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ACHIEVING WORKFORCE AGILITY IN DYNAMIC ENVIRONMENTS

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ABBREVIATIONS

SMEs	Small Medium Enterprises
IT	Information Technology
WFA	Workforce Agility
CEO	Chief Executive Officer
HR	Human Resources
QWL	Quality of Work life
QC	Quality Circles
RQ	Research Question

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ABSTRACT:

Continuous turbulence in the business environment fuelled by technological disruptions has led firms in a frantic search for sustainable competitive advantages as they attempt to stay relevant in a dynamic environment. Workforce agility has recently emerged in the industry and academic spotlight as a strategy that when implemented effectively, promises companies not only survival but a way to thrive in a fast-changing environment.

This qualitative study builds on dynamic capabilities and workforce agility literature to answer the central research question: How is workforce agility achieved in Small Medium Enterprises? The thesis aims to explore the paradigm of organizational agility from an agile workforce perspective in an effort to contribute relevant insight and a more in-depth understanding on how to firms can leverage workforce agility as a dynamic capability which will facilitate sustainable competitive advantages. The study uses empirical data gathered from five Finnish information technology firms. Five informants were interviewed using semi-structured interviews.

The results indicate that an agile workforce can be built through encouraging five crucial capabilities: learning, teamwork, problem solving, information seeking and decision making through the initiation and implementation of six support practices: education and training, supervisor support, employee involvement, financial rewards, use of collaborative technologies and provision of flexible work conditions. The results also show failure to adapt to change as the major barrier to workforce agility which when mitigated efficiently, can lead to workforce agility. The research highlights that it is imperative that firms develop the dynamic capability of workforce agility in order to adeptly sense and seize opportunities that a dynamic environment presents.

1 INTRODUCTION

1.1 Background of the study

The nature of the business world today is becoming increasingly global and continuously characterised by technological disruption. This recent phenomenon has been characterised by abrupt changes and turbulence. This is why firms are scrambling to develop survival strategies and competitive business development models. Companies for example AirBnB and Uber disrupted their respective industries radically with collaborative consumption platforms and thereby throwing rival firms into a frenzy as they try to avoid lagging behind the competition. This is what Strohmaier & Rollett (2005) mean when they warn that the business environment is dynamic and ever changing, and it is now such that change is the only constant in the form of discontinuous upheavals than incremental changes.

Turbulence and disruptive innovations such as additive manufacturing, artificial intelligence and advanced virtual reality, have become prevailing topics in industries and also in academia as organizations and researchers attempt to solve the puzzle of how organizations can be equipped to deal with dynamic, unpredictable and constantly changing operating environments (Sherehiy et al 2007). Various solutions were proposed such as reengineering and networking with less than desired results. However in the early 1990s, agility emerged as a new solution to manage dynamic environments. Organizational agility is the competitive feature that is needed by organizations to survive turbulent environments by providing the possibility to swiftly and aptly respond in a bid to achieve compatibility with the environment while improving efficiency (Wageeh 2016).

Business success hinges on the capability to detect market opportunities and seize them with speed in addition to an element of surprise (Sambamurthy, Bharadwaj & Grover 2003). Failure to do so will most likely result in annihilation of the firms that are incapable of acting in a nimble manner and quick to respond to change. Firms which once were market leaders such as Kodak and Nokia faced a major lag behind competition because they lacked the ability to adeptly sense and seize opportunities. Kodak did not respond aptly and timely to the digital changes happening at the start of the 21st century (Djudjic 2018) while Nokia did not adequately anticipate or respond to the convergence between entertainment and

communication and the possibility of new telecommunication services (Doz & Kosonen 2008).

Central to the achievement of organizational agility, is the ability of employees to strategically craft an appropriate response to uncertainty (Glinska, Carr, & Halliday 2012). Therefore, keen attention has to be paid to agility of the workforce, and not only the technological aspects, chiefly because it is the employees who need to know how to use the technology in the first place (Gunasekaran 1999). Simply put, companies need to be aware that in order to respond to changes, it is not merely the introduction of new technology in the firm that is the solution but rather it is how the companies train the workforce to adapt to the technology that makes all the difference. Technology on its own does not ensure competitive advantages; it is the workforce's ability to hone the technology in order to respond to changes effectively and efficiently.

Jacomo (2017) posits that workforce agility has ceased to be a "nice-to-have" and has become an urgent reality to both companies and employees. An agile workforce is required to achieve not only strategic outcomes but also tactical ones by leveraging new technology and engaging critical expertise. Firms must commence the journey to creating an agile workforce (Karpie 2018) as a strategy that will result in profitability in dynamic environments. Additionally, firms stand to benefit from quality improvement, learning curve acceleration, advanced customer service and economy of scope and depth (Sohrabi, Asari & Hozoori 2014).

Workforce agility has received very little attention from the research community in spite of its obvious importance (Chonko & Jones 2005). Inevitably, this has led to managers to be ignorant of the competences of an agile workforce in an organization and consequently the practices they need to implement in order to build and support it (Alavi & Wahab, 2013). Thus, the need for this study arises. Management must be made aware of the catastrophic consequences of failing to commit adequate resources and attention towards such a major organizational transformation to an agile workforce. Currently and in the future, the dynamic business environment requires fresh models for accessing, managing and maximizing the workforce value especially those workers that are scarce and hard to retain (Karpie 2018).

This study aims therefore, to fill gaps in the theoretical knowledge in organizational agility from the perspective of an agile workforce by showing how workforce agility can be

achieved. This will be done by elucidating the core competences that an agile workforce should acquire and what organizations can do to promote the growth of those capabilities.

It is also within the scope of this thesis to identify the core challenges that companies have to overcome in the promotion of agility to further expound on the achievement of workforce agility. The study aims to achieve the research goals by taking on an exploratory approach through qualitative methods, using semi-structured interviews to collect empirical data. Drawing from the dynamic capabilities theory, the theoretical framework will aid in the analysis of this data and in framing solid conclusions from which implications for management in organizations will result.

1.2   Research gap

The belief in the past has been that in order to achieve organizational agility, sophisticated technologies have to be the key instigators, but Sherehiy, Karwowski, & Layer (2007) posit that flexibility and swiftness depends more on people than on technologies : the workforce has to be agile first before organizations can achieve agility. A workforce that is agile can make all the difference if it is well-trained and flexible and can adapt to new opportunities and market circumstances quickly and with ease (Muduli 2013). To acquire organizational agility, the workforce has to be capable of dealing with unexpected changes and turbulent business environments. However, even with the argument that an agile enterprise requires an agile workforce, most of the previous research has been from an operations perspective (Breu, Hemingway, Strathern & Bridger 2001) such as agile manufacturing, thus leaving research on an agile workforce rather scanty.

Some studies have revealed that workforce agility decreases the costs of a firm in three main ways. Firstly, agile workers are highly efficient and flexible which makes them capable of accomplishing more tasks in less time. Secondly, they reduce the investment in inventory plus manufacturing cost because they account for the increase in organizational flexibility. Lastly, agile personnel create synergy through cooperation which increases the quality of tasks leading to reduced costs (Hosein & Yousefi 2012). The demands of a turbulent environment challenge firms to leverage intelligence and capabilities of the workforce. This involves developing these capabilities to their full potential in order to create sustainable

competitive advantages (Plonka 1997). It is imperative that research elucidating the core capabilities of the agile workforce and what organizations can do to build those capabilities to full potential is carried out. Additionally, the sharp inadequacy of literature about the practices of organizations that enable an agile workforce (Sherehiy & Karwowski 2014: Sherehiy, Karwowski, & Layer 2007) and the challenges faced therewith create a big gap in the academic literature on this topic. Research on the agile workforce certainly needs to extend well beyond its current state (Qin & Nembhard 2015). Although (Breu et al 2002) carried out a study on the attributes of an agile workforce, there has not been enough literature explicating how agility of the workforce can be achieved (Alavi & Wahab 2013) in Small Medium Enterprises in the technology industry.

1.3   Research Aim and Question

In an attempt to contribute knowledge to the paradigm of organizational agility, it is important to understand how workforce agility can be achieved by organizations in order that they may significantly increase their competitive advantage. This research aims to investigate the competences of an agile workforce and what practices organizations should implement to enforce or build it. Further, it is imperative to delineate which challenges are to be overcome in the process of obtaining agility. Therefore the central question of this research is:

RQ: *How is workforce agility achieved in Small Medium Enterprises?*

In order to effectively approach this question, this paper seeks to shed light on the competences required to create agility of the workforce, expressed in the first sub-question:

Sub-question 1: *What are the crucial competences an agile workforce should possess?*

By understanding the aforementioned objective, it becomes of fundamental importance to identify which practices organizations should enforce to build these core competences. This is   addressed   by   the   second   sub-question:

Sub-question 2: What practices can organizations implement to build the crucial competences of an agile workforce?

Gaining an understanding first of what a competent agile workforce looks like, paves way for asking the important question of what then can companies do to proliferate those competences. In the process of identifying those practices, it is often the case that barriers or challenges to implementing the practices that lead to agility in the workforce are spotted. This is the reason for the third sub-question.

Sub-question 3: *What are the challenges that organizations need to overcome in order to promote an agile workforce?*

The aim of this study is to bring workforce agility to the forefront by discovering how it can be achieved in Small Medium Enterprises (SMEs) in Finland. In the study, workforce agility is assumed to be a dynamic capability which when achieved in an organization, it bears five core competences namely Intelligence, Collaboration, Autonomous decision making, Information technology proficiency and Learning. It can be created through the promotion of five crucial organizational practices namely Training, Employee Empowerment, Reward systems, Information-Sharing systems, and Work Organization. These practices are incredibly vital in promoting workforce agility. However, it is not enough to merely implement the practices or programs. Understanding what challenges face the promotion of workforce agility is equally important in order to create longer lasting solutions. In this study the biggest barriers to workforce agility are resistance to change and poor communication of strategic direction. Figure 1 captures the topics in this study that will be used to explore what workforce agility is and how it can be achieved.

Figure 1. Understanding and achieving workforce agility.

1.4   Significance of the study

This study will shed more light on workforce agility, a topic which is scantily studied in the research community. On a practical level, the study reveals to managers what exactly workforce agility is and what are the crucial competences that a workforce which is agile is supposed to have in order to for those specific competences to be developed thereby saving the firm's resources. The study also discovers the most crucial programs or practices or initiatives which firms can implement to promote the agility of the workforce. Moreover, this study is significant to managers by giving them a better understanding of the biggest barriers or hindrances to the promotion of workforce agility in SMEs. Understanding these barriers gives insight to what could be the most potent solutions in creating and sustaining an agile workforce.

Theoretically, the study contributes to the paradigm of organizational agility through empirically exploring the perspective of the workforce and extending the extant theoretical framework which is limited (Alavi et al 2014). It is limited because there have not been systematic studies of workforce agility (Gunasekaran 1999). Whenever it has been studied in the past, it has been from an operations perspective (Goldman & Nagel 1993). The study purposes to extend the theory of workforce agility by introducing a conceptual framework of how it can be achieved in Small Medium Enterprises.

1.5   Thesis structure

This paper consists of five chapters in total. The first chapter is the introductory chapter which aims to introduce the topic of study. Here the background of the study, the gaps in research, research questions and sub-questions are discussed. This chapter also briefly introduces the concepts in the study and how they interrelate. The second chapter is a review of literature of the concepts of agility and workforce agility as a dynamic capability. This chapter discusses the five core competences of an agile workforce and the practices that support or promote it. The theoretical framework continues to include the organizational

barriers or challenges to achieving workforce agility. Finally, conceptual framework of how workforce agility is achieved in Small Medium Enterprises is introduced.

Thereafter, the third Chapter ensues with the methodology of data collection and interpretation of the data results. Also explained in detail are the collection, handling and method of analysis of the empirical data. The fourth chapter discusses the findings of the research. Results are analysed and compared to the theory. The fifth and last Chapter tackles the managerial and theoretical contributions and then concludes with the, implications for managers, suggestions for further research and limitations of the study. Figure 2 portrays the logical structure of the thesis.

Introduction → Literature review → Methodolody → Findings and Discussion → Conclusion
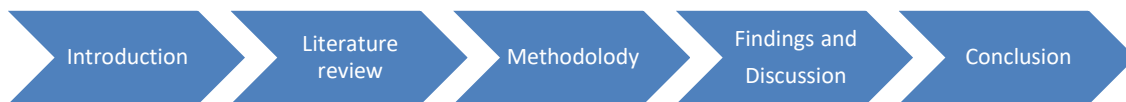
Figure 2. Structure of the paper.

2 THEORETICAL BACKGROUND

2.1 The concept of Agility

In the 1950's when there was perhaps relative stability of economic markets, agility was described as "an aircraft's ability to change or manoeuvre state" (Richards 1996). However, in the 90's when manufacturing had taken off, the term agility was popularized in the broader business context as an organizational capability to respond to changes in the market and cope with the unforeseen changes to survive threats from the business environment (Huang 1999). It was birthed in manufacturing research by the Iaccoca Institute and very soon played a central part of the studies around manufacturing systems (Breu, Hemingway, Strathern, & Bridger 2001). At the time, agile Manufacturing was the strategy that was widely in use and it was mainly about meeting a wide range of customer needs in the form of price, quality, delivery and specification (Katayama and Bennet 1999). Since then, there has been much research about agility but a consensus on a uniform definition of the concept is yet to emerge (Oosterhout, Waarts, & Jos, Hillegersberg 2005).

Goldman et al (1995) defines agility as the ability of an organization to thrive in a competitive environment of continuous and anticipated change and to respond swiftly to rapidly fragmenting, global markets served by networked competitors with routine access to a worldwide production system. The global markets are driven by high demand, quality and performance, low-cost, customer-configured products and services and continually operating profitably in a competitive and unpredictable environment with ever changing customer opportunities. A basic level of agility dictates that organizational agility is divided distinctively into two parts: adaptability and flexibility (Fallance 2012). Flexibility is illustrated in a firm's ability to respond to external stimuli. Therefore, it measures a responsiveness of an organization in relation to the decisions made depending on the external triggers while the ones made in response to environmental triggers are a measure of a firm's adaptability (Harraf, Wanasika, Tate, & Talbott 2015).

In the course of developing an appropriate response to external stimuli, a firm portrays its flexibility by making necessary internal adjustments to its structures and processes. Flexibility also reflects the readiness of a firm's resources and the ease with which they are

acquired and assembled while adaptability shows the fit of the firms operations relative to its environment (Wageeh 2016). Agility puts much emphasis on speed and flexibility as the primary attributes of organizational agility (Gunasekaran 1999). In addition to that, taking advantages of changes as opportunities, and crafting effective responses to change (Zhang & Sharifi 2000) are also seen as main factors of organizational agility. Furthermore, Yusuf et al (1999) have defined organizational agility as the successful exploitation of competitive bases, which are; speed, innovation, proactiveness, flexibility, quality and profitability by means of integrating reconfigurable resources and best practices in a knowledge-rich environment.

Agility is said to be an been organization-wide capability (Lu & Ramamurthy 2011) meant to handle situations arising in an unanticipated fashion in the business environment through rapid innovations which exploit changes (Goldman et al 1995). Two forms of agility are identified as operational adjustment agility and market-capitalizing agility. Operational adjustment agility is concerned with the ability of the firm in its internal processes to devise coping strategies to deal with changes in market or demand. This type of agility is a reflection of flexible operations forming a critical foundation for translating fast and fluid actions in a volatile business environment. The latter type of agility is concerned with the ability of a firm to capitalize on changing environments in order improve on their products and services to meet the needs of their customers. Market-capitalizing agility highlights dynamism, aggression and an entrepreneurial mind set in regards to strategic direction, judgment and making decisions in the face of uncertainty (Lu & Ramamurthy 2011.)

Williams, Worley & Lawler (2013) assert that agility is not merely an ability that implicitly exists within the organization. It is a deliberately cultivated capability enabling a firm to changing circumstances in an effective, sustainable and timely way. Management literature has increasingly pointed to agility as a 'dynamic capability': potentially sensing threats and opportunities, solving problems and changing the company's resource base. Change is not pursued for the sake of change but rather for the purpose of creating, maintaining or sustaining competitive advantage. This capability helps firms maintain or increase their relative advantages in a fashion that competitors miss or imperfectly implement (William, Worley & Lawler 2013.)

2.2   Workforce Agility

The agility principles can be just as easily applied to various business functions (Katayama and Bennet 1999). The term 'agility' quickly widened to become a broader business concept from which sprung others such as 'agile business relationships', 'agile supply chains' and the more recent one as 'the agile workforce' (Breu et al 2002). Workforce agility has come to be understood a facet of organizational agility (Qin & Nembhard 2015, Qin & Nembhard 2010). It could be essentially viewed as the backbone of organizational agility (Sherehiy & Karwowski 2014). A single definition of workforce agility has not been formed yet in the few studies that have been performed about it. It has been described from two perspectives: the ability perspective and the capability perspective. Those who have defined it from the ability perspective emphasize workers as having the ability not only to respond to change in a timely manner but also to exploit its rewards. Put differently, they are inclined to making the best of turbulent environments (Kidd 1994: Zhang & Sharifi 2000). From the capability perspective, workforce agility is characterized by workers being good at solving problems, embracing change and new technologies, innovative, accepting responsibilities readily, learning and gravitating towards developing themselves (Muduli 2017.)

