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**Impact of ITSM Solutions and ITIL Framework on Small to Medium-Sized
Organizations: An Empirical Study on Challenges & Benefits**

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ABSTRACT

In a world where IT is becoming more and more important, small & medium-sized companies need enterprise-level IT tools to provide their services and stay relevant, especially in a competitive industry. ITIL practices have been the best framework for a long time. Over the years, small organizations have had trouble because they didn't have the same resources as bigger organizations to implement the ITIL framework and ITSM solutions. This is because ITIL practices are often expensive and risky, and there are no best ways to put them in place. But as things change, small and medium-sized businesses (SMEs) are now using ITIL best practices that were once mostly used by larger organizations. This thesis looks at how the ITIL framework and ITSM solutions affect the competitive advantage of a small organization and how resources, and organizational culture could affect a small company to apply the ITIL structure and ITSM solutions. Three instruments are utilized for this. For the research, first, a thorough study of the available information was conducted. Second, IT professionals and experts took part in an interview and survey. The results show that ITIL practices and ITSM solutions improve the competitive advantage of small and medium-sized organizations although there are still many barriers to implement ITSM solutions in SMEs. And most relevant challenging factors of implementing ITSM solution and how ITSM benefits SMEs after successful adoption has been broadly discussed in this study.

Also, most IT managers, especially at small companies, use part-time staff to help their organizations reach their goals without spending enough money.

Keywords

ITIL, ITSM Solution, Competitive Advantage, Incident Management, Continuous Improvement

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LIST OF ABBREVIATIONS

IT	Information technology
ITIL	Information Technology Infrastructure Library
SLA	Service Level Agreement
CA	Competitive Advantage
CE	Change Enablement
SME	Small Medium Enterprise
OCR	Organization Culture and Resources

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Introduction

ITSM is the planning, implementation, management, and configuration of a company's information technology infrastructure with a focus on business value (Mudiana et al., 2018). Designing and implementing IT services for an organization, managing the technological resources required to support IT operations on a day-to-day basis, and keeping an eye on ITSM tools to enable change and continuous improvement are all included in ITSM (Xiaojun & Yuki, 2013). ITSM is necessary for the creation of IT services, and these need to be properly managed (Santi & Mart Casades, 2013). Delivering, generating, designing, supporting, and managing the lifespan of IT services are all parts of ITSM within a business. For example, workplace printers, laptops with software loaded, or other devices.

Today, almost all businesses are IT-enabled, so there are benefits and advantages to building out, enhancing, and designing ITSM capabilities (Sandeep, 2012). According to Abdelaali, Samir, and Alami (2011), ITSM is the management and implementation of standardized and efficient IT services to meet corporate needs and provide end users with better information technology services. Moreover, ITSM is a crucial component of any firm that offers services with an emphasis on satisfying client needs through people, processes, and technology (Clive, Neil Francis, & Donald, 2014). Moreover, ITSM aids in addressing how organizations, people, and IT services handle routine business operations (Anup, Ailee, & Mark, 2016).

As a result, modern IT management services are constantly geared toward enhancing how a company generates value for both its clients and it through business and technological integration (Jan-Helge & Carsten, 2010). Additionally, as the value of services in any firm continues to rise (Axelos Global Best Practice, 2019), effective modern IT solutions help to build and maintain comparative benefit (Ada Hui-Chuan & Shrane-Koung, 2010).

IT service management, for instance, attempts to provide auxiliary IT tools and services for both software and hardware solutions. These technologies specifically assist firms in developing value inside service management (from a variety of viewpoints, including supplier, internal, and customer) for business demands in multiples for employee or customer satisfaction. Hence, ITSM practice incorporates people, processes, technology, and organizations (Fredy et al., 2018). To govern IT services, processes, and plan the whole life cycle of an organization's information technology asset, however, to minimize risks and increase value is the main goal of ITSM (Abraham & Marcelo, 2016). So, two research questions serve as the author's main points of reference, what are the challenges / barriers of implementing ITSM solutions in SMEs? And how do the ITSM solutions benefit small-medium sized enterprise while adopting ITIL framework?

