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PROCESS MONITORING: ANALYSIS OF MANUAL TASKS PERFORMED IN DIGITALIZED WORKFLOWS AND THEIR EFFECT ON SERVICE QUALITY AND EMPLOYEE PERFORMANCE

A Case Company study

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LIST OF ABBREVIATIONS

BPA- Business Process Automation

BPM- Business Process Management

BRM- Benefits Realisation Management

IT- Information Technology

NE-North Europe

SEAF- South Europe and Africa

MEA- Middle East Asia

AMER- America

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ABSTRACT

Digitalization is transforming the way companies are functioning and is being considered as an opportunity not only to grow internationally but also to sustain the tough competition by providing better service quality and creating value to customers. Through workflow digitalization easy and mundane tasks are being performed by automation, so that employees can focus on important and innovative tasks which machines are unable to perform. To improve efficiency of digitalized workflows, continuous monitoring and improvement of processes is crucial.

This research aims to analyse the effect of manually applied holds in digitalized workflows on service quality and employee performance through process monitoring. With the help of a case company's logistics organizations recently implemented digitalization project, this study attempts to reflect on how process monitoring can be used as a tool to analyse functioning of a process and study the effects of tasks performed on service quality and employee performance.

Keywords: Service Quality, Employee Performance, Digitalization, Workflow Automation, Change Management, Benefit Realisation Management and Process Monitoring.

1. INTRODUCTION

This section presents the background, delimitations, and structure of this study. Additionally, this section consists of the research question, along-with objectives that are formed keeping in view the research question and purpose of this study.

1.1. Background of the study

Fourth Industrial Revolution also called as Industry 4.0, has transformed human lives be it personal or professional, to the extent that now digital capabilities are an integral part of every human being's life (Schwab 2018). With the help of advanced digital technologies companies across different kind of industries are not only changing their mind-set towards business processes and activities, but are also aiming to adopt agility, flexibility and speed, to be able to take up new business opportunities and keep up with a fast-changing global business environment (Parida 2018). To stay productive and profitable as well as to reduce costs, enhance productivity and improve service quality, companies are looking to initiate digitalization of their processes and workflows in every business area with the help of technology (Parida 2018:23).

The buzzwords like digitization, digitalization and digital transformation are being used by organizations interchangeably, however, their actual meanings are totally different, states Bloomberg (2018). Further, explaining the differences Bloomberg mentions that digitization refers to analog information conversion into digital, which can be then stored and/or transmitted through computer, whereas, digitalization means improving business, transforming processes and generating revenue using digital technologies including data which is digitized. Digital transformation means creation of new business models and business applications to support the integration of digitized data and digitalized applications (Bloomberg 2018.)

Digital transformation through digitalization and digitization is rapidly gaining importance across all industries, as it is helping organizations to create value, improve service quality, enhance employee performance and gain competitive advantage (Caylor, Naik & Noterdaeme, 2016). Academic research shows that among other business functions, logistics which is information-intensive, data driven, and one of the most crucial element of corporate strategy to create cost savings as well as bring value for customers through good service quality, is not untouched by this digitalization wave.

For example, Borgi, Zoghlami & Abed (2017), have researched on digitalization in transport and logistics industry by analysing the use of digitalization and digital technologies in maintaining huge volumes of data as well as information related to goods and customers that are being created when countless deliveries of different content, weight, size are being shipped to locations all around the world every day. According to Wu, Yeniyurt, Kim, & Cavusgil (2006), digital capabilities and their use for data and information flow management are the key to transforming the logistics business for better customer commitment and facing the industry's challenges. Additionally they mention that, enhanced co-ordination and communication within firms and among partner firms for superior logistics performance and effective decision-making can be achieved through application of information technology in both intra-and interorganizational processes. To serve end customers demand and ever-changing desires, supply chain and logistics managers rely on innovations in supply chain management processes (Flint, Larsson & Gammelgaard, 2008).

Another study done by Lai, Wong & Cheng (2008), shows how digital technologies have become a core part of the transport and logistics organizations, to manage the huge and complex flow of data as well as information within and outside the organization, and to compete in the advanced technological world. They mention that logistics management comprises of inter- and intra-organizational processes, wherein coordination and management of the critical flows of information,

products, services, and finances takes place, as logistics management includes not only various organizational functions within a firm, but also comprises of relationship to external partner firms in a logistics chain.

The case company studied in this research, is a multinational Finnish manufacturing company and is currently undergoing digital transformation. As part of this digital transformation, a digitalization project was implemented in 2017 in the distribution and invoicing unit of the case company which is responsible for spare parts distribution. Digitalized handling of shipments, reduced handling time, team-based workflows, enhanced employee performance and improved service delivery were the major benefits that the case company aimed for through digitalization of their distribution and invoicing processes and workflows.

However, due to low percentage of workflow automation a project to monitor the processes that were affecting the workflow automation percentage was initiated by the case company's logistics organization during the last six months. Since this study is part of the international business field, technical and system related processes affecting the automation percentage were excluded, and the process which had human involvement was chosen for this research. Given the interconnectivity of tasks as well as workflow in the logistics organization of the case company, process monitoring of deliveries in the digitalized workflows which did not go through automation as a result of manually added blocks/holds, sometimes even in easy and simple cases was chosen as the topic of research for this study.

1.2. Purpose of the study

The purpose of this study is to reflect on how process monitoring in digitalized environment can be used as a technique to analyse effects of tasks performed, (in this study manual holds used in digitalized workflows), on service quality and

employee performance. From this study's point of view, process monitoring is done by, firstly understanding the digitalized processes, secondly gaining knowledge on employees' role in the process and understanding of processes as well as digitalized workflows, and finally gaining information on effects of tasks performed on service quality and employee performance.

With the help of the case company's example of low automation percentage of digitalized workflows, this study aims to understand the tasks performed and processes followed by employees (termed as coordinators further in the study). Additionally, the purpose of this study is to examine how processes related to holds are understood and followed by the respective coordinators, and to analyse what effects manually applied holds in digitalized workflows can have on service quality and employee performance.

1.3. Research Gap

Nowadays, most organisations are aiming for digital transformation wherein the focus is on transformation in production, leading to invention of terms such as "Factory of the Future" or "Smart Factory". From logistics point of view, as stated by Kayikci 2018, "It is impossible to realize a smart factory unless the relevant logistics processes are also "smart"." It has been observed that numerous academic research are done on digitalization and supply chain management processes. As mentioned in the introduction section of this study, research by Lai et al. (2008), focuses on enhancing coordination and communication within firms and among partner firms, whereas Borgi, et al. (2017), explain about management of huge volumes of data and use of digitization and new information techniques.

Nevertheless, as stated by Coreynen, Matthyssens & Bockhaven (2016:42-43), "not enough is known at this point about how organizations and manufacturers can effectively leverage digital means to increase their services". Additionally, not many

studies were found that studied specifically importance of process monitoring in digitalised environment by analysing the effect of processes and tasks performed on service quality as well as employee performance.

During a discussion with senior manager in the case company's logistics organization regarding the company's recently digitalized workflows, a need to analyse the reasons of low automation percentage of workflows was comprehended. This need formed the starting point of this research. However, unavailability of sufficient literature related to process monitoring of digitalized workflows and their effects on service quality and employee performance was considered as a research gap. Hence, this study attempts to fill this research gap by adding value to the existing studies on digitalization in logistics organizations by focusing on process monitoring in digitalized environment.

1.4. Research Question

Considering digitalization and its increasing awareness as well as use in all sectors of various industries, this study aims to enhance the digitalization research by analysing the importance of process monitoring in digitalized environment. Given the main purpose of this study in section 1.2. and above defined research gap, the following research question was developed to reflect on the importance of process monitoring in digitalized environment.

1. How process monitoring of digitalized workflows can help to improve efficiency of tasks performed and enhance service quality as well as employee performance?

Achieving the below objectives would support in gaining an answer to the above research question.

- To examine training provided to coordinators related to manual holds.

- To analyse the manual hold process knowledge of coordinators who use holds that stop automation of the workflow.

- To analyse the communication as well as monitoring process related to manual holds after digitalization implementation.

- To analyse the challenges faced by coordinators regarding the manual hold process and feedback on improvement in the process.

Based on the explanation of the key concepts, a heuristic framework is developed in the summary section, and a relationship between the key concepts is developed to highlight their relevance to this study. Data collected along with research findings leads to gaining an answer to the research question and further supports in forming an integrative framework and its explanation.

1.5. Delimitation of the study

Various aspects of an organization are affected due to digitalization. For example, organizational strategy and culture, business models, products and services. However, this study focuses only on the case company's logistics digitalization project and on one of the processes that forms a part of the digitalization project.

Logistics comprises of various stakeholders/parties/departments within and outside the organization and processes, systems and way of working may differ from organization to organization. However, the focus of this study is digitalization of distribution and invoicing unit in the case company's global logistics organization, processes as well as the units that are involved in the functioning of

the digitalized workflows. Additionally, even though the logistics department's digitalization project was part of the organization's digitalisation drive, the case company's product related digitalization did not form a part of this study since it is a completely different area to explore and study.

1.6. Key Concepts of the study and their relevance to the study

Below table provides a description of the key concepts as well as explains how they are analysed or referred in this study. Relevance of key concepts provides the reader with a simplified overview of what the study focuses on and how it has been developed.

Table 1. Key concepts of the study and their relevance.

Key Concepts	Description	Relevance to this study
Service Quality	From logistics perspective, service quality comprises of factors specifically, information quality, order handling quality and on time delivery of products (Thai 2013).	To analyse the effects of incorrect or unnecessary manual holds on service quality.
Employee Performance	Activities related to the job performed by employees, and how these are performed.	Employee performance is analysed in this study from the digitalization point of view. In other words, analysis of whether digitalization objectives related to employee performance are achieved after digitalization implementation.
Digitalization	To stay productive and profitable as well as to reduce costs, increase productivity and improve service quality, companies are looking to initiate digitalization of their processes and workflows in every business area with the help of technology (Parida 2018).	To relate to case company's digitalization project and to understand the concept of workflow automation.

Table 1 continued. Key concepts of the study and their relevance.

Benefit Realisation Management	Success of a project could be evaluated based on whether benefits delivered are in line with the business as well as project objectives, and whether these benefits create value (Serra & Kunc 2015).	Highlighting the benefits that case company gains from process monitoring of manually applied hold cases.
Change Management in digitalized environment	Increased use of digital technologies which changes an organization's business process architecture to improve both the performance and the scope of the business (Rachinger, Rauter, Müller, Vorraber & Schirgi, 2018).	To reflect on importance of categories of this study in managing change in digitalized environment.
Process monitoring	Process monitoring enables an organization to evaluate process performance and identify significant process problems by using data, thus helping organizations to make decisions in the right direction that will improve the speed, quality and efficiency of business processes (Denner, Püschel and Röglinger (2017).	Through process monitoring this study aims to analyse the process related to manually added holds in digitalized workflows in the case company. Additionally, this study attempts to present the possibilities of process improvement.

1.7. Structure of the study

This study consists of six chapters. The first chapter includes introduction of the topic along-with purpose of the study, delimitations of the study, description of

key concepts along-with their relevance to the study, and finally the structure of the study.

The second chapter consists of the literature review explaining the key concepts of this study as well as the role of service quality and employee performance in digitalization drives of companies across industries. It begins by explaining the concept of digitalization with emphasis on the differences between digitalization, digitization and digital transformation, with an aim to clarify the focus of this study which is digitalization and workflow automation. Further, workflow automation is described, as well as difference between business process automation and workflow automation is provided.

This is followed by explanation of digitalization from the change perspective analyses the complex change model which is later revised using the research categories of this study. Further, this chapter highlights the concept of benefit realisation management, followed by explanation of importance of process monitoring. Based on these explanations a theoretical framework is formed in this chapter with the concepts namely service quality, employee performance, digitalisation/workflow automation, change management in digitalized environment, business realisation management and process monitoring.

Chapter three describes the research methods and strategies used to carry out this study. This section aims to provide explanation about the data collection and its analysis, thus attempting to establish the validity and reliability of the study.

The fourth chapter presents the study findings. Analysis of the data collected through observation, unstructured and semi-structured interviews is presented in this chapter.

Chapter five aims to provide an answer to the research question, in the form of discussion. This section comprises of the revised complex change model and an integrative framework which is formed based on the findings of this study.

Chapter six concludes this study by presenting the managerial implications of this study, the main contributions of this study to the field of international business. the limitations of this study as well as suggestions for future research.

2. LITERATURE REVIEW

2.1. Service Quality and Employee Performance

A new era of technology has been reshaping the everyday business life in the 21st century not only by advancing the outdated processes, but also helping with the development of entirely new business sectors. Digitalization and digital capabilities are being exploited by companies to enhance process efficiency, improve employee performance and most importantly improve service quality (Bloomberg 2018.)

Parasuraman, Berry & Zeithaml (1988), describe service quality as the comparison of a customer's perceived expectation of a service with perceived performance, and service quality is evaluated by service business operators for various reasons such as, quick identification of problems, improvement in their service and assessment of client satisfaction. Additionally, Parasuraman et al. (1988), state that goods quality can be measured objectively with the help of factors such as defects and durability, but service quality is an abstract and vague construct.

However, for logistics management which comprises of procurement, storage, transportation and delivery of goods, Mentzer, Flint & Hult (2001), in their study have identified numerous factors that are detailed and relevant components of logistic service quality. Some factors are order placing procedures, order accuracy and quality, order discrepancy handling, on time delivery and customer service quality related to quality of information provided to the customers (Mentzer et al. 2001). According to Ghobadian, Speller and Jones (1994), many services as well as manufacturing organisations consider high quality of service as a vital factor of the long-term profitability and manufacturing industries believe that superior service quality could bring in more customer orders than product quality, thus leading to improved profitability.

2.1.1. Service quality and digitalization

According to the Lindgardt, Reeves, Stalk & Deimler 2009, companies that digitize their offerings and operations and integrate digitalization into their business models by offering more streamlined end-to-end services together with the suppliers, are not only able to meet their customer demands, but are also acquiring bigger pieces of market share dissimilar from traditional logistics organizations. They further define digitalization of logistics as the use of information technology (IT) and/or various digital technologies to enhance performance and service quality of the logistics activities. Improving efficiency and, minimizing errors to the minimum, cutting down information and processing lead-time, are some of the benefits that logistics operations aims for from the use of technology (Saura & Molina 2011).