Workforce agility as a capability is derived from Dyer & Shafer's (2003) framework used for classification of workforce agility behaviours and attributes. It comprises of three dimensions namely proactivity, adaptability and generative behaviour. Proactivity is further subdivided into initiation and improvisation. Workers are proactive when they search for and courageously pursue opportunities that will likely lead in success of the organization (Muduli 2017). The workforce is agile when it displays proactiveness in form of improvising when unforeseen circumstances arise using their knowledge to arrive at the best outcome for the firm. Sherehiy & Karwowski (2014) refer to the proactive dimension of workforce agility as the situation in which a person initiates programs or processes that impact the changed environment positively.

Adaptivity involves making necessary modifications to oneself in order to fit better in a new environment (Griffith & Hesketh 2003) thereby requiring interpersonal and cultural flexibility (Sherehiy & Karwowski, 2014). Adaptable behaviour is also warrants professional flexibility. Professional flexibility is accepting many responsibilities and changing roles easily in different tasks or teams. Muduli (2017) asserts another dimension of the workforce

agility behaviours to include resilience. Resilience manifests in positive attitudes to novel ideas, technologies and other changes such as process changes and tolerance of unpredicted situations, differing opinions and coping with stressful situations. Generative behaviour is concerned with continuously developing one's proficiency and actively taking part of knowledge sharing and information gathering activates (Dyer & Shafer 2003). Table 1 summarises Dyer & Shafer's (2003) framework of agility-oriented attitudes and behaviours of the workforce.

Table 1. Workforce agility-oriented attitudes and behaviours adopted from Dyer & Shafer (2003).

Proactivity	Adaptability	Generative
Initiation; Of opportunities to contribute to organizational success and take the lead in pursuing those that appear promising.	Assuming Multiple Roles; Perform in multiple capacities across levels, projects, and organizational boundaries – often simultaneously.	Learn; Continuous pursuit the attainment of proficiency in multiple competency areas, avoiding over-specialization and complacency.
Improvisation; Devise and implement new and creative approaches to pursuing opportunities and dealing with threats.	Rapidly Redeploying; Move quickly from role to role. Spontaneous Collaboration; Engage often and easily with others with a singular focus on task accomplishment (and disengage just as easily when contribution is no longer needed).	Educate; Actively participate in the sharing of information and knowledge through the organization, as well as with its partners and collaborators.

2.3   Competences of an Agile Workforce

In the era of fast technological advancements, globalization, mergers and acquisitions, team-based projects, demand for a workforce who is capable of speed and flexibility is paramount (Griffith & Hesketh 2003). It consists of an organized and talented team of individuals who

quickly and aptly deliver the right skills and knowledge at an opportune time depending on the needs of the business. It is well-trained and adapts easily to new opportunities and markets (Katayama and Bennet 1999), therefore preparing the organization for a dynamic environment. An agile workforce consists of individuals with the capabilities to deal with market turbulence and craft innovative and effective responses to the changes in account structure and preferences of customers (Sharifi and Zhang 2000). Nijssen & Paauwe (2012) emphasizes the importance of having a workforce acting in alignment with the firm's needs and can only do this when they have possess multiple capabilities.

Breu et al (2001) suggest five higher- category groups of capabilities crucial to creating a truly agile workforce namely, Intelligence, collaboration, culture, information system and competencies. Intelligence is associated with collective environmental responses of employees in relation to reading and interpreting external change. This can be in the areas of customer needs, strategies of competitors and business trends or emerging opportunities in order to tune objectives in the appropriate direction. Collaboration is concerned with abilities of effective cooperation across functional, project and organizational boundaries. Culture involves creating an internal environment, which is supportive of decision making and employee empowerment. Information system capability is in reference to deploying flexible information technology infrastructure, which enables new systems to be assimilated with ease and effectiveness. Finally, competencies are related to acquiring new skills such as software skills, business process integration and management depending on how they align with the current and future orientation (Breu et al 2002.) It is the purpose of this study to expound on Breu et al (2001)'s study of capabilities of an agile workforce in order to contribute to theoretical knowledge in the academic field of organizational agility.

2.3.1 Intelligence

As previously mentioned, the intelligence capability of an agile workforce is comprised of responsiveness of a firm's knowledge workers (Gunasekaran 1999) to the changes in business environment in order to alter business objectives and goals. In addition, the response devised should also be speedy for example in the recognition of customer needs and sensing market conditions (Breu et al 2002). Put differently, intelligent employees respond to changes in a

time-sensitive manner after they have used their intellect to sense what kind of trends and opportunities are cropping up. This may involve exploring the future in a detailed way, interpreting the information related to change and communicating it to the appropriate decision makers (Williams, Worley & Lawler 2013). Qin & Nembhard (2015) assert that an agile workforce maintains a positive attitude towards unforeseen changes. A positive attitude enhances the responsiveness to change. Furthermore, self-motivation increases responsiveness through frequent forecasting and preparedness of for the unexpected. Self-motivation and positive-attitude behaviours are ones that stimulate responsiveness in employees.

Sherehiy et al (2007) find that responsiveness to changes in market conditions and needs of the consumer are important factors for workforce agility. Creating, interpreting and communication of effective and timely responses to turbulent environments, requires information and knowledge. An intelligent workforce is in possession of the right information and knowledge (Qin & Nembhard 2015). It is agile when it acquires the information and shares it across the organization. The current demanding environment characterized by accelerated technological development requires the cognitive abilities of the workers of an organization. These demands dictate increased learning and knowledge acquisition. Acquisition and dissemination of that knowledge subsequently requires a workforce to seek information or ask numerous questions (Plonka 1997). By doing this, they demonstrate proactivity by taking initiative to seek for new information which could potentially reveal gaps in the market that can be filled by the firm. This learning attribute espoused by the workforce is a vital factor in dynamic environments as it increases their preparedness for change. Self-motivation is in tandem with learning because individuals who tend not to develop themselves do not seek to acquire new knowledge.

2.3.2 Collaboration

Workers demonstrate agility when they collaborate effectively across different projects, functional and organizational boundaries, (Breu et al 2002) in addition to moving swiftly between projects (Sherehiy et al 2007). This is by working in a group of two or more people to achieve a common objective (Qin &Nembhard 2015). A team operates within specific or non-specific functions, interact interdependently, adaptively and dynamically to accomplish

more work than employees working individually (Qin, Nembhard & Barnes II 2015.) Collaboration takes various forms for example cross-functional teams, virtual organization or collaborative ventures with various companies (Open, Gel & Hopp 2001). Collaborative systems where teamwork is applied increases productivity and average task speed whereby the mean completion time of the tasks is shorter for teams compared to that of individual sets. When individuals work together, they are more agile in absorption of variations in processing times (Qin, Nembhard & Barnes II 2015).

Collaborative teams are built when job tasks allow more than one individual worker to perform a task simultaneously. Most commonly, multi-functional and dynamic teams are formed to achieve the ultimate benefits which include collaborative efficiency and task relationships. Multi-functional teams are created with the intent of combination of skills required from a workforce unit which possess the capabilities for a job in context-specific circumstances (Qin &Nembhard 2015.) These teams are also cross-trained or multi-skilled whereby each member has skills for more than one task meaning they can work on multiple tasks and significantly improve performance of the team in conditions of uncertainty of labour supply (Qin et al 2015). Dynamic teams are formed on a temporary basis for special purposes by pooling together a team of workers with the desired level of expertise. Dynamic teams facilitate knowledge transfer between workers and transform knowledge in to new products and services in an organization (Qin &Nembhard 2015.) Forsythe (1997) asserts that agile workforces move into any collaboration environment with ease, speed and flexibility.

2.3.3 Autonomous decision making

An agile workforce has a culture which is deeply rooted in autonomous decision making. It emphasizes empowering employees and rewards them for involvement in decision making. Agile workers are supportive of the culture of autonomous decision making through engaging in making the decisions independently or distribution of the authority to make them (Breu 2001). Employee empowerment, also known as decentralized decision making is a form of power-sharing in where workers are given authority at either a team level or an individual one to make fundamental or low-level decisions which impact the organization (Qin &Nembhard 2015). The involvement of employees in decision making is vital in a dynamic

environment as the changes taking place are happening at a fast pace. The quality of decisions is thereby ensured in a fast decision-making process by making certain that they understand the objectives and goals of the company (Nijssen & Paauwe 2012).

Employee involvement in decision making rapidly reduces response times, improves workforce responsiveness and cooperativeness. This is because they are able to make decisions un-bureaucratically, access useful information with ease and possess a good understanding of issues pertaining to change. Limited empowerment may have the effect of lowering the desire of the workforce to participate in change and collaborative environments (Qin &Nembhard 2015). Piersol (2007) argues that one of the key issues instrumental in employee empowerment is efficient communication of the mission and goals of the organization to the workforce. This promotes engagement as an empowered worker, is an engaged one. Without engagement of the workforce, rigidity and failure looms (Piersol 2007). An empowered workforce is free to get immersed in the organizations activities with confidence and participate in knowledge sharing. Sharing knowledge with other workers is a result of the culture of autonomous decision making as the employees take ownership of the organization thereby freely disseminating knowledge (Sherehiy et al 2007). Agility of the workforce is guaranteed when the authority to make decisions is given to employees (Kidd 1994).

2.3.4 Information Technology proficiency

The workforce that is agile exhibits software and information technology (IT) skills such that they are capable of exploiting new applications using devices for example palmtops (Breu et al 2001) and modern technologies such as artificial intelligence, Internet of Things (IoT) and virtual reality. These technologies embed a digital culture in the DNA of a firm, which is said to increase its productivity and heighten its employer brand (Dodson 2019). Having the skills to use these technologies supports the rapid deployment of information systems with in organizations (Breu et al 2001). The information systems are significantly vital in environments with a high degree of uncertainty because of their capacity to absorb a tremendous information load, even more so is the workforce which is capable of using it in an appropriate and efficient manner. As the workforce becomes more adept with IT capabilities, Lu & Ramamurthy (2011) argue that market capitalizing agility and operational

adjustment agility is enhanced if all three IT capability dimensions namely; IT infrastructure, IT business spanning capability and a proactive IT stance, are successfully implemented.

The first dimension involves an integrated platform on a global level that enables the standardizing and integrating processes and data. This integration level enables information to be gathered and shared accurately in a timely fashion. Comprehensive, consistent real/time information makes for effective and efficient decision making by the workforce. Globally integrated platforms for example firm-wide databases and applications give firms the ability to make fast responses in the face of market changes. The IT business spanning capability dimension puts emphasis on the partnership and synergy between IT managers and business managers, which leads to joint decision making, because of close cooperation over time. As a result, more buy-in and more effective implementation. The third dimension emphasizes new ways of exploring and exploiting firms' IT resources to capitalize on business opportunities. The proactive stance provides a firm with the capacity to sense changes as advancement in IT continues to develop and allows for it to choose IT innovations, which act as solutions for changing information requirements in alignment with business strategy (Lu & Ramamurthy 2011.) The effective use of Information Technology applications, if reached by an agile workforce, increases its level of agility especially when used for work types which are collaborative in nature, (Sherehiy & Karwowski 2014) in effect creating virtuous cycle.

2.3.5 Learning

An agile workforce is characterized by its ability to speedily and adeptly acquire skills, especially information technology, software, business process integration and management skills which are alignment with the business strategic goals (Breu et al 2001). Dyer & Shafer (1998) identify capabilities developed by agile employees; taking the initiative to assess potential risks and opportunities, appropriate resource allocation, collaboration for fast results, innovative and learning continuously. The rate at which employees of an organization take initiative to acquire new information technology and software development or management skills (Breu et al 2001) is determinant of their agility. This is because in a marketplace facing rapid technological change, competitive advantages are won by the fast movers. It will not benefit the organization if the workforce gain the necessary skills later

than the competition's as the firm may lag behind and could face lagging severely behind in the industry.

Dyer & Shafer (2003) further contend that an agile workforce continuously develops its competencies and in so doing eschewing complacency and over-specializing. They termed this as being generative. It involves pursuit of knowledge in the areas of competency such as business process change and being able share it through educating other employees. Commitment to learning and sharing of knowledge are dimensions of organizational learning which has been identified as one of the most efficient determinants of workforce agility (Alavi, Wahab, Muhamad & Shirani 2014). Organizational learning occurs at three levels. First, at the individual level, second, at the group level and thirdly at the organizational level. At the individual level, intuiting and interpreting occur whereby the former involves recognition of patterns and opportunities as a result of personal experience while the latter is concerned with explaining the individual's idea to oneself and also to others. Learning at the group level involves integrating, which serves as a means through which a share understanding and coordination between individuals is created. Lastly, at third level, institutionalizing occurs. It is concerned with creating routines and procedures (Crossan, Lane & White 1999). Table 2 portrays a summary of the core competences that a workforce requires in order to become agile.

Table 2. Overview of the core competences of an agile workforce.

Core competence	Description
Intelligence	Capability to take a proactive stance to sense and respond to market needs.
Collaboration	Ability to engage in multi-functional and dynamic teams to achieve the set objectives.
Autonomous decision making	Ability to make decisions independently and to distribute authority.
Information technology Proficiency	Ability to use and exploit Information Technology applications to effectively sense and seize opportunities as they arise.
Learning	Continuously acquiring knowledge and skills in order to respond to change effectively.

Underpinning the above competences are the three attributes of an agile workforce. This means that the workforce cannot acquire these competences if they are not proactive, adaptable and generative. They should possess these three behaviours if they are to become agile. As mentioned earlier, *proactive behaviour* involves anticipating change-related problems and then going a step further to address and solve those problems. Proactive behaviour inclines an employee to not only search for opportunities that are beneficial to the firm, but also participate in leadership to pursue those opportunities. *Adaptive behaviour* is related to how effectively and efficiently the transition into new environments, across projects or in new roles is. Generative behaviour focuses on how the workforce responds to learning new information or multiple skills. Through the possession of these behaviours, the workforce is able to acquire intelligence, collaboration skills, make decisions independently because of the drive to sense and seize opportunities. Additionally, they are able to efficiently use Information Technology applications to acquire and share information and also maintain a continuous learning stance. Figure 3 captures the relationship between the five core or crucial competences and the behaviours or attributes of an agile workforce.
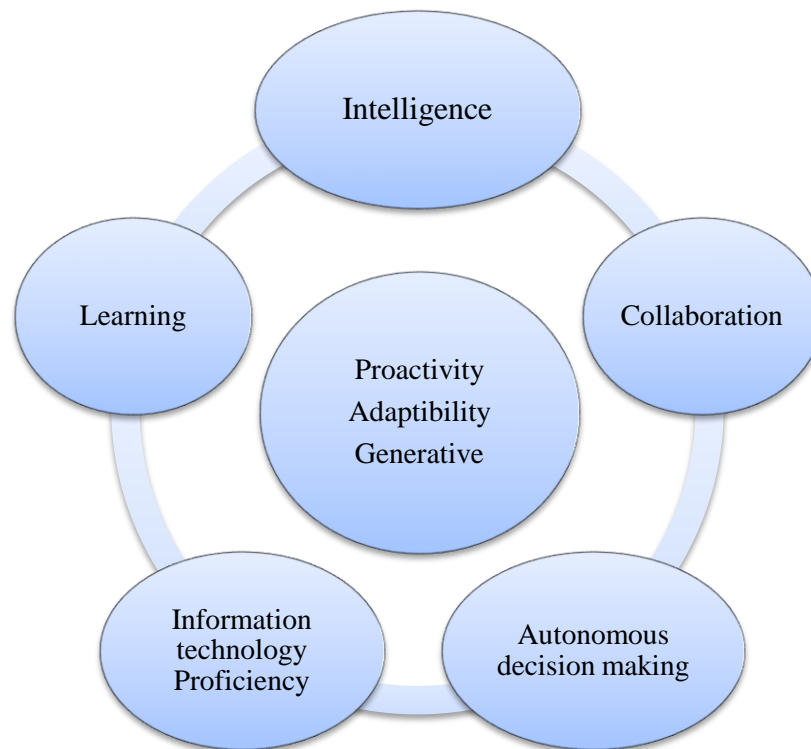
Figure 3. Relationship between Core competences and attributes of an agile workforce.

