, V.A. and Berry, L.L., 1990. Delivering quality service. Nova Yorque: The Free Press.

Parasuraman, A., Berry, L.L. and Zeithaml, V.A., 1991. Refinement and reassessment of the SERVQUAL scale. Journal of Retailing, 67(4), pp.420–448.

Pari, G., S. Kumar, V. Sharma., 2008. Reliability improvement of electronics standby display system of modern aircraft. International Journal of Quality and Reliability Management 25(9), pp.955–967.

Parry, K. W., and Proctor-Thomson, S. B., 2002. Perceived integrity of transformational leaders in organizational settings. Journal of Business Ethics, 35(2), pp.75–96.

Paul, P.S. and Maiti, J., 2007. The role of behavioral factors on safety management in underground mines. Safety Science, 45(4), pp.449–471.

Perrow, C., 2011. Normal accidents: Living with high risk technologies. Princeton University Press.

Perugini, M. and Bagozzi, R.P., 2001. The role of desires and anticipated emotions in goal-directed behaviours: Broadening and deepening the theory of planned behaviour. British Journal of Social Psychology, 40(1), pp.79–98.

Peterson, D., 2004. Perceived leader integrity and ethical intentions of subordinates. Leadership and Organization Development Journal, 25(1), pp.7–23.

Prottas, D. J., 2008. Perceived behavioral integrity: Relationships with employee attitudes, well-being, and absenteeism. Journal of Business Ethics, 81, 313–322.

Quintal, V.A., Lee, J.A. and Soutar, G.N., 2010. Risk, uncertainty and the theory of planned behavior: A tourism example. Tourism Management, 31(6), pp.797–805.

Radnor, Z.J., Holweg, M. and Waring, J., 2012. Lean in healthcare: the unfilled promise?. Social Science and Medicine, 74(3), pp.364–371.

Reason, J., 1987. Generic error modelling system (GEMS): a cognitive framework for locating common human error forms New Technology and Human Error. Edited by J. Rasmussen, K. Duncan and J. Leplat. John Wiley and Sons Ltd.

Reason, J., 2000. Human error: models and management. British Medical Journal 320 (7237), pp.768–770.

Reason, J., 1990. Human error. Cambridge University Press.

Reason, J., 1995. Understanding adverse events: human factors. Quality in Health Care, 4(2), pp.80–89.

Rerup, C. and Levinthal, D.A., 2014. Situating the concept of organizational mindfulness: the multiple dimensions of organizational learning. In Mindful Change in Times of Permanent Reorganization (pp. 33–48). Springer Berlin Heidelberg.

Ritzman, L.P. and Safizadeh, M.H., 1999. Linking process choice with plant level decisions about capital and human resources. Production and Operations Management, 8(4), pp.374–392.

Rivkin, J.W. and Siggelkow, N., 2003. Balancing search and stability: Interdependencies among elements of organizational design. Management Science, 49(3), pp.290–311.

Roberts, P.W. and Dowling, G.R., 2002. Corporate reputation and sustained superior financial performance. Strategic Management Journal, 23(12), pp.1077–1093.

Roberts, K.H., Bea, R. and Bartles, D.L., 2001. Must accidents happen? Lessons from high–reliability organizations. The Academy of Management Executive, 15(3), pp.70–78.

Robbins, B. and Davidhizar, R., 2007. Transformational leadership in health care today. The Health Care Manager, 26(3), pp.234–239.

Robinson, A.G. and Schroeder, D.M., 1990. The limited role of statistical quality control in a zero-defect environment. Production and Inventory Management Journal, 31(3), pp.60–65.

Rodríguez, C., Schleicher, D., Daniel, F., Casati, F., Leymann, F. and Wagner, S., 2013.

SOA-enabled compliance management: instrumenting, assessing, and analyzing service-based business processes. Service Oriented Computing and Applications, 7(4), pp.275–292.

Roos, I., 1999. Switching processes in customer relationships. Journal of Service Research, 2(1), pp.68–85.

Roth, A.V. and Jackson III, W.E., 1995. Strategic determinants of service quality and performance: Evidence from the banking industry. Management Science, 41(11), pp.1720–1733.

Roth, A.V. and Menor, L.J., 2003. Insights into service operations management: a research agenda. Production and Operations Management,12(2), pp.145–164.

Roth, A.V., Chase, R.B. and Voss, C., 1997. Service in the US: Progress towards global service leadership. Pillans and Wilson Greenaway, London, UK.

Roth, W.D. and Mehta, J.D., 2002. The Rashomon effect combining positivist and interpretivist approaches in the analysis of contested events. Sociological Methods and Research, 31(2), pp.131–173.

Ruef, M., and Scott, W., 1998. A Multidimensional model of organizational legitimacy: hospital survival in changing institutional environments. Administrative Science Quarterly, 43(4), pp.877–904.

Saleh, J.H., Marais, K.B., Bakolas, E. and Cowlagi, R.V., 2010. Highlights from the literature on accident causation and system safety: Review of major ideas, recent contributions, and challenges. Reliability Engineering and System Safety, 95(11), pp.1105–1116.

Safizadeh, M.H., Ritzman, L.P. and Mallick, D., 2000. Revisiting alternative theoretical paradigms in manufacturing strategy. Production and Operations Management,

9(2), pp.111–126.

Schroeder, R.G., Anderson, J.C. and Cleveland, G., 1986. The content of manufacturing strategy: an empirical study. Journal of Operations Management, 6(3), pp.405–415.

Schmenner, R.W. and Swink, M.L., 1998. On theory in operations management. Journal of Operations Management, 17(1), pp.97–113.

Scott, W.R., 2008. Approaching adulthood: the maturing of institutional theory. Theory and Society, 37(5), pp.427–442.

Seawright, K.K. and Sampson, S.E., 2007. A video method for empirically studying wait-perception bias. Journal of Operations Management, 25(5), pp.1055–1066.

Shah, R. and Ward, P.T., 2003. Lean manufacturing: context, practice bundles, and performance. Journal of Operations Management, 21(2), pp.129–149.

Shah, R. and Ward, P.T., 2007. Defining and developing measures of lean production. Journal of Operations Management, 25(4), pp.785–805.

Shingo, S., 1986. Zero Quality Control: Source Inspection and the Poka–Yoke System, translated by A. P. Dillon, Productivity Press, Portland, OR.

Siemsen, E., Balasubramanian, S. and Roth, A.V., 2007. Incentives that induce task-related effort, helping, and knowledge sharing in workgroups. Management Science, 53(10), pp.1533–1550.

Siemsen, E., Roth, A.V. and Balasubramanian, S., 2008. How motivation, opportunity, and ability drive knowledge sharing: The constraining-factor model. Journal of Operations Management, 26(3), pp.426–445.

Siemsen, E., Roth, A.V., Balasubramanian, S. and Anand, G. 2009, The Influence of

Psychological Safety and Confidence in Knowledge on Employee Knowledge Sharing, Manufacturing and Service Operations Management, 11(3), pp.429–447.

Siggelkow, N. and Rivkin, J.W., 2005. Speed and search: Designing organizations for turbulence and complexity. Organization Science, 16(2), pp.101–122.

Simons, T. L., 1999. Behavioral integrity as a critical ingredient for transformational leadership. Journal of Organizational Change Management,12(2), pp.89–104.

Simons, T., 2002. Behavioral integrity: The perceived alignment between managers' words and deeds as a research focus. Organization Science, 13(1), pp.8–35.

Simons, T., Friedman, R., Liu, L.A. and McLean Parks, J., 2007. Racial differences in sensitivity to behavioral integrity: attitudinal consequences, in-group effects, and" trickle down" among Black and non-Black employees. Journal of Applied Psychology, 92(3), pp.650–665.

Silverman, H.J., 2000, September. Organizational ethics in healthcare organizations: Proactively managing the ethical climate to ensure organizational integrity. HEC forum 12(3), pp. 202–215.

Simon, H.A. 1976, Administrative Behaviour, New York 1947; 3d ed.

Simon, H.A., 1956. Rational choice and the structure of the environment. Psychological Review, 63(2), pp.129–138.

Simon, H.A., 1979. Rational decision making in business organizations. The American Economic Review, 69(4), pp.493–513.

Singer, S.J. and Vogus, T.J., 2013. Reducing hospital errors: interventions that build safety culture. Annual review of Public Health, 34, pp.373–396.

Sitkin, S.B. and Pablo, A.L., 1992. Reconceptualizing the determinants of risk behavior. Academy of Management Review, 17(1), pp.9–38.

Skinner, W., 1969. Manufacturing-missing link in corporate strategy. Harvard Business Review, 47(3), pp.136–145.

Skinner, W., 1974. The focused factory. Harvard Business Review, 52(3), pp.113–121.

Slack, N. and Lewis, M. 2008. Operations Strategy, 2nd ed., Financial Times/Prentice-Hall, Harlow.

Smartrisk. 2009. The Economic Burden of Injury in Canada. Toronto, ON. http://www.smartrisk.ca/downloads/burden/Canada2009/EBIEng-Final.pdf

Sting, F.J. and Loch, C.H., 2016. Implementing Operations Strategy: How Vertical and Horizontal Coordination Interact. Production and Operations Management. 25(7), pp.1177-1193.

Sting, F.J., Mihm, J. and Loch, C.H., 2011. Collaborative search. Working paper No. 2016/60/TOM., INSEAD, Fontainebleau, France. Available at SSRN: https://ssrn.com/abstract=1850607

Sousa, R. and Voss, C.A., 2006. Service quality in multichannel services employing virtual channels. Journal of Service Research, 8(4), pp.356–371.

Staats, B.R., Brunner, D.J. and Upton, D.M., 2011. Lean principles, learning, and knowledge work: Evidence from a software services provider. Journal of Operations Management, 29(5), pp.376–390.

Statistics Canada, 2015. Canada's population estimates: Age and sex. http://www.statcan.gc.ca/daily-quotidien/150929/dq150929b-eng.htm

Stewart, D.M., 2003. Piecing together service quality: A framework for robust service. Production and Operations Management, 12(2), pp.246–265.

Stewart, D.M. and Chase, R.B., 1999. The impact of human error on delivering service quality. Production and Operations Management, 8(3), pp.240–263.

Stewart, D.M. and Grout, J.R., 2001. The human side of mistake-proofing. Production and Operations Management, 10(4), pp.440–459.