As mentioned by Lai et.al. 2008, logistics management comprises of management and co-ordination of intra and inter organizational processes, information, products, services and finances, leading to generation huge and complex data. Hence, management of this complex data along-with delivery of products to the right place at the right time in a cost-effective manner, and creation of value through customer satisfaction, can be achieved by leveraging on information technology (IT) potential. Further, from the service quality point of view, Saura, David, Servera , Berenguer & Blasco 2008, in their study conclude that companies should invest in information and communication technologies as these facilitate improved information flow management both internally and throughout the supply chain. Improved information flow management is a key factor in enhancing the logistics service quality, thus having a positive influence on customer satisfaction and their loyalty towards the companies.

Above studies show that enhancing service quality by leveraging the potentials of information technology, in other words digitalization of logistics activities is gaining importance across organizations. Moreover, other than service quality,

another significant benefit of digitalization is elimination of time-consuming and repetitive tasks which would enable employees to focus on more important and complex tasks.

2.1.2. Employee Performance and Digitalization

Digitalization is gaining worldwide attention and importance across industries for reasons such as, optimization and automation of processes/workflows, meet customers' demands, gain competitive advantage and manage huge data consisting of processes and information. Additionally, digitalization enables automation of tasks that require repetitive manual input, thus ensuring accuracy and eliminating the possibility of human error (Matt 2017).

However, as mentioned by Lai et al. 2008, logistics management with intra- and inter- organizational processes could be a complex operation comprising of tasks such as order handling, packaging, materials handling, inventory, transportation, warehousing among others. These tasks could spread across various intra and inter organisations, thus making the processes as well the workflow inter-dependent and inter-connected.

The case company referred to in this study is a Finnish multinational manufacturing company. Global logistics organization of the case company provides services to customers located across the globe, by supplying spare parts and relevant documentation including invoices, at the right place, at the requested time and in a cost-effective manner. Service quality in case company's logistics organization is measured in terms of on time delivery of spare parts as well as relevant documents. A digitalization project was carried out in 2017 in the global logistics organizations distribution and invoicing unit, with the objective of improving order handling quality (related to documentation and transportation) and enhancing the on-time delivery service.

Improving order handling quality included, automating repetitive and mundane tasks so that coordinators could focus on complex and time-consuming tasks related to delivery of parts to a special country or customer, wherein various checks are required to be performed and numerous legal documents are to be prepared.

2.2. Digitalization

Digitalization is defined by Parida 2018, “as a fundamental disruptive force triggered by Fourth Industrial Revolution and Internet of Things, which has changed the way we approach and think about business processes and activities”. He mentions that this digital age is forcing invention and formation of new business models/processes and bringing about a change in the relationships between organizations (i.e. companies and governmental agencies) and customers. Parida, further states that, in today’s business world digitalization has become the most discussed topic, as it has led to development of new and highly reliable functions, products, services, better product efficiency, development opportunities, and a competitive advantage by enabling companies to provide high value products and services to their customers (Parida 2018.)

2.2.1. Difference between digitization, digitalization and digital transformation

Based on a Forbes article by Bloomberg (2018), digitization is conversion of physical objects such as paper documents, images, pictures, sounds into digital form by encoding information into zeroes and ones so that computers can store these objects and sounds. He also gives an example to explain the concept wherein, converting handwritten or typewritten text into digital form such as pdf and further using these digitized objects, documents, photos as part of the business process is termed as digitization of processes. Thus, by digitization of information (from an analog to a digital format), existing manual and paper-based processes are

digitized/automated. In other terms, digitization could be considered as the starting point of digitalization and digital transformation (Bloomberg 2018.)

Digitalization, means exploiting digital technologies and using digitized data to enable, improve and/or transform business operations and/or processes or activities, along-with a specific business goal in mind. This means working in a more digital way by aiming towards paperless environment along-with use of digital tools, devices, technologies, communication platforms (Bloomberg 2018). He further mentions that digitization and digitalization together lead to digital transformation, wherein technology is the basis for digitization and digitalization, whereas customer is the trigger for digital transformation

To summarise, even though the two conceptual terms, digitalization and digitization are closely associated and often used interchangeably in a broad range of literature, nevertheless, digitization refers to converting and encoding analog information in the computer language (of zeroes and ones) to store, process, and transmit information, whereas digitalization is termed as a source to provide revenue and value-producing opportunities by changes in business processes with the help of digital technologies. Digital transformation affects the entire organization making it an organisation-wide phenomenon, whereas several digitalization projects could be a part of a digital transformation strategy of an organization.

Following figure by Irniger (2017), provides a simple and clear explanation of difference between digitization, digitalization and digital transformation.

Figure 1. Digitization, Digitalization and Digital Transformation

Various activities/processes can be now performed by computers which are connected and can communicate with one another, thus eliminating any kind of human involvement, and this can be done by integration of the physical and the virtual world with digital technologies in industrial manufacturing and logistics processes. This is considered as one of the essential characteristics of the so called fourth industrial revolution or Industry 4.0 (Marr 2018).

On similar grounds, the main aim of the case company's logistics workflow digitalization was to use digitalization and intelligent process automation, effectively to manage not only the existing mundane and time-consuming tasks, but to facilitate all users involved in a workflow process to have easy access to the required information, thus simplifying collaboration, internal communication leading to enhanced quality of output. Hence effective material flow along-with efficient coordination of information flow was achieved through workflow digitalization, thus leading to enhanced service quality and improved employee performance. (Case company digitalization presentation 2017).

Various studies reveal the crucial role of automation in digitalization, wherein humans are being replaced by robots and business processes are being transformed with the help of digital technologies. Johnson (2018), while differentiating

industrial automation from business process automation, explains that automating activities where physical human labour is involved is the main aim of industrial automation, whereas business process automation focuses on automating processes and workflows (for example, document approval process, document creation process, etc.

From the case company's logistics organizations digitalization project presentation materials, it was observed that processes and workflows are not only essential for organizations to run efficiently, but they also have an important role in digitalization. Moreover, management of business processes are a tool to enhance corporate performance, thus making processes crucial assets of an organization. (Case company digitalization project 2017). The importance of business process, workflow and their automation, indicated in the case company's digitalization project leads to understanding the concepts of business process automation and workflow automation.

2.2.2. Business process automation (BPA)

The concepts, process and workflow, along-with process automation and workflow automation could be considered by many individuals or organizations as alike. However, various studies on automation show that they have different meaning and role. Denner, Püschel and Röglinger (2017), refer to business process as production of output with a goal to yield value to the consumers, accomplished with one or more inputs, along-with a combination of tasks that are linked to each other. Automation of these business processes (complete or partial), wherein tasks flow from one user to another based on pre-defined procedures and rules is termed as workflow by Barga & Gannon (2007).

Business process automation (BPA), is a technology-enabled automation strategy that organizations use to simplify complex business processes. BPA consists of integration of technical applications, with business processes, thus leading to

restructuring of labour resources. The main benefits of business process automation are, improving service quality, enhancing employee performance efficiency by repetitive and easy processes, containing costs and achieving digital transformation. Further, these enhanced and automated processes assist in delivering value-added products and services to end customers (Matt 2017.)

As stated by Matt, implementing more automated processes within a business eliminates of the time-consuming and mundane tasks thus facilitating employees to focus their efforts and time on more important undertakings. He further adds that; data reliability can be achieved since automating tasks would eliminate the possibility of human error. Additionally, business process automation can be implemented by companies in several areas, workflow automation being one of these areas. Through technology, flow of data in business processes is analysed, to replace manual work with rule-based logic.

A workflow can have human and system tasks together that are completed in a chronological manner. Hence, a business process during which information, documents, or tasks are passed from one participant to another according to a set rules can be automated completely or in part depending upon logic of the process and human intervention requirement. This kind of workflow automation was carried out in the case company's logistics service's digitalization project in 2017.

2.2.3. Workflow automation

According to Forbes technology council's explanation of workflow automation, the automation process begins with the identification of the repetitive processes. This is followed by defining the automation objectives, goals and what approach will be used to measure whether these goals and objectives are being achieved. Further based on the goals and objectives next step is to train the employees on using the new workflow software. Finally, execution of the plan, followed by

continuous monitoring and assessment of the new process (Forbes Technology Council, 2018.)

One of the main goals of workflow automation in logistics is to ensure that customers receive the product along-with the required and complete set of product documentation. This not only means completion of the order, but correct and proper documentation enables communication with customers on product delivery issues and any associated claims (Lesage 2016.)

Workflow automation benefits include, enhanced collaboration with internal and external stakeholders by streamlining the communication, increased productivity across the value chain, creation of accountability, reduction in manual errors as well as processing time and increase in efficiency and productivity (Case company benefit realisation management presentation 2017.)

Since digitalization is being considered as the biggest and most disruptive change that organizations face, it is crucial for organizations to not only bring about this change without any interruptions, but also follow up on this change by identifying areas for improvement and training if required by employees. Hence below section attempts to reflect on the concept of change management.

2.3. Change Management in digitalized environment

Today's business world is heavily dependent on automation, mainly due to the benefits such as efficiency, accuracy and speed of processes, that are reaped from it (Forbes Technology Council 2017). However, the members of Forbes Technology Council state that, before automation is implemented, it's advisable to have a plan. This plan should aim towards gaining full understanding of the processes that are being automated, testing and implementing automation gradually, making sure the respective team is ready to adopt the new and automated

processes, reflecting on the benefits that will gained from the automation, and finally monitoring as well as measuring the effectiveness of the automated processes to ensure its functions as expected (Forbes Technology Council 2017.)

According to Parviainen, Tihinen, Kääriäinen, Teppola 2017, replacing manual and paper-based processes with the help of digital technologies allows businesses to collect huge amount of data for further study to reduce cost and enhance performance, provide improved service quality and survive in digitally competitive markets. Given this and other potential benefits of digitalization, an organisation aiming for digitalization and/or digital transformation needs to go through changes in internal and external processes, way of working, as well as organization and company culture.

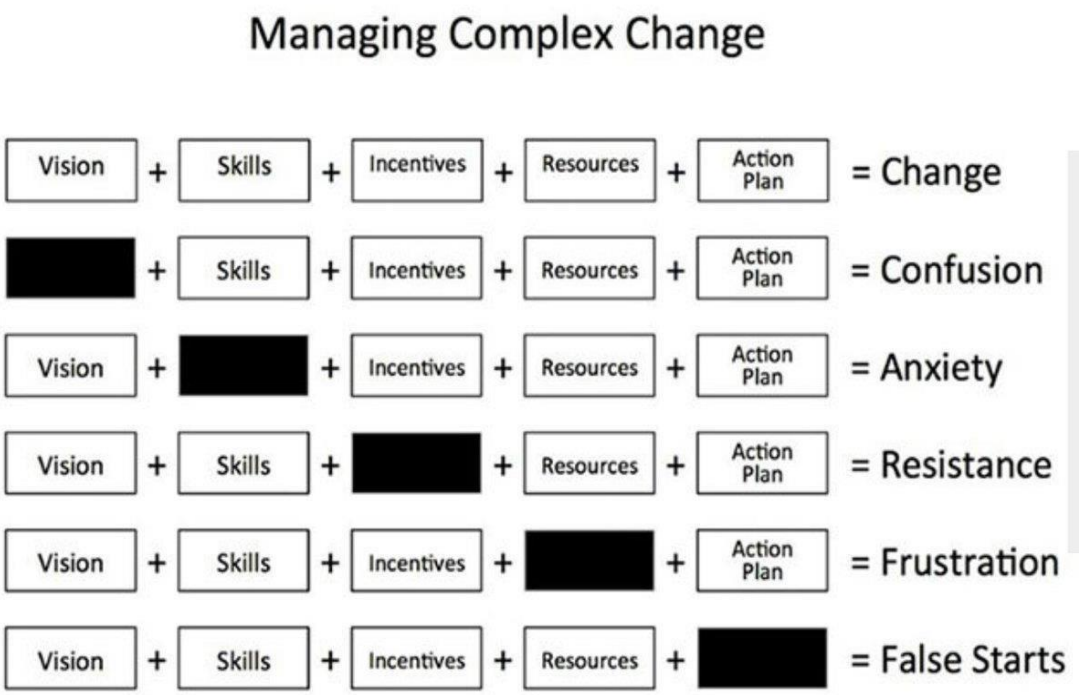
According to Colon (2018), along-with development of new digital-strategies during the digitalization change, organizations need to emphasize on the following characteristics:

1. Value creation for the customer.
2. Teamwork among globally connected cross-functional teams.
3. Motivation to adapt to changes and learn new processes, technologies etc. thus preparing employees for the rapid changes that digitalization would bring.
4. Build employee confidence in the company strategy and support innovative ideas.
5. Finally, promote innovation by encouraging employees to be actively involved in process improvement.

The factors mentioned above could be compared to the complex change model developed by Lippitt (1987). According to the complex change model, vision, skills, incentives, resources and action plan together lead to successful management and implementation of complex changes.

The first factor for successful change in this model is vision. This factor acts a directing force and guides throughout the change process. Absence of this factor could lead to confusion as there is nothing that could be referred to for guidance during to the change. The second factor skill means having knowledge and information related to the change. Absence of this factor would mean lack of preparedness and ability to carry out the change. The third factor incentive relates to benefits gained from the change. Absence of this factor would lead to resistance or opposition from the people being affected by the change. Resources, which is the fourth factor, refers to tools, people, finance, time that would be required in implementing the change. Without resources implementing change could be frustrating and challenging. Finally, the sixth factor, action plan, seems to be as important as other factors for implementing change. Without action plan it would be difficult to reach not only the vision, but also decide which resources should be used and how (Lippitt 1987).

Figure 2. The Managing Complex Change model, Lippitt (1987)



According to the above complex change model, incentive factor is important to evaluate the benefits that would be gained or are gained from any change that is implemented. Similar assessment of benefits was done by the case company's digitalization project team during the logistics organization's digitalization implementation. Mapping of the 'as is' and 'to be' processes provided an overview of the benefits and advantages that the distribution and invoicing unit of the logistics organisation would gain from workflow digitalization. In addition, the project team mentioned the potential improvement areas, indicating a need to focus on continuous improvement initiatives that would help further enhancement of current processes. This benefit analysis and listing of improvement areas was termed as benefit realization management by the case company's digitalization project team.