2.4   Organizational practices supporting Workforce Agility

Organizational practices are programs initiated and implemented by management which create or reinforce workforce agility (Qin & Nembhard 2015). Although the importance and benefits of having and maintaining an agile workforce have been established, research about organizational practices promoting an agile workforce has been rather limited and no consensus has been reached about the fundamental practices that managers or leaders in an organization can implement to promote agility of the workforce (Muduli 2017 : Alavi et al 2014). Tseng & Lin (2011) propose translation of requirements of drivers of agility into agility capabilities in order to determine the appropriate practices while Glinska, Carr & Halliday (2012) argue that management can determine the most vital practices to implement for the purpose of promoting workforce agility, without wasting the resources of the enterprise on unnecessary programs. This can be achieved by understanding what motivates the employees and which activities enhance their capabilities. The purpose of this paper is also to explore the approaches or practices that firms can implement with the fair confidence that the agility of the workforce will be developed and maintained.

2.4.1 Cross-training

Broadly, training refers to an organized and structured approach to development and learning in order to achieve and improve effectiveness of the individual, team and organization (Goldstein & Ford 2002). Training is one the most common and effective ways of creating, enhancing and retaining the knowledge and skills of employees. Changing marketplaces and business requirements often need employees to learn new tasks and new ways of doing those tasks. Training has either a direct or indirect impact on workforce agility (Qin & Nembhard 2015). Equipping employees with a range of necessary skills ensures the ability to perform a wide task-range which includes but is not limited to statistical analysis, problem solving, group decision making and capabilities which are specific to the job (Glinska, Carr & Halliday 2012). Training activities are an investment of the firm in employees to effectively and efficiently respond to change (Alavi et al 2014). Moreover, it makes them more confident about approaching tasks and tackling uncertainty in the marketplace according to the job task.

Increasing confidence and decision making ability are some of the benefits on the individual level, and on the organizational level, studies have found that training has a direct positive impact on the performance and profitability of a firm (Aguinis & Kraiger 2009).

Martin (2015) asserts that training is a major approach when building an agile workforce because in addition to creating new knowledge, it aligns the development needs of employees to the strategic aim of the organization. Martin suggests a 70-20-10 rule as a baseline to use when designing training module but warns of potential ineffectiveness. It states that 70% of training activities should be practical in nature, 20% facilitated, and 10% self-directed. Qin & Nembhard (2015) propose that training is done for three reasons; 1) to bestow upon the workers a variety of skills (cross-training), 2) to deliver just-in-time skills to cater for radical environmental changes, 3) contribution to motivational factors and cognitive abilities. Cross-training is a formidable strategy for ensuring workforce agility (Muduli 2017) as it makes employees able to perform a variety of tasks and move easily from one task to another. This makes it easy for organization to allocate them wherever is needed in configurations that are beneficial to the firm both in the short and long run (Glinska, Carr & Halliday 2012).

Cross-training is an approach that is quite useful for building and maintaining multi-functionality and redundancy in an integrated manner. Multi-functionality is the number of various tasks that each worker is able to perform while redundancy refers to the number of workers with the ability to perform a particular task. Multi-functionality and redundancy are invaluable for systems which have high levels of task heterogeneity and often results from product and service complexity internal to the firm. Externally, task heterogeneity can stem from the product or service mix. Different customer groups require employees with specific knowledge or skills and customized products are made by a set of workers who have the skills to perform specific tasks. Further, cross-training is particularly beneficial in providing flexibility to counter uncertainty of supply and demand of the workforce and task distribution to which systems with high task heterogeneity prove to be vulnerable. Moreover, cross-training leads to higher quality, lower cost of labour and shorter lead times (Qin, Nembhard & Barnes 2015.)

Cross-training is not only important for the firm in terms maximizing business productivity but also to employees as they derive more satisfaction with their jobs and are reportedly less likely to seek employment outside of the organization or get bored in their jobs as they can change departments with ease. In addition, they become more confident of surviving

recessions and downsizing efforts made by firms and are even comfortable in large because they are better able to grasp concepts across different departments and contribute more. However, cross-training has received scepticism because of the uncertainty surrounding the results of the cross-training program whose additional costs to implement would be hesitantly met, if at all (Abrams & Berge 2010.) Therefore, careful consideration should be given to cross-training programs in regards to the cost effectiveness.

Addressing the question of who should be and on what tasks should they be cross-trained can assist in this decision. Qin et al (2015) describe four configurations common in cross-training decisions. The first cross-training configuration is 'No- cross-training' where each task is performed by only one worker and not a group of workers. Here, there is no worker who is able to execute more than one task. 'Pooling' is a partial cross-training configuration well-suited for systems with similar tasks that can be pooled as larger sets. Workers are cross-trained to perform tasks with in the pool rather than outside of it. Thirdly, 'Chaining' can be used as a cross-training approach to enable workers assist in directly or indirectly executing tasks. Lastly, 'Full- cross-training' is one where all workers are enabled to perform all tasks. Full- cross-training may be impractical when there is a significantly large task set, variations in skill requirements among tasks, not to mention the costs involved to fully cross-train workers (Qin et al 2015: Gel, Hopp & Van Oyen 2007).

2.4.2 Employee empowerment

Practices directed at empowering the worker to make decisions with confidence and with autonomy is one of the keys to 'unlocking' workforce agility. Autonomy in making decisions that affect the organization's business direction is seen as one of the most effective ways of creating a truly agile workforce. This is largely because it allows for swift coordination and action (Muduli 2016). Allowing for employees to have a high degree of control over the tasks assigned, for example solving miniature operation problems without the need for a chain of supervisors to oversee the operation produces and enhances the ability to understand the problems better and develop creative, more flexible solutions to address them. Employees with more freedom to choose when, what and how they get the task done are more likely adjust to unpredictable changes and even pursue opportunities leading to positive changes (Sherehiy & Karwowski 2014).

Such practices aimed at shifting some crucial decisions pertaining to operations of the firm into the hands of teams and individuals are power-sharing practices. They identify two types of practices namely; low-power and high-power practices. The former involve solving problems and collecting suggestions of workers while the latter re-design of the work environment. Quality Circles (QC) and Quality of Work Life (QWL) are examples of low-power practices. QCs are created for employees who volunteer to regularly give feedback about work-related issues and give suggestions of solutions to related problems. Unions manage QWLs, and are charged with empowering workers in improving their work life in matters not related to salary payments. High-power practices can take the form of self-managed teams. These types of teams have responsibility and autonomy over whole product or service lines with the ability to assign tasks, decide on work methods, control quality, purchase and hiring or firing. Both these types of practices promote workforce agility, high-power practices having the greater potential as they are capable of improving training, multi-tasking, switching and collaborative efficiencies (Sumukadas & Sawhney 2004.)

Spreitzer (1995) take a psychological stance on empowerment defining it as "an individual's experience of intrinsic motivation that is based on cognitions about him or herself in relation to his or her work role". It is a motivational-construct that manifests in four cognitions; the first construct is *meaning*. It is concerned with fit occurring between the value and requirements of work roles in relation to the belief system of an individual. The second is *self-efficacy*. This is in reference to the belief of an individual that they are able to perform a work task with a specific skill. *Self-determination* is reflective of an individual's sense having the power to initiate and regulate actions. It is concerned with autonomy of individuals in the workplace, especially in regards to decision making. *Impact*, being the last of the four cognitions, refers to the extent to which an employee is able to influence strategic and operational objectives (Spreitzer 1995.)

High degrees of meaningfulness attached to a work role through practices such as meticulous job design, employee feedback and counselling results in high involvement, commitment and preparation for speed and flexibility. "The more the fit, the stronger the agreeableness of workers to be agile". High self-efficacy, where individuals are confident in their abilities to meet situational demands using their cognitive resources, results in proactive behaviours and persistence. Self-determination and impact in individuals can be cultivated through self-managed teams (Muduli 2016.) and such other practices.

However, some scholars have criticized empowerment practices as having little to no effect at all on the autonomy of individuals. Harley (1999) questions the consequences that empowerment is claimed to have on employees claiming that it may be a ploy to fool employees, refuting contradictory evidence.

2.4.3 Rewards

In absence of rewards firms will not receive contributions from employees (Gerhart & Bretz Jr 1994) especially in the form sensing and seizing opportunities. Therefore compensation systems are crucial from the perspective of workforce agility. Besides Gain sharing, traditional approaches to compensation such as Profit Sharing, Employee Stock Ownership plans and individual incentives have not been considered effective in fostering employee involvement and participation as non-traditional approaches. The most effective of the non-traditional approaches is skill-based pay which is determined using how many skills possessed by the employees rather than merely the job or position they hold. The non-traditional compensation approaches appear to promote workforce agility better than the traditional ones. Knowledge or skills-based payment supports cross-training and teamwork. Moreover, its emphasis is on variability of tasks, significance and less job classifications (Sumukadas & Sawhney 2004.)

Lawler (1994) calls organizations to design systems that put as the primary focus, the capabilities of individuals and managing them in such a manner that in turn promotes the development of organizational capabilities. Such a "competency- focused approach" guarantees more flexibility and customer-centricity (Peters 1992). The basic units of analysis used in the criteria for compensation of employees are in the skills needed by the firm. An illustration of this system is portrayed best in Information systems-related jobs whereby workers are rewarded for acquiring skills in hardware or software related areas instead of executing one job in those areas. This inevitably calls for changes in work design for example introduction of teamwork in which individuals will be rewarded by team-based performance pay types such as Gainsharing. Gainsharing ignores individual performances measures and rewards the whole team basing on its performance (Lawler 1994.)

2.4.4 Information-sharing

It is becoming increasingly hard to manage the amount of information churning through organizations and thus making it easier to use and share in a timely manner is key (Glenn & Stahl 2009). Integrating and streamlining information sharing processes is an effective promoter of workforce agility as the workforce gains access to real time information which inevitably makes not only, decision making and opportunity and threat forecasting possible but also swifter. A study carried out by Breu et al (2002) found that information technology applications, when used for collaborative work forms enhance workforce agility. However, the study also records weak relationship between workforce agility and the adoption of information communication technologies and information systems that gave accurate and consistent information (Sherehiy & Karwowski 2014).

Contrary to Breu et al's (2002) findings, Gunasekaran (1999) argues that information communication technology-based applications such as the internet, Enterprise Resource Planning systems, and Electronic Commerce applications improve integration and ease decision making, problems solving and planning for knowledge workers and thereby leading to agility. Processes that previously fragmented are streamlined and completed better with such centralized databases as the individual workers are availed all the necessary information required to execute the process to completion (Bresnahan, Brynjolfsson & Hitt 2002). The value of Information is seen in three dimensions namely; Usefulness, Usability and Urgency. Usefulness refers to the degree information enable users seek their intentions. Usability refers to how easily the information is accessed, internalized and applied while Urgency is the extent to which helps its users in the pursuit of short-term plans. People have the ability to recognize value but are quite limited in specifying it. This is the point where information systems come in. They digest captured information in process contexts, provide insights that would have otherwise been implausible thus enhancing significantly information seeking and use. Since decisions are made basing on information present at a given time, these systems are invaluable in decision making processes of a firm in addition to facilitation of collaboration among multidisciplinary teams (Desouza 2007.)

Cai, Huang, Liu & Wang (2018) propose Enterprise Social Media (ESM) as one such information system as a platform useful in helping employees cope with uncertainties in the marketplace by fostering the improvement of information sharing, collective intelligence and

coordination among teams. ESM does this through its features such as 'instant messaging' 'enterprise wiki', 'microblogging' and 'open conversation'. ESM also expands employees' social networks, enables sharing documents, ideas and knowledge through four affordances. The first is *visibility*, which reveals 'who knows what' in the organization and gives access to that specialized knowledge. The second is *editability*, which serves as a function for crafting and re-crafting information before other individuals can view and make modifications to it. Thirdly, *persistence* provides the function of retaining a communication in the same format it was originally created in. Lastly, ESM creates association of employees and information in the sense that it offers the opportunity for employees to discover individuals with common interests and potential mentors (Cai, Huang, Liu & Wang 2018).

2.4.5 Work Design

Work design comprises five dimensions namely; skill variety, complexity of the job, job autonomy, supervisor support and job demands. Skill variety refers to the extent to which the performance of various tasks requires an equally wide variety of abilities or skills. (Sherehiy& Karwowski 2014). Hackman & Oldham (1976) attaches skill variety to the design of a job and the degree to which the design makes an allowance for workers to put different skills to use. Skill variety is a knowledge characteristic of work design or organization reflective of the type of knowledge or abilities required of an individual as a function of what the job entails (Morgeson & Humphrey 2006). Tasks which challenge or test the intellectual or physical abilities, are more likely to have a positive effect on employees' attitudes and behaviours towards that specific job (Hackman & Oldham 1976). Job complexity is concerned with the degree of difficulty in performing a particular task (Sherehiy & Karwowski 2014). In a study about the nature and outcome of work, Edwards, Scully, & Brtek (2000) found as a distinct factor the complexity of a job as highly complex tasks often require 'high-level' skills that are more intellectual demanding and challenging.

Job autonomy refers to the degree of freedom an individual is given to determine work schedules and methods concerning when and how they will execute a given task (Sherehiy & Karwowski 2014: Morgeson & Humphrey 2006). The internal motivational impact on an individual in the workplace is most likely to be greater, if the job is designed to have a substantial amount of freedom to make decisions. The decisions pertain to; 1) which

procedures to use to perform the tasks and 2) at what times a worker determines is convenient or is mentally fit to get the job done (Hackman & Oldham 1976). Another dimension of work organization is supervisor support. A high level of supervisor support is conducive to the agility of employees. Research links supervisor support to adaptive behaviours in employees (Griffin & Hesketh 2003). Supervisor support could take the shape of assistance in alignment of individual objectives with the strategic goals of the organization. This alignment resulting from a participatory approach on the part of management results in faster decision making of employees (Nijssen & Paauwe 2012) thus, enabling their agility. Lastly, the job demands dimension of work organization entails the mental or cognitive effort in and physical effort that is a worker needs to exhibit in order to accomplish the task (Sherehiy & Karwowski 2014). Morgeson & Humphrey (2006) contend that job demands could either be in form of task demands or knowledge demands or both.

Morgeson & Humphrey (2006) take on an expansive view of work organization asserting that work is also executed in a 'broader social environment' and thus has characteristics of a social nature that should be explored. These are a) social support b) interdependence c) interaction outside the organization and d) feedback from others. Social support involves the extent to which a job provides advice and assistance from superiors and co-workers. This is especially critical for job types that are highly stressful in terms of the amount or complexity of demands. Task interdependence is simply the extent to which the job-to-be-done depends on an individual and similarly how much the individual depends on the task in order for it to be accomplished. Kiggundu (1981) proposes two types of work interdependence: *initiated* and *received*. The former relates to one task flowing to more tasks and the former to how much a worker is affected directly from the flow of work of one or more jobs. Interaction outside the organization refers to the flexibility that a job allows employees to interact with individuals in the external operating environment of the organization. Finally, feedback from others involves the freedom to provide information pertaining to performance.

Hackman & Oldham (1976) describes this characteristic of work organization as "the degree to which carrying out the work activities required by the job results in the individual obtaining direct and clear information about the effectiveness of his or her performance". Additionally, Fornaciari & Dean (2005, p 635) examined the human facet of work design in order to shed more light on the social, ethical and human ramifications resulting from the industrial revolution. They determined that the nature of: the work itself, the work

environment, management, work goals and of the individual influences the organization of work in a firm and performance of the workforce. It follows that it is important to consider all three facets of work organization that is, the mechanistic, social and human, in order to design environments that promote agility of the workforce. Figure 4 shows a summary of the practices a firm is to perform to create and support agility of the workforce.

Figure 4. Organizational practices that promote workforce agility.

2.5 Organizational barriers to workforce agility

It has become increasingly clear over the past decades that the marketplace is awash with rapid change in the political, social and business realm, characterized by unprecedented events and short product cycles, to mention but a few. This has led to the quest for organizational agility through making the workforce agile in the hopes of 'riding the waves' of change. However, initiatives to achieve it are often riddled with failure pointedly because of two overarching reasons. Firstly, resistance to change and secondly poor communication of the organization's strategic direction.

2.5.1 Resistance to change

Bovey & Hede (2001) advise that in order to understand the reasons for resistance to change, it is vital for management to explore the perspective of the human element rather than only focusing on the technical ones. In their study, four constructs namely; *perceptions*, *cognitions*, *affect* and *resistance* explain how and why people in an organization react to change. Perceptions relate to the impact of change, that is, the extent to which an individual has over change and the extent to which the change affects the individuals. Cognitions are concerned with the internal dialogue of an individual, automatic irrational thinking that is as a result of misconceptions, with a behavioural disturbance outcome. Affect pertains to the emotions and feelings of an individual that are related to their actions for example fear, sadness, anger which are emotions also experienced during organizational change. Resistance can be observed in physical actions or mental processes (Bovey & Hede 2001.)

However, employees' resistance to change could also stem from their desire to act in accordance with their ethical principles in the case that the organizations' are contrary (Milgram 1965) or because they are seeking the attention of top management on important issues that need to be addressed (Piderit 2000). Moreover, resistance to change is inherent and is part of human nature (Bovey & Hede 2001) but failing to change can have disastrous effects on the firm (Lewis, Goodman, & Fandt 2001). In light of the above, it is imperative for the change leaders to pay close attention to the reasons employees are resisting certain change initiatives. This will enable them to stimulate proactive, adaptable and generative behaviours. Gilley, Dixon & Gilley (2008) attribute failure to change to the management or the individuals responsible for championing the change. Essentially, the leadership of an organization has to eliminate the chasm that exists between the intent to implement change programs and the leadership ability to bring about transformational change successfully, perhaps using the balanced scorecard approach (Bovey & Hede 2001).