Stock, G.N., McFadden, K.L. and Gowen, C.R., 2007. Organizational culture, critical success factors, and the reduction of hospital errors. International Journal of Production Economics, 106(2), pp.368–392.

Strauss, A.L., and Corbin, J., 1998. Basics of Qualitative Research. London: Sage.

Surachartkumtonkun, J., McColl-Kennedy, J.R. and Patterson, P.G., 2015. Unpacking customer rage elicitation a dynamic model. Journal of Service Research, 18(2), pp.177–192.

Sutton, I., 2010. Process risk and reliability management: operational integrity management. William Andrew.

Swafford, P.M., Ghosh, S. and Murthy, N., 2008. Achieving supply chain agility through IT integration and flexibility. International Journal of Production Economics, 116(2), pp.288–297.

Swamidass, P.M., Darlow, N. and Baines, T., 2001. Evolving forms of manufacturing strategy development: evidence and implications. International Journal of Operations and Production Management, 21(10), pp.1289–1304.

Swink, M. and Way, M.H., 1995. Manufacturing strategy: propositions, current research, renewed directions. International Journal of Operations and Production

Management, 15(7), pp.4–26.

Tanuseputro, P., Chalifoux, M., Bennett, C., Gruneir, A., Bronskill, S.E., Walker, P. and Manuel, D., 2015. Hospitalization and mortality rates in long-term care facilities: does for-profit status matter?. Journal of the American Medical Directors Association, 16(10), pp.874–883.

Tazelaar, F. and Snijders, C., 2013. Operational risk assessments by supply chain professionals: Process and performance. Journal of Operations Management, 31(1), pp.37–51.

Thibaut, J.W. and Kelley, H.H., 1978. Interpersonal relations: A theory of interdependence. New York: John Wiley and Sons, Inc.

Tomlinson, E.C., Lewicki, R.J. and Ash, S.R., 2014. Disentangling the moral integrity construct values congruence as a moderator of the behavioral integrity–citizenship relationship. Group and Organization Management, 39(6), pp.720–743.

Tucker, A.L., 2004. The impact of operational failures on hospital nurses and their patients. Journal of Operations Management, 22(2), pp.151–169.

Tucker, A.L. and Edmondson, A.C., 2003. Why hospitals don't learn from failures: organizational and psychological dynamics that inhibit system change. California Management Review, 45(2), pp.55–72.

Tucker, A.L., Edmondson, A.C. and Spear, S., 2002. When problem solving prevents organizational learning. Journal of Organizational Change Management, 15(2), pp.122–137.

Tucker, A.L. and Spear, S.J., 2006. Operational failures and interruptions in hospital nursing. Health Services Research, 41(3), pp.643–662.

Tucker, A.L., Heisler, W.S. and Janisse, L.D., 2013. Organizational Factors that Contribute to Operational Failures in Hospitals. Harvard Business School Working Paper, No. 14–023. Available at: http://nrs.harvard.edu/urn-3:HUL.InstRepos:11508218

Urban, A. M., and Quinlan, E., 2014. Not for the faint of heart: Insider and outsider shadowing experiences within Canadian health care organizations. Qualitative Research in Organizations and Management: An International Journal, 9(1), pp.47–65.

Urda, J. and Loch, C.H., 2013. Social preferences and emotions as regulators of behavior in processes. Journal of Operations Management, 31(1), pp.6–23.

Vaughan, T.S., 2005. Failure replacement and preventive maintenance spare parts ordering policy. European Journal of Operational Research, 161(1), pp.183–190.

Vogus, T.J., Sutcliffe, K.M. and Weick, K.E., 2010. Doing no harm: enabling, enacting, and elaborating a culture of safety in health care. The Academy of Management Perspectives, 24(4), pp.60–77.

Voss, C., Roth, A.V. and Chase, R.B., 2008. Experience, service operations strategy, and services as destinations: foundations and exploratory investigation. Production and Operations Management, 17(3), pp.247–266.

Voss, C.A., Roth, A.V., Rosenzweig, E.D., Blackmon, K. and Chase, R.B., 2004. A tale of two countries' conservatism, service quality, and feedback on customer satisfaction. Journal of Service Research, 6(3), pp.212–230.

Ward, P.T., Bickford, D.J. and Leong, G.K., 1996. Configurations of manufacturing strategy, business strategy, environment and structure. Journal of Management, 22(4), pp.597–626.

Ward, P.T. and Duray, R., 2000. Manufacturing strategy in context: environment,

competitive strategy and manufacturing strategy. Journal of Operations Management, 18(2), pp.123–138.

Weaver, G.R. and Treviño, L.K., 1999. Compliance and values oriented ethics programs: Influences on employees' attitudes and behavior. Business Ethics Quarterly, 9(02), pp.315–335.

Weick, K.E., 1998. Introductory essay—Improvisation as a mindset for organizational analysis. Organization science, 9(5), pp.543–555.

Weick, K.E. and Sutcliffe, K.M., 2011. Managing the unexpected: Resilient performance in an age of uncertainty (Vol. 8). John Wiley and Sons.

Weick, K.E., Sutcliffe, K.M. and Obstfeld, D., 2005. Organizing and the process of sensemaking. Organization Science, 16(4), pp.409–421.

Weiner, B., 1986. An attributional theory of achievement motivation and emotion. In An Attributional Theory of Motivation and Emotion, pp. 159–190. Springer US.

White, D., 1995. Application of systems thinking to risk management: a review of the literature. Management Decision, 33(10), pp.35–45.

White, D. W., and Lean, E., 2008. The impact of perceived leader integrity on subordinates in a work team environment. Journal of Business Ethics, 81(4), pp.765–778.

Williamson, O.E., 1985. The economic institutions of capitalism. Simon and Schuster.

Wheelwright, S.C., 1984. Manufacturing strategy: defining the missing link. Strategic management journal, 5(1), pp.77–91.

Worden, S., 2003. The role of integrity as a mediator in strategic leadership: A recipe for reputational capital. Journal of Business Ethics, 46(1), pp.31–44.

Wunderlich, P., Kranz, J., Totzek, D., Veit, D. and Picot, A., 2013. The impact of endogenous motivations on adoption of IT–enabled services the case of transformative services in the energy sector. Journal of Service Research, 16(3), pp.356–371.

Yee, R.W., Yeung, A.C. and Cheng, T.E., 2010. An empirical study of employee loyalty, service quality and firm performance in the service industry. International Journal of Production Economics, 124(1), pp.109–120.

Yin, R.K., 2003. Case Study Research: Design and Methods. Thousand Oaks, CA: Sage.

Zeithaml, V.A., Berry, L.L. and Parasuraman, A., 1988. Communication and control processes in the delivery of service quality. The Journal of Marketing, 52(2), pp.35–48.

Zeithaml, V.A., Berry, L.L. and Parasuraman, A., 1993. The nature and determinants of customer expectations of service. Journal of the Academy of Marketing Science, 21(1), pp.1–12.

Zohar, D., 2010. Thirty years of safety climate research: Reflections and future directions. Accident Analysis and Prevention, 42(5), pp.1517–1522.

Appendices

Appendix A: Ethics Approval Notice

Western Research

Research Ethics

Western University Health Science Research Ethics Board
NMREB Delegated Initial Approval Notice

Department & Institution: Richard Ivey School of Business\Ivey School of Business, Western University

NMREB File Number: 105182
Study Title: Operational System Integrity: A Grounded Theory Study
Sponsor:

NMREB Initial Approval Date: June 26, 2014
NMREB Expiry Date: August 31, 2015

Documents Approved and/or Received for Information:

Document Name	Comments	Version Date
Instruments	protocol of non-managers' interview.	2014/05/27
Instruments	interview protocol of non-managers' focus group.	2014/05/27
Instruments	protocol for managers' interview.	2014/05/27
Instruments	interview protocol for managers' focus group.	2014/05/27
Letter of Information & Consent	Non-manager's observation.	2014/06/17
Letter of Information & Consent	manager's observation.	2014/06/17
Letter of Information & Consent	manager's focus group.	2014/06/17
Letter of Information & Consent	non-manager's focus group.	2014/06/17
Western University Protocol		2014/06/17

The Western University Non-Medical Research Ethics Board (NMREB) has reviewed and approved the above named study, as of the HSREB Initial Approval Date noted above.

NMREB approval for this study remains valid until the NMREB Expiry Date noted above, conditional to timely submission and acceptance of HSREB Continuing Ethics Review.

The Western University NMREB operates in compliance with the Tri-Council Policy Statement Ethical Conduct for Research Involving Humans (TCPS2), the Ontario Personal Health Information Protection Act (PHIPA, 2004), and the applicable laws and regulations of Ontario.

Members of the NMREB who are named as Investigators in research studies do not participate in discussions related to, nor vote on such studies when they are presented to the REB.

The NMREB is registered with the U.S. Department of Health & Human Services under the IRB registration number IRB 00000941.

Ethics Officer to Contact for Further Information

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This is an official document. Please retain the original in your files.