2.4. Benefit realisation management (BRM)

According to Serraa and Kuncb (2015), organisational changes that are brought about by business strategies, often require development of projects. They further state that project management teams set goals and objectives in line with the company strategy and drive for success of any project. However, projects that successfully execute the business strategy further delivering the expected benefits are the ones that create value for business. Even though benefits are not the only criteria to evaluate any project's success, but they could be considered as a tool to measure the cause of the project. Evaluation of the project success, analysis of whether the project has delivered the benefits as required by the business strategy, and assessment of the value-created, all these can be achieved through benefit realisation management.

Above explanation of the study done by Serraa et.al, show that new and innovative projects are undertaken by organizations because of evolving business strategies that are formed to meet customer demands and sustain the competitive markets. These projects could lead to organizational or process changes to meet customer demands and remain competitive. To gain an understanding of the value and the strategic relevance of any project, companies could adopt benefits realisation management, termed as BRM further in this study, thus making it easy and effective to monitor a specific project. Project success could be evaluated by understanding how well the project has delivered the benefits and whether these benefits are in line with the business strategies and objectives.

From logistics perspective, BRM can be used as a tool to emphasize on the benefits that can be achieved in terms of tasks visibility, reduced handling time and improved service quality. Thus, benefit realisation management can help in evaluating what changes digitalization process has brought about, and what are the effects of these changes on service quality and employee performance. (Case

company digitalization drive 2017). In addition to this, the case company's BRM assessment done by the digitalization project team, also provided an overview of the potential improvement areas, from which one of the areas was chosen for this study for further assessment. Unnecessary and incorrect holds applied in the digitalized workflows by employees (further termed as coordinators in this study), in the case company's logistics organization was stopping the distribution and invoicing unit's workflow automation, leading to manual intervention and handling of cases. Analysis of these holds that were stopping automation of even simple cases, was required, to prevent unnecessary and incorrect use of holds.

To perform monitoring of the holds applied in the system by coordinators, that were stopping automation process, is the main purpose of this study. To fulfil this purpose, understanding the tasks performed by units of the case company's logistics organization, as well as analysing coordinator knowledge about the holds process was required. Research in this direction by the author of this study, led to understanding of the term process monitoring.

2.5. Process Monitoring

As mentioned in section 2.2.2 of this study, a business process comprises of set of activities that with the help of one or more inputs aim to accomplish a common goal. The activities may be performed by people or systems and are completed either sequentially or in parallel (Denner, et.al 2017).

Further research of the concept of process monitoring led to the understanding of the concept, business process management as well as business process management lifecycle. As stated by Denner et.al. business process management also referred to as BPM, is a field in operations management that emphasizes on enhancing corporate performance with the help of information technology. Improving organizations business operations by enhancing its efficiency and

effectiveness is the ultimate goal of business process management (Brocke, Mathiassen & Rosemann, 2014). According to this field in operations management, processes are important assets of an organization, and they need to be managed, understood, and developed to deliver value-added products and services to customers. According to the BPM lifecycle, process monitoring is considered as the main benefit yielding activity (Denner, et al. 2017:331).

Process monitoring means tracking performance of individual processes. Process monitoring helps to ensure that processes are performing as expected. To ensure relevance and efficiency of processes and workflows, small assessments made regularly are useful and allow to fix problems before or when they occur. BPM systems also provide various tools to perform this monitoring depending on the need of the respective organization (Denner et al. 2017:333.)

However, in this study, the process monitoring, was carried out by interviewing the coordinators involved in the process, to understand their role and knowledge about the process, as well effects of theirs actions on automation of workflows. Since management of the case company's logistics organization, considered manual intervention by coordinators (stopping cases in the workflow by applying holds in the system), as one of the possible reasons that was affecting the automation or digitalized workflows, interviewing concerned coordinators was considered as the best option to monitor the hold process, analyse the problems, difficulties and challenges faced by the coordinators, and gain feedback on improvement of the process.

2.6. Literature Review Summary

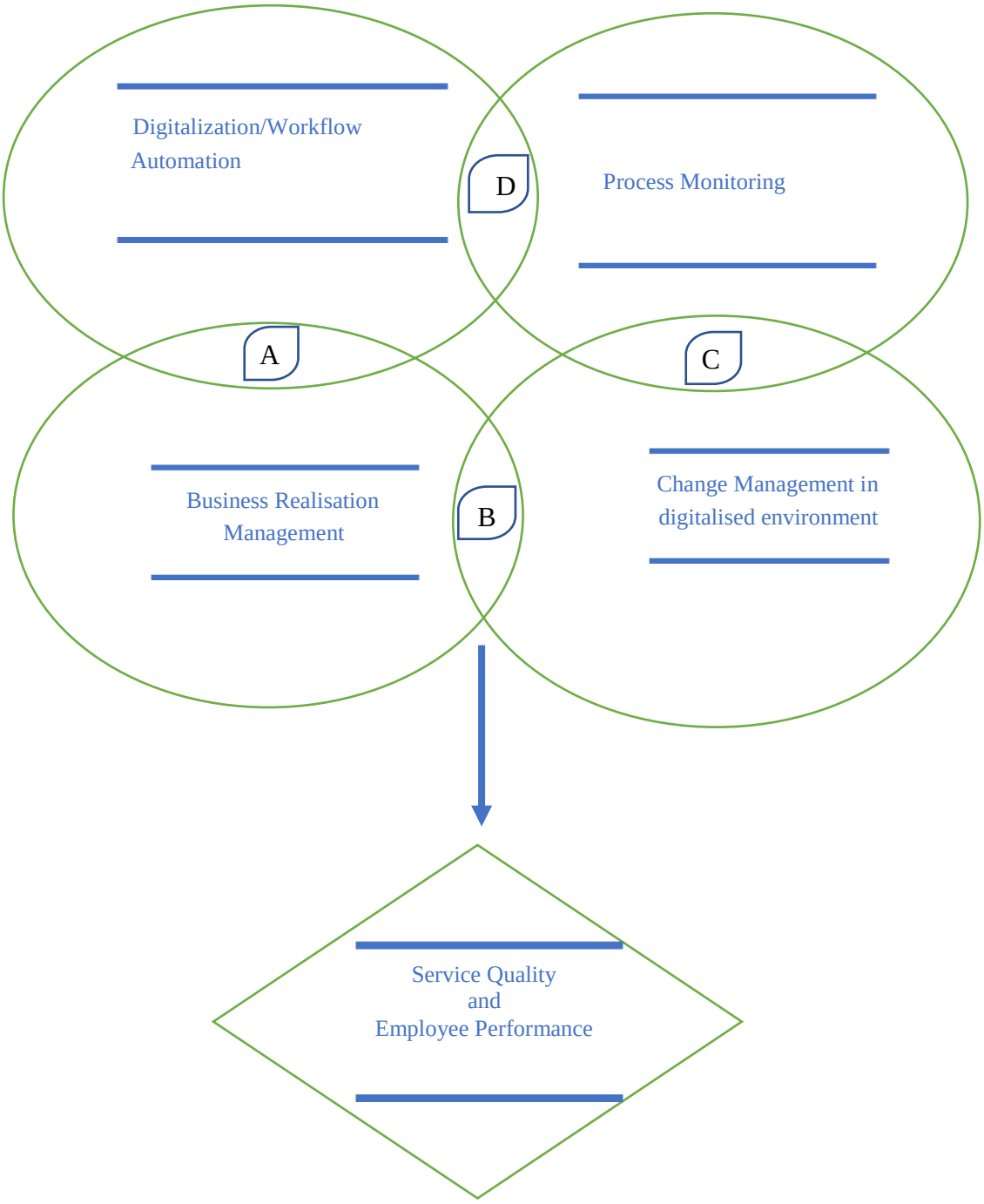
Digitalization and use of digital technologies by service and manufacturing industries has been studied by numerous academics since the Industry 4.0 revolution has begun. With processes being crucial assets of an organization,

process automation and workflow automation are carried out by companies as part of digitalization projects and digital transformation strategies that are adopted to compete and sustain in today's technologically advancing environment.

Digitalization and digital transformation are being termed as the biggest and disruptive change that organizations are nowadays going through. Research in the field shows that digitalization is a constantly changing and evolving phenomenon due to its relationship with continuously changing technology. Hence, change is considered as a core competency that organizations need to focus on and develop. Change management academic research referred to in this study, display that organizations could manage changes related to digitalization through constant communication, trainings, knowledge sharing as well as tasks and process analysis. Furthermore, once changes as a result of digitalization are implemented, benefit realisation management helps to reflect on not only the benefits gained but also highlight the potential areas of improvement.

Companies across different kind of industries are not only changing their approach towards business processes and activities, but are also aspiring for flexibility and speed, to be able to take up new business opportunities and keep up with a fast-changing global business environment. Various studies highlight how digitalization and digital capabilities are being exploited by companies to increase process efficiency, improve employee performance, enhance data and information flow, and most importantly improve service quality. With the help of a case company, this study aims to reflect on the benefits of that can be gained through process monitoring in digitalized environment, by highlighting the improvement problems/challenges of the process and improvement suggestions. Based on the above literature review, following heuristic framework is prepared to give an overview of the relationship that the key concepts have with each other.

Figure 3. Process Monitoring in Digitalized Environment



Following table provides an explanation of the connection points displayed in above figure 2. In other words, the table explains the relationship that the key concepts share among each other.

Table 2. Relationship between key concepts

Connection points	Interconnection between	Explanation
A	Digitalization/Workflow automation and business realisation management	Assessment of digitalization benefits and potential improvement areas.
B	Business realisation management and change management	Continuous improvement possibilities.
C	Business process monitoring and change management	Monitoring of tasks and processes, as well as challenges/difficulties faced by employees in the changed and digitalized environment.
D	Business process monitoring and digitalization	Report generations, process analysis and process enhancements.

Service Quality and Employee Performance are among the important reasons why companies are implementing digitalization projects. Process monitoring of processes in the changed and digitalized environment assists in analysing if processes are being performed as defined, challenges faced while performing the processes, and effects of the processes being followed on service quality as well as employee performance.

3. RESEARCH METHODOLOGY

This chapter explains the research method applied in this study. It begins with explanation of the research approach, followed by the methodological choice and strategy adopted to fit with the research objectives and question. This is then followed by the data collection method and includes the description of the case company, its digitalization project and current scenario. Data collection method is followed by discussion of how the data analysis was carried out to achieve the objectives and gain answer to the research question. Finally, this chapter concludes by reflecting on the quality of this study through validity and reliability.

3.1. Research approach

According to Saunders, Lewis & Thornhill (2012), assumptions are part of any research. They further state that assumptions that the researcher encounters during research, assists in shaping the understanding of the research questions, the methods and interpretation of findings. Additionally, assumptions determine the research strategy and the methods chosen as part of that strategy.

Before data collection for this study, the assumptions that the author came across were that, firstly companies across industries are adopting various advanced digital technologies to enhance their businesses and serve their customers efficiently. Secondly, digitalization is a disruptive organizational change that most organizations face. Thirdly, only successful implementation of this change is not enough. Follow up on the changes as well as working towards enhancement of potential improvement areas through process monitoring is an important part of the change process. Fourth and the most important assumption was that manual interventions were affecting the automation percentage and thus influencing employee performance and customer service quality.

Hence, based on initial observations related to the case company as well as this study and theoretical data gathered based on above-mentioned assumptions, the research approach and strategy for this study was decided to achieve the objectives and gain an answer to the research question.

3.1.1. Exploratory and abductive approach

According to Gray (2014), to understand or explore a phenomenon, especially when not enough is known about it, exploratory studies are useful as they seek to explore what is happening and ask questions about it. Hence, after the main construct of the study has been determined, exploratory studies can be conducted by searching the literature, talking to experts in the field and conducting interviews. To gain insights about a topic of interest, to understand a problem or phenomenon, exploratory study along-with open questions is a significant method (Saunders et al.2012).

Digitalization project was recently implemented in the case company's logistics organization, wherein automated workflows were introduced with an aim to enhance employee performance by automating easy tasks, and improve service quality by ensuring timely delivery of shipment through organized and digitalized way of working. (Digitalized and automated are used as synonyms further in this study). However, it was observed by the logistics organization's management that automation percentage was not as predicted during the initial digitalization phase. Hence, it was important to study the reasons as well reflect on the improvements areas.

During development of this study's theoretical framework it was observed by the author that very less studies were present that focused on digitalization, process monitoring and its role in improving service quality and employee performance. As exploratory study can be applied when very few or no earlier studies are

available (Kontkanen 2018: 7), and case studies are appropriate for exploratory work (Robson 1993), exploratory study was considered as the appropriate strategy for this case company study. Additionally, exploratory study offers the advantage of being adaptable to change and could provide new insights particularly in the analysis stage wherein there were chances of surprising findings being discovered from the data (Saunders et al.2012).

On one hand where exploratory research seeks to identify new concepts or findings, explanatory research on the other hand helps to clarify how the concepts are related (Yin 2003). Hence, explanatory research was also used in this research by reflecting on the relationship between theories related to service quality, employee performance, digitalization, change management and benefit realisation management. However, given the lack of research on process monitoring, focus of this research was on exploratory study.

As stated by Saunders et al. (2012), there could wealth of information in a particular context but considerably less in the context in which the researcher is interested in. Hence, in such scenarios abductive research can be adopted wherein there could be addition or modifications to existing theories. Abduction begins with the observation of a fact or happening or phenomenon, further relating this fact or happening or phenomenon to a probable theory to understand why it occurred. Moreover, abductive approach moves back and forth, and combines movement from theory to data (as in deduction) or data to theory (as in induction).

This study aims to understand not only the reasons for low workflow automation with focus on the automation hold process, but also its effect on employee performance and service quality. Therefore, theory was useful in understanding the digitalization process in multinational organizations, how change is managed as part of the digitalization project, and what measures are taken to monitor changes that are implemented as part of any digitalization projects. On hand where data from the case company was needed to analyse the reasons of use of manual holds

that were disrupting the workflow automation in the case company, on the other hand employee feedback and experiences were important in understanding problems, challenges of the manual hold process. Hence, given the exploratory nature of this study and the possibility of emergence of new findings or happenings, as well as considering the theory-data interdependence, abductive approach was adopted in this study.

3.2. Research Design and Strategy

As described by Saunders et al. 2012:159, a research design is a 'plan' built to gain answers to the research question (s), whereas finer details of data collection and analysis are the tactics that will help in successful implementation of this plan. Decision about tactics comprises of having knowledge about different quantitative and qualitative data collection techniques and choosing the best tactic that suits the research plan. Numerous areas of interest can be explored from different perspectives using quantitative and qualitative methods. On one hand, quantitative research examines relationships between variables with the help of numeric data and a range of statistical techniques, while on the other hand, in qualitative research, data is gathered from a natural 'real life' setting and could be over long periods of time, nevertheless the data is highly contextual (Gray 2014:161).