1.1 Research Background

People, processes, and technology must coexist in harmony for company management to be effective. Simply put, individuals perform procedures utilizing technology. To be more precise, individuals employ specialized skills and expertise to execute processes that are meant to achieve business objectives using technology that is specifically built for that purpose. However, it is sometimes overlooked that this technology must be handled correctly and effectively to produce the best outcomes. The same holds true for information technology. Like major organizations, presumably small and medium-sized businesses want effective and efficient IT services. They were often unable to afford it since they were unable to properly exploit economies of scale. Even if they were able to create IT services locally, they would typically lack technological expertise, resulting in poor performance. IT service management may aid in performance enhancement; however, the expense of consulting services to adapt best practices for IT service management to the organization's unique needs may outweigh the anticipated advantages. Modern cloud computing with inexpensive pay-as-you-go pricing The IT service delivery paradigm addresses the first half of the issue, but even in the cloud, IT services must be properly managed to give business value. This thesis seeks to determine if and how IT service management could be altered to be broadly relevant to small and medium-sized businesses that wish to use cloud-based IT services.

1.2 Problem statement

Despite the industry's growing interest in ITSM, there isn't much academic research done in this area. "In services, there is no academic community of researchers that has a common goal to understand the foundations of this field of economic activity, or how to progress it, has been largely overlooked by IT research and teaching," claim Chesbrough and Sprohrer (2006, p. 35–40). There is scholarly work done on individual parts of service operations, but little is done on themes linked to ITIL, ISO/IEC, or ITSM (Galup et al., 2007). The implementation of ITIL can be challenging since it necessitates a shift in company culture, and those involved with ITIL may be concerned about their future employment opportunities (Bozga et al., 2013). According to many firms, implementing ITIL was difficult for them and not all procedures were equally crucial to their operational environment (Ahmad & Shamsudin, 2013). However, a good deployment may result in advantages including improved IT service management, lower IT costs, and business/IT alignment to achieve business objectives. According to the literature, there is no set approach for implementing ITIL, and many IT teams find it difficult to embrace a service- and process-oriented mentality. As a result, practitioners and scholars are interested in determining what constitutes a successful ITIL implementation. The most discussed words in ITIL study in academia are crucial success factors and hurdles to successful ITIL implementation (Iden & Eikebrokk, 2014). There are several ITIL publications, but none of them explain techniques, strategies, or step-by-step guidance for ITIL implementation. Even

the publication from the ITIL regulatory organization (OGC) does not provide a process guideline for effective deployment (Schmidtbauer et al., 2013) or guidance on what to do after the installation (Lucio-Nieto et al., 2012). As a result, we thought it would be interesting to integrate literature and empirical data on ITIL implementation and give guidelines for Execution when referring to IT service management.

1.3 Objectives

ITSM is regarded as the most important problem for IT firms since conventional IT (hardware and software) has evolved to encompass business-oriented support services (McNaughton et al., 2010). IT teams are modifying ITSM methods specified in ITIL to better align IT services with business needs. Nevertheless, as described in the issue section, execution is not as simple as it appears. As a result, the goal of this thesis is to investigate how ITIL adoption might be performed in a company. The final product will be assembled as a guideline that can be used by IT professionals, consultants, and future researchers looking for information regarding ITIL deployment or looking to improve the efficacy of their IT services.

2 Theoretical framework

This section examines the relevant research literature on the management of information technologies and services. Using ITIL, this section explains ITSM ideas and services, as well as the deployment of the ITSM framework. In this section, ITIL's best practices are discussed. Its framework is used to show how much competence is gained when ITSM solutions are used in businesses.