Appendix B: Detailed Visits Summary, Ordered Chronologically

Visit	Date	Length (hrs.)	Percentage of total hrs	Participant(s)	Data Collection Approach
1	Feb-28-2014	2	.74%	Sabrina (Director of Clinical Services)	Formal meeting
2	Jun-26-2014	1	.37%	Sabrina (Director of Clinical Services)	Formal meeting
				Madelyn (Head of Operations)	
3	Aug-05-2014	7	2.58%	Maya (Associate Director of Care)	Formal introductory session
				Anna (RN, Falls Manager)	
				Felipe (Environment Manager)	
				4 newly hired PSWs and 2 RPNs	
4	Aug-06-2014	7	2.58%	Maya (Associate Director of Care)	Formal introductory session
				4 newly hired PSWs and 2 RPNs	
5	Aug-11-2014	2	.74%	Kyla (Assistant of head of Operations)	Archival data
6	Aug-28-2014	1	.37%	Sabrina (Director of Clinical Services)	Formal interview
7	Sep-04-2014	1	.37%	Maya (Associate Director of Care)	Formal interview
8	Sep-04-2014	1	. 37%	Melissa (Director of Care)	Formal interview
9	Oct-07-2014	5	1.85%	Sabrina (Director of Clinical Services)	Formal introductory meeting
				Maya (Associate Director of Care)	
				Vanessa (RPN morning shift, home area 1)	
				Larry (RPN evening shift, home area 1)	
10	Oct-22-2014	7	2.58%	Maya (Associate Director of Care)	Observation
				Vanessa (RPN morning shift, home area 1)	
				Larry (RPN evening shift, home area 1)	
11	Oct-24-2014	12	4.43%	Larry (RPN evening shift, home area 1)	Shadowing
				Maria (PSW evening shift, home area 1)	
12	Oct-28-2014	8	2.95%	Home area 1 staff	Observation
				Sue (RPN morning shift)	
				Anna (RN, Falls manager)	
				Nina (PSW morning shift)	
				Artemis (PSW morning shift)	
				Molly (PSW morning shift)	
13	Oct-29-2014	7	2.58%	Anna (RN, Falls Manager)	Observation
				Fall Committee members	
				Cam (Physiotherapist)	
				Nicole (Physiotherapist)	
				Mag (Associate Director of Care)	
				Annabelle (Physiotherapy student)	

				Jen (Restorative Aide)	
14	Oct-30-2014	9	3.32%	Larry (RPN evening shift, home area 1)	Observation and Archival data
15	Oct-31-2014	5	1.85%	Maya (Associate Director of Care)	Shadowing
16	Nov-06-2014	11	4.06%	Beatrice (RPN morning shift, home area 1)	Shadowing
				Kathy (RPN evening shift, home area 1)	
17	Nov-07-2014	8	2.95%	Home area 1 staff	Observation
				Vanessa (RPN morning shift)	
				Nina (PSW morning shift)	
				Artemis (PSW morning shift)	
				Molly (PSW morning shift)	
				Ashton (PSW morning shift)	
				Larry (RPN evening shift)	
				Maria (PSW evening shift)	
				Tucker (PSW evening shift)	
				Alex (PSW evening shift)	
				Michelle (PSW evening shift)	
18	Nov-12-2014	8	2.95%	Molly (PSW morning shift, home area 1)	Shadowing
19	Nov-18-2014	8	2.95%	Tom (Administrator)	Shadowing
20	Dec-15-2014	4	1.48%	Ben (Physiotherapist)	Shadowing and observation
				Anna (RN, Falls Manager)	
				Home area 1 staff	
				Vanessa (RPN morning shift)	
				Nina (PSW morning shift)	
				Caroline (PSW morning shift)	
				Molly (PSW morning shift)	
				Gail (PSW morning shift)	
21	Dec-17-2014	8	2.95%	Jen (Restorative Aide)	Shadowing
22	Dec-18-2014	3	1.11%	Ben (Physiotherapist)	Observation
				Home area 1 staff	
				Vanessa (RPN morning shift)	
				Nina (PSW morning shift)	
				Molly (PSW morning shift)	
				Gail (PSW morning shift)	
				Ashton (PSW morning shift)	
23	Dec-22-2014	4	1.48%	Ben (Physiotherapist)	Shadowing
				Nicole (Physiotherapist)	
24	Dec-29-2014	3.5	1.29%	Fall Committee members	Observation
				Anna (RN, Falls Manager)	
				Cam (Physiotherapist)	
				Nicole (Physiotherapist)	
				Mag (Associate Director of Care)	
				Annabelle (Physiotherapy student)	

				Jen (Restorative Aide)	
				Home area 1 staff	
				Vanessa (RPN morning shift)	
				Larry (RPN evening shift)	
				Nina (PSW morning shift)	
				Artemis (PSW morning shift)	
				Molly (PSW morning shift)	
				Ashton (PSW morning shift)	
25	Dec-31-2014	4	1.48%	Home area 1 staff	Observation
				Vanessa (RPN morning shift)	
				Nina (PSW morning shift)	
				Artemis (PSW morning shift)	
				Molly (PSW morning shift)	
				Ashton (PSW morning shift)	
26	Jan-28-2015	6	2.21%	Home area 1 staff	Observation
				Kathy (RPN morning shift)	
				Nina (PSW morning shift)	
				Artemis (PSW morning shift)	
				Molly (PSW morning shift)	
				Ashton (PSW morning shift)	
				Larry (RPN evening shift)	
				Maria (PSW evening shift)	
				Tucker (PSW evening shift)	
				Michelle (PSW evening shift)	
27	Feb-10-2015	5	1.85%	Home area 1 staff	Observation
				Vanessa (RPN morning shift)	
				Nina (PSW morning shift)	
				Molly (PSW morning shift)	
				Ashton (PSW morning shift)	
				Larry (RPN evening shift)	
				Maria (PSW evening shift)	
				Tucker (PSW evening shift)	
				Alex (PSW evening shift)	
				Michelle (PSW evening shift)	
28	Feb-23-2015	6	2.21%	Home area 1 staff	Observation
				Vanessa (RPN morning shift)	
				Nina (PSW morning shift)	
				Caroline (PSW morning shift)	
				Molly (PSW morning shift)	
				Ashton (PSW morning shift)	
				Larry (RPN evening shift)	
				Maria (PSW evening shift)	
				Tucker (PSW evening shift)	

				Alex (PSW evening shift)	
				Serena (PSW evening shift)	
29	Feb-24-2015	2	.74%	Fall Committee members	Observation
				Anna (RN, Falls Manager)	
				Cam (Physiotherapist)	
				Nicole (Physiotherapist)	
				Mag (Associate Director of Care)	
				Annabelle (Physiotherapy student)	
				Jen (Restorative Aide)	
30	Feb-25-2015	5	1.85%	Home area 2 staff	Observation
				Holly (RPN morning shift)	
				Alice (PSW morning shift)	
				Caroline (PSW morning shift)	
				Eva (PSW morning shift)	
				Katharina (PSW morning shift)	
				Lola (RPN evening shift)	
				Mia (PSW evening shift)	
				Grace (PSW evening shift)	
				Emily (PSW evening shift)	
				Drake (PSW evening shift)	
31	Mar-03-2015	7.5	2.27%	Home area 2 staff	Observation
				Holly (RPN morning shift)	
				Alice (PSW morning shift)	
				Ashton (PSW morning shift)	
				Eva (PSW morning shift)	
				Katharina (PSW morning shift)	
				Lola (RPN evening shift)	
				Mia (PSW evening shift)	
				Grace (PSW evening shift)	
				Emily (PSW evening shift)	
				Drake (PSW evening shift)	
32	Mar-09-2015	7.5	2.77%	Home area 2 staff	Observation
				Holly (RPN morning shift)	
				Alice (PSW morning shift)	
				Caroline (PSW morning shift)	
				Eva (PSW morning shift)	
				Katharina (PSW morning shift)	
				Lola (RPN evening shift)	
				Mia (PSW evening shift)	
				Grace (PSW evening shift)	
				Emily (PSW evening shift)	
				Drake (PSW evening shift)	
33		8	2.95%	Holly (RPN morning shift, home area 2)	Shadowing

34	Mar-10-2015	7.5	2.77%	Home area 2 staff	Observation
				Holly (RPN morning shift)	
				Alice (PSW morning shift)	
				Ashton (PSW morning shift)	
				Eva (PSW morning shift)	
				Katharina (PSW morning shift)	
				Lola (RPN evening shift)	
				Mia (PSW evening shift)	
				Grace (PSW evening shift)	
				Emily (PSW evening shift)	
				Drake (PSW evening shift)	
35	Mar-14-2015	8	2.95%	Jordan (Registered Nurse)	Shadowing
36	Mar-30-2015	7.5	2.77%	Anna (RN, Falls Manager)	Shadowing
37	Apr-02-2015	8	2.95%	Alice (PSW morning shift, home area 2)	Shadowing
38	Apr-08-2015	5	1.85%	Home area 3 staff	Observation
				Zara (RPN morning shift)	
				Sophia (PSW morning shift)	
				Jasmine (PSW morning shift)	
				Kate (PSW morning shift)	
39	Apr-09-2015	4.5	1.66%	Home area 3 staff	Observation
				Zara (RPN morning shift)	
				Caroline (PSW morning shift)	
				Jasmine (PSW morning shift)	
				Kate (PSW morning shift)	
40	Apr-11-2015	6.5	2%.21	Jordan (Registered Nurse)	Shadowing
41	Apr-13-2015	4.5	1.66%	Home area 2 staff	Observation
				Jeanette (RPN morning shift)	
				Alice (PSW morning shift)	
				Ashton (PSW morning shift)	
				Eva (PSW morning shift)	
				Katharina (PSW morning shift, home area 2	
42	Apr-15-2015	6	2.21%	Emily (PSW morning shift, home area 2)	Shadowing and archival data
43	Apr-18-2015	4.5	1.66%	Home area 3 staff	Observation
				Daniela (RPN morning shift)	
				Caroline (PSW morning shift)	
				Jasmine (PSW morning shift)	
				Kate (PSW morning shift)	
44	Apr-20-2015	8	2.95%	Jen (Restorative Aide)	Shadowing
45	Apr-21-2015	7	2.58%	Jen (Restorative Aide)	Shadowing
46	Apr-22-2015	7.5	2.77%	Jen (Restorative Aide)	Shadowing
47	Apr-23-2015	7.5	2.77%	Jen (Restorative Aide)	Shadowing
48	Feb-10-2016	3	1.11%	Madelyn (Head of Operations)	Formal meeting

Appendix C: Execution of Planned Operational Tasks

In Ontario, nursing homes are home-like facilities that, on a round-the-clock basis, take care of the clinical and nonclinical needs of people who are no longer able to live independently or require onsite nursing care. The delivery of care occurs in three shifts: morning shifts between 6:30 a.m. and 2:30 p.m., afternoon shifts between 2:30 p.m. and 10:30 p.m., and evening shifts between 10:30 p.m. and 6:30 a.m. As nursing homes provide a combination of clinical and nonclinical services, the residents of nursing homes are those who need a higher level of care as compared to the residents of other elderly care facilities, such as retirement homes or assisted living centres. Accordingly, the daily operations of nursing homes are composed of two general sets of care provision efforts: clinical care services and nonclinical care services.