Low percentage of workflow automation was noticed by the management of the case company. For the researcher to analyse this scenario, one method was to monitor the tasks being performed and processes being followed. To achieve this objective, qualitative research design was chosen for this research as it matched the necessity of this study. A variety of strategies are associated with qualitative research. For example, ethnography which is used to study groups, grounded theory is used to explore as wide range of business and management issues, case study research (explores a research topic or phenomenon within its context) and so on.

Qualitative research and case study are strongly associated and sometimes used synonymously (Gray 2014:163). Qualitative research is considered the best option when problems or phenomena require insight an in depth understanding (Robson & Foster,1989), while case study strategy has significant ability to provide answers to the 'why', 'what' and 'how' questions (Saunders et al. 2012:179). In other words, to study a phenomenon in depth the most appropriate questions would be why, what and how. Since, this study required an insight on the workflow automation and process monitoring phenomenon and the research aim was to gain an answer to 'how' question, qualitative research along-with case study was considered as an appropriate research design and strategy choice.

Qualitative research design along-with case study strategy was chosen as an appropriate option for this study, to understand the below scenarios: the case company's logistics units digitalized workflows, units involved, process followed, trainings provided related to the manual hold process, as well as employee's current knowledge and understanding of the manual hold process. Analysing these scenarios assisted in achieving the objectives of this study and thus lead to gaining an answer to the research question.

3.2.1. Case Company Description

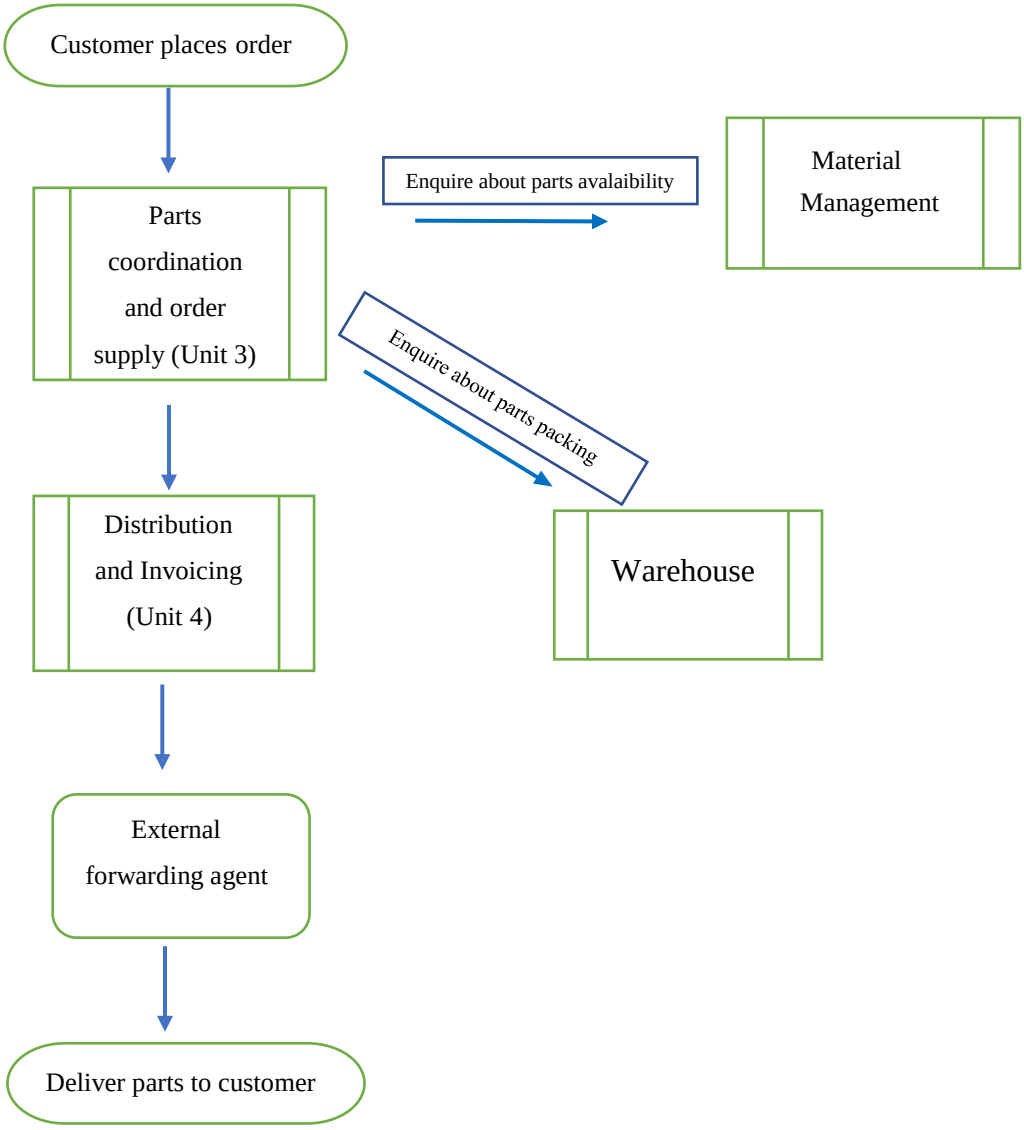
The case company is a well-known Finnish manufacturer and supplier of engines and generating sets for all types of vessels and offshore power plants. The case company holds a strong position as a supplier of highly rated ship machinery and systems in all main marine segments. As of January 2019, the case company consists of two businesses, Marine Business and Energy Business. The logistics department studied in this research serves customers of both the marine and energy Business globally.

In 2007 a new global parts and logistics organization- Global Logistics Services (GLS), was established by the case company for spare parts business. The central

warehouse/central distribution centre is in Kampen, Netherlands. The main aim of establishing this new organization was to enable the case company to supply parts worldwide 24 hours per day, 7 days per week. The goal of this organization is to deliver goods and accurate documents as quickly as possible to the customer and making sure that the best and/or cheapest method of delivery is used.

Currently, GLS has four functional units which manage respectively, materials (functional unit 1), warehouse (functional unit 2), parts co-ordination and order supply (functional unit 3, divided based on where customers are located, namely areas NE, SEAF, AMER and MEA), and distribution and invoicing (functional unit 4 handling all four NE, SEAF, AMER and MEA areas). Below figure demonstrates the process flows between the logistics organization's four functional units.

Figure 4. Case company functional units.



The focus of this study is on manual hold process involving parts co-ordination and order supply (unit 3) as well as distribution and invoicing (unit 4). Unit 3 is responsible for handling customer queries, quotations and orders based on their respective areas (NE, SEAF, AMERICAS and MEA). While handling customer quotations and orders, unit 3 must not only co-ordinate with various units regarding availability of parts, picking and packing of parts, claims raised by customers and so

on, but also ensure to enter correct information in the system regarding the customer as well as parts to be sent. Transportation of parts as well as preparation and sending correct documents to the customer on time is the responsibility of unit 4. Managing and handling specific document requirements of customers and following special country procedures are main tasks of unit 4, however, much of this depends on the information provided by unit 3 related to the parts as well as customer.

Key users are coordinators who are the one-point contacts in both unit 3 and unit 4. Any issues or queries related to these two units are forwarded to and handled by key users of the respective units. Both units' key user responsibilities include, circulating new information or changes related to any processes as well as customers and countries, solving issues raised by own coordinators as well as other unit coordinators, providing training to their own coordinators, having meeting with other units/key users for knowledge sharing, information sharing as well as providing process updates and trainings.

While handling delivery to a country or customer, unit 4 coordinators need to check the corresponding country as well as customer specific legal instructions updated by their key users in a file shared with all in the system, to ensure correct documents are sent to the customer based on the country these customers are located in. As part of unit 4's digitalization project that was carried out in 2017, deliveries to countries or customers wherein no specific checks or documents were required, were planned through automation based on certain logics developed in the system. Additionally, various new workflows were introduced instead of one workflow to have better quality and visibility of tasks. Every workflow resembled a task, for example workflow 10 represents packed delivery, workflow 12 means transportation selection and so on.

Unit 3 has the option in the case company's logistics system, of using holds that will stop the process in unit 4's workflow (holds could be used for various reasons). This is termed as applying manual holds in the system to stop automation in

completing the workflow till the end of the process. However, this also means that simple and easy deliveries that can go through automation throughout unit 4's workflows, could stop in between due to the holds applied by unit 3 coordinators. During the digitalization project, monitoring incorrect and unnecessary use of delivery on hold in system, was recommended as a potential area of improvement.

After digitalization was implemented, in case incorrect or not required delivery holds were observed by unit 4 coordinators, such cases were sent collectively through email as examples to unit 3 as reminders to correct the errors and not repeat them. However, no reports were generated to analyse firstly the number of manual holds being applied, secondly if these holds are really required, thirdly their effect on automation and fourthly their effect on service quality and employee performance. The case company management's main aim of analysing unnecessary manual holds through this study was to monitor the manual hold process and provide training as well as information regarding manual holds to unit 3, avoid duplication of work for unit 4 thus improving employee performance, and prevent delays in deliveries that was affecting the service quality.

3.3. Data Collection

According to Robson 1993:188, data collection techniques depend on what kind of information is required for the research, from whom it is required and under what circumstances. Further, as explained by Eriksson and Kovalainen 2016:82, data is divided into two categories: primary and secondary data, wherein on one hand, data collected by researchers themselves for answering a research question or exploring a social phenomenon is termed as primary data, while on the other hand, data that already exists (collected by some other researcher or organization for another purposes), is termed as secondary data. Primary data can be collected through observation or/and interviews (semi-structured, in-depth or group interviews), or/and using questionnaires, whereas, secondary data consists of both

quantitative (numeric) and qualitative (non-numeric) data from company/newspaper reports, magazines, surveys conducted, books, journals and so on (Saunders et al. 2012).

While working in the case company's logistics department as well as actively searching for a research topic for the master's study, the writer of this study came across a need to understand the reasons of low performance of the digitalized process in the case company. Based on this need, the initial data required for this research was collected through observation. Further with the help multiple skype meetings and initial unstructured interviews with system experts and coordinators who were actively involved in the digitalization project, the author was able to extract a report which gave information about the manual holds applied starting from January 2019. Additionally, the observations and skype communications formed the basis of exploratory semi structured interviews with ten of the case company's logistics department coordinators who were responsible for the digitalized process functioning.

3.3.1. Observation

Observation which is somewhat a neglected aspect of business and management research, increase the richness of research data with its informative and rewarding characteristics (Saunders et al. 2012). Observation was a key component of this research, as the thesis topic evolved through observation. Also, the data collected and analysed comprised of systematic observation, description and interpretation of coordinator's way of working and functioning of processes. Additionally, being a researcher of this study and an employee of the case company, proved to be an advantage in terms of involvement and understanding of the case company's digitalized process. Thus, 'participant as observer' role best suited the given scenario, as it supports both participation as well as research.

3.3.2. Report generation

The unusual part of the data collection method in this study was the report that was developed as part of this research, as after the logistics organization's digitalization project no reports were generated until now by unit 4 to monitor the manual holds applied in the system. During the research period, the researcher of this study initially gained an understanding of the case company's logistics digitalized process. Based on this analysis as well as skype communication with the case company's process/system experts and reporting/analysis experts, a report is now developed that provides details of cases that have manual holds in the digitalization process. Some cases from this report have been used as examples in the semi structured interviews to analyse the reasons of using these holds by unit 3 coordinators, thus gaining an understanding of unit 3 coordinator's knowledge about the manual hold process. However, cases from this report need to be studied in future by the case company, to continue comprehending use of holds as well as reasons of using these holds.

3.3.3. Multi-method qualitative study

Collecting data with the help of qualitative methods (e.g. in-depth and unstructured interviews, observations), and analysing this data using qualitative procedures (for e.g. semi structured interviews), is termed as multimethod qualitative study (Saunders et al. 2012:165). Based on several unstructured face-to face as well as skype communications with four of the case company employees, followed by two unstructured in-depth interviews with two employees who were part of the digitalization project, an in-depth understanding of the digitalization project as well as digitalized workflows was acquired. The above communications and interviews also supported to explore the research problem and select interviewees for the research.

As mentioned by Gray 2014, interview is the preferred approach if research purpose is to understand experiences, opinions, attitudes and processes. Given the exploratory nature of this study, the interconnected as well as interdependent nature of the case company's logistics digitalized process and based on the understanding gained from the above two in-depth unstructured interviews, eleven exploratory semi-structured interviews were conducted, out of which eight interviewees belonged to unit 3 and three interviewees belonged to unit 4 (units explained in the case company description). Since semi-structured interviews were chosen as the appropriate data collection technique, below section provides an overview of the interview process.

3.3.4. Interviewee Selection and Interviews

Total thirteen interviews were conducted. Initially, two in-depth, unstructured and face-to-face interviews were conducted. These two interviews were conducted to understand the digitalization project, way of working and processes before digitalization, changes that took place after digitalization of workflows and reporting as well as managing of hold cases after digitalization project. Remaining eleven interviews out of which three were face to face and eight through skype (due to interviewee's geographical distance), were semi-structured interviews conducted to collect data required for analysis. The selection of eleven interviewees was based on the aim of the research as explained below.

To gain answers to the research question it was vital to understand how tasks were performed by coordinators (in unit 3 and 4), the knowledge these coordinators possess about systems and processes, trainings provided, communication techniques used as well as difficulties and challenges faced specifically related to the manual hold process in the digitalized environment. The case company's logistics department serves customers that are spread globally (NE, SEAF, MEA and AMER). Coordinators from unit 3 handled customers based on the respective areas they were located at, and coordinators from unit 4 handled cases that

belonged to all these four areas. Thus, keeping in viewing the above conditions and requirements, one experienced and one trainee/ newly joined employee from unit 3's every area (total eight), were chosen for the interviews. Similarly, three interviewees were chosen from unit 4. Two interviewees out of these three handled all deliveries received from unit 3 in the digitalized workflow, and one was the key user of unit 4.

In this study, the interviewees are referred as coordinator along-with the unit to which they belong to ensure confidentiality. Following figure provides details of the interviews conducted as well as interviewee information.