2.1 Information Technology Infrastructure Library (ITIL)

The most well-known method of managing IT services is ITIL and it focuses on ensuring that IT services to the extent of the necessity of the business. In the 1980s, The British government established the Central Communications and Computing Agency. In 2013, the intellectual property was handed over to Axelos, a new UK Cabinet Office, and Capita plc joint venture. ITIL gives IT service providers, whether they are internal or external, a method and a lot of direction about the essential processes, activities, and other resources and skills they need to provide high-quality IT services at the lowest possible cost (Cannon, 2011, p. 3; Van Bon et al. 2007, p. 49). ITIL has grown with advances in technology and business operations throughout the years. In 2007, the service lifecycle concept (Figure 30) was added to the process based ITIL method. This was done in response to major technological advances and growing problems with IT service providers. ITIL was changed in 2011 as part of its plan to keep getting better so that its five main products work better together.

Figure 1: ITIL Service Lifecycle (Canon, 2011)



ITIL gives best-practice guidelines for each phase of the lifecycle, including ideas, needed procedures and activities, organization and roles, IT service management-related technologies, problems, important success factors, and risks. The service strategy steers the ship by understanding the company's goals and the needs of customers and businesses. It also acts as a hub for the other phases. Continuous service improvement includes and helps all phases by finding ways to improve not just between phases but also within each process or connection (Cannon, 2011).

Through the lens of service strategy, IT service management is given direction and answers to important questions. These include how to set up strategic assets like resources and skills, as well as how to prioritize and invest in IT services within the IT service portfolio (Cannon, 2011). IT can respond quickly and effectively to changes in the business environment, communicate clearly and effectively with the business or customer, and organize itself effectively and efficiently when there is a clear link between what IT does and what the business needs.

It is more likely that services developed with the company's specific requirements in mind will be effective and successful. Starting with customer needs and ending with service disposal, IT services must be designed with service quality in mind from beginning to end, as directed by the service strategy (Hunnebeck, 2011b). Service design best practices aim to lower TCO by enhancing service quality and consistency, streamlining the rollout of new or revised services, bolstering IT service management practices and IT process efficacy, and defining actionable indicators. All of this also lays the groundwork for more effective management of information technology. To get there, service designers consider five different facets of design: the service solution for new or revised services; management information systems and tools; technology

and management structures; necessary procedures; and measurement techniques and metrics. It's possible that these concepts are even more crucial than the procedures themselves, given that they serve as a map for the application of IT to areas that are often overlooked.

Service transition, based on service design blueprints, brings new IT services and modifications to existing services into production (and subsequently retires them) in a controlled way, as opposed to "throwing over the wall." Service transition offers best practices for the development, evaluation, and deployment of IT services. People-wise, this is when new structures are formed, and knowledge and skills are developed and passed on to the operations team and end-users. Moreover, this is when conversion and cultural change commence (Rance, 2011).

"Service operation" refers to the time when IT services are being provided and business value is being created. But the IT infrastructure is like a living body in that it needs care and upkeep. Important IT service health indicators need to be tracked and used for infrastructure and application management and administration. The best practice of service operations helps cut down on unplanned work and the cost of services that aren't through controlling access to the services, it is possible to accomplish the objectives and goals of the organization's security policy. It also makes it easy to get to standard services, which helps organizations be more productive and lays the groundwork for automating operations, which makes them more efficient and gives them more chances to come up with new technologies. With this strategy, IT services are more flexible and better able to adapt to customers' changing needs. From a people perspective, all service operation workers must know that their job is to "deliver service" to the organization, and they must be involved in the right way in service design and service transition (Steinberg, 2011).