Clinical Care Services

At PEC Co. the clinical services fall under the umbrella of 24-hours nursing care and include medicine administration, wound care, pain management, and respiratory care. During morning and evening shifts one nurse, the Registered Practical Nurse (RPN), is responsible for the nursing care of her[21] home area. Each home area has 32 residents, and two-thirds of the residents reside in private rooms. During the night shifts however, the need for clinical care is substantially lower than during morning and evening, therefore there is only one RPN per floor which includes two home areas. Usually the busiest shift of the day is the morning shift. In this section I will start with describing a routine morning shift, and then I will explain how the other two shifts are different from the morning shift.

In a morning shift the RPN should start her work at 6:30 a.m., but she usually arrives to the home almost half an hour earlier to do some of her routine tasks so that by 6:30 she can be ready to start the delivery of care. When the RPN arrives, her first task is to go to the dining room and to check the "suction device", putting a check mark on the checklist hanging from wall right next to the cabinet where the suction device is located. The suction device is anti-choking first-aid equipment that is used to remove fluid or other material from the airway.

Once the RPN has made sure the suction works properly, she goes to the nurse station where the RPN from the night shift is usually waiting for her to hand over the shift. During the shift hand-off, nurses discuss all the news regarding the last 24 hours at the home area. If one or both of the nurses are part-timers then they usually will share the news related to the last 72 hours. All the details are communicated verbally and sometimes the nurse who just arrived writes down some of the details. For this purpose most nurses carry a small notebook in their pocket and they record information about their tasks (e.g., following up with doctor or cancelling an appointment) during the day. Over this transition, often the nurses do not discuss routine tasks, but rather they focus on the key information; for instance if there had been a fall or if there was a change in a resident's medication. Communicating this information usually takes 10 to 20 minutes.

After the transition of the shift, the RPN has to complete two important tasks. First she must check the temperature of the medicine fridge. The med fridge is located inside a kitchen-like room behind the nurse station. This kitchen-like room, while designed like a kitchen, is not used as one. This room is for keeping medications at the right temperature. The med fridge contains medicines that must remain at a certain range of temperature (between 2 and 6 degrees centigrade), otherwise their active bacteria die and they will not be effective anymore.

In addition to the med fridge, there is a trolley drawer containing medicines, often referred to as a med cart.

[21] For simplicity purposes, in this chapter the feminine pronouns are used when referring to general nurses, and the masculine pronouns are used when referring to general personal support workers.

The med cart contains the medications that must be administered daily to the residents. The second important task an RPN performs is counting the number of narcotics inside the med cart and then recording the number inside a binder which is designed to keep the records. Some of the residents have to take a variety of narcotics drugs, thus their usage is highly restricted. In order to prevent any misuse, there are certain regulations to control the usage of these medications. This is in fact the responsibility of the RPNs to take care of responsible usage of these drugs, and if any of these drugs are missing, the RPN's nursing licence can be revoked. According to Holly, an RPN, this is a very sensitive issue in as much as that if these drugs go missing. police might raid the home of the RPN searching for the drugs. In other words, if a drug goes missing, this is considered a crime and the RPN is held responsible for it.

Once the narcotics are counted, the RPN logs into the PCC system and starts reading the 24-hrs report. This report, which can be generated for each home area, contains the details of the logs written by the previous shifts' RPNs. The nurses during each shift (mostly morning and evening) usually write a description on the condition of each resident. This function is called charting or documentation. Some days a few residents in each home area might have a very ordinary day with absolutely no changes in their status. In such rare cases the RPNs might skip writing a note, but as the environment is so dynamic and the conditions of residents are changing so fast, most of the time there is something to record.

Usually when the RPN is reading the 24-hrs report, her Personal Support Workers (PSWs) arrive at the home and start delivering nonclinical services. When they arrive they usually stop by the nurse station and share the news from the last 24 hours (or sometimes 72 hours if any of those are part-timers). The information that is shared during these conversations revolves mostly around the nonclinical services that the PSWs are supposed to offer. For instance, the nurse might have decided to leave a referral for a social worker and notifies her PSWs to keep an eye on certain behaviour of one of the residents so that they can inform the social worker about the details of the resident's behaviour. These conversations are usually very short, about 5 minutes, and most of the part-timers – neither the nurse nor her PSWs – do not get involved in the conversation.

Nearly half an hour after the start of the shift the nurse has to finish reading the 24-hrs report and start administering the medicines. For this purpose she takes the med cart from the kitchen and pushes it to the living room where, during morning and evening shifts, there are often at least a few people sitting. The nurses most of the time start with these residents because the others that are not around might be asleep and the nurses want to give them more time to rest[22].

The med cart is a five-drawer trolley, equipped with an arm for placing a laptop, a small bin for disposal of medicine trash, and a handle to push the cart. The cart is heavy and most nurses find it hard to push. Regardless this is a major part of their daily tasks. The first two drawers contain small purple boxes. For each resident all their medications are inside small sealed plastic bags. The pharmacist puts the medications inside these sealed bags. The nurse picks these bags up from the pharmacy and places them inside the plastic purple box. Each of these purple boxes bears a picture of the resident on the top so that the RPN gives the right medicine to the right resident. In addition each of residents has a plastic wristband

[22] It takes a while for the staff members to learn about the habits, needs, and preferences of a resident after their admission. But once t they learn something, they always do their best to accommodate the preference of the resident when delivering care. In particular, when the residents are asleep, the nurses and PSWs plan for delivering the care in a way that the resident can get their required rest. For instance, if there is a resident who does not like to get up early in the morning, all the clinical and nonclinical care is postponed until after the person gets up around 11:00 a.m., or if there is another resident who has to go for dialysis every Thursday morning, the staff start their Thursday by preparing him before all other residents.

that shows their name. In case the nurse is new or a part-timer, she uses the information on the wristband and compares it with the information and picture on the box to do her job without error.

There is a laptop on the top of the med cart, which has the PCC system installed on it. As mentioned previously, the PCC system is where the care plans are developed. For each home area the nurse can see all the names and the pictures of residents in the system. By visiting the page of each resident the nurse can gain access to the particular care plan of the resident. However, during the medicine administration process, the nurse mostly works with the main interface where the names and pictures of all residents exist. When the nurse starts administrating the medicines around 7:00 a.m., the pictures of some of the residents are yellow while others are white. The yellow ones are due for their medicine at 7:00 a.m., and the white ones have still time. If the medicine is administered fully, the picture turns green. If the time has already passed and a resident has not received all his/her medications, then it turns red. The system uses this colour coding approach as a reminder to the nurses to reduce the risk of their error.

As the nurse gets close to each resident she first greets the resident and then gently asks if she can give medicine to him or her. The residents most of the time give permission to the nurse to give them their medicines, however once in a while there might be a resident who refuses to take medicine. In that case the nurse is required to repeat her request three times, and if still the resident refuses, she should stop insisting.

If the resident allows the nurse to administer the medications, the nurse first opens the purple box that belongs to the resident and takes the sealed plastic bags of medicine out of the box. Then she reads the instruction on the plastic bag and checks the information on the bag with the instruction that is documented inside the system. The system is designed in a way that helps the nurse to minimize the risk of errors. By clicking on the picture of each resident, the system is directed to a page that has all the instructions for medicine administration for this particular resident. This information is pulled from the care plan. The system does this automatically. In other words, the nurse does not have to double check things with the care plan; anything that is changed in the care plan is directly saved to this page, too.

Most importantly, there is a set of questions on this page that must be answered by the nurse. These questions simply ask whether or not the nurse has accomplished administering each medicine, typically with "yes" or "no" questions. The number of the questions depends on the number of the medicines that the resident should take, and the nurses sometimes use the number of the questions as a measure to check whether the resident is taking the correct number of medications. Once in a while however, they might find discrepancies between the two numbers, and in that case they usually check the care plan and all other records. If necessary they call the RN, explain the situation, and ask for a solution (which they usually find together with the RN). In addition, if there is a certain instruction for a certain medication, for instance if it should be taken with plenty of water or if it should be ground up and combined with jam to be easily swallowed, the system shows a little red box next to each question, which the nurse always checks, as this information is so critical. When the nurse answers all the questions, she first gives the medications based on the instructions to the resident and then she clicks on the confirm button. She also is required to wait for the resident and observe him or her when taking the medicine to make sure that the medicine is taken and that the resident has no issue with choking[23].

When the RPN attempts to give the medicine to the resident she must lock the med cart either manually or automatically. As indicated before, the contents of the med cart are highly sensitive. In order to make sure that medication will not be removed by anyone other than the nurse, the cart door is locked

[23] The procedure described here is followed precisely by most nurses, however once in a while there can be variation in this process. In particular, as will be discussed in section 4.6, sometimes part-timer nurses fail to follow the steps correctly. Even sometimes the full-time staff have a hard time following all the steps.

automatically within one minute of the nurse closing its door. The nurse can also lock it manually. According to one of the top managers, when the organization started its work early 2014, the med carts; doors were set to shut automatically within three minutes, and the nurses were required to lock them manually if they are done in less than three minutes. But on one of the audit days, an inspector pulled on the drawers of one of the med carts and found it open. Based on the requirements of the Ministry, the door should be locked all the time. So the inspectors cited this as a case of noncompliance. PEC Co,. to correct the issue, asked the supplier of med carts to change the locking time from three minutes to one minute. This helped the nurses not to worry about the locking of the cart anymore. Likewise, the computer screen is locked immediately after the nurse stops working with it. So every time a nurse wants to check the screen, she must unlock it first. Moreover, as the nurse gives the medicines to the residents, she must place the empty plastic bags inside a small jar (not dispose of them inside the bin). Once all the residents have received their medicines, she pours some water inside the jar. This causes the label ink on the plastic bags to dissolve in the water. These procedures are very time consuming, but these are all requirements of the Ministry to protect the personal information of the residents.

For the residents who receive narcotics, the nurse has to put a check mark in the narcotics binder in addition to answering the questions in the PCC system. For some residents there are treatments which must be also administered, too. Following the requirements of the Act for respecting the dignity of the residents, it is critical for nurses to administer the treatments inside the resident's room. The treatments are usually placed in the fourth drawer and are labeled with the name of the resident and the instructions for applying the treatment. The nurses are required to keep the med cart neat and clean. In particular, they must ensure treatments that are not necessary to use are thrown away.