Table 3. Interview and interviewee information

Interviewee	**Job Title**	**Employment tenure**	**Area**	**Unit**	**Mode of conducting interview**	**Interview Duration (minutes)**
1	Delivery Coordinator	7 yrs.	NE, SEAF, AMER, MEA	Unit 4	Face to Face	60
2	Process and system expert	7 yrs.	-	-	Face to Face	60
3	Parts Supply Co-ordinator	1.5 yrs.	NE	Unit 3	Skype call	60

Interviewee	Job Title	Employment tenure	Area	Unit	Mode of conducting interview	Interview Duration (minutes)
4	Parts supply Co-ordinator	2 months	NE	Unit 3	Skype call	30
5	Parts supply Co-ordinator (Key User)	7 yrs.	AMER	Unit 3	Skype call	32
6	Delivery Coordinator	10 months	NE, SEAF, AMER, MEA	Unit 4	Face to Face	25
7	Parts supply Co-ordinator (Key User)	5.6 yrs.	SE	Unit 3	Skype Call	40
8	Parts supply Co-ordinator	1 yr.	AMER	Unit 3	Skype Call	45
19	Parts supply Co-ordinator	5 months	MEA	Unit 3	Skype Call	20
10	Parts supply Co-ordinator	10 yrs.	MEA	Unit 3	Skype Call	25
11	Parts supply Co-ordinator	5 months	SE	Unit 3	Skype Call	45
12	Delivery Coordinator	2yrs 9 months.	NE, SEAF, AMER, MEA	Unit 4	Face to Face	60
13	Delivery Coordinator (Key User)	8 yrs.	NE, SEAF, AMER, MEA	Unit 4	Face to Face	35

Starting with two unstructured and in-depth interviews, followed by eleven semi-structured interviews, all interviewees were provided with explanation of the thesis purpose and interview questions. Further, based on the area division, an email was sent to the respective area managers of unit 3, explaining the aim of the thesis and requirement of the interviews. After receiving details of eight interviewees, they were contacted individually through email and based on their availability, location and work schedule, these eight interviews were planned. Three interviews from unit 4 were conducted. Nevertheless, these interviewees were already aware of the on-going research, as the author of this study was working with them and gathering examples as part of data collection for this study.

The interview data collection process was conducted between 15th February 2019 and 20th March 2019 with each interview lasting between 30 and 60 minutes, depending on the interviewee's availability and role. All interviews were conducted in English. Reasons being firstly English was the official communication language in the case company and secondly since most of the interviewees belonged to different countries, the only common language of communication between the interviewer and interviewee was English.

3.3.5. Interview Questions

The interview questions were framed depending on the information that was required from every interviewee and on the tasks/ processes performed by them. Hence, interview questions were prepared appropriately to avoid probing questions asking for sensitive information that the interviewee would not wish or are not empowered to discuss. Moreover, after every long reply form the interviewee summarizing these answers would ensure that it has been correctly understood and would demonstrate attentive listening skills thus providing assurance to the interviewee.

3.4. Data Analysis

According to Saunders et al. qualitative data is based on meanings derived from words and not numbers, thus analysis is performed with the help of conceptualization. Nevertheless, there are no accepted or clear set of rules for qualitative analysis. Different ways of analysing qualitative data have been offered in research literature (e.g. Robson 1993, Saunders et.al 2012, Eriksson & Kovalainen 2016).

Due to the exploratory and abductive nature of this study, the main aim of data analysis in this study is to gain new insights into the data. To achieve this, data needs to be broken into essential concepts, then connections need to be made between these concepts that would form the basis of new descriptions, as mentioned in Gray's circular process of qualitative analysis (2014). Similarly, Saunders et al. 2012, explains generic approaches to analyse qualitative data, wherein no link to a specific theoretical approach is made but general principles of analysing data are followed. This approach will facilitate the researcher in organizing large and complex qualitative data, integrating data from transcripts and/or notes, identifying and exploring key themes/patterns and relationships between them, developing/testing of theories grounded on these themes/relationships, and finally reaching to conclusions. (Saunders et al. 2012:557).

3.5. Overview of development of themes and categories

Since the research question of this study is about analysing the tasks performed and their effect on service quality as well as employee performance, it was important to understand the current processes related to holds applied by coordinators in the digitalized environment. Furthermore, an understanding of the digitalization project was required to gain information related to digitalized workflows, the main objectives of digitalization, trainings provided, departments involved, as well as how changes were managed and monitored in the digitalized environment. With the help of the first two unstructured interviews and the literature review of this study the main themes

namely, digitalized workflows, employee performance, service quality, process monitoring were formed. With the help further analysis of the above-mentioned themes and the complex change model mentioned in the literature review section, categories namely, training, communication, work experience, process knowledge and system knowledge were developed.

These themes and categories then formed the basis of development of interview questions for the remaining eleven interviews. The following section provides explanation and relevance of the themes and categories for the reader to comprehend their importance to this study.

3.6. Explanation of themes and their relevance to the study

An overview of the digitalization project along-with information related to changes in processes that occurred as a result this project, was obtained through the first two unstructured interviews that were conducted at the very beginning of the data collection process. With focus on the research question and purpose of the study, the commonly discussed terminologies as well as issues led to development of the below explained themes.

3.6.1. Digitalized workflows

This theme was used to understand the workflow functioning of the logistics department in the case company. It helped in gaining information related to the challenges and difficulties that led to implementation of the digitalization project. This theme also proved crucial in gaining knowledge about various departments which form an important part of the digitalized workflow, their roles and responsibilities in the process, and finally the kind of automation as well as manual intervention taking place in the digitalized workflow.

3.6.2. Employee Performance

One of the main objectives of digitalization project of the case company was to automate easy and mundane tasks, thus letting coordinators to focus on more complex and challenging issues. This theme formed the basis to analyse what effect manual holds has on the unit 4's coordinator performance, thus directing towards importance of process monitoring for analysis of employee performance.

3.6.3. Service Quality

Like employee performance, case company's digitalization project aimed in enhancing the service quality provided to their customers by ensuring that the goods are delivered on time along-with the required quality documents. The workflows were digitalized in a way to ensure that right quantity of goods is delivered to the right customer at the right place with the right documents. This theme not only helped in understanding the reasons how tasks are performed by the coordinators, but also how these tasks performed could affect the digitalization of workflows, further affecting the quality of services being provided to the customer.

3.6.4. Process Monitoring

Based on the process monitoring literature review, it was observed by the researcher of this study that, analysis of digitalized workflow functioning and its effect on employee performance and service quality was achievable by monitoring the processes being followed and tasks performed by unit 3 and unit 4. Hence process monitoring was considered as a crucial theme of this study. During discussions with the senior manager of the case company's logistics department, a suggestion to study the low percentage of workflow automation was offered to the author of this study. Further scrutiny by the researcher in this direction revealed that process monitoring related to manual holds used by unit 3 in the digitalized workflow could form an important part in analysing the low percentage of automated workflows, as other reasons for low automation were related to system and technology. Additionally,

during the observations period for this research, it was found out that the above-mentioned manual hold monitoring process was highlighted as a potential area of improvement by the digitalization project team when the benefits of the digitalization project was presented. However, any kind of manual hold monitoring was not carried out after the digitalization project was implemented in the year 2017. Hence, process monitoring theme forms a crucial part of this study and the research question was also formed based on this theme.

3.7. Explanation and relevance of categories

First two unstructured and detailed interviews helped in the development of the categories of this study. Information related to these categories namely training, communication techniques, process and system knowledge was gained from eleven semi-structured interviews since the interviewees were coordinators performing the tasks and using the system on daily basis in the case company.

3.7.1.Training

Since digitalization project in the case company's GLS unit led to changes in workflow and ways of working of unit 4, it was important to apprehend how and to whom training was provided. Even though the digitalization project was mainly related to unit 4's workflows, during the first two unstructured interviews it was mentioned that training related to these digitalized workflows and manual holds to unit 3 was equally important. Hence, this category formed an important part of the remaining eleven interviews with coordinators who were prime users of the manual holds in the system.

3.7.2. Communication

The interconnectivity of digitalized workflows and processes between unit 3 and unit 4, was the motivating factor to analyse interaction techniques between unit 3 and unit

4, importance and challenges of these interaction techniques, thus giving rise to this second category which is communication. During the first two unstructured interviews, the challenges related to the ways of communication between department A and department B related to the manual holds process were discussed, thus making this category as a useful aspect of the data collection process.

3.7.3. Work Experience

The career span of the coordinators interviewed from unit 3 and unit 4 varied between one month to 15 years. This helped in analysing whether work experience affected understanding of processes and completion of tasks in the digitalized environment. Additionally, awareness and understanding of unit's 3 workflow digitalization among unit 4 coordinators based on their employment period, helped in reflecting on the manual hold process challenges as well as improvements.

3.7.4. System knowledge

The main objectives of case company's logistics organisations digitalisation project were to reduce end-to-end handling time of deliveries by automating easy and mundane tasks, thus improving on-time delivery performance, reducing backlog and improving quality of delivery documentation. To fulfil these objectives, case company coordinators required to have basic system knowledge related to the activities performed in the system. This knowledge could be gained by the coordinators through initial trainings provided when the coordinator joins the unit, and also through on the job training while actually handling deliveries. This category was chosen to understand its importance and effect on the manual hold process.

3.7.5. Process knowledge

Given the interconnectivity between units in the case company, this category was selected to understand coordinator's knowledge of processes not only related to their unit but also related to other units. This category was also considered useful to gain

feedback from unit 3 coordinators regarding their requirement and desire to gain understanding of unit 4's process knowledge.

The data for analysis was gathered through thirteen interviews that were conducted to gain an overview of the coordinators/interviewee's general way of working, understand manual hold processes as well as the coordinator's way of working related to the manual holds. Hence, qualitative research data collected was likely to be large, complex and non-standardized in nature. Thus, to explore, to analyse and to provide a structure to the data with an aim to gain an answer to the research question, summarizing, categorizing and grouping of data was performed which led to the formation of the above-explained themes and categories.

During interviews, the categories mentioned above were presented to the eleven interviewees as aspects related to functioning of workflows and processes in digitalised environment. The interviewees were also asked to provide their opinion and rate these aspects based on the influence they can have on better functioning of workflows and processes in digitalised environment. The rating scale between 05, with 0 rating representing 'no opinion' and rating 5 would mean 'very important'.

Aspects and their importance for better functioning of workflows and processes in digitalised environment.

Aspects	**Rating (0-5)**
Training	
Communication (inter and intra department)	
Work Experience	
System Knowledge (Related to the tasks performed and not technical)	
Process Knowledge (inter and intra department)	

Rating

0= No opinion

1= Not at all important

2= Slightly important

3= Important

4= Fairly important

5= Very Important

3.8. Research Quality

Qualitative studies are associated with interpretive philosophy, wherein the researcher is a ‘one-person research machine’, solely doing all the tasks associated with the research starting from defining the problem, to analysing and interpreting

the data collected. (Robson 1993). Given the exploratory and case study strategy of this study and researcher being employed in the case company, there were potentials for biases, reliability, credibility and validity threats to this study.

3.8.1.Reliability and Validity

Credibility, generalisability, reliability and validity form an import part of qualitative research quality. Reliability implies consistency or obtaining same results if the study is repeated, validity means measuring what is supposed to be measured, generalizability describes the extent to which research findings can be applied to other settings or outside world, and credibility means providing impression that the study findings are well grounded (Smale Adam, 2018.)

Recorded conversations and transcriptions are considered more reliable evidences than field notes written in hurry (Gray 2014: 624). Thus, recorded interviews and transcriptions supported this study in achieving document transparency and reliability. The research question along-with objectives supported in focusing on the aim of the study. Well defined objectives, persistent observation, along-with evidence-based discussions (examples used in the semi-structured interviews), render credibility to this study. Achieved objectives and findings leading to gain an answer to the research question, imply, that the study measures what it is supposed to be measure, thus proving the validity of the study.

External reliability, in other words generalizability is applicable to this study to the extent that digitalization now is a global phenomenon and is implemented by organizations across various departments. Hence, process monitoring in digitalised environment could be considered as a crucial factor in organizations and departments where digitalization is being implemented, especially where process are interconnected or tasks/tasks flow through various departments

4. EMPIRICAL FINDINGS

In this section findings of the study are presented based categories mentioned in the data analysis section. A comprehensive content analysis of all the thirteen interview responses is done with the help of these categories.

4.1. Findings related to categories

Category 1- Training

As mentioned in the case company description section, logistics process of the case company begins with unit 3 getting an enquiry from the customer. Further, once this enquiry is converted into order, unit 3 must coordinate with various departments to ensure that the parts successfully reach the customer. Among other departments, coordination between unit 3 and unit 4 is crucial as the order moves in the system from unit 3 to unit 4. Hence unit 3 must ensure that all the details and information related to the order as well as customer are correct.

After digitalization implementation, new workflows were introduced in unit 4's process. Moreover, various manual holds were introduced in the system which were used by unit 3. Hold selected manually in the system by unit 3 stops the respective delivery in unit 4's workflow automation and unit 4 coordinators need to handle this case manually. Trainings related to the digitalization changes and how the new workflows function were given to the unit 3 key users of every area after digitalization project was implemented.

Training related to unit 4 processes and holds was provided by the employees who invented the new workflows and various holds during digitalization project, to key users of unit 3 and unit 4. These key users were then responsible to train their coordinators. (Unit 4 key user).

With unit 3 being divided in four main areas and the coordinators located in various countries in these areas (NE, SEAF, AMER and MEA), training to newly joined coordinators is provided almost in a similar way, which includes three weeks of preparation either with a mentor/senior coordinator or with the help of presentations and training material.

Training is received from colleagues and team leaders that have been dealing with the customer. We have a process, a schedule and the material so that once the trainee goes to do the real work they have their file with them, so they can go back and check whatever they need. (Unit 3 Area key user, AMER).

I was observing my mentor. She was explaining me the whole process. So, I put some notes in my notepads. How to first raise a quotation, how to follow up, how to contact customer, how to archive. So basically, the whole process around the quotation and the same with purchase order. (Unit 3 coordinator, NE).

However, training related to unit 4's processes and digitalized workflows was one of the highly rated and spoken about aspect during all the unit 3 interviews. Regarding unit 4 processes and workflows, no detailed training is received by unit 3 coordinators. Few power point slides are provided that gives them an overview of unit 4's workflows and processes.