2.5.2 Poor communication of strategic direction

Poor communication of the strategic direction of a firm is a major barrier in impeding agility of employees, as they are uncertain of which opportunities to pursue make or which decisions to make. How effectively a firm communicates determines its overall agility (Harraf et al 2015). Effective communication should be open and multi-directional, that is, top-down,

horizontal and bottom-up. Top-down communication stifles agility while bottom-up communication minimizes resistance to change. Horizontal communication is useful for facilitating interdepartmental exchanges to reduce overlaps. However, all three communication approaches are recommended to achieve successful communication of the strategic vision or direction. Proper communication of, and adherence to the strategic direction is what differentiates agile firms from rigid ones (Harraf et al 2015.) A shared mind-set is instilled and employees are better able to make sense of the environment when communication of the strategy and context of the operating environment are communicated (Nijssen & Paauwe 2012).

2.6   Dynamic capabilities and Workforce agility

Dynamic capabilities have received much recognition in the academic community but the convergence of a uniform definition is yet to be reached, as there is a dearth of variations of definitions of the concept from the contributors of the researchers in the community. Firstly, dynamic capabilities are viewed as responses to new opportunities or the need for change, which change can be in the form of resource allocations and operations or could also take the shape of organizational processes. The resources for allocation are not only human capital (managers and employees) but also knowledge-based, technological and tangible asset-based capital (Easterby-Smith, Lyles & Peteraf 2009.) Various authors depending on their academic background define the 'dynamic capabilities' concept differently, for example, Teece, Pisano and Shuen (1997) take the ability-perspective by asserting that dynamic capabilities are a firms' ability to build, create integrations and reconfigurations of competences internal and external to the firm in order to respond effectively to quickly changing environments.

 When time to market is critical and technological change is fast, future competition is difficult to forecast. Therefore, organizations have to be 'dynamic' in order to renew their competences. The 'capabilities' refer to the strategic management role in effectively adapting and reconfiguring the skills, functional competences and resources of the organization to achieve congruence with the swiftly changing environment (Teece et al 1997). Furthermore, Zahra, Sapienza, & Davidsson (2006) define dynamic capabilities as an ability of a firm's principle decision makers to reconfigure its resources and routines appropriately and efficiently. Dynamic capabilities may also however, be entrenched in the routines of an

organization and employed to shield decaying and idle resources (Sirmon & Hitt 2003). Table 3 reflects the varying definitions of dynamic capabilities from different authors.

Table 3. Popular definitions of dynamic capabilities, adopted from Zahra et al (2006).

Author	Definition
Eisenhardt and Martin (2000)	The firm's processes that use resources – specifically the processes to integrate, reconfigure, gain and release resources – to match or even create market change. Dynamic capabilities thus are the organizational and strategic routines by which firms achieve new resources configurations as markets emerge, collide, split, evolve and die.
Helfat (1997)	The subset of the competences/capabilities which allow the firm to create new products and processes and respond to changing market circumstances
Teece et al. (1997)	The firm's ability to integrate, build, and reconfigure internal and external competences to address rapidly changing environments
Zollo and Winter (2002)	A dynamic capability is a learned and stable pattern of collective activity through which the organization systematically generates and modifies its operating routines in pursuit of improved effectiveness
Winter (2003)	Capabilities that operate to extend, modify or create ordinary (substantive) capabilities.
Zahra et al (2006)	Abilities to reconfigure a firm's resources and routines in the manner envisioned and deemed appropriate by its principal decision-maker(s).

Secondly, there are different types of dynamic capabilities. Ambrosini, Bowman & Collier (2009) posit that they are decomposed into are three distinct types namely; incremental, renewing and regenerative dynamic capabilities. Incremental dynamic capabilities are associated with a stable environment where only incremental improvements and adjustments to the organization's resource base are required to maintain its value. There is an increased

likelihood of the incremental dynamic capabilities to be embedded repetitiously within the firm. Rather than gradual adaptation, renewing dynamic capabilities resets or refreshes the resource stock to sustain rent generation. Renewing dynamic capabilities are also referred to as first-order capabilities (Winter 2003). The main difference between the former and the latter is lies in fact that the former do not create any changes to the resource base while the latter introduces new resources altogether or new resource combinations. Regenerative dynamic capabilities renew extant dynamic capabilities, which prove to be inadequate in their impact on a firm's resource stockpile (Ambrosini, Bowman & Collier 2009.) In essence, incremental and renewing dynamic capabilities make use of the existing resource base while regenerative dynamic capabilities are concerned with evaluation and adaptation of the overall firms' portfolio (Easterby-Smith, Lyles & Peteraf 2009).

Thirdly, dynamic capabilities are not only present in turbulent environments or markets (Teece et al 1997) but rather also in stable and slow ones. Eisenhardt and Martin (2000) argue that the sustainability of dynamic capabilities depends on the dynamism of the markets. In stable markets (moderately dynamic markets) where the industry structures are stable and market boundaries are clear, that is, the major competitors, customers and suppliers are known; the effectiveness of dynamic capabilities are heavily dependent on already existing information. With the extant information, managers are able to develop predictable processes that are linear in nature with analysis at the helm and implementation at the end. Conversely, high-velocity markets are highly dynamic in nature with blurred market boundaries, ambiguous market players and unclear successful business models. Dynamic capabilities in these markets are reliant on creation of new situation-specific knowledge in a rapid fashion.

Further, their simplicity in terms of routines makes them less complicated than the ones in stable markets. The simplicity stems from the scant amount of rules specifying boundary conditions for managers and reveal priorities; a very crucial feature in the rapidly changing markets (Eisenhardt and Martin 2000.) In addition, high market dynamism is likely to be a major factor in the development of dynamic capabilities because, the more firms display a higher drive for dynamic capabilities, the more a market becomes unpredictable and fast changing (Wang & Ahmed 2007). Illustrating this point is an example is the typesetting industry, which faced rapid technological changes from the mid nineteenth century to the early twentieth century and only a few firms that exhibited higher dynamic capabilities

adapted and survived (Tripas 1997). Table 4 shows the contrast of dynamic capabilities in the two markets discussed above.

Table 4. Dynamic capabilities and dynamic markets types, adopted from Eisenhardt and Martin (2000).

	Stable (Moderately dynamic markets)	High-velocity markets
Market definition	Stable industry structure, defined boundaries, identifiable players, and clear business models, linear and predictable change.	Ambiguous industry structure, blurred boundaries, fluid business models, nonlinear, unpredictable change shifting players,
Pattern	Detailed, analytic routines that rely extensively on existing knowledge	Simple, experiential routines that are reliant on new knowledge created, specific to situations.
Execution	Linear	iterative
Outcomes	Predictable	Unpredictable
Stable	Yes	No

Fourthly, In avoidance of the 'near-tautology' of categorizing capabilities as abilities, Zollo & Winter (2002) propose a different operational base for dynamic capabilities defining them as learned and stable patterns that organizations use to generate and modify their operating routines as they push to improve effectiveness. Organizational dynamic capabilities are high-level routines which when input flows are implemented, open up decisions options for a firm's management to produce outputs of significant level and type (Winter 2003). Eisenhardt & Martin's (2000) also view dynamic capabilities as strategic routines, through which firms acquire new configurations of resources as markets develop, evolve, split and collapse. Routines can be as a result of codified extant knowledge, which subdivide activities and specify steps in detail with precision. These routines, when kept simple have the effect of maintaining managers' attention on vital matters by not binding them into specific behaviours

or relying on experience. Table 5 draws a contrast between the traditional and reconceptualised views of dynamic capabilities.

Table 5. Contrast of conceptions of dynamic capabilities, adopted from Eisenhardt & Martin (2000).

	Traditional view of dynamic capabilities	Reconceptualization of dynamic capabilities
Definition	Routines to learn routines	Specific organizational and strategic processes (e.g., product innovation, strategic decision-making, alliancing) by which managers change their resource base.
Heterogeneity	Idiosyncratic (i.e., firm specific)	Commonalities (best practices) with some idiosyncratic details.
Pattern	Detailed, analytic routines	Depending on market dynamism, range from detailed, analytic routines to simple, experiential, ones.
Outcome	Predictable	Depending on market dynamism, can be predictable or unpredictable.
Evolution	Unique path	Unique path shaped by learning mechanisms such as practice, codification, mistakes, and pacing.

Finally, sensing and seizing are intrinsic to the nature of dynamic capabilities fundamental to the firm's survival. Sensing threats and novel opportunities involves scanning, learning, creating and interpreting through exploration of different markets and technologies. It is important for an enterprise to not only invest in individuals with creative and scanning abilities, but also to integrate creative, interpretive and scanning processes within the firm. In addition, information needs filtering and streamed to the appropriate individuals who are in the right position to make sense of it. Seizing entails addressing new opportunities or threats

sensed, often through investments and commercial activity. It often involves improving and maintaining technological competences in addition to complementary assets. These dynamic capabilities should be developed concurrently except at the product level as this could have chaotic effects (Teece 2007.)

In this study, workforce agility is viewed as a dynamic capability of a firm, because it: a.) has the capacity to build or create integrations and reconfigurations of competences both internal and external to the firm, to respond effectively to fast changing environments. b.) is incremental, renewing and regenerative in nature. c) It is present in high velocity markets. d.) is a learned and stable pattern or routine. e.) Lastly, it enables sensing threats and seizing opportunities. Workforce agility renews competences and puts emphasis on the management role of appropriately integrating, reframing human resources to be congruent with a changing environment (Teece, Pisano & Shuen 1997). As employees are being proactive by initiating and improvising, or generative through learning, they develop and reconfiguring their competences such that they are able to address rapidly changing markets. Barney (2001) denotes that human capital is a vital asset or resource of the firm because of its scarcity, economic value distinctiveness, and imperfect imitability. It is a pool awash with knowledge, skills, attributes, and behaviours which are instrumental in achieving competitive advantage. Employees are also easily controlled and developed in a manner befitting of the change required yet are also responsible for competencies that undergird the organization's mind-set. This makes it generally hard for competitors to reckon with.

The dynamic capabilities theory is an enhancement of the resource-based view of the firm-emphasizing that it is not enough to merely possess the resources, however valuable they are, but rather systematically building, integrating and reconfiguring the resources and competences to address and survive in changing environments. This means that competitive advantages are derived from the resource configurations that they create and not in the capabilities themselves (Eisenhardt & Martin 2000). It is the continuous development, deployment and protection of resources that produces dynamic capabilities (Nijssen & Paauwe 2012). Workforce agility represents the firm's ability to continuously regulate and continuously develop the capability and capacity of the workforce to master timely skills and knowledge (Qin & Nembhard 2010). Building the workforce agility dynamic capability to become proactive, adaptive, generative (Dyer & Shafer 2003) and resilient (Muduli 2017)

requires developing competencies and continuously configuring human resources in order to develop and implement the firm's strategy.

Workforce agility has incremental, renewing and regenerative properties. It gradually adapts the human resource stock pile of the firm through sharing information, introduces new resources combinations through information technology proficiency and learning. It is regenerative by evaluation and adaptation of the firm's portfolio through intelligence gathering and collaboration. Perhaps the most outstanding nature of the three is the ability of workforce agility to renew the human resource stock pile. An agile workforce is constantly developing its competences to keep up with a turbulent dynamic environment through activities like change forecasting and creative problem solving (Qin & Nembhard 2015). These activities renew the competences of the workforce which trickle down to overall firm competitiveness.

While workforce agility is present in stable markets, it is more prevalent and necessary in dynamic ones. This is because of the need to respond with quickness to changes that are present in dynamic environments. An agile workforce is more effective in responding to change in dynamic markets because of its adaptability, proactivity and generative nature (Qin & Nembhard 2015). Moreover, workforce agility can also exist in the form of specific organizational and strategic processes by which managers change their resource base. That is, it can be routinized in activities such as strategic decision making, innovation, information sharing through information technology platforms and collaboration.

Workforce agility also involves training the workforce to sense and seize opportunities or threats; both fundamental natures of dynamic capabilities (Harreld, O'Reilly & Tushman 2007). Sensing often takes the form of perceiving what is happening in the environment through interpreting and communication between managers or decision makers and employees. Workers are expected to gather intelligence during contact with stakeholders, regulators and customers. The intelligence gathered is then communicated and interpreted. This is because sensing which excludes communication is useless, and communication that removes interpretation is just noise (Williams, Worley & Lawler 2013). Seizing opportunities refers to exploiting or 'taking advantage' of circumstances that present themselves by creating initiatives in support of the proposed solution to changing environments (Harreld et al 2007).

Simply put, workforce agility is a dynamic capability that enables the organization to sense the future and act accordingly or appropriately (Teece, Peteraf, & Leih, 2016). Teece et al (2016) emphasize the critical role human capital plays in enhancing the firm's dynamic capabilities by sensing key developments and devising responses to lead the firm onward in light of the trends. Workforce agility achieves a number of organizational benefits such as increasing productivity, profits and market shares in order to enhance organizations' chances of survival (Goldman et al 1995) in highly volatile and global business environments (Katayama and Bennet 1999). Therefore, it is increasingly becoming clear that for organizations to respond flexibly and act nimbly or swiftly, they need to capitalize on knowledgeable and empowered employees (Lindberg 1990). Alavi & Wahab (2013) argue that it is difficult to persuade managers to invest in building an agile workforce when they do not have the knowledge about the competences and practices that enable it.

2.7   Conceptual framework for achieving workforce agility

This chapter presents the theoretical framework of this thesis. The various theories and research discussed are bound together to consist of the framework for the empirical research. The theoretical framework portrays the inner workings of workforce agility and forms the basis of the conceptual framework presented in figure 5. The conceptual framework serves as a summary of the concepts discussed in this chapter and as a guide in the following steps of the research in order to gain a deeper understanding of workforce agility. The suggestion of this study is that in order to achieve workforce agility which acts as a formidable dynamic capability, the organization has to engage in fundamental practices geared towards promoting capabilities of an agile workforce. This is possible only if they understand and overcome the barriers in achieving workforce agility.
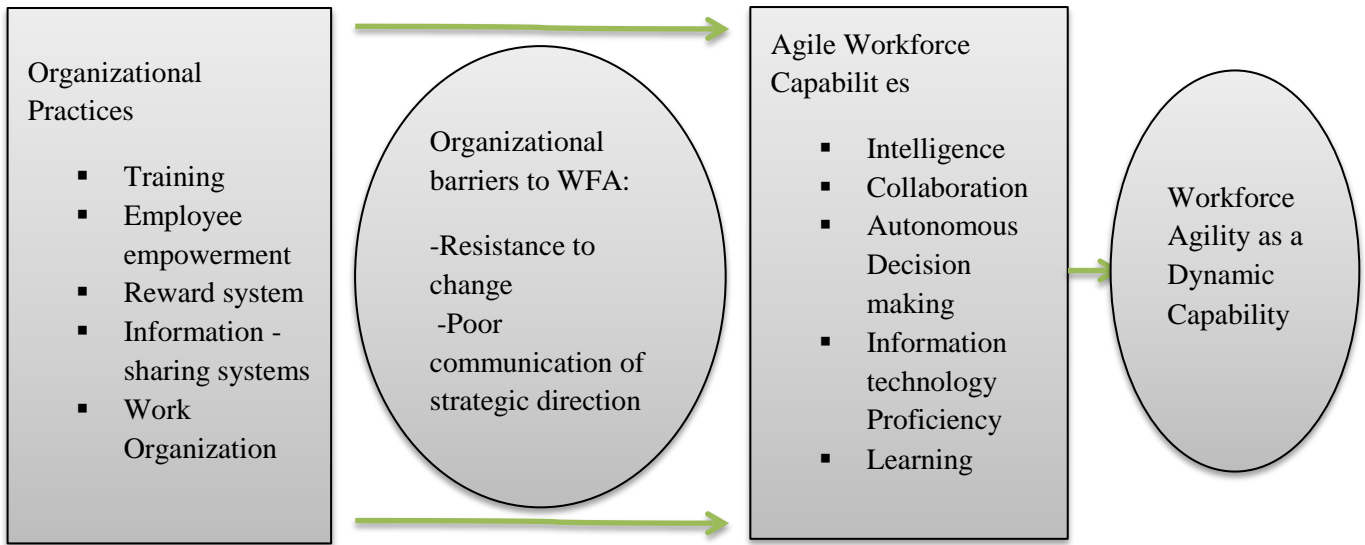
Figure 5. Conceptual framework of workforce agility.