The entire process of administering the first round of medication in the mornings takes two hours, from 7:00 a.m. to 9:00 a.m. During this period, the PSWs get the residents ready for breakfast, which starts at 8:00 a.m. Hence the nurses have to administer medication during breakfast time. It is imperative for a nurse to be in the dining room the entire time the residents eat their meal. The reason being that if a resident encounters an issue with swallowing, the nurse can immediately use the suction device to unblock the airway. Otherwise the resident could choke, for which the nurse would be held responsible. Once everyone is done with breakfast, the nurse can leave the dining room and resume medicine administration. As the nurse gives the residents their medicines, she performs other clinical care as well. For instance if recently a fall has occurred, the nurse should complete the post-fall assessment, which she usually does as she administers medications to the resident. Or if a resident has an issue, for example abdominal pain, the nurse does a pain assessment while giving the medications to the resident, and if necessary, addresses the issue by giving painkillers or seeking help from the resident's doctor.

Having said that, there is no requirement about the order of accomplishing most of the tasks. In other words the nurses can use their own discretion when deciding about the priority of their actions. More precisely the nurses have received the necessary education about making correct decisions during nursing school, which is why they are allowed to use their own discretion. As one of the ADOCs clarified this point once, the nurses have the education to make the right choices. They are taught at school to prioritize their tasks and act upon on priorities. No one expects a nurse to do a post-fall assessment when another resident is choking, for example.

In addition to the delivery of clinical care services, the nurse is required to take care of the clinical needs of the residents. For instance all the arrangements related to ambulation, meeting physicians, referrals to physiotherapists, requests for changing or adding medications, communication with families, and updating the care plan are among the clinical tasks of the RPN. The RPNs usually postpone most of these arrangements to the second half of their shift so that they can fully finish the first round of medicine administration without interruptions.

Additionally, the nurses are required to attend a meeting that is called a "huddle", which is held during the morning shifts at 10:30 a.m., and during the afternoon shifts at 3:30 p.m. In this meeting, all six nurses, one from each home area, should be present. The meeting is moderated by the RN, and most of the time, at least one of the managers joins, too. The purpose of the meeting is to share and elaborate on the issues of the residents, and if necessary, make some decisions. When the meeting starts each of the nurses raises the clinical issues of their residents. For instance a nurse might express her concerns about a resident who recently has refused to eat enough. Then all the participants together brainstorm about the issue and try to find practical solutions to address it. This meeting usually takes about half an hour, and often it ends with the management's announcements about certain events or their new plans.

After huddle meetings the nurses go back to their home areas and they start the second round of medicine administration. In the morning shift the second round takes place between 11:00 a.m. and usually 1:30 p.m. The lunch is served at 12:00 p.m., when again, nurses are expected to be in the dining room the entire time. Sometimes the nurses help their PSWs in serving the food. Some residents are incapable of eating their food and they must be fed. Therefore the PSWs are required to not only serve the food, but also to feed those residents. If the number of residents who require feeding is too large in a given home area, the nurses become involved in feeding tasks. According to the job description of the RPNs in PEC Co., if necessary the nurses have to help the PSWs in feeding the residents[24]. Sometimes the nurses help the PSWs, because if they fail to do so, it may take a long time before all the residents finish their food. In that case, the nurse has to wait longer in the dining room which causes a lot of delay to the rest of her work.

After lunch is over at 1:00 p.m. the nurse usually is done with most of her medicine administration tasks, and will spend some time on applying the treatments or changing wound dressings. At the same time, she takes care of the clinical arrangements such as physio referrals. Usually after lunch if the nurse is on time and all her medicine administration tasks are complete, she will leave the medicine cart inside the kitchen-like room where she took the cart from in the morning. Before leaving however, she takes the laptop from the med cart and she uses it for charting.

Charting is a critical part of a nurse's function. While this function is not directly related to the delivery of clinical care, it is very important in terms of ensuring the correctness of the plans for the care delivery. When charting, the nurse documents not only the clinical care that has been delivered to each and every single resident, but also the clinical needs that the nurse suggests for addressing the issues of the residents. In addition, all the details of the events are recorded. As an example, if two residents had an argument, the nurse records the details – based on her own observations as well the information that she acquires from her PSWs – and recommends solutions. For instance, in this situation the nurse usually recommends the next shift's staff members to keep an eye on the behaviour of these two residents and make sure that they do not sit close to each other. One of the major purposes of documentation is to have evidence to show to the Ministry. In the above example if all the details of the argument between two residents and the implemented solutions are not recorded precisely, the Ministry inspectors might deem this issue as a failure in documentation and hold the organization accountable for that. Whereas, if the documentation is done precisely and all the actions taken by the organization to address the issue are recorded in the document, the Ministry cannot accuse the organization of negligence.

As such the morning shift of a nurse often finishes by documenting all the events of the day. When the nurse does the charting she also takes care to update the care plan. Consider the recommendations of the head of physiotherapy department about the necessary actions that must be taken regarding the care of a resident whose knees have become shaky. While this is the physiotherapist himself who updates the care

[24] Even the RNs' job description requires them to help the staff when feeding is necessary and there is a shortage of staff.

plan about the changes in the conditions of the resident, this is the responsibility of the nurse to document the recommended actions and communicate it with other nurses and PSWs. In addition, as the care plan changes for a resident, the nurse is expected to print out the most current care plan and replace the older version with it in the binder of care plans in the nurse station's meeting room.

While the above argument mostly addresses the routine clinical functions of the RPNs during the morning shift, most of these functions transfer over to the evening shift as well. The major difference between the morning and evening shift nurses is that in the mornings two meals are served, whereas in the evening there is only one. Therefore in the morning shift, a nurse is bound to the dining room for a total of two hours. The other difference is in the number of family visitors; most families visit their residents during the morning shift, therefore the level of interaction of the morning nurses with families is usually higher than that of the evening nurses. This makes working during the morning shift even harder as the nurses must spend some time with families to discuss the health status of their residents. The final difference is that as the managers and other personnel of PEC Co.. such as social workers, physiotherapists, and occupational therapists have their own shifts between 8:00 a.m. and 5:00 p.m. Most of the time it is the morning shift nurse who receives the recommendations of these individuals, and has to communicate these to the nurses of the next shifts. As a result, the morning shift is in general busier that the evening shift, and the majority of the nurses are not able to use their half hour break during a morning shift, whereas evening shift nurses most of the time can enjoy their break time.

The night shift, on the other hand, is very different from the morning and evening shifts. Most of the tasks that the nurses are required to do during morning and evening shifts are not a part of the routines of night shift. Basically the nurses on night shift do not administer medications the way that the morning and evening shift nurses do. Most of the residents take their last round of medication during the evening shift. Only a few have medications that must be taken during the night shift. In addition, as the shift of all managers and other personnel is already over, and there are no visitors at night, the nurses are more comfortable in terms of their workload. The main purpose of the organization from hiring night shift nurses is to make sure that if something goes wrong, there is enough personnel[25] to take care of the issue, and most importantly, to document everything. Even though there is always a manager who stays during night shift and one RN who takes care of the entire building, the managers of PEC Co. would rather have enough night nurses all the time. For instance, if one of the residents has a fall at night, the RPN should take care of the condition of the resident and accurately document everything about the incident.

Nonclinical Care Services

Nonclinical services are delivered by the Personal Support Workers (PSWs) at PEC Co., and similar to the clinical services, these are required on a round-the-clock basis. Each home area at PEC Co. has at least three PSWs during the morning and evening shifts, and the night shift has two PSWs. During the day there is usually one floating PSW who helps two home areas on one floor. Also depending on differences in the workload of the home's areas, more PSWs might be assigned to one home area than another. Similar to the previous subsection, I will first describe the delivery of nonclinical services during the morning shift and then clarify the differences with the evening and night shifts.

Every morning the PSWs arrive at 6:30 a.m., and their shift lasts for eight hours, of which half an

[25] As indicated earlier in this chapter, the managers of PEC Co. are so concerned with offering high quality and compliant care that they use the surplus to invest in these areas. According to many nurses and PSWs who have worked in many other private nursing homes, most privately held homes have only one RPN during the night. shift for the entire building. In contrary at most of non-profit homes have the number of night shift staff is the same as the morning's shift.

hour is for a break. The first thing that a PSW does in the morning is to talk to his shift RPN[26] about the events of the home area during the last 24 hours. He also checks a binder, the so called 24-hrs binder, in which a summary of all the events is written and the key incidents are highlighted. Also if any of the managers or the therapists have a certain recommendation, they will let the PSWs and the nurse know about it, and the PSWs will communicate this recommendation with the next shift staff by writing it inside this binder.

One of the PSWs who arrives first usually starts his work with checking the functionality of a few devices in the storage room. These devices are the mechanical lifts (and some of its equipment like the lift belt) that the PSWs use when changing residents' clothes or when transferring to/from the bed to the lift those residents who are incapable of moving their bodies. Besides each of these devices there is an inspection checklist that the PSW is supposed to initial, meaning that he has done the inspection and the device works properly. In addition, the same PSW usually checks the temperature of water by sampling the water from one or two residents' washrooms, the bathroom, and the nurse station washroom. If the water is colder or warmer than normal, he gives a call to the RN, who asks the facility staff to fix the issue. There is a binder in which the temperature check-sheet is located and the PSW initials that.

Meanwhile, the other two PSWs start their work by preparing the residents who just woke up. Each of the residents has been assigned to one of the PSWs, but the PSWs usually collaborate closely with each other to complete the entire daily tasks of their home area. There is no order in preparing the residents, however, most of the PSWs over time have learnt about the habits and preferences of the residents, and based on that, they start with the residents who get up earlier than others[27] or the ones whose preparation takes a longer time. The PSW usually first softly and kindly greets the resident with phrases such as "good morning, sunshine" to female residents and "good morning, darling" to the male residents. Then he helps the resident to get out of bed and use the washroom. Depending on a resident's level of independence, the PSW may also help the resident clean themselves in the washroom.

If the resident uses incontinence products, the PSW puts on the resident's pad before putting on his/her clothes. For most residents, in particular female residents, the PSW first asks what clothes they would like to wear today, and based on what the residents respond, the PSW dresses them accordingly. Throughout the time the PSW is preparing the resident, following PEC Co.'s policies, he leaves the door of the resident's room closed. During this process the PSW closely observes the resident, and if he notices any changes in the condition of the resident (e.g., changes in integrity of the skin), he immediately informs the nurse. In that sense the PSWs are considered the "ears and eyes" of the RPNs, as some nurses describe them.