2.2 ITIL Framework

The ITIL framework provides enterprises with the opportunity to expand and improve their IT services while concentrating on values and competitive advantage. Joo Serrano et al. (2021) have made suggestions for improving the process and evaluating the ITSM system deployment. G. Rasa et al. (2019) say that the organization's circumstances, such as a lack of resources, insufficient process activities, and unclear metrics, roles, and responsibilities, are critical or failure factors during ITSM solution installation. The information technology infrastructure library service quality scheme shows how the operations, and many organizational components collaborate. to create value by using IT-enabled services. Its main goal is to add value to the organization. The primary components of it are the ITIL value delivery chain, the ITIL guiding principles, governance, and continuous improvement. All of these are focused on value and offer ways for services to keep getting better. The organization's management board can change its needs because the ITIL service value system is flexible (Marco, Nelson, and Miguel, 2013). The ITIL framework has four components: value streams and processes; organization and people; IT; associates and providers; and IT. (Axelos Global Best Practice, 2019) A company can use the ITIL framework to reach its goals if it pays attention to these four areas. This study looks at how the ITIL framework affects the implementation of ITSM solutions in SMEs by supporting change enablement, ITSM solutions, and competitive advantage. Second, the

paper looks at the role of ITSM solutions and change enablement as mediators to show how the ITIL framework can affect the values of an organization. Antti, Marko, and Jukka's (2010) study end by looking at how organizational culture affects how the ITIL framework affects the implementation of ITSM solutions.

SLA Service Level Agreement

SLA is an agreement between an IT end-user and a service provider that outlines the terms of the service (Anacleto & Fernando, 2010). The SLA outlines the obligations of the IT service provider.

After defining an SLA with the IT service team, personnel, external services, and the client, or end-user, service providers always assure the delivery of the required service. SLA simplifies business and IT interface management and provides numerous benefits. ITIL is an important part of making sure that business and IT work well together (Alain, Gil, Georges-Antoine, and Francois, 2008). It is a function that lets businesses know what their customers expect from them and what they expect from them. Also, ITIL best practices help define the expected value of the services, and designing a service requires a deep understanding of the service environment. This is accomplished by identifying who is responsible for providing the service. Who are the clients for whom these services are designed? Additionally, who is the "end user"? (Anacleto & Fernando, 2010). It is difficult to determine whether there is a final client for whom these services are designed. ITIL describes how to use a method to analyze the whole IT environment and all of its service providers. The SLA includes a description of services, which means that you need to know what the customer wants and how long it's okay to take to deliver or stop these services. ITIL says because it's crucial to understand what the customer wants in terms of value and what SLA works best for them. This makes sure that the customer gets the right services and that their goals about value are considered. Lastly, to verify that these services contribute to the organization's broader objectives (Said & Rabah, 2010).

2.3 Organizational Resources and Culture

The organizational structure necessitates a culture that supports its goals and the adoption of new tools. Its culture is dependent on how it performs activities to generate values. Every day, the organization's culture becomes more complicated, yet it is essential to make explicit the communication, duties, authority structure, strategy, and roles of employees and managers while creating a culture of transparency (Carrington & Lisa, 2015). Employees and customers are the most important parts of an organization's structure, but it's also important to think about leadership and management styles, as well as how well people can work together and communicate. (Axelos Global Best Practice, 2019) The ITIL framework shows why every member of an organization should care more about making things better for the organization, its stakeholders, and its customers. Additionally, work on breaking down organizational walls while focusing on the organization's ideals. Large companies have the resources to put their strategies into action, but SMEs may not. Small companies have limited money and resources, which can make it hard to carry out some strategies. Employing an experienced and competent

workforce is more expensive for new companies. There are so many restrictions regarding human and material resources (Kanagi & Kashif, 2012). SMEs may not have enough money because their technology isn't very good, their management structure isn't good enough, or they are easy targets for security attacks. Because of this, small companies need IT governance that costs less, takes less time, and can be done by fewer employees. As a strategy, the ITIL framework tells the company how to run its service management based on what it can do. The ITIL framework is used by all companies. It includes demand management, financial management, and service portfolio management. ITIL is a structure that any business, regardless of size, may employ and structure (Maria, 2003). This means that small firms can also use it, but the requirements need to fit the size of the business.