3   METHODOLOGY

Several research choices have to be made in order that the research questions are answered and the aim of the research project achieved. This chapter begins with explaining the philosophical assumptions that underlie this study. Secondly, the approach and purpose of the research are discussed and justified. Thirdly, the research strategy is delineated. Thereafter, the research choice and time horizon are explained in detail, after which the process of data collection with its subsequent analysis is described. Included in this description, is the criteria for the selection of the case companies. Lastly data validity and reliability explored and justified.

3.1   Philosophical assumptions

A system of beliefs and assumptions about the development of knowledge is referred to as research philosophy. Assumptions that are given much thought will give rise to a credible research philosophy which will in the process give a good backbone to the methodological choice, research strategy and data collection and data analysis procedures (Saunders Mark, Philip Lewis & Adrian Thornhill 2009). There are often many ways to view problems which almost inevitably lead to different conclusions. Two streams emerge when reality and knowledge are taken into consideration: objectivism and subjectivism. *Objectivism* deals with appreciation of facts with the world existing independently or as a separate entity from the perception of people. *Subjectivism* on the other hand, deals with the important role of feelings and opinions of social actors in the construction of reality and knowledge (Saunders et al 2009). In this paper, understanding the world does not hinge on isolated conceptions but rather a personal perspective resulting from human interactions.

Three main paradigms exist in business sciences namely, positivism, scientific realism and social construction. The emphasis of positivism lies in quantifiable observations that are statistically analysed. The objective with positivism is studying measurable and observable variables in a controlled environment and to describe the variables' reaction to whichever treatment is applied on them by a researcher (Saunders & Lewis 2012). Scientific realism asserts that there is a reality existing independently out of the human mind while social

construction is based on human perception and subjective knowledge which may be to subject to change (Saunders 2011).

In this study, it seems appropriate to adopt a *subjectivist approach* as the purpose is to understand the role of social actors in a phenomenon. The research questions try to find out the role individuals play in achieving workforce agility and the challenges they face in achieving that phenomenon hence the *scientific realism* as a philosophical foundation complemented by *social construction.*

3.2   Research approach and purpose

The research approach shows role that theory plays in the development and analysis of a hypothesis. The three approaches that exist in business sciences are deduction, induction and abduction. Deduction follows a linear process. It logically flows from theory development to empirical testing (Eriksson & Kovalainen 2008). Conversely, induction begins with data collection as a point of inference after which a theory is produced and is less concerned with generalizing results (Saunders 2011). Lastly, abduction takes on a mixture of induction and deduction as it involves a continuous comparison between data and theory (Saunders et al 2009).

This study applies the *deductive approach* as extant theoretical frameworks on workforce agility are modified and used as a beginning point and subsequently, empirical data is collected using semi-structured interviews to lead to a hypothesis. The theoretical framework is modified slightly before it used to empirically test the data. Modification of the theoretical framework is done for the purpose of studying and examining differing viewpoints of organizational agility from an agile workforce perspective.

Classification of the research purpose is threefold in nature; *exploratory*, *descriptive* and *explanatory*. It is often the case that the research purpose overlaps and changes over time. Exploratory studies seek new insights, ask questions and assess phenomena in a new light while descriptive studies aim to depict accurate profiles of situations, events and persons (Robson 2002:59). Explanatory studies seek to explain the reasons behind phenomena through studying the relationships between variables (Saunders 2011). Due to the novelty of the concept of workforce agility as a research area and scanty research on the topic, this study

purposes to *explore new insights* in organizational agility with a new agile workforce perspective, thus the purpose of this study can be considered *exploratory*.

3.3 Research strategy

In general terms, a strategy is an action plan designed to achieve a goal therefore it is logical that a research strategy is a plan describing the steps a researcher will take to find answers to the research question posed. Denzin & Lincoln (2011) define it as a methodological link to the research philosophy and the subsequent methods chosen of data collection and analysis. This research uses a *multiple case study* method to answer the research questions and objectives. A *multiple case study* involves analysis of empirical data of a specific phenomenon with in its context (Saunders et al. 2009: 145).

The multiple case study method was chosen for this study for its ability to generate insights from intensive and in depth research into studies of phenomenon in the real-life context subsequently leading to rich empirical descriptions and development of strong theories (Dubois & Gadde 2002). Finland is the country of choice for the case companies because of the advancements she has made in the recent past in terms of development in the information technology sector (Routti 2018). Five Finnish Small Medium Enterprises (SMEs) that consented to the research project were carefully chosen on a basis that encourages similar results (Saunders et al 2016) – a phenomenon Yin (2009) refers to as literal replication of logic. Constraints on time force the analysis on attaining an amount of data relative to that time hence contextualizing the research in multiple cases but in one nation which gives the analysis depth without compromising on the variety.

3.4 Research Choice and Time horizon

According to Saunders (2011), a research choice is the way in which one chooses to or not to combine qualitative and quantitative techniques. A mono method can be used where single data collection and analysis procedure is used or multiple methods where qualitative and quantitative, primary and secondary data are combined (Curran & Blackburn 2001). A *mono qualitative method* is used in this study as the nature of the study is purely qualitative in

nature, that is, no quantitative study has been carried out during this research. In a qualitative study, research seeks understanding on a topic of research or research problem from the viewpoint of the local population it includes (Mark 2005). This paper seeks to understand how workforce agility can be achieved by investigating what kind of competences make for an agile workforce, what practices can be done to support them and the challenges faced in this process from the perspective of the Finnish population sample selected in the information technology sector.

In regards to the time horizon, research was carried out to investigate workforce agility at one point in time making it a *cross-sectional study*. That is, empirical data on various Information Technology SMEs was collected at one point in time as opposed to observing change in the phenomenon over a period of time (Saunders et al, 2009:155). This is due to the need to investigate the current situation that the said SMEs are facing in regards to how workforce agility is achieved and using *cross-sectional* time horizon gives room for analysis of current phenomenon.

3.5   Data Collection and selection criteria

The method of choice of collecting data in this research is the Interview. In-depth interviews are the most popular method of collecting or gathering data in qualitative research (Cassell & Symon 2004). According to Eriksson & Kovalainen (2008: 125 – 126), other sources for example reports, web-pages, statistics and archival methods can also be used as a means to compliment the data gathered in interviews. Interviews can either be carried out in a structured or unstructured format. In a structured interview, the researcher follows a particular set of questions in an order which has been predetermined and have limited response categories. The questions are standardized and asked routinely.

In contrast, in semi-structured interviews the questions set by the interviewer are open-ended and it is the interviewee's responses that direct the way the interview is conducted (Stuckey 2013). Hisjärvi & Hurme (2006) argue that the nature of open-ended questions makes them perfect for exploratory studies. They also support interviews with open–ended questions especially when answers alternative to the research questions are not in the known, as is the case in the workforce agility perspective. This is the case in this research project.

In other words, the questions asked are pre-planned with a guideline of questions but room is left to collect information about unplanned themes. During the research process, the interview questions were planned and prepared by investigating in advance the concepts of workforce agility in the context of the information technology sector. The questions developed were left open to encourage the respondents to give more insight on the topic in order to effectively answer the research questions.

Data was collected using 4 phone interviews and 1 written response with one interviewee per case company. A total of 5 managers, each from different companies were interviewed. The same base questions totaling to 27 were posed to all interviewees in order to acquire reliable data. All the interviews were conducted in English and after gaining consent of the interviewees, they recorded and thereafter transcribed in to text format for the purpose of analysis. Most questions were answered with short replies and some had to be clarified further, for example the ones regarding multiple roles and task uncertainty. Once clarified, the interviewees responded with yes or no statements while only one gave a long response. The list of questions asked to all interviewees can be seen in **APPENDIX 1.** All managers interviewed opted for anonymity of information concerning them and the case companies they work for. Therefore, for purposes of confidentiality, the interviewees are numbered from 1-5 with no specific order and the case companies labeled from A-E. Table 6 shows the title of the managers, and organization label, time and duration of interviews.

Table 6. Interviewee list, organization and label, date and time of interviews.

Interviewee/ Title	Organization/ Type	Interview Date	Duration
Manager (1) Head of Human Resources	Software Company (A)	1.11.2018	50 mins
Manager (2) Talent attraction Specialist	Cloud and Software services (B)	28.10.18	32 mins
Manager (3) Former Human Resource Co-coordinator	Cyber Security Company (C)	6.11.18	26 mins
Manager (4) Vice President of People	Web-development Company (D)	19.10.18	Written response
Manager (5) Human Resource Coordinator	Software development Company (E)	22.01.19	40 mins

The research is based on a sample comprising of 5 Finnish companies as previously mentioned. The selection of the case companies was based on 1) the company fit within the category of a Finnish SME, that is, i) having fewer than 50 employees or an annual turnover less than or equal to 10 million Euros, ii) fewer than 250 employees or an annual turnover under or equal to 50 million Euros and iii) less than 10 employees or an annual turnover less than 2 million Euros (European Commission 2019). 2) The company belongs to the information technology industry. Additionally, they are all based in Finland even though some have operations in other countries. The sample selected had to bear the same characteristics to encourage similar results also known as literal replication logic (Yin 2009). Lastly, the methods of sampling in this study are *convenience* and *judgement* sampling. The former refers to a selection of a sample because it is easy to access whereas the former involves the researcher using his or her judgement to select the people interviewed (Kothari 2004).

3.6   Data Analysis

Data analysis typically begins with a set of gathered data in the form of text. The text forms may be transcripts of unstructured interviews, field notes or documents and diaries (Mason 2107.) Likewise, during this study, the material used comprised transcribed interview texts, notes taken during the interviews and other textual documents such as webpages. According to Mason (2017), during the initial stage, it is a required of a researcher to completely read through all the data in order to stimulate theoretical thinking. In this study, the textual data aforementioned was completely read through multiple times before any other step.

The data collected consisted of primary data gathered from a series of interviews in the following steps. First, some of case companies were contacted by email and others by phone. Once they agreed to the interview, a convenient date was set. Secondly, before beginning each of the 4 interviews, permission to record it was asked to which all managers agreed. Recording the interviews gave the researcher the reassurance of listening to it at a later date and thus created room to concentrate fully on the topic at hand. Thirdly, during and at the conclusion of each interview, notes about the most important issues were taken and thereafter the interviews transcribed into text formats. Since the interviews were performed in English, the transcription was also done in the same language. While transcribing, information directly relating to the research questions was highlighted and coded so as to help with a deep analysis. It is important to note that a preliminary analysis was helpful where by during the process of carrying out the interviews, notes were jotted down, highlighted.

The next step involved performing content analysis through the interpretation of unstandardized data groups. Here, general themes are identified and thereafter reduced to three- five topics or themes, labelled and tabulated to recognize the patterns there may be according to the objective of the research (Saunders et al. 2009: 491 – 494) . This is process is referred to as coding. Coding is a process in qualitative studies used systematically to arrange, reduce and integrate data to form a theory (Sekaran & Bougie 2010). The process was done in a structured manner such that the reader will follow and understand how the conclusions came about. Additionally, it was a reiterative process that required continuous reshaping of the conclusions such that the findings revealed provide meaningful insights in relation to workforce agility in the information technology sector.

The selection of text to which special attention is paid, may be related to an extant or emergent theme or arbitrary (Schutt 2018). In this study, the primary themes were generated from the existing theoretical model. The three primary themes were "competences", "support practices" and "challenges faced". Secondly, sub-themes were generated from common patterns with in the data, at first forming 11, 7 and 4 sub-themes for the respective primary themes but after deeper analysis, they were reduced to 6, 7 and 2 respectively. Finally, the data was interpreted and synthesized. This involved a comparison of the findings between the case companies to find answers to the research questions through pattern-matching which according to Yin (2003) increases the validity of the research. This process was followed by systematically reviewing the answers to the research questions with the theoretical framework which led to supporting and contrasting conclusions hence encouraging future research about workforce agility.

3.7   Reliability and Validity

When carrying out research, it is of high importance that the findings of the research are found to be credible and this is due to their reliability and validity. Reliability requires that data collection procedures give yield to consistent findings (Easterby-smith et al 2008:109). There are four known threats to reliability as Robson (2002) identifies. The first is participant error, the second participant bias, and the last two being observer error and observer bias. Participant error involves the biased response of interviewees due to the circumstances surrounding the interview for example interviews conducted in the middle of the week might yield different results from ones conducted towards the weekend (Saunders 2011). Participant bias occurs when responses of interviewees are influenced by what they think supervisors may want them to say. Observer's error and bias involve different results stemming from different interviewers and their questioning style and the interviewer's own feelings and perceptions affect interpretation of the results, respectively.

In a bid to avoid the threat of participant error, interviews were carried out at a time which was most convenient for the interviewee. Secondly, they were carried out in a relaxed pace where by interviewees were given ample time to respond to the questions. Additionally, they were not cut in short mid-sentence in order to give them room and time to complete their thoughts. Also, one of the interviewees did not have time to have the interview done on

Skype or via phone so they opted for a written response. This was encouraged in order for participant to respond in a willing manner. In order to avoid participant bias, the interviewees were encouraged to give their honest opinions and that those personal opinions were the ones of interest. Observer error and bias were avoided by using a set of the guidelines for each interview and they were all carried out by one person. The researcher took steps to ensure that analysis and interpretation of the data was done neutrally without bias to what the researcher may be looking for. For example all contrasting data was carefully highlighted and noted. Also, the researcher paid attention to new emergent themes from the data which might not have been expected.

Validity is the other aspect required for credible research findings and it is all about whether the findings are indeed what they appear to be (Saunders 2011). There are a number of threats to validity and some are language barrier and truthfulness of the interviewees' responses. During the study, these threats were not high as the interviewees all spoke relatively good English and were well understood by the researcher. It would be in order to assume that the truthfulness of the interviewees was not affected as they were not promised or given any form of payment for their responses.

Additionally, the researcher increased the validity of the research by using various sources of evidence for example interviews for primary data and secondary data. Further, a chain of evidence was developed through appropriately citing quotations. These steps were taken to increase construct validity which is concerned with how operational measures are appropriate for the concept (Yin 2009: 40-41). To ensure external validity, Yin (1994) suggests that it is done through use of the replication method in multiple case studies. Through creating cross-case analysis, this study achieves this.

Data collection having been done in a transparent and logical manner in addition to willing participants has ensured reliability and validity of the findings. Important to note is that since the sample size is limited to five interviewees, it affects the generalizability of the results to a wider population. Therefore, in order to achieve generalizable results (Saunders et al. 2009: 491 – 494), the study would need to be extended and applied to other contexts. Table 7 summarises the researcher's steps taken to increase and ensure the study's reliability and validity.

Table 7. Summary of steps taken to ensure reliability and validity.

Construct		Steps taken
Reliability by avoiding:	Participant error	Interviews proceeded at a time and pace most convenient for interviewees. Interviewees were given time to complete their thoughts. Interviewees were encouraged to respond to questions in a manner they desired.
	Participant Bias	Encouraging interviewees to give honest and personal opinions.
	Observer error	Use of set guidelines for the interviewees.
	Observer Bias	Neutrally interpreting data. Paying attention to new emergent themes during analysis
Validity	Construct validity	Use of multiple sources of evidence Developing a chain of evidence.
	External validity	Use of a cross-case analysis.
	Avoiding threats	Interviewees were not promised any form of payment in exchange for their responses.

4   FINDINGS AND DISCUSSION

4.1   Company Backgrounds

Company A was founded in 1999 as a Finnish full-service software company designed to create solutions which are used by leading industrial companies across the globe. The company is a forerunner in digitalization as it offers a wide range of digital services to its customers and also offers close technology partnership. The type of services of offered include but are not limited to augmented reality solutions, cloud services, cyber security, Internet of Things services and Web and Mobile solutions. The company helps its customers digitalize partial or all their business process from start to finish of the production chain. With a turnover of about €22 million, the company is a AAA-rated company offering comprehensive software expertise in a dynamic information technology sector in Finland. The company is currently undergoing a change process as it adapts to the needs of its customers and a turbulent industry.

Company B was founded in 2015 in Finland to provide cloud software services and an intelligent network. The company improves its customer experiences by automating and modernizing business processes and ensuring that critical services are fully reliable. Some of its services include cloud services, international connectivity services, cloud transformation and software solutions. With about 240 employees, company B regards its employees as the most important asset. Its customers include the Finnish government and transport agencies.

Company C is a Finnish owned communications confidentiality market-leading expert established in 1999. It is a cyber-security company which develops information security solutions for electronic services and communication in numerous industries such as the financial sector, and public administration. Its services improve the effectiveness of business operations and streamline its customers' processes. Examples of specialty services include email encryption, data security, digital signatures and secure electronic forms. It is AAA-rated company with about 26 employees.

Company D was established in 2000 and currently employs over 150 employees. The company majors in building technology that improves developers' experience. Through creating better end-user experiences, the company makes the latest features on the web easy

to use. It provides both the tools and consulting to developers in order for them to create great value for their customers. The company has customers in a variety of industries such as telecom, financial, healthcare, aerospace and manufacturing. The company describes its team as agile developers and usability specialists. With over 15 years of experience in the market, it has a customer satisfaction ranking of 4.5 out of 5.