The processes of other departments are known, on a generic level, some additional details on their way of working might be helpful. In the presentation it's just on the general level. But of course, in the presentation you cannot add all the different possibilities that you can have in one order. Therefore, it is nice to have end-to-end training with unit 4. Just to cooperate with the unit 4 employees and just discuss on the issues that we have and what they can see. I think that even more trainings, job rotations, and meetings together are needed to better understand each other way of working. (Unit 3 Key User, SEAF).

No training about other departments, not exactly just like summary of what they are doing. (Unit 3 coordinator trainee, MEA).

However, as mentioned by unit 3 coordinators and key users, having detailed trainings and having the new coordinators remember every part of the training related to unit 4 processes during the first few weeks after joining is difficult due to, the number of activities and number of departments that unit 3 must learn about, complexity of system, processes, rules and regulations of different countries and the unique nature of every order.

We interact with a lot of departments. We need to clarify availability of parts, so that's the first department we contact. Then once parts are in stock we contact warehouse. During that time, we would also need to contact tuning and classification departments etc. Sometimes when customer claims parts then we also contact the Non-Conformity department. After the training, knowledge improved, but you cannot predict all scenarios during the two weeks training. I still had a lot to learn, because the processes and system is so complex. (Unit 3 coordinator, NE).

During training I was given some basic information of unit 4 processes, however when I started to work on real cases, and each case is unique, so my understanding and knowledge has grown over the months. Not all of us know for which specific country what are the specific document requirements. I know which holds to use for common cases. I have information of the holds that I use, I don't know all the holds. (Unit 3, Coordinator, SEAF).

For the unit 4 coordinator they must remember a lot of stuff. It's sometimes too much, sometimes they are in a rush and the customer is pushing and many other things going on and they must remember to put correct hold. I think they do the best they can. (Unit 3 Area key user, AMER).

Also, according to unit 4, providing training related to their processes in detail and related to holds to all unit 3 coordinators is not an easy task. This is due reasons such as, coordinators being spread globally, new coordinators/summer trainees joining, and finally every country, customer and order being different and unique. With special countries and customers having various rules and regulations, it is difficult for unit 4 coordinators themselves to remember holds already present in the system.

I am sure they have been trained, but usually when you have training, its one session that's it. You give lots of information, what kind of blocks there are and what you are supposed to use. But it's not all that straightforward that you can define every case like individual. You might have different kind of combinations. (Unit 4 coordinator and digitalization project participant).

It would be impossible to know all our holds in our tables. They (unit 3) would not be even aware of most of them, because there would be something that we know we need to block. So, they block something because they think there might a reason to hold it, but we already have a hold for it. But that would be impossible for anybody to know everything…. so, we must take new measurements to ensure that we don't things don't go worse. (Unit 4 coordinator and digitalization project participant).

However, after digitalization in unit 4 was implemented, various attempts have been made by both units, wherein unit 4 coordinators have visited few unit 3 locations and unit 3 key users have visited unit 4 office to provide/receive training as well as support related to each other's processes and activities.

During these 2 years I know there has been trainings to unit 3. I was in Shanghai, DL was in Bogota, MA was in Singapore. So, these trainings have been done and they have been also given through Skype. And these trainings for more or less

everything about unit 4, so what we do and how our process is. (Unit 4 coordinator).

There was a big skype meeting in November 2018, I was out of office that day, but I was shared the presentation slides. It was a general presentation about the warehouse functions and the way or working of unit 3 and the workflows. (Unit 3 coordinator, NE).

As mentioned by NE, Americas and MEA coordinators, trainings and interactions with unit 4 have helped unit 3 coordinators in understanding unit 4 processes, thus helping them in their day to day tasks related to unit 4 workflows as well as manual holds.

After DL visited Bogota, unit 4 processes were clearer to us. As we have received some additional information about unit 4 processes, we understand better the normal flow and it has helped us identify when something not usual might was happening. Also, if we are asked about something by the customer we are able to answer without going to unit 4, which would be more time consuming given the time difference between us and Finland. (Unit 3 coordinator, Amer).

In Korea one guy from unit 4 visited us last year. So that time was the first that we received the training about the unit 4 process. Before, we only got a training about how to communicate with unit 4. (Unit 3 coordinator, MEA).

Additionally, few unit 3 key users proactively initiate meetings and communication every month with unit 4 coordinators and key users. These meetings are to understand the processes well and to make sure that orders are processed quickly without any errors. Hence, this meetings are related to any issue or query related to unit 4 processes and not specifically related to manual holds.

Every month I have some training with MA from unit 4 and invoicing team so if I have any questions or any questions from my team, so I raise that during that meeting. (Unit 3 coordinator, MEA).

At the moment we have key user meeting with North Europe (NE) area, which was initiated by one of the NE key user. In these meetings we discuss about any recurring issues and how to resolve these, and if unit 3 has any queries related to unit 4 processes. (Unit 4 key user).

Further as mentioned by the process and system expert during his interview:

There have been a lot of trainings held by unit 4 Key users, but it seems that some information is sometimes missed. When you have a team as big as unit 3 and spread globally, it might be hard to get the information shared among the entire team. So, there might be a possibility of improvement on that side that how effectively they can share the information, all even better if it can be put in the system directly or at least some hints could be there in the system for them. (Process and system expert, case company logistics organization).

Hence, trainings specifically related to hold process was among the highly rated aspects for better functioning of workflows and processes in table--- in findings section 7, which show that having training sessions with coordinators across various areas, would help in improving the hold process and increase knowledge of use of manual holds among unit 3 coordinators.

Category 2-Communication

During the interviews, communication and its effective use were the second most highly rated and spoken topic after training. Communication between unit 3 and unit 4 related to status of orders/deliveries, queries as well as issue resolutions is

by skype and through emails, depending on the urgency and importance or the matter. This communication could be one-to-one between unit 3 and unit 4 coordinators via skype and/or email, between unit 3 and unit 4 key users, via skype or email or meetings, and between respective unit's coordinator and key users through email to report issues or highlight problems.

Communication is via e-mail and skype. I can say that the communication method, depends a lot on the department that you want to talk with. Since you know the best way to have a quick reply, depending on the team. (Unit 3 key user, SE).

No reports of any kind are being generated by unit 3 or unit 4 to analyse the number of manual holds used and their accuracy. Issues related to manual holds, are communicated through email or through skype by individual coordinators. If communicated through email to key users, issue are resolved either by updating or training the coordinators regarding the issue.

All the communication related to holds is on emails. Sometimes case by case or sometimes bunch of cases. We send out a mass communication through email, and then the local key users that sit in the same location would go directly to these coordinators and make sure they understand the process as one-to-one basis. (Unit 3 area key user, AMER).

Additionally, a common email box (named 'quality assurance') is used to highlight issues or problems. Unit 3 key users of the four areas and key users of unit 4 have joint access to this email box. Unit 3 and unit 4 coordinators collect examples to highlight a particular issue and send an email to their respective key user common email id and to the above-mentioned common email id. The key users then take up these issue and discuss jointly about a resolution for the raised issue. Further unit 3 key users (based on the area for which issue has been highlighted) update and train their respective coordinators about the issue to ensure accuracy and avoid repetition of the issue, and similarly unit 4 key users would update or provide

training to their coordinators based on issue highlighted. Issues related to incorrect or unnecessary holds along-with examples, are also forwarded by unit 4 coordinators via email to their key users as well as to this common email id. However, since issues raised are discussed and forwarded only with the key users of that particular area, implying all area key users are not aware or updated about all issues at all times.

It is advised to unit 3 and to our coordinators to send email to quality assurance only if there is an actual issue that needs to be highlighted or solved. Because we sometimes don't have time to check that email box, even though we should check it quite often. You can also forward and solve individually via skype, but it is good to keep us informed. (Unit 4 Key user).

However, most of the unit 3 as well as two of unit 4 coordinators mentioned one-to-one communication through skype is a more preferred tool for communication and is used in case of urgent matters as it is less time consuming and helps in resolving problems faster than sending emails.

So, I would say that I found communication techniques different from my previous role in another company. In this company it is very popular to use skype here. I would……We mostly use skype and emails. When there is anything incorrect in the order, unit 4 contacts us through skype and inform us to make the required changes. (Unit 3 coordinator, SE).

If there is a single issue I explain the unit 3 coordinator through skype or email and, when some issues are critical and keep coming again and again we take this up with our key users. So, unit 4 key users they then take it up with unit 3 key users and they try to train and inform their coordinators to not do the same mistakes. (Unit 4 coordinator).

Highlighting the problems and sending examples to key users as well as to the common email box, is considered time consuming (especially when the work load is high), and it would also lead to creation of lots communication as well as emails. Hence, to solve issues, one-to-one communication with unit 3 coordinators is preferred and is faster than collecting examples and sending it to the common email box.

In most cases when we used the quality assurance we sent an email to our key users and we put a CC to quality assurance. So, they were into it and they could see what is going on. But then again if it is overseen by key user it would create double emails. I am not sure how much the box is used and how much is done via the quality assurance. So, I haven't used it for a year at least. So mostly coordinators in unit 4 are handling issues individually. (Unit 4 coordinator).

Nevertheless, as mentioned in the first unstructured and in-dept interview by the interviewee who currently works as system and process expert but has previously worked as unit 4 coordinator that, use of the common email box jointly by unit 3 and unit 4 would be helpful in not only gaining visibility of issues/small things and provide training to coordinators related to those issue, but also help in the long run to face more such challenges and resolve issues.

When digitalization happened, I was handling the more challenging countries in a way. But I also did some of these easy ones that could be automated. And for those we implemented an email box to which we should report everything that stops, that is quality related issue. The email box should be used till today. I'm not sure if it is. It means that all the issues that the coordinators face should go through that email box. And I can understand it takes a lot of time and effort to contact the coordinator……. In that way I understand it but if we want to solve these issues in the long run then we really need to try and monitor these challenges that we may or may not have at the moment. It is better to remove them in the future. (System and process expert, case company's logistics organization).

Additionally, as mentioned below by unit 3 and unit 4 coordinators respectively, having a common platform or a single source to provide communication related to holds, share information related to hold issues, as well as providing resolutions would save time and issue handling would be faster with less communication going around on emails and skype.

Even though there is a digitalized environment there are a lot of things that are still being done in the old way, we have several emails back and forth depending on the case. Sharing and validating periodically the information related to incorrect or unnecessary holds is key to have both areas aligned….. If there are specific rules to stablish when a certain block is used correctly this material can be shared with unit 3 coordinators, also the current exceptions applied to countries and customers, just to make sure we all have updated information. (Unit 3 coordinator, AMER).

As for my understanding all this area users should be ***connected****, and they would inform each other. I don't think it works like that. So, we don't really have a* ***common platform*** *which I have sometimes questioned also. It's of course really hard to make something like this through which we could inform all the unit 3 area key users. Currently it's only done by email and you cannot follow up an email asking that what has been done….Also, there should be a specific contact point so that unit 3 can ask questions. So, then it's easier for them to send an email to the contact person. (Unit 4 coordinator).*

When asked about solution for managing manual hold related issues, are key user AMER, mentioned, that they should know whom to contact when such issues occur hence one-point contact person should be nominated. Hence findings related to communication techniques of manual holds reflected on analysis as well as

improvement of the communication process and need of a one-point contact for communication of issues and queries related to manual holds.

Category 3- Work Experience

Moving further to the third category, when asked about work experience and its influence on better functioning of workflows and processes in digitalised environment, most of the interviewees were of the opinion that work experience could be an considered as an advantage while performing tasks accurately and ensuring smooth functioning of workflows, and people gain experience as and when they do more and more easy as well as complex tasks.

Experience doesn't play any role in understanding the steps, but then you also have a lot of knowledge tied to it, not only the system and processes but actual work that we do. Usually a person who has experience and has used that workflow of process longer might have or get used to the issues, to give feedback and training to a new person. Work experience is a positive thing because you understand the work better and are able to solve issues faster. (System and process expert, case company logistics organization).

While some interviewees considered training as the basis for understanding processes. Most of the interviewees believed work experience as an important aspect for smooth functioning of processes.

So, I guess overall during the process when you join a new team or new department, training is really important because doesn't matter what your experience, what's your knowledge, if you have very good training you can just learn as you go. So, the training is the most important of it. (Unit 3 coordinator, NE).

We were trained many times. I was taught, but it appeared different than what we were taught. I learnt more as I did. That's the best way. (Unit 3 coordinator, NE).

Okay so when we started we had one-month training period and it was really good. we went through pretty much all what we needed to do. Of course, the most is done when, the more you do things the more you learn so it's experience that counts a lot. Initially, I was a bit slow in-processing every single delivery because I was trying to be as accurate as possible and also it was like with experience it became more fluent the whole process. (Unit 4, coordinator trainee)

Every case is different, so also after the first training I was still asking question to my tutor, and, honestly, I was quite scared to make mistakes. But then, day after day, was better and I become more confident. (Unit 3 key user, SE).

According to the experienced interviewees, through work experience understanding of processes and knowledge related to issue solving is gained, and thus helping in performing tasks and processes in a correct way.

You learn how to learn in the training month. When you get training you just get an overall view of what happens, but you cannot go too deeply because there are so many functions in the system and process, so you cannot learn everything in that time when you have the training. So, most of the things you will still learn by doing. Basically, if you have to do your work you have to learn from it and you have to learn from the mistakes, problems and errors. The more you learn the easier it is for you to work. (Unit 4 coordinator).

Category 4- System knowledge

Having system knowledge helps in performing daily tasks and solving repetitive issues quickly.

To know the system helps in your personal work I mean if you don't learn and understand how it works then every day you face the same difficulties and you have to ask someone you have to figure it out again. (Unit 4 coordinator).

With system knowledge performing tasks and learning new tasks is considered easier and faster. Also changes related to system are learnt easily once knowledge and understanding of the system is gained.

When I started I didn't know SAP at all, so was everything new for me. During this 5 years many things changed in SAP, and there were many good developments. Of course, in these years I learnt many new things, and the Key user role, gave me the possibility to deeper understand the system. (Unit 3 Key User, NE).

So, in my previous position I was working with the same system, so I have some system knowledge and understanding, however I was working with different transactions and different department. So, all the transactions and the whole process in this new department (unit 3), I have just learnt here. But I have an overall understanding of the system, which I could say as a small advantage. (Unit 3 coordinator trainee, NE).

System knowledge could be useful while performing complex tasks and handling difficult cases. However, it depends on the end user and interest in learning in depth about the system.

When it comes to system, you don't need much of experience. You learn the basics and then it's up to each one to dive into and learn more and more. (Unit 3 area key user, AMER).