Quite often the head of the Physiotherapy Department or the Restorative Manager requires the PSWs to help residents in doing certain exercises or to massage them. These tasks are not exactly routine and many part-timers have a very hard time following these instructions. The PSWs often leave these exercises and massages as the last tasks in their morning routine. In addition, the PSWs give baths to the residents who have their weekly shower schedule set for the mornings. Usually the residents choose when they would like to take their shower, either in the morning or in the evening. But the PSWs, based on the number of individuals that they should bathe each day, choose when to bathe the residents. Having said that, based on the Residents' Bill of Rights in the Act, the residents can always refuse the request of the

[26] The PSWs and RPNs are given some flexibility by the organization to start their work half an hour earlier. As such there are a few PSWs who start their work at 6:00 a.m., therefore in case the PSW arrives earlier than his RPN, he talks with the PSWs and the RPN of previous shift about the events of the last 24 hours.

[27] Often when the morning shift PSWs and RPNs start their work, they make so much noises that most residents get up anyway.

PSW or postpone their bath to a later time that day. If the resident refuses to take the bath, the PSW cannot insist more than three times.

When the resident is taken to the bathroom, the first thing the PSW does is to check the bathtub, tub chair, its remote control and all of the buttons on it to make sure everything works properly, then he writes his initials on the checklist located on the cabinet in the bathroom. Then with the help of another PSW he helps the resident sit on the bath chair and takes off his/her clothes. Based on PEC Co.'s policies, there should be at least two PSWs in the bathroom when the resident is being seated in the bath chair. In addition, the PSW is required to do a complete skin and nail assessment at this point, and if he finds any areas of concern, he must let the nurse know. The tub chair is attached to a mechanical lift device, with which the resident is lifted into the bathtub. When the resident feels comfortable and their feet are on the bath tub ground, the PSW first washes the resident's head with shampoo that is sprayed from a nozzle on the tub. Then, using a clean cloth, he cleans the resident's body. He finishes the process by washing the resident's body with water. Then with the help of both PSWs, the resident is lifted by the mechanical lift out of the tub, and the PSW puts on his/her clothes. Finally, before leaving the bathroom, the PSW cuts and trims the nails of the resident.

Once the resident is ready, he/she will be transferred to the living room where all the other residents are waiting to go for breakfast. By the time all the scheduled baths are done and all the other residents get ready, it is usually 8:00 a.m. and the residents are transferred to the dining room to eat their breakfast. When transferring the residents it is critical for the PSWs to ensure that they follow the requirements of the care plan for each resident. Some residents have no walker or wheelchair and can walk independently, so the PSWs do not interfere with their transfer. For other residents however, the care plan has recommendations about the number of individuals who are required to accompany the resident when transferring.

When all the residents arrive in the dining room, the PSWs start serving the food. In nursing homes, usually the food is very low quality because the budget that the organization receives from the Ministry per each resident per day is only $8.03. But according to the requirements of the Act, there should always be multiple options for the residents to choose from. Therefore when the PSWs serve the food, they reach out to each resident to explain the options and to ask what the resident would like to eat. As the ratio of the residents to PSWs is 32:3, the PSWs should serve each resident's meal quickly so that they can serve all 32 residents, feed the ones who are immobile, clean (not wash though) the dishes and return those to the kitchen, and chart the food and fluid intake of all residents within the one hour meal time. As a result, meal times are often so stressful for the PSWs that they spend the entire meal running around. When breakfast is over, the PSWs transfer the residents to either their rooms or the living room. Again, during the transfer, the PSWs follow the exact requirements of the care plans. Then one of the PSWs starts serving snacks while two or three others help the residents to use the washroom, change their incontinence pads, and resume the bathing schedule. From 15 minutes before the lunch, the PSWs start transferring the residents to the dining room again. During lunch they exactly repeat what they did during breakfast. After lunch there is another round of snack serving, and the rest of PSWs resume their routine tasks until around 1:30 p.m., when they are done with bathing and they start charting.

The charting function of PSWs is different from that of the nurses in many aspects. First of all the system that is used by the PSWs, the so-called POC which stands for Point of Care system, is different than the RPNs' system, PCC. While both systems are developed by one information technology provider organization, PointClickCare, the POC system is designed only for charting nonclinical services. As opposed to the nurse charting function that happens most of the time at the end of a shift, the PSWs chart all day long as they deliver care. As the name of this system indicates, the Point of Care system is used to document at the point of care, exactly based on the delivered care. There are three touchpads, with the POC system installed on them, which are mounted on walls, one in each of two hallways, and one in the dining room area, so that the PSWs can chart while they provide services.

The POC system's main interface is similar to that of PCC, in that they both contain the names and pictures of all residents of the home area. But once the PSW clicks on a resident name or picture the system does not direct him to the care plan; instead the system directs him to the list of nonclinical services (in the form of a set of questions with yes or no answers) that the resident is supposed to receive during each shift. This list is generated by the changes that are made in the care plan. For instance if the physiotherapist recommends a certain foot massage for a resident in the care plan, this recommendation appears automatically in the POC system, too.

The list of nonclinical questions is more or less similar to the list of previously described medicine administration questions within the PCC system. In other words, as the PSW delivers the care, the system asks him whether or not the intended care is delivered, and the PSW in response clicks on "yes" or "no" buttons. But the delivery of nonclinical services occurs at scattered points of time during each shift, meaning that a PSW cannot deliver all of the intended care in a continuous set of actions. The first nonclinical care in the morning is helping with using the washroom, and the PSWs have to provide this care for every single resident before they can provide the next care such as serving breakfast. Assuming that there are three PSWs available to deliver care to a total of 32 residents, then for each resident the PSWs will be delivering care for 45 minutes. During this 45 minutes of nonclinical care, service delivery usually happens in discrete event points over the course of the eight hours in each shift.

The function of the PSWs in the evening shift is similar to what was explained above for the morning shift. The only difference is that during the morning shift there are two rounds of meals being served, therefore the morning PSWs are usually busier than the evening ones. The night shift PSWs are even less busy in that they have no meals or snacks to serve. They also have no bathing schedule. So all they do is to provide help with using washrooms and changing the incontinence pads. Sometimes if the residents get up early though, the PSWs on the night shift start with preparing them for breakfast. In doing so, they reduce the workload for the morning shift staff.

Appendix D: Medication Adverse Incident/Reaction Reporting, the Requirement of the Act vs. Internal policy of PEC Co.

The Act: Medication incidents and adverse drug reactions (Reference: Ontario Regulation 79/10, Obtaining and Keeping Drugs, Section 135)

135. (1) Every licensee of a long-term care home shall ensure that every medication incident involving a resident and every adverse drug reaction is,

(a) documented, together with a record of the immediate actions taken to assess and maintain the resident's health; and
(b) reported to the resident, the resident's substitute decision-maker, if any, the Director of Nursing and Personal Care, the Medical Director, the prescriber of the drug, the resident's attending physician or the registered nurse in the extended class attending the resident and the pharmacy service provider. O. Reg. 79/10, s. 135 (1).

(2) In addition to the requirement under clause (1) (a), the licensee shall ensure that,

(a) all medication incidents and adverse drug reactions are documented, reviewed and analyzed;
(b) corrective action is taken as necessary; and
(c) a written record is kept of everything required under clauses (a) and (b). O. Reg. 79/10, s. 135 (2).

(3) Every licensee shall ensure that,

(a) a quarterly review is undertaken of all medication incidents and adverse drug reactions that have occurred in the home since the time of the last review in order to reduce and prevent medication incidents and adverse drug reactions;
(b) any changes and improvements identified in the review are implemented; and
(c) a written record is kept of everything provided for in clauses (a) and (b). O. Reg. 79/10, s. 135 (3).

PEC Co. Medication Incident and Adverse Drug Reaction Policy (Reference Number: 9-1.1, Version: November 2013):

1. *The Medication Incident Form supplied by the contracted pharmacy is to be used.*
2. *Upon discovering or becoming knowledgeable about a medication incident Registered Staff will report the incident to the Supervisor or Director of Care /designate.*
3. *If a resident is involved with the medication incident (i.e., resident has been given an incorrect drug or dose of drug), the resident is to be assessed with vital signs being taken and the physician/RN(EC) informed. If there is any concern for the wellbeing of the resident the resident is to be transferred to hospital immediately for assessment.*
4. *If the resident is not transferred to the hospital, the resident's physician/RN(EC) or the designated on-call physician/RN(EC) is to be contacted and advised of the medication incident and the assessment of the resident status. The Registered Staff is to have the resident's medication profile readily available when reporting the incident to the physician/RN(EC). Any orders provided by the physician/RN(EC) are to be documented in the resident chart immediately and processed immediately as per policy.*
5. *Once the resident is assessed and stable, Registered Staff are to document using the Medication Incident Report form provided by the contracted pharmacy all known facts related to the medication incident and/or adverse drug reaction.*
6. *The factual details of the medication incident/adverse drug reactions are to be documented in the resident's progress notes in the clinical record. The Medication Incident Report is only for tracking and trending purposes. The progress note should include:*

   a. Factual account of what was given or not given – what was the incident
   b. Factual account of the adverse drug reaction- signs and symptoms

c. Factual account of what was done – resident assessment, who was called/notified, what actions were taken and by whom, outcome for the resident.