Company E is a Finnish based software development company founded in 2005 however it has over 30 years' experience and know-how in corporate enterprise resource planning, business development and financial administration. The company currently has 140 employees and is still hiring as it is growing at a high rate. Company E specializes in provision of high-quality information systems to its clients and also comprehensive financial administration services. Some of its customers include Price & Pierce Oy, Voiman Oy and Volvo.

4.2   Competences

This section describes the findings from the interviews concerning the crucial competences that an agile workforce possesses. They are not listed in a particular order however they are listed following a pattern from the interviews. As mentioned in the previous chapter, the theoretical model provided a starting point in defining key concepts as themes in this study. Therefore, this section will explore the key competences from the viewpoint of the interviewees.

4.2.1 Learning

Interviewees placed high emphasis on learning as a crucial competence for a workforce to be considered as agile. Interviewees considered that their employees are continuously learning in their own fields in order to keep relevant in a dynamic IT industry. Learning was considered as continuous competence development and a way to keep abreast with the current situation in the field because information technology needs are always changing. Manager 1 talked

about new technology always being introduced in the market and the need for continually developing ones competences.

"[..] as you said in the beginning, the Information Communications Technology field is changing all the time, it means that there is new technology coming all the time and um if people want to remain competitive in terms of their competence they know they need to do continuous competence development."- (Company A, Head of Human Resources)

Learning was associated with curiosity-the motivation to acquire more information and skills than what is already possessed by the employees. However, it was limited to the specific role or duty of the employee.

"We definitely need to have people who are constantly learning and being curious about what is going on in the field. Yeah, so by talking about learning constantly, we're talking about learning, you know within that particular role" - (Company B, Talent attraction Specialist)

"So basically, an accountant becomes an even better accountant with the most modern technologies, me as a recruiter I become more effective by learning about what was the latest and all the rest of it. You know, there's a software developer and they become even better at software developing. I would not talk about a recruiter becoming a software developer ...so confined to their work roles, definitely yeah" - (Company B, Talent attraction Specialist)

The emphasis placed on acquiring new competences affirms Dyer and Shafer's (2003) assertion that an agile workforce is generative. This involves developing its competencies and in the process, eschews complacency and over-specializing.

"Our employees are very development oriented and during development discussions, it is a standard situation where individuals want to aim professionally next and what new skills it requires"- (Company D, Vice President of People)

4.2.2 Teamwork

The ability to work in teams was considered among the most crucial factors for an employee to become adaptable to the business environment and respond faster to changes. Company A

measured teamwork in terms of social skills, that is, how well a person can be able to interact with various individuals from different backgrounds.

"Sometimes software developers are quite introverted persons and they might not have that good capabilities of working in teams that is the fact sometimes, but when we do recruitment we try take measure also in social skills and team working skills so majority of our people are willing to work in teams"- (Company A, Head of Human Resources).

Teamwork was considered very crucial as it paves a way for important conversations to be had, and in the process solutions to problems associated with a turbulent environment are produced. Company E attributed part of its agility to the ability to discuss collaboratively and devise solutions for their challenges.

"Team work is also very important because all of the employees are working in teams and in different projects, you know, you have to have some team spirit, team ability, they are very important" - (Company E, Human Resource Coordinator)

Company B reported that there is no resistance to group work and that teamwork plays such a vital role in the company that most of all the work done in the company is a group effort.

"Yeah, most software development that we do um are group work. Yeah we're talking backend developer, front end developer, there might be someone testing it, there is a project manager"- (Company B, Talent attraction Specialist)

However case company D reported not to practice much teamwork as they did not have tasks that were specifically designed to be accomplished in groups. According to Qin, Nembhard & Barnes II (2015), the absence of teamwork is likely to affect the productivity and completion times of tasks.

4.2.3 Problem Solving

The ability to solve problems or challenges was a factor considered to make employees agile and during the recruitment process it was considered as an important competence in an employee. Problems that are bound to arise in firms due to reasons such as task uncertainty and changes in the operating environment, therefore having the ability to face challenges and

solve problems is vital. Manager 2 describes problem solving as being part of professionalism and is a competence required of their employees.

"I suppose every single professional that we have working in the company, they need to be fully effective as professionals in the field and that requires an all-round kind of like you know being able to identify a problem suggest how to solve the problem and then execute the solving of the problem"- (Company B, Talent attraction Specialist)

Problem solving is seen to be in line with taking initiative. This is viewed in line with Dyer and Shafer's (2003) assertion that agile employees need to be proactive in a sense that they initiate actions and improvise ways to deal with threats or problems facing the firm.

"There are so many different roles in the organization that some roles require taking initiative and solving problems by oneself. Like for example, if you are working as a project manager with the customers in some customer project then you have to have the initiative and you have to solve the problems by yourself, you cannot always ask someone or you can't always depend on that supervisor to solve the problems for you"- (Company E, Human Resource Coordinator)

While the technical skills are considered important to the job, soft competences such as the ability to solve problems are crucial because of the effect of agility that they have on the workforce. An employee who is able to detect a problem and devise or improvise a solution is better able respond to sudden or abrupt changes facing the firm that could be technological, environmental or political. Manager 1 describes problem solving as part of the crucial competences considered when selecting employees in company A.

"We have kind of two streams. First one is technological competences. We are software house and mainly do programming. Most of our recruitment are mainly related to programming, and the second one is more like soft skills like ability for problem solving, ability to perceive the big picture from a bunch of detail"- (Company A, Head of Human Resources)

4.2.4 Information seeking ability

Seeking information was found to be a competence considered to make employees agile and therefore important in the recruitment process and expected of employees in the company.

"Yeah definitely, it is all about being professional. There is a clear expectation that you know that the person will ask questions to you to clarify why this is the job to be done. yeah definitely."- (Company B, Talent attraction Specialist)

Seeking information is linked to asking questions because when a person asks questions they show that they are seeking information to a particular area of focus. According to Qin & Nembhard (2015), a workforce becomes agile when it seeks, acquires and shares information across the organization. Asking questions not only helps to acquire information but also clarify on the tasks to be accomplished by the employee such that there will be a smooth flow of work leading to higher productivity levels.

"Our experts are quite independent in their work and it requires the ability and capability to ask questions when you don't know how to proceed." (Company A, Head of Human Resources)

The ability to ask questions or seeking information was attributed to natural tendency to be confident. In one case company some employees were not as open and confident to asking questions as others and needed support from supervisors in order to do so as manager 4 describes.

"I have the impression that some are more open and confident to ask but there are also team members who do not have the natural tendency to ask and they need support in feeling comfortable asking for support"- (Company D, Vice President of People)

However, in another company it was not common for employees to seek information by way of asking questions. Plonka (1997) asserts that in order for a workforce to acquire agility, they must seek information and ask numerous questions in order to acquire and disseminate knowledge.

"It is not common to find employees asking questions because they are taught very clearly what they are supposed to do. I think it's pretty clear what the what they are supposed to do"- (Company C, Former Human Resource Coordinator)

4.2.5 Decision making

A crucial competence that stood out during the interviews is the ability for employees to make decisions in their tasks without constant intervention from supervisors. Manager 5 considers decision making that involves employees crucial due to the fact that it keeps growing firms from operating at a very slow pace. When employees are involved in decision making, response times are rapidly reduced, and workforce responsiveness and cooperativeness improves (Qin & Nembhard 2015).

"That depends on the decision. I think if a decision is operational and employees or team leads can make decisions by themselves […] because the more a company grows, the more decentralized decision making should be, because the CEO cannot know and what is happening in different departments. And also, the more bigger the company is the decision-making is becoming more and more slow if the CEO is responsible for all the decisions"- (Company E, Human Resource Coordinator)

The employees of company A make decisions in the projects they are assigned to. According to Sumukudas & Sawhney (2004), self-managing teams go a step further to engage workers in planning and controlling their own work thereby implying a necessarily high level of workforce agility.

"And it is believed that our projects are really independent, meaning that after the commercial negotiations, after we have agreed for example the prices and so and when we start the actual project then these project teams and individuals in those teams are really independent, they take care of the customer communication, they solve independently the technical decisions and solve related challenges, they also make decisions concerning the used technologies and used tools for example"- (Company A, Head of Human Resources).

An interview respondent through a written response reported to have employees who work collaboratively in teams while making decisions that affect their assigned projects.

"We have dedicated groups that have the authority to plan and execute decisions"- (Company D, Vice President of People).

4.3   Support practices

The following paragraphs are a report of the findings of the interviews in relation to the practices that companies can engage or perform to create enhance and support workforce agility. The case companies in question initiate such support practices to encourage workforce agility in their employees.

4.3.1 Education and Training

Education and training was considered to be a vital support practice by all case companies because of it provides employees with knowledge, which knowledge is useful in sensing the needs of the market and the potential threat landscape. The training and education offered by company A is not general but targeted to align with its strategy.

"Training is one way you can either attend a kind of classroom training which is very traditional from our point of view, then we have several platforms which provide web courses, very different types of web courses so the scale is very broad, so our employees are quite free to choose the web courses but of course they need to understand that there needs to be a connection between our strategy target and the course content"- (Company A, Head of Human Resources).

In addition to sponsoring formal education, mentoring or tutorship is another way that training is carried out where by an experienced person within the organization takes on certain individuals under their guidance and passes on knowledge as is a practice in company E.

"Yes, there is training well, some of the employees are trained outside the organization that can attend like in some training programs or study in the university to complement your previous knowledge or then there is more experienced employees here inside the organization

that can tutor you so there is many ways you can develop yourself if you want"- (Company E, Human Resource Coordinator).

Another case company engages in training which is custom made for each employee. It is not generic for each but rather individual training plans are made specifying which kind of competences that that the particular employee will improve or acquire.

"We have individual training plans created and together with supervisors evaluated what kind of training would work best"- (Company D, Vice President of People).

Equipping employees with a range of necessary skills through training ensures the ability to perform a wide task-range which includes but is not limited to statistical analysis, problem solving, group decision making and capabilities which are specific to the job (Glinska, Carr & Halliday 2012).

4.3.2 Supervisor support

Provision of support from supervisors was seen as very crucial in enhancing the agility of employees. This is due to the fact that it gives the employees the reassurance that their effort is not only appreciated but needed. Supervisor support was viewed as not merely guidance but also in terms of assistance with personal problems that could be affecting the accomplishment of tasks effectively.

"If we're talking about fundamental problems, the person cannot execute his or her tasks, I think the main thing is you know to support the person and if there is a lack of motivation to adapt to the changes um there will be written warnings and as an extreme measure-letting people go, but I think as a general rule it doesn't come down to that but there is always an extreme measure to react to such a situation. So typically, we're talking about supervisor support from HR to make sure that the tasks are done well" - (Company B, Talent attraction Specialist).

"[...] sometimes they have personal problems at that time and they can't concentrate fully on work and it needs to be discussed that what are the reasons behind the fact that this person failed? With these reasons, we try to make up solutions and support the person in reaching new targets and solutions"- (Company A, Head of Human Resources).

Close supervisor support was considered as a means of helping employees adapt to changes taking place in the operating environment. In a written response, manager 4 shared that in the event that an employee failed to adapt to changes such as new technology being introduced in the firm, work coaching and close support from superiors are provided.

Question: "How does the company handle problems related to employees failing to adapt to new ways of conducting business or new technology introduced in the firm?"

Answer: "Close support from supervisor and work coaching"- (Company D, Vice President of People).

"I think first we try to handle any problems by talking and maybe thinking is there anything more we can do or do the employees have all the knowledge that they need to adapt to new ways or new technology. And of course, then we can modify his or her role or offer some different kind of task or different kind of role. I think those are the first ways to handle any problems"- (Company E, Human Resource Coordinator).

4.3.3 Employee involvement

Involvement of employees in decision making is another theme that emerged during the interviews. All interviewees put a strong emphasis on involving employees in strategic decision making because of its known advantages such as the employees feeling valued by the company and taking up ownership of the company. When employees feel that they are valued and that they are part of the company, there are able to become self-motivated and confident to sense opportunities and threats that maybe facing the company. One such example is of company A which involved its employees in decisions regarding creating of company values as manager 1 describes below.

"Generally, yes they are proactive and they usually have very good viewpoints. One good example is our company value process, we as a management team we made some suggestions that these three could be our company values and then we opened up a discussion with the organization and the end result was that based on the ideas given by our employees the values changed totally ...and it was actually a really good message to our employees that

well they felt they were heard and it's very crucial because they are the basic building blocks of our organizational culture"- (Company A, Head of Human Resources).

A pattern that emerged during the interviews was that the case companies had a decentralized structure where by superiors are approachable by inferiors and there are not many supervisors between one employee and the CEO.

"We have very open and non-hierarchal organizational culture which means that everybody can talk with one another. If you a young expert and you want to talk with the CEO, you can go and talk with the CEO. So the culture is really open" - (Company A, Head of Human Resources).

"Of course the employee can just walk to the CEO's room and just tell the idea but I think the usual way is to discuss it first with your team lead or with your business developing manager and then think about how you would present it to CEO. But if you have like a really good idea and you are really sure about this then you can just walk to CEO and present it"- (Company E, Human Resource Coordinator).

A decentralized organisational culture enables employees to not only get involved in the strategic decisions but also feel that their efforts and input are valued because they can easily share with opinions, suggestions and ideas which in many cases assist the company to move forward and more so in turbulent environment where things like technology keep changing and new ideas are needed.

4.3.4 Financial Rewards

Compensation of employees for their input is another practice that all companies were engaged in. The rewards are both formal and informal. Formally, the employees are given either a one-time monetary reward for a profitable idea or suggestion or a raise in salary. Informal rewards can take the form of verbal appreciation from colleagues or small gifts such as wine.

"We have monetary rewards on those as well and those ideas are usually there company-wide in in information systems and then person is handed a check type of thing as an implication for the good idea"- (Company A, Head of Human Resources).

"You can have that one time that reward money or then get a raise"- (Company B, Talent attraction Specialist).

The financial rewards are also given when employees acquire new skills and especially if they can demonstrate that the new skills that have been acquired have broadened the competence portfolio of the employee.

"I suppose they become a target, and they will then get a small financial reward if they achieve the new skill. I think it is something that we are trying to improve so it is somewhat do with motivation"- (Company B, Talent attraction Specialist).

"When people learn totally new skills it usually requires that they take at least some kind of web courses and company of course pays for the web courses but for rewarding, tthere needs to be some kind of proven track record that after learning the new skill you are also able to implement it in practice and once you have proved it in your daily work you usually have your salary checked and if we think that okay your competence profile is broader today than it used to be there might be an increase in salary"- (Company A, Head of Human Resources).

Sumukadas, & Sawhney (2004) argue that non-traditional compensation approaches appear to promote workforce agility better than the traditional ones. Knowledge or skills-based payment supports cross-training and teamwork. Moreover, it places emphasis is on tasks variability, significance and less job classifications.

4.3.5 Use of collaborative I.T Platforms

Collaborative I.T platforms were found to be used in all companies as they all considered them to be very helpful in communication and collaboration. This made the work task flows smoothly and faster hence enabling agility as the employees are better able to share or

disseminate the information and knowledge they have acquired. Examples of the I.T platforms used by the companies ranged are Slack, SharePoint and Trello.

"We use different tools to interact, Slack is the most used tool and of course we use email and have intra to cover relevant data"- (Company D, Vice President of People).

"Do you know that kind of platform called Share point? Our intra is based on that platform and the information sharing is pretty much done in our intranet."- (Company A, Head of Human Resources).

"We have email obviously. We have Microsoft Team, that i's across the frame. I think some teams maybe have their own platforms or ways that they are sharing information but across the whole firm there is Microsoft Team"- (Company E, Human Resource Coordinator).

Information communication technology-based applications such as Enterprise Resource Planning systems and Electronic Commerce applications have been found to improve integration and make decision making easier, aid in problems solving and planning for knowledge workers and thereby leading to agility Gunasekaran (1999.)

4.3.6 Flexible work conditions

The last theme that was revealed during the interview process in relation to organizational practices was that case companies were allowing flexible work schedules and styles to their employees in terms of being able to work both from the workplace and away from the workplace. This practice gives freedom to employees to think creatively in environments that they are comfortable in hence allowing for exposure to various opportunities to sense threats and opportunities and also respond to changes within and without the company better.

"Yes, actually that is done with the project team, they usually have meetings short meetings on daily basis to discuss the status about the project and about the task, and the project team usually agrees the work time and the work manners so they have much freedom in choosing for example the time but quite many people if they have families they work from 8am-4pm or 9am-5pm, so it is still much of routine of working during work hours, but knowing that there is freedom to choose if you need something else to do for example during the morning you

can work later in the evening or you can do all, it gives you some amount of freedom."- (Company A, Head of Human Resources).

"I think we are typically seeking for employees who are committed to job and therefore as the job the project allows or the projects allow they can work from home and um but I think the main thing is the projects are developing. So you know, whatever works is following"- (Company B, Talent attraction Specialist).