Category 5- Process Knowledge

According to most of the unit 3 coordinators, gaining unit 4's process knowledge would be beneficial and helpful to them while performing the routine tasks. This process knowledge would also assist them in understanding the effect their work or processes have unit 4's processes, thus making them aware of the effects of unnecessary and incorrect holds.

Having knowledge of unit 4 processes, helps us understand the normal workflow and it also helps us to identify when something unusual might be happening. (Unit 3 coordinator, AMER).

Some manuals and overall understanding about the whole process would be very good to know what is going to be the next stage. Just a brief even a read through I guess. (Unit 3 coordinator trainee, NE).

It makes our job easier, when we know exactly the process. In our department we coordinate and make sure the order reached the customer. And so, we should know how the process works within the organization, because customer is constantly asking us about the status of the parts to be delivered. I also had a lot of discussions with unit 4 key users about the blocks and the holds, and I think right now we do know what is happening at which stage, but it took time, it took a lot of time to clarify. But now we have an idea of which hold stops package on which step. (Unit 3 coordinator, NE).

At the end of every interview the coordinators of unit 3 and unit 4 respectively were asked to rate the above-mentioned categories, based on their importance for better functioning of workflows and processes in digitalised environment. Below table provides an overview of ratings given to the categories of this study by the coordinators of unit 3 and 4 (eleven interviewees).

Table 4. Aspects and their importance

Coordinators unit and area wise	Training	Effective Communication	Work Experience	System Knowledge	Process Knowledge
Unit 3, NE	3	3	4	4	5
Unit 3, NE	5	4	4	2	4
Unit 3, SE	4	5	3	5	4
Unit 3, SE	5	5	4	4	5
Unit 3, AMER	3	5	4	3	3
Unit 3, AMER	4	5	3	3	5
Unit 3, MEA	4	3	4	4	3
Unit 3, MEA	4	3	4	4	4
Unit 4, NE,SE,AMER,MEA	4	4	3	5	4
Unit 4, NE,SE,AMER,MEA	5	5	4	4	5
Total	**41**	**42**	**37**	**38**	**42**
Average	**4,1**	**4,2**	**3,7**	**3,8**	**4,2**

Rating

0= No opinion

1= Not at all important

2= Slightly important

3= Important

4= Fairly important

5= Very Important

Above ratings provided in the table, display that training, communication and process knowledge are fairly important in the manual process hold, and improvement in these areas would support in improving the workflow automation percentage.

5. DISCUSSIONS

This section discusses the findings provided in section 4, with an aim to achieve the objectives of this study. Additionally, a revised complex change model (original model by Lippitt presented in section 2.3), is developed based on a detailed analysis of section 4. The elements of the original model are replaced with categories of this studies. Absence of every category and its respective result is presented, thus reflecting on the effect of absence of each category and its importance in managing change in a digitalized environment.

Further, the achieved objectives help in mapping the as is and proposed improved hold process, which could be linked to the concept of benefit realisation management explained in the literature review in section 3. The aim is to reflect on the benefits of monitoring the hold process, thus providing an answer to the research question which is: how process monitoring of digitalized workflows can help to improve efficiency of tasks performed and enhance service quality as well as employee performance?

5.1. Objective achievement

Objective 1: To examine training provided to coordinators related to manual holds.

On one hand, according to unit 4 coordinator and key user, an overview of their new workflows and process was provided through trainings to unit 4 key users after digitalization. Additionally, monthly meeting with unit 4 key users of one area as well as communication through email with other key users, when required is done currently. During this monthly meeting and through the email exchanges various updates are shared, and issues are resolved including manual hold issues. Also, as mentioned by unit 4 coordinator, the hold process is more about understanding which

holds to use when and where. Hence, understanding and following the processes is considered equally important along-with trainings.

On the other hand, according to unit 3 coordinators (AMER, MEA area specifically), when unit 4 coordinators visited them and explained their workflows as well as the hold process, it was beneficial and helped them to understand the effect of their tasks on unit 4's tasks as well as workflows. Hence, general trainings as well as specifically related to manual holds (including coordinator visits, skype meetings), provided by unit 4 themselves, are considered helpful by unit 3 coordinators as they provide useful insight of unit 4's workflows and processes.

Objective 2- To analyse the manual hold process knowledge of coordinators who use holds that stop automation of the workflow.

As mentioned by most of the unit 3 coordinators that during training they are given an overview of tasks performed by unit 4 as well as their workflows. On one hand, coordinators in some areas mentioned that they did not know unit 4 processes, workflows as well as manual hold process in detail, but gaining more knowledge would help them in performing their routine tasks better by understanding which holds to use when. On the other hand, some areas where coordinators knew the processes well, stated that the process knowledge helped them in doing their daily work better and using holds when required.

Objective 3- To analyse the communication as well as monitoring process related to manual holds after digitalization implementation.

After digitalization project was implemented, unit 3 and unit 4 coordinators were asked to send emails regarding issues, queries, observations to a common email box which was monitored by unit 3 and 4 key users. This included sending emails for issues related to manual holds used. Hence, unit 4 coordinators would collect

examples of unnecessary and incorrect holds and email these to their key users as well as the common email box. Unit 4 key users would then take up the matter with the respective area key user to whom these examples belong. Unit 3 key users would then further pass on this information to their coordinators to ensure that such unnecessary or incorrect holds are not applied. In other words, this technique is used to monitor use of unnecessary or incorrect holds, and there were no reports generated until now to examine the holds used and their accuracy.

As mentioned by unit 4 coordinator, sending examples to the common email box is not used by coordinators so often now, firstly due to the time required to collect cases and send emails, and secondly due to different kinds of issues related to different areas. It was difficult for the coordinators to know how effectively these issues were informed to all the areas due to lack of a common platform of sharing issues across all area. Hence, unit 3 coordinators currently communicate one-to-one with unit 3 coordinators, either by skype or through emails. Unit 4 coordinators then mentioned that they make notes of the skype conversations and emails to remember what was discussed related to holds. However, possibilities of forgetting these notes are high, given the amount of conversations and number of variety of cases that are handled daily. Hence, issues related to hold are solved individually through skype or email communication between both the unit coordinators, due to the urgency to send parts to customer and due to time-consuming process of reporting issues.

Objective 4- To analyse the challenges faced by coordinators regarding the manual hold process and feedback on improvement in the process.

From unit 4 point of view one of the main challenges is the difficulty in explaining the manual hold process to unit 3 coordinators in detail. This is due to factors such as, complex nature of orders, special country formalities, as well as differing customer requirements. However, as mentioned during the second unstructured interview with the system and process expert of the case company, to begin with

frequent reporting of repetitive errors and issues related to hold to the common email box, would serve as a starting point for key users to plan and provide training by focusing on these common issues and errors. Hence, to solve the issues in the long run it is important to follow these sometimes-time-consuming processes and try and monitor challenges that are being faced at the moment.

According to unit 3 coordinators, one of the main challenges of the hold process is unavailability of specific and detailed training of the manual hold process. Moreover, need of having a one-point contact to gain answers related to the hold issues, was also suggested as an improvement area in the manual hold process.

5.2. Revised complex change management model

Based on the content analysis of interviewee responses related to trainings, process knowledge, communication techniques, importance of work experience and process knowledge specifically related to the hold process, helped in achieving the objectives and further aided in developing the below revised complex change model from digitalization point of view. The original model by Lippitt, is explained in the literature review section of this study. The elements however from the original model are replaced with the categories of the study and based on the interviewee responses importance of each category is reflected upon.

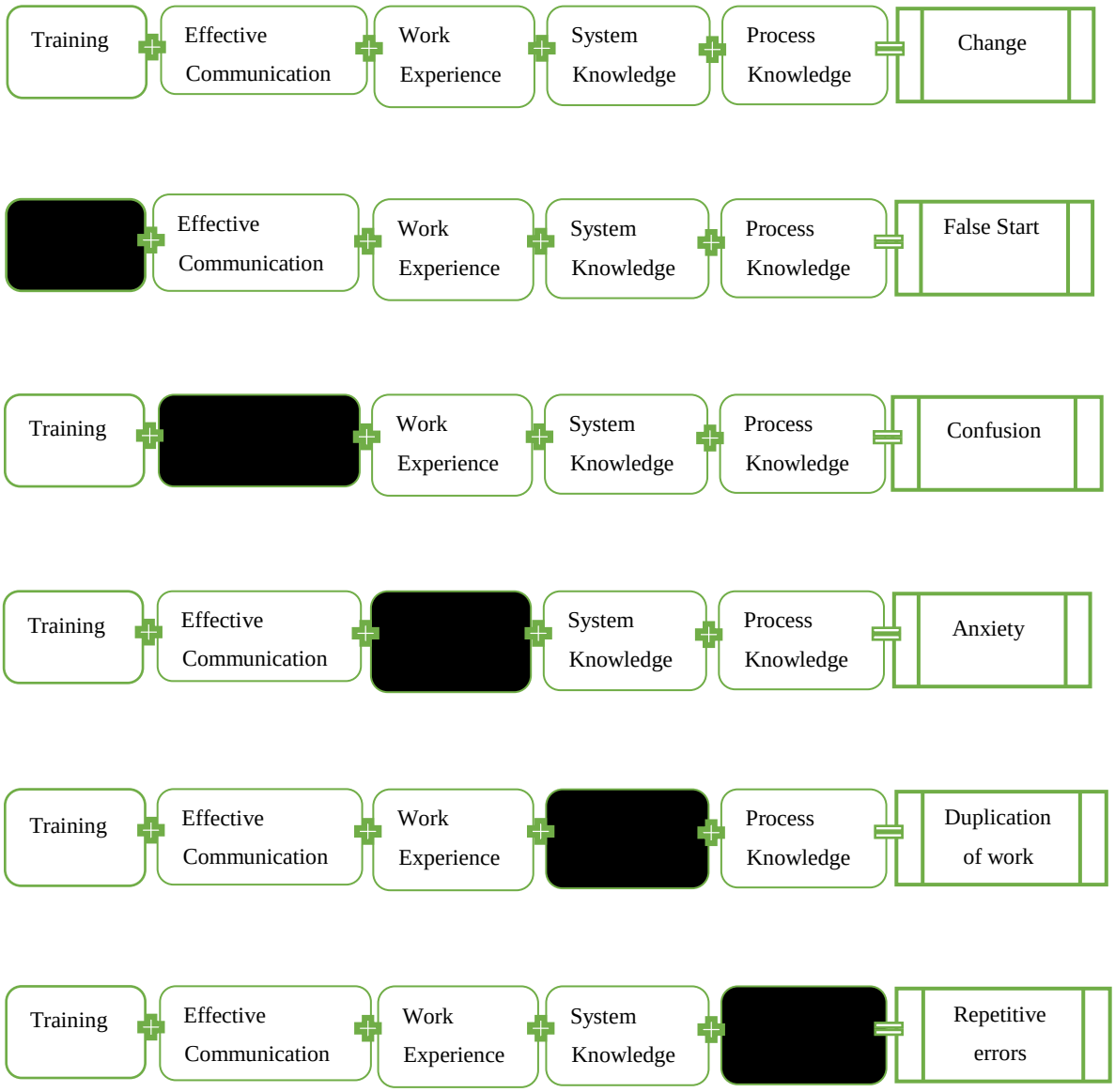
The below model displays that training, effective communication, work experience, system knowledge and process knowledge are the five aspects essential for successful execution of any change in a digitalized environment. From the case company's logistics organization's digitalization project point of view, **training** was rated as one of the most important aspect, since training provides detailed knowledge of the change and forms the basis of learning new things. Without training, it will be a **false start** and chances of committing mistakes are high. The second aspect, **communication** related to manual hold issues or queries

as mentioned by the coordinators in the case company, was carried out case by case and mostly through skype and/email. According to the coordinators one-to-one communication was easier and faster technique of communication and helped in shipping the parts urgently. However, since coordinators of unit 3 would only make notes of their communication with unit 4 coordinators regarding resolution of issues or any information provided to them, and with so many different orders to be handled daily, it is difficult to remember every note or communication, thus leading to **confusion**.

Regarding **work experience**, it was mentioned by most of the trainee coordinators that given the variations in every order, customer and country, and having worked for many years with the same process, serves as an advantage, as knowledge of processes is already gained, thus enabling the experience coordinator to resolve issues quickly as compared newly trained coordinators. Additionally, trainees are **anxious** to complete tasks without getting confirmations or being completely sure to avoid committing mistakes, in other words communicating more to avoid mistakes. Absence of **system knowledge** slows down the process of issue resolving. Gaining system knowledge aids in understanding errors that occur and thus **avoiding duplication of work** and asking similar questions or queries repeatedly.

Process knowledge was also among one of the highly rated aspects by the case company coordinators, as having process knowledge helps in knowing end-to-end process better and provides understanding of the effects their tasks have on the process. Thus, creating awareness of the possible errors and effect of these errors on other departments/units' processes, and ensuring **avoidance of repetitive errors.** Below figure provides an overview of the above explanation provided.

Figure 5. Revised complex change model



5.3. Benefits of Process Monitoring

From the case company's logistics organization's digitalized workflow point of view, improving automation percentage in other words meant removal of

unnecessary and incorrect manual holds that were interrupting the workflow automation, thus affecting employee performance and service quality. Hence, the effect of use of manual holds on workflow automation and its monitoring was considered an essential part of the logistics organization's automation study project and of this research.

Understanding gained from interviews about the way of working, trainings, communication techniques and processes assisted in gaining an overview of the case company's logistics organisation's as is hold process. Further, improvements suggested by the coordinators who performed these tasks on daily basis and were aware of the challenges and issues, aided in forming the proposed improvements to the process. Achieved objectives mentioned above along-with the as is and proposed improved process presented in the following table supported in answering the research question

Table 5. As Is Hold Process and Proposed Improvements

AS IS HOLD PROCESS	PROPOSED IMPROVEMENTS IN HOLD PROCESS
Training related to unit 4 processes and workflows is generic. And only provides an overview of the processes.	Detailed trainings related to workflows, processes and manual holds.
Currently monthly key user meeting with one area only, to clarify and discuss issues.	Monthly meetings with all area key users' monthly meetings.
Irregular use of the common email box by unit 4 to highlight hold related issues.	Regular use of the common email box to highlight common and repetitive issues, leading to information sharing and planning of trainings in the right direction.
One-to-one skype conversations to resolve hold issues, decreasing the possibility of knowledge sharing among all unit 3 areas and coordinators. Also, increasing the possibility of repetitive errors by unit 3, due to difficulty in managing of large number and variety of cases daily.	One-to-one skype conversations to resolve urgent cases, as well as reporting this cases to the common email box as example for other area unit 3 coordinators.
Irregular use of the common email box, hence no one point contact for issue resolution.	Use of common email box as one-point contact by reporting examples of commonly used incorrect and unnecessary holds and resolving issues as well as replying to queries through this common email box.