7. *Any other person involved in the incident is to document their version of the incident on the Medication Incident report and date and sign the document.*
8. *All documentation is to be forwarded to the Director of Care or designate for further investigation*
9. *The resident, if cognitively able, who is affected by the incident is to be informed of incident once discovered. If the resident is not cognitively able to understand the disclosure, the family or SDM for care will be informed of the incident, as well as the Medical Director, the prescriber of the drug the resident's attending physician/RN(EC) and the pharmacy provider. See Disclosure of Adverse Events for further direction on disclosure.*
10. *The DOC or designate is to review all documentation received and initiate an investigation into the incident.*
11. *If the medication incident is related to pharmacy process (dispensing, delivery, etc.) the pharmacy is to be contacted and the incident discussed with the pharmacy. The pharmacy is then responsible for investigating the incident and developing and implementing any required action plan.*
12. *If the medication incident is related to a staff member practice or home process, the incident is to be thoroughly investigated and reviewed with the goal of getting to the root cause of the error.*
13. *Suggested processes to use for this investigation include:*

    a. *Failure Mode Effect Analysis (FMEA)*

    b. Root Cause Analysis

    c. 5 Why's (ask Why 5 times to determine root cause)
14. *If required an action plan will be developed to address the outcome of the investigation. Action plans may include learning plans for Registered Staff, review of provincial regulatory standards, etc. Action plans are to include an evaluation component to minimize the risk of the incident occurring again. These will be discussed at the Professional Practice Meetings.*
15. *If required by local or provincial legislation/regulations, the incident will be reported to the required authorities by the Administrator, Director of Care or Designate.*
16. *A quarterly review will be conducted by the Professional Advisory Committee of all medication incidents and adverse drug reactions that have occurred in the Home since the time of the last review in order to reduce and prevent medication incidents and adverse drug reactions, identify trends and patterns. Changes and improvements that are identified in the review will be implemented and a written record will be kept by the Director of Care. A copy of the report will be sent to the Home's Quality Council. If required, the Committee may request an investigation as in # 10 and 11 above. Further the Committee may request the development and implementation of an action plan in response to trends*

Appendix E: Representative Data Underlying the Second-order Themes –Challenges of Execution

	Operational System Characteristics
First-order Categories	**Second-order Themes**
	Workload
- Overloaded; - Not having enough time; - Not being able to perform tasks completely	I can tell you why falls happen, falls happen because we can't do what Anna [Restorative Manager] and Ben [Physio Manager] tell us to do. Not that we don't want to work with the resident, we really do but we don't have time. I care so much for the residents, I think you know me now. But I want to be honest with you, at the end of the day when I chart when a question pops up asking whether Jack [a resident] received his comfort rounds, whether Brenda [a resident] received massage, or whether I worked out with Elsa [a resident] I will answer yes. But what's reality? You know the answer, you've shadowed me right? The problem is obvious, we're overloaded. I can focus only on key cares like clipping their nails, toileting, bathing, feeding. If Maya [ADOC] was here today, she couldn't tell whether I did the comfort rounds with Jack but she quickly could see if I clipped his nails or changed his pad. My guess is they [referring to managers] know that we can't do all these things, they'd been here before many of them started as PSWs previously... but because they need funding and they must be compliant they don't check these details as long as during charting we says yes we've done this or that. (Informal conversation with a PSW during an observation session, Mar/09/2015)
	Instability
- Following changing plans - Changing health - Keeping up with changes	I think the challenge is in making sure that the staff follows a care plan that's constantly changing. The health status of residents usually declines, but even if they get better their care plan always has to be updated. So for some staff it's hard to keep up with the changes. Especially, if the RPNs or PSWs work here part time they're not around enough so they don't know about the changes. (Informal conversations with ADOC during Fall Committee meeting, Oct/19/2014)
	Gray Areas
- Learning impact of positive affirmations. - Falling because of not knowing the positive affirmations	Elin [a resident] usually feels so restless when she is not resting in her bed. But her family now wants us to take her to the living room after lunch for a few hours so that she can socialize with other residents, and we think this is a good idea because that way she won't get bored... Gradually we started to learn that using positive affirmations, "like you look especially beautiful today or your husband will come to visit you this evening he has missed you", she will calm down. Yesterday when we were not here, the evening PSWs took her to the living room after diner and they left her without comforting her. She again started to become restless and she moved a lot until she finally fell on the ground. When I read the progress note I found out that the staff saw her being restless but they didn't use affirmations, this drives me crazy to see nobody attempted to comfort her with positive affirmations. (Informal conversations with an RPN during an observation session, Mar/10/2015)
	Discontinuity
- Falling because of discontinuity of the work - Changes in shift - Discontinued flow of information	Falls occur mostly because of the discontinuity of the work here. Anna [Restorative Manager] and I spend hours here in the morning to make plans for preventing falls. During morning shift we both are here and we can communicate our plans with the PSWs and nurses. But then we leave in the afternoon and come back the day after and we find somebody had a fall. We check to see what happened, we talk with PSWs, read the progress notes, and assess the resident and we find that the reason was the clutter in the room, and bad news is that we already knew something is making clutter in the room and we told everyone on the morning shift to take care of that, but then in the afternoon or night nobody knows anything about the clutter. (Shadowing Restorative Aide, Dec/17/2014)
	Leadership

- Lacking leadership -Lacking management skills -Struggling with managing people	We had turnover in the [DOC] position… So high, high risk, high, high stress and the first DOC we hired, amazing nurse. She came highly recommended. Very well known in the industry … the second one, again, extremely great nurse like really great nurse she had 32 years of nursing experience, but for managing a nursing department as large as this home she struggled because you have seven leaders who report to you that you are responsible for, as well as the frontline staff and the care that should be compliant. So again, management or leadership was not in their skill-set. (Interview with a senior manager, Aug/28/2014)
	Mindfulness
- Forgetting to remove clutter - Acting mindlessly - Not using one's brain	Now Anna [Restorative Manager] joined Jen [Restorative Aide] to go to Jasmine Home Area where they want to try a wheelchair board for a resident… As they were walking toward the resident's room Anna suddenly stopped and started to loudly call a PSW that was charting in the hallway. When the PSW came Anna furiously said I need to show you something and took her to the resident room and told her this mat [referring to fall mat on the ground] is to prevent the resident from falling not to cause him to fall; we put the mat here because in case the resident falls off his bed he won't end up on the ground so the purpose of this mat is minimizing injury if a fall happens. But when the resident is up and walking during the day the presence of this mat here means clutter which actually can be a simple cause of falling. When Anna finished, the PSW... started mumbling: I just started working here last week, I didn't know the fall mats can be dangerous and should be removed during the day… When we continued walking Anna said they act mindlessly, they don't use their brains. (Shadowing Restorative Aide, Dec/17/2014)
	Behavioural Characteristics
First-order Categories	**Second-order Themes**
	System of Beliefs
- Preventable -Falls can be reduced - Falls' impact can be reduced -Residents getting better and better -Observable improvements -Having hope -Positive results	When I took over the fall program I didn't know that our actions could be so effective. I started to read a lot of articles about preventing falls, increasing mobility, removing clutter, best practices and I found out that everybody says falls can be reduced or at least their impact can be substantially reduced. When I put into practice those recommendations I saw with my own eyes that the residents get better and better every day. Their improvements are observable. This gave me more hope for working harder, and I love seeing the results are most of the time quite positive. (Shadowing Restorative manager, Mar/30/2015)
	Emotions
- Employees are human - Employees have emotions - Taking better care of the favourite residents - Preventing falls by emotions -Preventing medicine errors by emotions - Having preferences	I think the managers here are overly obsessed with compliance. They can't understand the staff are not machines, they're human beings and they have emotions and feelings... We shouldn't ignore the depth of relationship that caregivers have with the residents… Have you ever noticed that some staff members take better care of some specific residents? … Generally, this happens a lot in all care organizations, I've seen this in hospitals before that the nurses get closer to some patients and they become more affectionate toward them, and because of this feeling and bond they provide better services for them compared to other patients… We see this happening here quite frequently and I would say majority of falls, pressure ulcers, medication errors could be avoided if the caregivers had a deep emotional relationship with every single resident, but of course they don't have that with everyone. I'm not judging them; if I were in their place most probably I would have done similarly, this is human nature we're talking about… They have preferences and they do better when they provide care for their preferred residents (Shadowing RN, Apr/11/2015)

	Peer-Influence
- Lucky to have hard-working PSW - Others following the hard-working PSW - Feeling obligation to work diligently - Competing in doing less work	It depends on who you've got in your team. If you're lucky enough to have one hard working PSW then your home area should be fine because then all other PSWs follow the hard working PSW. Like in Rose Home Area, Vanessa [the RPN] has Molly [a PSW] what is the most diligent girl in this home. I was talking with Vanessa and she told me that whoever works with Molly feels the obligation to do her best... In my team though Eva and Katrina [both PSWs] are arguing all the time and they compete with each other in doing less work. (Shadowing an RPN, Mar/09/2015)
	Perceived Risk
- Having different risk attitudes - Noncompliance as the result of risk attitude - Not having fear of getting fired - Being comfortable with noncompliance - Being apologetic about error - Jeopardizing job by noncompliance	The staff members have different attitudes towards risk. We have noticed that our staff in one of our homes are all white Caucasian people and unfortunately that home has the most noncompliance citations. We started to wonder why this happens and we realized that these individuals have a very different attitude towards the risk of our disciplinary action than our South Asian, South American, or Indian staff. The white people don't have the fear of getting fired, they're more comfortable with noncompliance and it is more difficult for their managers to make them work compliantly. In this home though most of the staff members are immigrants and they're much better. When they make an error it is often not purposely, and when we find out about their errors they are really apologetic and try their best to avoid repeating them. We started talking with them and we realized they're immigrants and they need a stable source of income to take care of their families, so they don't jeopardize their job with noncompliance. Also we think people from developing countries are often under pressure from the authorities to comply, and this might be another reason for their compliance. (Formal meeting with senior managers, Jun/26/2014)

Appendix F: Representative Data Underlying the Second-order Themes –Counteractions in Execution

	Completeness-Restorative Counteractions
First-order Categories	**Second-order Themes**
	Amendment
-Finding changes in the binders -Explaining the changes - Browsing the newest plan -Asking others	Now Alice [PSW] is talking with the new PSW and tells her to take a look at the latest version of Tommy's [a resident] care plan: he had been readmitted from the hospital [after a fall] yesterday, so honestly I don't know all the details of the changes, you gotta check it yourself… I suspect that after his fall, Tommy now should wear hip protectors, but I'm not sure. After her conversation she explained: this girl is part time and she had been here a few times before. I tried to explain to her about the changes that have happened lately. Also I told her to browse the residents' care plan binder in the meeting room if she's not sure about something or ask the rest of us (Shadowing a PSW, Apr/02/2015)
- Requiring more training	There is evidence that … putting intentional comfort rounds in place … can reduce the number of falls. We have not seen [over last month] a drop in the number of falls [so] we need more staff education. (Fall Committee meeting minutes, Sep 2014)
	Curtailment
- Standardized sealed med bags - Preventing error by picture - Right med to right the resident -Preventing error by wristband bearing names	For each resident, all the medications are inside small sealed plastic bags that bear the name of the resident with instructions on administering the medicine. The nurse picks these sealed bags up from the pharmacy and places them inside a plastic purple box. There is a picture of the resident on the top of each box to help the RPN to identify the resident correctly and administer the right medicine to the right resident. In addition, each of residents has a plastic wristband that shows his or her name. These mechanisms are used to ensure that when a new RPN starts working he/she will not give wrong medication to the residents. (Shadowing RPN, Oct/06/2014)
-Locking automatically -Doing task correctly -Focusing on task	The medicine cart is locked automatically after one minute. According to the regulations, the cart should be locked all the time but because during medicine administration we are so into doing the task to make sure that this is right medicine and that we are giving it to the right person, we sometimes miss locking it. This is very helpful that it is get locked by itself because I'm not concerned with that and I can focus on medicine administration (Shadowing RPN, Oct/06/2014)
	Compliance-Stimulant Mechanisms
First-order Categories	**Second-order Themes**
	Alignment
-Cultural differences -Independent nurses -Trusting nurses -More compliant	In other places that I work [XYZ nursing home] the RPNs are very independent. In general there is a different culture over there, the management trusts and appreciates the staff and I think in return this makes staff do slightly better in terms of compliance. (shadowing an RN, Apr/11/2015)