Hackman & Oldham (1976) found that the internal motivational impact on an individual in the workplace is most likely to be greater, if the job is designed to have a substantial amount of freedom to make decisions that pertain to procedures to use to perform the tasks and times a worker determines is convenient or is mentally fit to get the job done.

"Yes. There are flexible working hours. basically, you can work at any hour a day but you have to be reachable via phone or email between 10 am and 2 pm so between those hours you have to be reachable, but you can work from wherever you want to from, or from a cafe or from customer organization or whatever. So you can work whenever and from wherever you want to if you are reachable via phone or email between those hours a day"- (Company E, Human Resource Coordinator).

4.4 Challenges

The following paragraphs are a report of the findings of the interviews in relation to the challenges that case companies are facing in the process of creating and supporting workforce agility. The case companies in question encounter such challenges as they try to make their workforce agile.

4.4.1 Problems with adapting to change

In regards to the challenges to workforce agility, during the interview process, it was found that one challenge that companies are facing is related to failure of employees to adapt to the changes taking place within the firm. Manager 1 considered that sometimes it is due to the personal problems of employees, or tight deadlines or poor information flow.

"Sometimes there is clear reason why they have failed. Sometimes they don't have enough information, or the timelines and deadlines are too tight, sometimes they have personal problems at that time and they can't concentrate fully on work and it needs to be discussed that what are the reasons behind the fact that this person failed"- (Company A, Head of Human Resources).

In some cases, this failure is brought about by employees failing to ask for support when they are uncertain about how to proceed with their tasks. Manager 4 supposed that they fail to ask because they are a naturally not predisposed to the tendency or to confidence to ask and they need to feel supported in order to ask.

"[...] but there are also team members who do not have the natural tendency to ask and they need support in feeling comfortable asking for support"- (Company D, Vice President of People).

During the interviews, two case companies did not conceal not having its strategic direction clear to its employees and that this could be a reason as to why some employees might fail to adapt to the changes taking place within the company.

"Well, I would hope so but it is not 100% clear"- (Company C, Former Human Resource Coordinator).

"[...] but I don't think all employees know much more about the strategic direction and actually at the at the time, the managerial board is reshaping the strategy so later in the spring, we should have a whole new strategy that they are presenting to the company and I am hoping that after that all the employees know the strategy and strategic direction, but at the moment, I am not sure that they do"- (Company E, Human Resource Coordinator).

However, some companies were in the process of clarifying their strategic direction to the workforce through initiatives such as information sharing sessions, creating and distribution of strategy material among others.

"[...]we taught to the organization that we are starting strategy renewal and we did so thorough business analysis and this business analysis also included discussions with individual teams and individual experts in our organization, then we have all the time a chat channel open for the questions and comments , we have had business consultants helping us, first the management team and then we have included the middle management in the work

and they are pretty much responsible for taking the message into their teams, collecting the feedback and then giving it back to management team. And we all the time creating for example different types of communication material like these strategy messages and supporting team leaders in doing the communication in their team and in addition to that we also have regular company information sharing sessions where the CEO is telling about the current stage of our change process and those type of things"- (Company A, Head of Human Resources). Table 8 shows a cross-case analysis of the findings of the study to show how the different themes are present in the case companies.

Table 8. Cross-case analysis of findings

Theme	Sub-Theme	Company A	Company B	Company C	Company D	Company E
Competences	Learning	Continuous competence development	Curiosity & constant role development	Willingness to learn, Versatility	Development orientation	Motivation to develop in future
	Teamwork	Good social skills	Group work	Not common	Group work	Team Spirit
	Problem Solving	Big picture perception	Problem identification & Solution execution	Not present	Teams make plans for execution	Initiative & authority to solve problems
	Information Seeking	Asking questions when stuck	Asking questions for clarification	Initiative to learn more about role	Confidence to ask questions	Some individuals ask questions
	Decision Making	Technical decisions made by employees	Technical decisions made by employees	Not common	Special groups make special decisions	Operational decisions made by employees
Support Practices	Education & Training	Web courses	Funding extra courses for individuals	Webinars, Time off to study	Individual training plans	Mentorship & external training
	Supervisor Support	Discussion with individual to find solutions	Discussion with individual to find solutions	Discussion with individual	Work coaching	Role modification
	Employee Involvement	Inclusion in critical decisions	Participating in strategy planning	Employees can make suggestions through email	Suggestions through formal topic forums	Flat organizational structure
	Financial Rewards	Monetary rewards- Salary raise	Raise in salary because new skill	One-time financial reward for good ideas	Bonuses	Raise in salary
	I.T Collaborative Platforms	Share point	Intra-website & chat platform	Unable to reveal	Slack	Microsoft team
	Flexible Work Conditions	Freedom of working hours	Freedom to work from home	Freedom to choose working style	Flexible working hours	Freedom to work virtually from anywhere
Challenges	Adapting to change	Tight deadlines, Inadequate information, Personal problems	Personal problems	Unclear strategic direction	Lack of confidence to ask questions	Unclear strategic direction

4.5   Discussion

This last section aims to discuss the research findings that have been presented above. This section discusses the crucial competences of an agile workforce, the support organizational practices and the challenges faced while creating an agile workforce. The discussion is in relation to the theoretical framework that was presented in the beginning chapters of this paper and in so doing answering the research question which is expressed as follows.

RQ: How is workforce agility achieved in Small Medium Enterprises?

In order to answer the research question, the research objectives will be tackled and the first one is expressed in the following statement.

Research objective 1: What are the crucial competences an agile workforce should possess?

Alavi, Wahab, Muhamad & Shirani (2014) found that commitment to learning and sharing of knowledge are dimensions of organizational learning that have been identified among the most efficient determinants of workforce agility. They contend that an agile workforce is in position to use its knowledge and skills to anticipate and pre-empt the dynamics of an operating environment. According to Breu et al (2001) an agile workforce has the ability to speedily and adeptly acquire skills, especially Information Technology (IT), software, business process integration and management skills which are in alignment with the business strategic goals.

The case companies reported that their employees often take the initiative to acquire new skills. They placed high emphasis on continuous development especially in the specific role of an individual. Therefore it can be concluded that without learning and continuously broadening one's scope of knowledge, it becomes difficult to anticipate changes especially in dynamic environments and consequently react to them. Company A valued employees that were motivated to develop their competences in their areas of specialty.

"[…] so that you are able to communicate and interact with your team and also the customers, your motivation to develop your competence in your speciality area […]"- (Company A, Head of Human Resources).

The research showed that the ability to collaborate or work well in teams is a competence that is highly sought after. Teamwork offers an increment of workforce productivity and

capability in changing environments (Qin & Nembhard 2015). All case companies except one reported to value team working abilities in their employees. However, in company D it was found that not much team work existed because the employees prefer to work independently and this is why there were no tasks designed to be accomplished in teams. Breu et al (2002) asset that is workers are to demonstrate agility, there is need for them to collaborate effectively across different projects, functional and organizational boundaries.

In relation to collaboration, the research revealed that the workforce was also multi-skilled making it multi-functional. The respondents showed that their employees are involved in multiple projects and often taking on more than one role. For example company A has its software developers working in two projects and consultants in several projects.

"I would say if you work in a project which is at a very active stage and you work as a software developer you can maximum handle one active project and one maintenance project but then if you are working as a consultant and there is a potential project in sales then you can have 7 projects you can handle at the same time"- (Company A, Head of Human Resources).

Working effectively and efficiently in teams often requires multi-functionality which allows for agility as the workforce is easily able to move swiftly across organizational boundaries (Forsythe 1997).

Furthermore, the research uncovered that problem solving and information seeking through asking questions were crucial attributes of an agile workforce. This resonates with previous literature which links the ability to solve problems and seek information to intelligence of individuals. Breu et al's findings (2001) revealed that intelligence was among the most fundamental elements of workforce agility. Intelligence requires the ability to read and interpret external change in relation to market conditions, emerging business opportunities, competitor strategies and customer needs. Often this involves being able apply creativity in solving the problems these type of changes present.

Hosein & Yousefi (2012) in their study, mention creative problem solving as crucial quality of agile individuals. Plonka (1997) especially emphasizes the role problem solving plays in workforce agility. And in order to solve problems creatively, the workforce needs to be in possession of the right information. To acquire this information, one has to seek for it first and one of the best ways to do that is through asking questions. This information, once

acquired is what would be used to read and make sense of market conditions, emerging business opportunities and threats posed. However, the research results pointed out that some companies do not encourage their employees to ask questions because the tasks are clearly defined. The tasks being well defined is important, but if the employees are not encouraged to voice their uncertainties, this could affect the motivation of the individual and the amount of information possessed which in turn affects the responsiveness of the worker.

Problem solving and seeking information align with Dyer & Shafer's (2003) assertion of proactivity as an attribute of an agile workforce. Being proactive involves having the initiate to actively search for opportunities and take lead in pursuit of those which appear promising. Proactivity also involves improvising. Improvising is concerned with devising new and creative approaches. When individual seek information through asking questions and engage in solving problems facing the firm, they display initiative and improvisation. The case companies reported that employees take initiative as manager 2 described but mentioned that taking initiative depended on the role while others thought that it depended on the individuals.

"[..] And they definitely will take the initiative and they are expected to take it further, so it depends on the role at the moment"- (Company B, Talent attraction Specialist).

"We have many leaders by nature who feel comfortable taking first proactively to lead but not everyone"- (Company D, Vice President of People).

"It really varies, some people really have initiative and they have a lot of drive and a lot of ideas to do internal development whereas others are opposite that they feel that are not really interested about developing the work practices or processes or competences or whatever is in question"- (Company A, Head of Human Resources).

When it comes to decision making, the results show that a high emphasis on employees being able to make decisions on their own without the micro-management of a supervisor. An implication was that it makes the work flow much smoother and faster. This is in alignment with Breu et al's (2001) findings that agile workers are engaged in making decisions independently. In an industry characterised by so much uncertainty and turbulence, it is understandable why autonomous decision making is indeed an agile competence needed to respond to changes easily and swiftly. Although it has its own disadvantages associated with cost whereby an employee can make a decision that is quite costly to the firm sometimes

without the expected profit. Manager 5 gave an example of one such employee who made a decision without double checking with the supervisor and this cost a great deal to the company, fortunately without devastating effects. On the other hand, it also comes with advantages of reduction in response times, improvement in workforce responsiveness and cooperativeness because they are able to make decisions without red tape (Qin &Nembhard 2015).

Additionally, when the workforce is able to make decisions autonomously, it becomes empowered and without empowerment looms failure and rigidity as Piersol (2007) contends. When employees are able to make decisions in this manner, they are more in position to foresee or anticipate changes because they are empowered to take up ownership of the firm through their tasks. For example, manager 1 described a situation in company A citing an example of when employees were involved in making decisions regarding the company values. The employees felt involved and reported to have more motivation to deal with changes taking place within and without the firm. After all the firm relies on employees at all levels of the organization to keep on the look-out for useful information to bring it internally for processing and decision making (Dyer & Shafer 2003). It is therefore logical to conclude that autonomous decision making is an important or vital competence required for agility in the workforce.

Research objective 2: What practices can organizations implement to build the crucial competences of an agile workforce?

Since the data suggests that workforce agility is vital in organizations in order for them to retain competiveness, it follows that organizations should put in place practices or initiatives or programs that create, enhance and ultimately support workforce agility. It is these practices that an organization implements that become routines or processes which form dynamic capabilities of the firm. Eisenhardt & Martin (2000) term these as strategic routines which firms use to create new configurations of resources. Reconfiguration of these routines and resources appropriately by the firm's chief decision makers consequently births dynamic capabilities (Zahra, Sapienza & Davidsson 2006). In other words, as companies continue to implement organization practices that support the growth and enhancement of workforce agility, they are developing their dynamic capabilities through the configuration of the said practices and the human resources which dynamic capabilities are ultimately responsible for competiveness in fast changing environments (Teece, Pisano and Shuen 1997).

The research gave evidence that training is one of the most effective practices in support of workforce agility as it has either a direct or indirect effect on workforce agility (Qin & Nembhard 2015). Training not only creates novel knowledge but also creates an alignment between the strategic goals of the organization and the employee needs (Martin 2015). All case companies reported to have programs in place to train their employees in the required skills through initiatives such as web courses and information sessions.

The literature suggests cross-training as formidable strategy in formulating workforce agility because employees are trained in a variety of skills (Muduli 2017: Qin & Nembhard 2015). It was found that employees are multi-skilled in that they are able to work participate in many projects in various capacities or roles. Case companies reported to have employees working simultaneously in more than one project. This appears to suggest that cross-training is implemented within the organization. Cross-training has also been found to increase business productivity and increase job satisfaction (Abrams & Berge 2010).

Moving on to supervisor support, the results pointed to a supervisor support as one of the practices that encourages flexibility of the workforce. All respondents reported a strong supervisor support system in the case companies. This finding agrees with previous literature which proposes a link between adaptive behaviours in employees and the support of supervisors (Griffin & Hesketh 2003). Morgeson & Humphrey (2006) further argue that social support from superiors is invaluable especially for highly complex and stressful jobs. The type of supervisor support ranged from work coaching to assistance with individual or personal problems for example the provision of extra time to handle such issues or clarification on tasks if the employee is unsure of how to proceed. When employees feel supported, they are better able to think creatively to solve problems and sense opportunities. This is because they have more resources in terms of finances and time to invest in these kinds of activities.

In examining the human facet of work design, Fornaciari & Dean (2005: 635) found that the nature of work, the work environment, the management, the work goals and the nature of the individual have an influence on the performance of the workforce. The research uncovered that the case companies make an effort towards giving their employees flexibility in terms or scheduling or working style. The employees are given the freedom to choose the time they would like to accomplish their tasks and also in many cases how they will accomplish it. Previous research has found it highly likely for individuals to have a higher motivation if they

have a substantial amount of freedom to choose the procedures used when performing the tasks and the times when the individual feels mentally fit to accomplish it (Hackman & Oldham 1976). Designing work conditions in a manner that gives them such kind of autonomy, not only allows for the employees to use knowledge possessed but also gives way to creation of knowledge or employee learning and development. Thus enhanced autonomy has been linked to acquisition of new task knowledge and broader knowledge concerning the organization, increased level of self-efficacy and a higher use of personal initiative (Parker, Wall & Cordery 2001). Thus, it is possible to conclude that providing flexible working conditions is a practice organizations can implement to add to the flexibility of the workforce.

Furthermore, all case companies reported to use collaborative information technology platforms for communication purposes across the organizations. Examples of such kind of platforms used are SharePoint, Trello, Slack and Webmail. The interviewees implied that using these platforms makes the work flow in a smooth manner in that employees in different parts of the world are able to work together on the same project or task, and it also helps to assist employees in understanding the strategic direction of the firm. These collaborative technology platforms were also reported to be used for employees to give their suggestions or ideas that could have a potential positive financial or otherwise positive impact on the firm. This resonates with Gunasekaran's (1999) findings that these types of technology platforms lead to agility as they ease decision making and improve integration. They also make employees more agile because they avail large amounts of information at incredible speeds that would have otherwise been impossible.

However, the agility does not lie in the mere acquisition of the information; it is in what the individuals can do with that particular information. Desouza (2007) asserts that these I.T collaborative platforms systems are able to process and contextualize information and give insights that aid in decision making. They also make it possible to explore the future in a more detailed way, easier to interpret the information related to change and communicating it to the appropriate decision makers (Williams, Worley & Lawler 2013) hence making the employees able to respond to internal and external changes in a more time-sensitive manner.

Lastly, giving of financial rewards to employees for ideas or suggestions that had the potential of improving the company's portfolio or image, as a supplement to their salaries, was being practiced by all case companies in question. Some companies added informal rewards on top of the formal financial rewards for example small gifts such as wine bottles or

whatever the individual likes. These kinds of rewards have been found in previous literature to incentivise workers to sense opportunities or threats that may be facing the firm employees (Gerhart & Bretz Jr 1994). During the research, it was also found that workers were rewarded financially if they increased their competences or skills. Sumukadas, & Sawhney (2004) view this type of reward system as knowledge or skill-based remuneration. It is a non-traditional type of payment which is based on payment of individuals according to the number of skills possessed rather than only the position held. This non-traditional payment type appears to promote workforce agility compared to the traditional ones. Employees may consider financial rewards as positive feedback regarding their abilities or competences leading to greater intrinsic motivation. The argument is that it is not just the reward itself that is determinant of the individual response, but also the feedback that is implied by that reward (Wiley 1997). It is logical therefore to draw to the conclusion that organizations should design reward systems and embed them deeply in their nature because they are more likely to increase motivation of the workforce to sense and seize opportunities and also solve problems facing the firm.

Research objective 3: What are the challenges that organizations need to overcome in order to promote an agile workforce?

The research found evidence suggesting that some employees have problems adapting to change either internal or external to the firm or both to be one of the biggest challenges faced when trying to enhance workforce agility. The reasons as to why the workers face such problems varied from personal problems to tough deadlines and unclear information. Bovey & Hede (2001) posit that resistance to change is often found to be inherent to individuals, that is, it is part of their human nature to do so. The research did not find any such evidence indicating this because it was not purposed to find out what causes the resistance to change in individuals but rather to investigate the challenges faced by organizations in the process of creating an agile workforce.