Answer to RQ: How process monitoring of digitalized workflows can help to improve efficiency of tasks performed and enhance service quality as well as employee performance?

Training, sharing hold process knowledge and providing one-point contact for queries and issue resolutions related to manual holds, would help unit 3 coordinators in understanding the hold process as well as effects of the holds used by them, thus leading to improvement in use of manual holds. Use of appropriate holds will also save handling and communicating time spent on manually stopped automated workflows. Moreover, reporting examples of unnecessary of incorrect holds will aid the key users in training unit 3 coordinators specifically related to the issues highlighted and thus avoid repetition of errors.

Hence this study shows that process monitoring assisted in reflecting on the challenges, difficulties faced by the coordinators and highlighting the recommended solutions, that would further improve employee performance as well as enhance service quality.

5.4. An integrative framework of process monitoring in digitalized environment

Given the case company's distribution and invoicing unit's digitalization project aims of enhancing co-ordination of tasks by introducing new workflows and enhancing service quality through workflow automation, it is observed from the findings and discussions that, efficient functioning of processes and workflow automation is as much as people dependent as it is system dependent, especially the workflows that involve manual intervention.

From the findings it can be seen that workflow automation to function efficiently, requires comprehensive and continuous trainings, effective communication techniques and process knowledge sharing, especially in organizations which have

high inter and intra-department dependencies. Based on the above outcome from detailed content analysis of the interviews performed combined with the relevant literature, an integrative framework was developed with people as one of the essential elements of the digitalized environment.

One of the crucial tasks that people (employees), undertake is to ensure smooth functioning of digitalized processes, by following processes and performing tasks based on the trainings provided and with the support of system as well as process knowledge. Implementing changes after digitalization is implemented, requires the organisation to develop not only acceptance and understanding levels of employees to manage the change, but also involves encouraging the employees to provide feedback for improvement and enhancement of these digitalized processes, especially the ones that require human intervention. Further, these feedbacks help organizations to improve and enhance processes.

Figure 6. Integrative framework

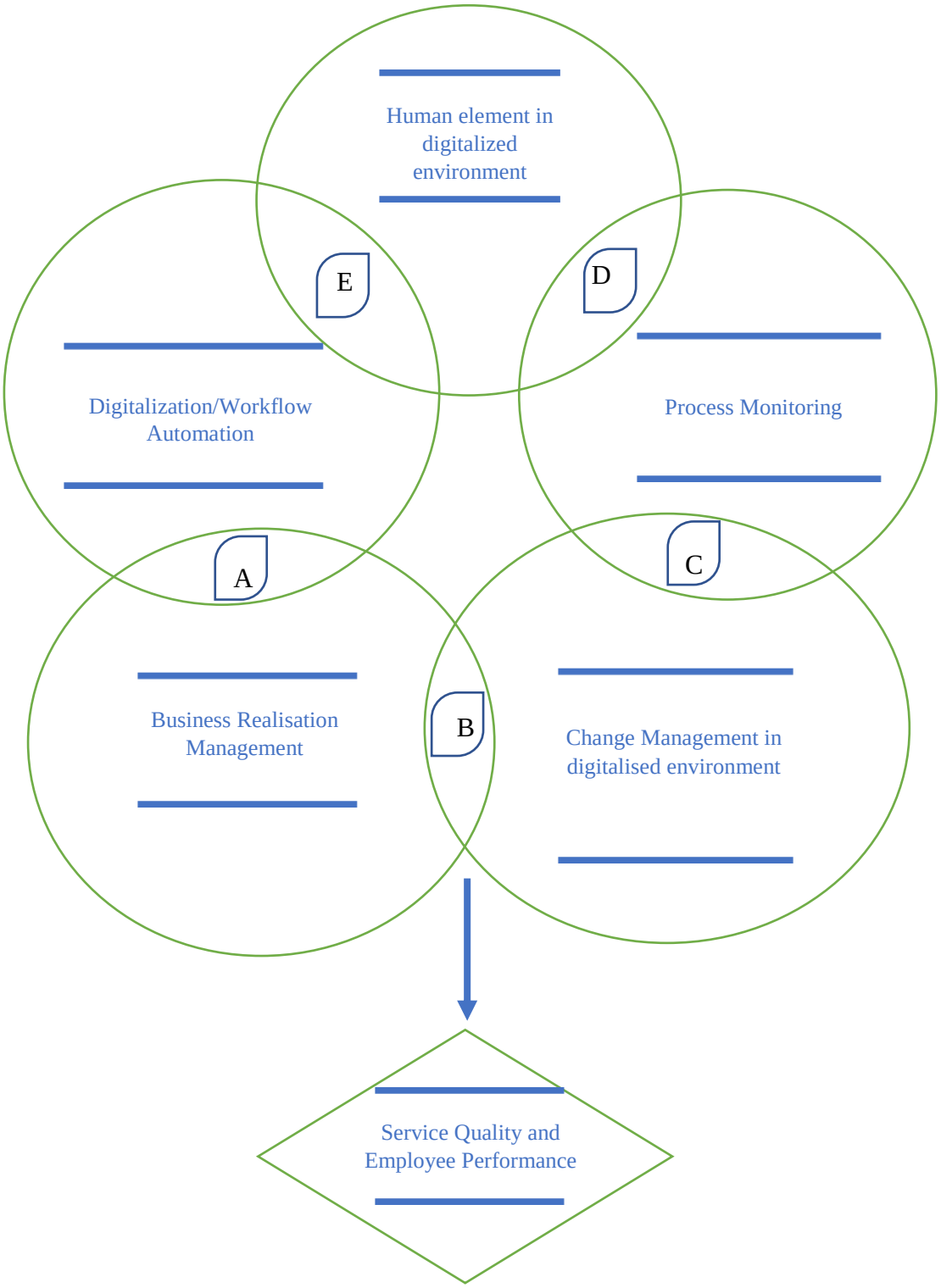


Table 6. Revised key concept relationship table

Connection points	Interconnection between	Explanation
A	Digitalization/Workflow automation and business realisation management	Assessment of digitalization benefits and potential improvement areas.
B	Business realisation management and change management	Continuous improvement possibilities.
C	Business process monitoring and change management	Monitoring of tasks and processes.
D	Process Monitoring and Human element in digitalized environment	As part of process monitoring, gaining creative and effective feedback from people regarding process improvement and enhancement.
E	Human element in digitalized environment/Workflow Automation	Gain from people's experience, knowledge and digital skills for further digital enhancements.

Digitalization of processes and workflows, with an aim to enhance service quality and employee performance, require monitoring and reviewing of the changed and digitalized processes to examine their efficiency and validity. Change management aids in not only managing a change and analysing the crucial elements, but also helps in improving and enhancing these elements. According to business process management, processes are crucial assets of an organization. Similarly, the integrative framework of this study reflects that human element/employees are one of the biggest assets any organization has. Hence their attitude towards change and digitalization, performance and response to change, ideas, feedback are key to any digitalization project and digital transformation strategy.

6. CONCLUSION

This final chapter reflects on the theoretical contributions, managerial implications and limitations of this study, and concludes with directions for future research.

6.1. Theoretical Contributions

Digitalization has been mostly researched by various academic researchers, from the technological point of view. Moreover, studies related to logistics and digitalization have focused on digital transformation of logistics industries as well as management of huge volumes of data with the help of various information technology applications. However, this study adds to the digitalization literature from process monitoring perspective. With the help of a case company's logistics workflow digitalization, this study reflects on importance of tasks and process monitoring to ensure workflow digitalization success through uninterrupted automation.

Additionally, taking into consideration the changes that implementation and/or enhancement of digital technologies bring about in the business and working environment, this study contributes to the change management literature. However, this study experiments a different approach towards management of change in digitalized environment by combining digitalization, change management and process monitoring, and presents this combination in the form of a change management model, comprising of aspects important for smooth functioning of processes and workflows. Thus, this experiment attempts to provide a new viewpoint to management of change in the digital age.

To a certain extent, this study also adds to the business process management (a field in operations management) literature. Even though business process management aims to improve efficiency of all workflows and tasks that are part of

a single business process, this study analyses a small process in the digitalized workflow which further interrupts the workflow automation. Hence, this study adds to the process monitoring as well as process improvement research, by not only analysing the process followed to perform a particular task in the digitalized workflow, but also suggesting improvements in the current process to enhance service quality and employee performance.

With academic studies displaying change management and business process management as the key elements of digital transformation across businesses and industries globally, the main contribution of this study to the international business field is the integrative framework developed in this study, which reflects on the correlation of digitalization, change management, benefit realisation management process monitoring and people.

6.2. Managerial Implications

Just as planning and successful implementation of a project to enhance service quality and employee performance form part of a manager's responsibility, similarly monitoring and ensuring that the implemented projects perform as anticipated is equally important. This study is an example of how process monitoring can be used as a technique to examine understanding and knowledge of tasks and processes followed by the employees, as well as challenges and difficulties faced while carrying out the processes and their effects. Additionally, process monitoring aids managers in collection of data and information which be useful for tracking performance of the process, gaining knowledge on challenges and difficulties faced by people performing the process, identifying the benefits gained from the process, as well as recognising potential improvement areas.

6.3. Limitations and directions for future research

Given the exploratory nature of this study, the literature review and findings in this study has been constructed and limited keeping in view the case company's digitalization project. Even though digital transformation and digitalization are worldwide phenomenon and is gaining importance across companies and industries, this study is limited to the case company's logistic organization digitalization project. As mentioned in the literature review monitoring of processes is considered as a crucial part of business process management theory, wherein functioning of individual processes are examined. Even though logistics comprises of complex inter and intra departmental processes and activities, however findings of this study are restricted to two units within the case company's logistics organisation.

Thus, possibilities of monitoring processes of other intra as well as inter-departments of the logistics organization could be considered as a future research possibility. Moreover, various academic researchers have mentioned that through digitalization companies across different kind of industries are changing their mind-set towards business processes and activities and digitalizing their processes across various departments. Based on the process monitoring concept used in this study, future studies could be conducted in departments wherein digitalization projects have been implemented.

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APPENDIX

UNIT 3 COORDINATOR- INTERVIEW QUESTIONS

Interviewee: Date of interview:

Time:

Thank you for being willing to take part in this interview. I shall first assure you that you will remain completely anonymous and no records of the interview will be kept with your name on them.

The main purpose of the thesis is to analyse the low percentage of automation. What are the possible reasons and solutions?

1. **To begin with questions about your job and your role (5 min)**

Organization:	Unit:
Length of employment in the company:	
Current department:	
Designation and length of employment in current job/role:	
Previous job/role:	

1. How would you explain your department processes in brief?

2. What are the main tasks and responsibilities of your current job?
3. What are your department's keys objectives/goals?

2. Training imparted and communication techniques

1. What kind of training did you receive when you started working?

2. Does PCM have any manual or guide for coordinators that they could follow?

3. Did you have any system knowledge when you began working? In your opinion did your system understanding/knowledge grow during the employment period? What according to you were the possible reasons of this growth?

4. How was your experience while working independently after the training?

5. How are trainees or new comers trained when they join?

6. How does communication take place with departments involved in the process?
7. How are changes related to process/workflow/tasks communicated in the digitalized environment?
8. What are the advantages and disadvantages of the current communication techniques?

3. Digitalization project and digitalized workflows

1. How well do you know other department processes and way of working in the digitalized environment?

2. How important is it to have knowledge of GD department's processes/way of working?
3. Does GD process knowledge help you in your routine tasks? How?
4. How do you know if deliveries have stopped in workflow and their status?
5. How much knowledge do you have about various holds already in place in the system? (exception list-customers, countries, deliveries which do not go through automation)?

6. Is it possible for PCM coordinators to know from the system, that a delivery belongs to any exception country or has an exception reason and it will not go through automation?

4. Workflow automation

1. Given the digitalized way of working what is the process to ensure that customer requirements are met?

2. How does information flow take place in the digitalized environment?

3. What information could you provide about order holds and their use? On what basis are these holds applied?

4. Are any measures taken by your department to check accuracy of the order holds applied? If yes, what are these measures?

5. How does GD inform about these incorrect or not required holds? What is the process to rectify the incorrect or not required holds (if informed by GD)?

6. Do you think lack of knowledge of the use of holds would cause delays and affect the service quality?

7. Examples of order holds and interviewee opinion about these holds….

8. Any solutions you could think of to improve the process related to order holds?

UNIT 4 COORDINATOR- INTERVIEW QUESTIONS

Interviewee: Date of interview:

Time:

Thank you for being willing to take part in this interview. I shall first assure you that you will remain completely anonymous and no records of the interview will be kept with your name on them. The main purpose of the thesis is to analyse the low percentage of automation (mostly order holds related). What are the possible reasons and solutions?

1. To begin with questions about your job and your role (5 min)

Organization:	Unit:
Length of employment in the company:	
Current department:	
Designation and length of employment in current job/role:	
Previous job/role:	

1. Could you explain your department process in brief?
2. What are the main tasks and responsibilities of your current job?
3. What are your department's keys objectives/goals?

2. Training imparted and communication techniques

1. What kind of training was provided when you started your job? Did this include training related to various holds?
2. What kind of system understanding/knowledge did you have when you began working?
3. How was your experience while working independently after the training? (Specially related to hold cases)
4. In your opinion did your system understanding/knowledge grow during the employment period? What according to you were the possible reasons of this growth? (Also Managing hold cases)
5. How does communication take place with departments involved in the process?
6. How are issues/feedbacks related to process/workflow/tasks communicated inter and intra department?

3. Digitalization project-

1. How would you describe the workflows and their functioning?
2. What kind of human intervention is required in the workflows?

4.Digitalized workflow monitoring

1. What are the possible reasons for manual holds? Are these holds always correct?
2. What effect does the incorrect or not required hold have on service quality and employee performance?
3. How is information or update related to improvement in the hold process communicated to PCM?
4. How well does this communication process work?
5. As an end user, what according to you could be the solution to prevent these disruptions and help in improving the automation process percentage?