-Logical explanation of requirement reasons -Sense of ownership and belonging -Sense of getting involved	Ben [Physio Manager] once explained to us why the comfort rounds are important. Since then I always do the comfort rounds… when something reasonable is shared with me, when the logic is discussed with me, I do my best to do exactly as I was told, because this gives me the feeling that I am contributing to this big purpose of serving the residents (shadowing a PSW, Apr/15/2015)
	Enforcement
- Pulling an audit -Auditing the task accomplishment	We as management are able to pull an audit report to say yes, the medication was given at 9 o'clock …and the signature of the nurse is there (Interview with ADOC, Sep/04/2014)
-Monitoring care delivery based on care plan	Observe resident care on a home area – observe transfers; compare what is done with a resident with what is documented in the plan of care. (Archival data on audit quality of fall program: Fall Prevention Quality Protocol)

Appendix G: Representative Data Underlying the Second-order Themes –Planning Challenges

	Planning Challenges
First-order Categories	**Second-order Themes**
	Cognitive Barriers
- Taking inadequate actions -Being behind targets - Implementing imperfect solutions -lacking knowledge and understanding	Nothing is ever enough; the more we do the more we are behind our targets. When I reflect on this I see we might never get there, that someday we can keep everybody happy. Every day in leadership meetings we evaluate the situations, talking about various solutions for behaviour of John [a resident] or the frequent falls of Marjorie [a resident], but at the end day when we are done with implementing the solutions that we came up with, the result is never perfect. But this is all that we can think of: this is the best that we can offer and ultimately the Ministry will hold us responsible for the falls, as well as the administrator and DOC questioning my abilities in managing falls. The unfair part is that falls are a quality issue. That would be fair if we could do something about it, but we were negligent and we didn't do anything about. It is not fair to us because we were not negligent, we do everything that we can, as much as our knowledge and understanding allows us to do. (Shadowing RN, Mar/30/2015)
-Not being able to control fall parameters -Lacking knowledge on falls -Unknown factors -Failure in taking right actions	Seniors' falls are a tricky topic. A resident might have comorbidities, or his medicine might have been changed recently, or his dementia may have started to progress faster. Many parameters might increase the risk of falling for older adults, and the Ministry too knows that homes often cannot control every parameter; they cannot know all the reasons why falls occur, so realistically they cannot control all falls. They can however mostly mitigate the impact of falls. But the number of falls is one of the criteria for quality of nursing homes. Despite all the measures a home takes to manage falls, many factors contributing to falls remain unknown to managers. The Ministry also fails to take into consideration that no matter which course of action a home may take, they may not actually be addressing the right cause of falls. (Informal conversation with a Consultant, Nurse Practitioner, Oct/31/2014)
	Insufficient Resources
-Having limited resources -Overloading the planner -Being occupied with other responsibilities -Not affording more planners	Our resources are so limited that I had to hire an RN [Anna] as the Restorative Manager, who acts as the onsite RN at the home, takes care of internal audits, manages the wounds of residents throughout the home, and trains the new staff minimally once weekly, in addition to completing myriad other tasks. Now imagine with this busy schedule how Anna is supposed to plan for fall prevention. And remember the only help that she has is from Jen [the Restorative Aide] and Ben [Physio Manager]. We are supporting her in Fall Committee, but she is fully occupied with too many other responsibilities... She is not the only one who is fully occupied; everybody is fully occupied to his or her maximum capacity because we cannot afford to hire more people. I would love to hire a few RNs to help her in crafting a more effective fall prevention program, but we are running a business here; it is not a charity, the owners want to make money and the Ministry's funding is not enough even for charitable homes. (Shadowing Administrator, Nov/18/2014)
-Lacking time, money, or skilled people -Lacking network of nurses and workers -Lacking established history	We started our work in January and this period has been too intense. We haven't had time, money, or skilled people to develop a built-in quality improvement program. I mean it's not that we really don't have the modules of the program, we do, but we couldn't build the culture yet, the foundation, to make them [the managers and staff] realize and be conscious that their choices impact another human's life, because it does... In the homes in which I worked before starting at this one, sometimes they were in business for decades and already had everything established, they had a great network of nurses and workers, they had built culture, and they were successful. Here we started everything from scratch. I'm not saying the older homes are not struggling or that a new home is a bad thing. A new

-Lacking enough resources	home has its own advantages; of course residents like living in a new home and families give priority to newer facilities... But managing a new home also means that we still don't have enough resources to invest in creating a culture of excellence. (Interview with DOC, Sep/04/2014)
	Complexity of Senior Care Services
-Highly complex care decisions -Having large number of decision makers	Today things are different; the complexities of care decisions are considerably higher for seniors. People live longer lives but they are not healthier. Many of them suffer from multiple comorbidities… As the care is more complex now, a larger number of people are involved in making decisions on care… (Excerpts from shadowing Physio Manager, Dec/15/2014)
-Offering wide range of services -Making messy care decisions -Having large number of individual planners -Making extra efforts for coordination	Nursing homes offer a wide range of services to the residents, which is why the care decisions are messier here. The issue is with the wide variety of residents' needs. We deal with all aspects of the residents' wellbeing, and addressing their medical needs is only a tiny part of the care that we offer. So our services are multi-dimensional. We should simultaneously take care of the emotional and mental health of the resident, ensure their comfort in their home, take care of their nutrition, slow down their deterioration, and help them with their daily life, all at the same time… This means we have a large number of individuals contributing to plan and deliver the care for each resident… It also means that we need to take a lot of extra effort to coordinate and integrate the works of these individuals to adhere to our quality promises. (Shadowing an RN, Mar/14/2015)

Appendix H: Representative Data Underlying the Second-order Themes – Planning Counteractions

	Planning Counteractions
First-order Categories	**Second-order Themes**
	Tackling Cognitive Barriers
-Sharing knowledge with others -Walking others through what learned -Learning -Sharing what we learn	Sabrina and I split our times between three homes. We're here two or three days a week, and once a week or maybe twice we go to others homes… So this is really good for all three homes because we bring our experience to each of homes and we help the managers in managing their homes… we have a wide range of nursing experience and we know the regulations. So if for example they decide on using certain restraints [to reduce falls] for a resident we can tell them if their choice is compliant with the Act or whether they should think of another solution. Or if they decide on starting a new program we get involved and make sure everything is compliant so we can help them to come up with good ideas. (Interview with DOC, Sep/04/2014)
	Offsetting Resource Insufficiency
-Supporting decision makers -Supporting by purchasing physio -Support from an expert -Support to keep program up and running	In my position I've always tried to support my managers and staff. I understand Anna [Restorative Manager] is not an expert in managing falls, but we're supporting her by purchasing physio services from PHY Co. [Physiotherapy service provider organization]... Ben [Physio Manager, supplier] is not here every day, but he is an expert in the area of falls. His Ph.D.in Physical Therapy was in the area of seniors' falls. So he helps Anna to keep the fall program up and running. (Excerpts from shadowing Administrator)
	Coordinating Function of Players
-Knowing about what others do -Exchanging info with other managers -Knowing decisions of others -Incredible in coordinating decisions -Collective decision in virtual way	I saw PCC [electronic health record system of company] for the first time in Canada... We didn't have of this system in XYZ country. We had to do everything on paper and that was a terrible system. Nobody knew what the others are doing, we were told that we should exchange information with other managers, but even our bosses had issue with this. Because you forget things, you can't remember everything. We all had pens and paper in our pockets, but when we were not around the next shift people didn't know what happened, who did what, and what they should do without harming the patients. Then I started working as a nurse in Canada and I saw this system … PCC is an incredible tool in terms of coordinating our decisions. Every single one of us has some input to the system, and the system allows us to decide about important matters collectively… in a virtual way. (Observation, informal conversation with RN, Nov/07/2014)

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Tehran, Iran
2000-2005 B.Sc.

Honours and Awards:

Plan for Excellence Doctoral Fellowship, 2010-2014.
Richard Ivey Tuition Waiver Grant, 2010-2014.

Related Work Experience

Adjunct Professor
King's University College
2015-2016

Project Manager, Pharmadule AB,
Stockholm, Sweden. April-September 2008.

Marketing specialist, Tondbaad LTD,
Tehran, Iran. 2005-2006.

Conferences & Presentations

Memar Zadeh, M. "Operating as Intended: A Case Study of Long-Term Care", Annual Meeting of Production and Operation Managements Society (POMS), Orlando, U.S., May 2016.

Memar Zadeh, M. "Advancing Theorization and Understanding in Managing Operational Integrity", Annual Meeting of Decision Science Institute (DSI), Tampa, U.S. November 2014.

Memar Zadeh, M. “Operational System Integrity”, Annual Meeting of Decision Science Institute (DSI), Baltimore, U.S. November 2013.

Memar Zadeh, M. “Opening the Black Box of Dynamic Capabilities: An Operations Management Perspective”, Annual conference of European Operations Management Association (EUROMA), Amsterdam, Netherlands, July 2012.

Memar Zadeh, M. & Klassen, R.D “The Pursuit of ISO 14000 Impacts on Manufacturing Capabilities and Environmental Outcomes”, Annual Meeting of Production and Operation Managements Society (POMS), Reno, U.S., May 2011.