However, Lewis, Goodman, & Fandt (2001) warns that failure to adapt to change can spell disastrous effects on the organizations and therefore it behoves change leaders to be attentive to the reasons why employees are resisting change initiatives by failing to adapt to them. It was found that all case companies interviewed provided close supervisor support to employees who were having such problems. Examples of the kind of supervisor support provided by the organizations are discussions with the individual to understand the root of the

problems, flexibility in terms of working hours to help individuals with families, individual training plans, clarification of work duties and role modification.

Additionally, a pattern that emerged during the interviews was the poor understanding of the strategic direction of the firm by the employees. This perhaps was a contributing factor to the problems some employees were having adapting to changes. This challenge has an impeding effect on the agility of the employees because they are not certain about which opportunities they should pursue or which decisions are in line with the strategic direction of the firm (Harraf et al 2015). Some case companies uncovered that they were going through a change process whereby they were overhauling their overall strategic goals and intimated that the employees were not having a very clear understanding of the strategic direction of the firm. One human resource manager cited the inadequacy of information and the efficiency with which it is shared across the organization as one of the major contributing factors as to whether the workers understand the strategic direction or fail to. Harraf et al (2015) posits that effective communication with in the organization should be open and multi-directional. The three effective forms are top-down, horizontal and bottom-up. None should be used without the other because top-down communication alone is known to stifle agility and horizontal communication is vital in the facilitation of interdepartmental exchanges while bottom-up approach is useful in minimizing resistance to change. Figure 6 portrays a summary of the findings of the research.
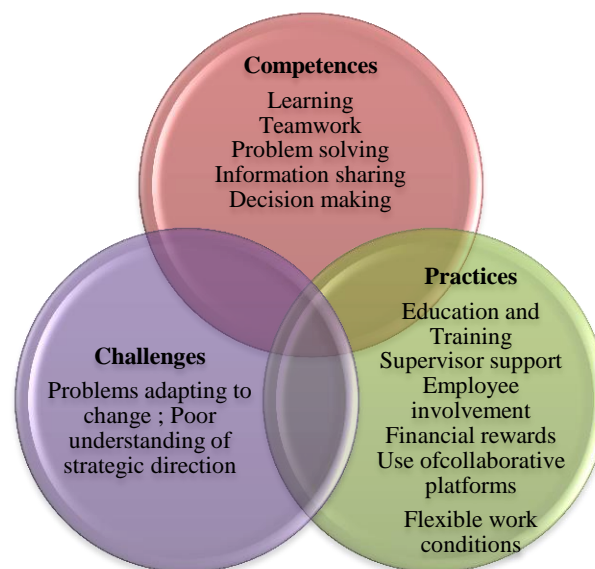

Figure 6. Summary of findings.

In figure 6, the findings are summarized to show the sub-themes that emerged from each category during the research process. It was found that the major competences managers found to be crucial in creating and enhancing workforce agility were: learning, teamwork, problem solving, information seeking and decision making. Learning was generally considered to be associated with continuously developing an individual's competences, the motivation and curiosity to acquire more skills and to acquire more information about what is new in the business environment. Learning appeared to be more required if done within the individual's role. Teamwork being valued highly by interviewees was considered to be the ability to interact and work excellently with other individuals from quite different backgrounds to achieve a common objective. It was found that most tasks within the companies are accomplished in teams.

Problem solving ability emerged in line with taking initiative to identify problems and suggest solutions for them without constant dependence on supervisors. It was considered to be a very crucial competence because when faced with abrupt changes, it is this ability to take initiative to identify and solve problems that aids in responding in an innovative and timely manner. Seeking information was generally considered to improve the learning competence as it is concerned with acquiring information through means such as asking questions from superiors and peers. It also involves the initiative to share that information acquired across the organization. Regarding decision making, it was emphasized that individuals needed to make decisions autonomously without constant intervention from superiors.

The competences appear to be closely linked with and reinforcing each other. For example information seeking reinforces learning because as one seeks information, once found it is acquired and stored. Individuals who seek to acquire the right information at the right time are said to be intelligent (Plonka 1997). Intelligence is an attribute of agile employees (Williams, Worley & Lawler 2013). Teamwork and problem solving were found to closely interlink as many tasks accomplished were in teams. Special teams were even put together to solve major challenges because the individuals were multi-skilled and multi-functional. Qin, Nembhard & Barnes II (2015) consider that individuals working and solving problems together positively impacts absorption of variations in processing times. This is what workforce agility entails.

The practices carried out to encourage and build the said competences were found to be: education and training, supervisor support, employee involvement, financial rewards, use of collaborative technologies and provision of flexible work conditions. Training was found to be a major practice in the companies as was the provision of education through means such as web courses and traditional classes. Supervisor support was found to be highly practiced as employees were given assistance with for example personal problems or guidance to understand work tasks. Concerning employee involvement, it emerged that decentralized organizational structures of the companies allowed for employees to interact freely with superiors and put forth their suggestions confidently. Financial rewards were seen as great motivators for individuals to acquire new skills and solve problems or challenges facing the firms. Although informal rewards such as gifts or trips were given, formal rewards such as financial ones were more heavily relied upon.

There appeared to be a close linkage between supervisor support and employee involvement. When individuals are supported with for example personal problems, they find it easier to get involved and make decisions in the firm. This is perhaps because they feel a sense of ownership and also appreciated. Nijssen & Paauwe (2012) assert that this participatory approach enhances their agility. Financial rewards and training/work coaching provide the motivation for individuals to design innovative responses to change.

Another major practice found was the use of I.T collaborative platforms to expedite and ease the work flow. These platforms seem to encourage teamwork as they enable many individuals to communicate and work on the same project or task simultaneously. With the increasing difficulty to manage the enormous amounts of information churning through organizations today (Glenn & Stahl 2009), it is modern technology applications such as collaborative platforms for example Slack and Trello as used in the some of the case companies, that make it possible for workers to foresee threats or opportunities in the business landscape. Not only that, but they make collaboration of teams in different geographical locations a success. Finally, the provision of flexible work conditions appeared to be a practice that highly intrinsically motivated employees to be flexible and agile as it gave them the freedom to choose when and where to work (Hackman & Oldham 1976). This practice made employees feel less pressure and more support from superiors hence making them more attuned to sensing and seizing opportunities.

However, there was a challenge found to impede the creation of workforce agility which if failing to adapt to change. It was closely associated with worker not fully understanding of the strategic direction of the organization. In other cases it was found to be as a result of tight deadlines, personal problems or failing to ask for support with complex or difficult work tasks. When individuals cannot comprehend the entire meaning of the strategic direction of the firm, their goals fail to align with those of the firm. This causes tension with adoption of change within and without the organization. It is therefore of utmost importance for organizations to effectively and efficiently communicate their strategic direction across the frame. In addition, they should encourage the participation of employees in forming and shaping it.

5   CONCLUSION

This chapter aims to give a summary of the study and its findings, thereafter discuss the theoretical and managerial implications. Suggestions for future research are also discussed and finally the chapter ends with identification of limitations of the study. This study set out to explore the existing literature of workforce agility to investigate how an agility of the workforce can be achieved by asking the central question; *How is workforce agility achieved in Small Medium Enterprises?*

To answer this question, three sub-questions were posed and answered through extensive review of literature and thorough analysis of primary and secondary data obtained from a cross-sectional study of five Finnish information technology firms. The following are the three sub-questions:

a) What are the crucial competences an agile workforce should possess?

b) What practices can organizations implement to build the crucial competences of an agile workforce?

c) What are the challenges that organizations need to overcome in order to promote an agile workforce?

Firstly, key dimensions of the study were defined and the objectives of the study were examined. Workforce agility was found to be influenced by three attitudes namely proactivity, adaptability and generetiveness (Dyer & Shafer 2003). Proactivity concerns the courageous pursuit of opportunities that will a likely positive impact to the organization, adaptability involves making modifications necessary to assist one to fit better in a new environment while being generative is synonymous with developing proficiency of an individual and participating in knowledge gathering and sharing activities (Muduli 2017; (Griffith & Hesketh 2003: Dyer & Shafer 2003). In this study, workforce agility is a dynamic capability that is produced through embedding the organizational practices that support workforce agility as routines in their organizations and configuration of human resources to sustain competiveness in turbulent operating environments (Teece, Pisano and Shuen 1997).

The first objective expressed as *sub-question 1* of this research, was to identify the crucial individual competences that an agile workforce needs to have in a dynamic industry as the

information technology industry. The data revealed that the workforce is a fundamental asset to sustain competitive advantage and based on the five Small Medium Enterprises studied there are five crucial individual competences required to make a workforce agile. First, learning as a competence, involves constantly developing one's professional competences in terms of the job-role of the individual. Secondly, teamwork was considered among the most important abilities for an agile worker. This is the ability to work well with people from various backgrounds to achieve a common objective. The third competence is problem solving on one's own through proper identification of the issue and formulating an appropriate response. Fourthly, the ability to seek and acquire information especially through asking questions was also held in very high regard. Lastly, decision making without the constant intervention of supervisors was considered highly because it eased and hastened the work flow.

The second objective expressed as *sub-question 2* was to investigate the practices that organizations can implement or initiate in order to the support the growth of workforce agility. According to the research, essentially, for the firms to promote and sustain an agile workforce, they can implement these six practices. [1] Education and training, [2] Supervisor support, [3] Employee involvement [4] Financial rewards [5] Use of collaborative I.T platforms and lastly, [6] Providing flexible work conditions for employees. The findings would seem to suggest that these support practices once implemented have far reaching positive implications on the agility of the workforce as they generally foster, support of the individual in terms of acquiring information, adapting to change and also caters to the motivation of the worker. The organizational practices produce dynamic capabilities manifested as workforce agility which enables employees to sense changes and threats in the operating environment easily and places them in a strategic in position to respond to the said changes or threats in a timely manner. This is the essence of agility.

The third objective expressed as sub-question 3 was to identify the challenges that firms are facing in trying to support and sustain an agile workforce. This paper suggests that the most pressing challenge that firms face is employees having problems adapting to the change that is on-going within or without the organization. This challenge was found to be caused by issues for example personal problems at home, tough deadlines and a poor understanding of the strategic direction of the organization. For firms to achieve workforce agility, they must understand the type of challenges or barriers that are hindering the objective of achieving

workforce agility such that they are better able to organize, initiate and implement the appropriate organizational practices. These include practices such as close supervisor support, work training, involving employees in decision making, providing flexible work conditions and using collaborative information technology to facilitate the creation and enhancement of workforce agility- a dynamic capability responsible for giving firms a sustainable competitive advantage.

5.1   Theoretical Implications

The first theoretical implication of this study is that it contributes to filling the gap that has existed in academic research regarding the perspective of an agile workforce. Most research has focused on the operations and workshop floor perspective; this is mostly research in agile manufacturing. This study has therefore added to the extant knowledge on organizational agility from agile workforce perspective as academic literature on workforce agility has proved to be rather scanty or limited (Sherehiy et al 2007).

Secondly, the study has provided more understanding on the practices that promote, support or enhance workforce agility. There is a limited amount of literature regarding concerning the organizational practices to build an agile workforce and this study has brought forward more knowledge concerning this area. Further still, this research advances the discussion concerning the challenges faced by companies while trying to build an agile workforce.

Lastly, the study extends the theoretical model which is used as a framework to identify the crucial competences of an agile workforce. There have been some studies that have investigated the attributes of an agile workforce but few have zeroed in on the fundamental competences which a workforce needs to be agile. This study extends the theoretical model by exploring the workforce agility perspective from dynamic capability lens. Overall, the research gives more insight on specifically how organizations can achieve workforce agility or build an agile workforce by elucidating the challenges they have to overcome, the practices they have to implement to promote the vital competences that lead to agility of the workforce.

5.2   Managerial Implications

As aforementioned in the study, today organizations operate in an environment which is sensitive to time as a key resource and where sustaining competitiveness determines their survival. With the increasing popularity of firm survival in dynamic environments, this study assists managers identify that human resources are fundamental assets which when configured in the right combinations creates dynamic capabilities that are critical to the survival of the firm in turbulent environments as is the case especially in the information technology industry.

Managers need to consider the type of practices that they initiate in the organizations and they are capable of stimulating certain behaviours or competences in the workforce. They are therefore advised to pay close attention to the support practices raised in this study as their implementation likely will produce and promote the crucial competences that are vital in the race to respond to changes in a time sensitive manner.

It also behooves chief decision makers to provide clarity to employees regarding the strategic direction of the organization as this is likely to facilitate in solving the issues regarding failure of workers to adapt to change introduced within the organization. Understanding the strategic direction of the firm not only make employees autonomous decision makers but also gives them a sense of ownership of the firm thereby making them more confident to become adaptable to change.

5.3   Suggestions for future research

A limited amount of academic literature on the topic suggests that there is indeed a need for further research. This study has only examined the crucial competences of and the organizational practices to build an agile workforce but not the factors that affect the competencies on an individual basis. Consequently, it would be valuable to study the individual factors affecting or influencing the agility of a worker. Identification of these individual factors would play an enormous role in the recruitment process of an organization.

Furthermore, it would be useful to replicate this study in different countries using a bigger sample of interviewees to broaden the quality of the findings. This would assist in giving more insight on the organizational practices and the challenges faced in building an agile workforce in regards to context and perhaps the studies could also uncover if there a link exists between the type of organizational practices implemented and geographical location or culture.

When the impact workforce agility has on the bottom line of a firm is clarified, it becomes easier to convince managers to invest in building an agile workforce. Therefore, this study recommends the carrying out an empirical study to investigate the workforce agility has on the financial and operational performance of a firm.

Lastly, this study only explored workforce agility in SME's and it would therefore be interesting to replicate this study in large multinational firms. This could help uncover knowledge on the differences and similarities between the competences that agile employees of large multinational corporations have and practices implemented to support workforce agility   therein.

5.4   Limitations

As aforementioned, there is dearth of academic literature on the topic. It is limited due to the novelty of the topic. Very few studies exploring workforce agility in SMEs have been carried out and this posed a challenge of viewing the topic through a small perspective which could subsequently affect the quality of the findings. A wealth of information on the topic would have been beneficial in expanding the theoretical framework.

Another limitation affecting the results of the study is the small number of companies interviewed in addition to the limited geographical location of the companies. This aspect could affect the applicability of the findings to other Small Medium Enterprises in the information technology industry.

Finally, inadequacy of previous interviewing skills and technical challenges such as poor network connection since none of the interviews were performed face to face. These limitations posed data collection challenges that even though they were navigated well by the researcher, could affect the quality of the findings. However, this study has been developed in

a coherent and systematic fashion in order to meet validity and reliability requirements as much as possible and hopes to provide a beginning point for future research whereby a broadly accepted profile of competences of an agile workforce and the organizational support practices to build it is substantiated.

6   REFERENCES

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7   APPENDICES

APPENDIX 1. Semi-structured Interview guide.

Interviewee

Organization

Title

Duration

Background questions

- o How long have you worked in your current job capacity?
- o How many people do you have in your team?
- o Is it possible to briefly describe your job responsibilities?

Competences

- o When hiring employees, what kind of soft competences do you look for?
- o Do employees often ask questions when they are uncertain about their tasks?
- o Do employees take the initiative in leading projects or solving problems facing the firm?
- o In which ways do managers encourage them to take this kind of initiative?
- o Do many employees express desire to learn new skills?
- o In which areas/field/role do you encourage employees to learn new skills?
- o Is it common in this organization to find that employees are working in multiple capacities for example in two different projects with different roles?

Practices

- o If an employee wants to learn a new skill, in what kind of ways do you support him/her?
- o Are employees trained to perform multiple roles or is it such that one employee performs only one role?
- o What is the maximum number of projects employees can work on simultaneously?
- o How many supervisors are there between a programmer/I.T staff and the CEO?
- o Do employees have the authority to make decisions independently?

o In what instances is permission required to make a decision?

o Would you describe the decision making process of the firm as decentralized or centralized? How is this so?

o If a programmer/I.T staff has suggestions and ideas, say regarding product development, what is the process they have to go through in order to bring them to the Chief decision maker (s)?

o Do employees who do not have managerial capacity take part in suggesting potential future business strategies?

o How do you reward employees when they i) acquire new skills relevant to the job and ii) bring forth a very good idea on how to for example develop a new product?

o Are there any platforms in place for all employees to share information or knowledge across the firm?

o Are there tasks specifically designed to be accomplished in groups?

o Can an employee determine how and what time he or she will work (scheduling and working style)?

Challenges

o Do you think that all employees know the strategic direction of the firm?

o Is there a lot of resistance to group work?

o How does the company handle problems related to employees failing to adapt to new ways of conducting business or new technology introduced in the firm?

o What are some of the challenges that are faced in trying to make employees adaptable or flexible to the business environment?