2.4 IT Service Management (ITSM)

The discipline of ITSM is that focuses on setting up, coordinating, and managing the processes, techniques, activities, and resources that are needed to perform and supply IT solution to clients" (Ding, 2015, p. 2). Galup et al. (2009) say that ITSM is a subfield of service sciences that focuses on IT operations like service delivery and service support. On the other hand, service sciences are a new and growing field of academic sciences. Its goal is to build intellectual capital that will be useful in the future. It provides computer science, systems analysis, industrial engineering, business planning, management studies, the law, and the social and cognitive sciences (Galup et al., 2007). Service management helps service providers understand the services they offer, helps clients get the results they want, and makes it easier to understand and control costs and risks. Service management starts with a service provider's assets (resources and skills) and ends with services that help customers (ITIL Overview, 2015).

2.5 Value of ITSM

Because of its emphasis on IT operations, customers, SLAs, and the administration of ongoing IT operations, ITSM is growing in popularity in the IT industry. IT-using organizations rely on IT to fulfil their business objectives.

(ITIL Overview, 2015) Success is guaranteed if the necessary services are set up, kept up to date, and supported. Iden and Eikebrokk (2014) says that adapting ITSM could lead to better IT services, happier customers, lower operational costs, the growth of a service-oriented culture, and a standard way to talk to people inside and outside the company. ITSM is a process-based approach for managing IT services throughout their life cycles and making sure that business goals and IT services are aligned (ITSM Overview, 2015). This is different from how IT is usually focused, which is mostly on technology (Trusson et al., 2014).

2.6 ITSM Solutions

IT service management (ITSM) activities in an organization include providing, planning, supporting, and managing the IT service lifecycle (M. Tarek & Hikmet, 2014). ITSM solutions like Jira could be used as an ITSM tool for an organization's IT support so that daily problem can be solved through the ticketing system. The focus of ITSM is offering organized and high-quality IT services to the enterprise. A framework that integrates the business processes and IT services of an enterprise. ITSM is the execution of high-quality and efficient IT services that satisfy an organization's business needs (Mauricio, Francis, Aileen, & Lutz, 2014). It helps make sure that high-quality IT services are delivered to improve the organization's performance. ITSM (IT Service Management) might be referred to as the services utilized by workers, customers, and the company. It focuses on making the IT department, company processes, employees, and customers better all the time while providing successful IT services. Process workflow aids in improving the IT productivity of enterprises. It helps with common organizational problems like managing incidents, setting up service-level agreements, and handling changes (Karin, Abraham, and Marcellin, 2016).

ITSM solutions boost IT productivity and workflow processes. ITIL appears to be the optimal method for implementing ITSM solutions in every company. ITIL provides guidance for deploying ITSM solutions, and its framework provides a means for delivering ITSM best practices that help businesses match their business needs with IT solutions (Abir E. Y., Souad, Khalifa, Mohammed, and Elhossein, 2017). ITIL-based ITSM solutions make it possible for organizations to run more efficiently and for IT services to be successful. An ITSM tool helps an organization's ITSM projects, like the IT service desk, which keeps the business's ticketing systems running by responding to service desk requests. Appropriate ITSM tools support efficient IT team workflow and service delivery (Ahad, Taha, Mohammad, & Saeed, 2014). This tool can also be used throughout an organization. A good ITSM platform can improve self-service for employees and customers, give the IT department a workspace that can be used for many things, and give the business a dashboard, reports, and analysis. (Mostafa, Essam, and Mostafa, 2012) say that these tools may also include tools for managing license requests and changes, asset management tools, and licensing management tools. ITSM is used by a lot of businesses today, but it is hard to know exactly how many businesses use it. (Vipul, O. P., and V. Raveendra, 2018) However, new data shows that ITSM is becoming more popular and that hundreds of organizations are now certified for ITSM on an international standard.

2.7 Change Enablement

The change management process starts with a change request that leads to the implementation of the change while identifying and writing down the actions that go along with the change request (D. Kavitha, 2015). Change is the taking away or adding of anything that could affect services directly or indirectly. Change management is an important part of how a company works. It is a task designed to make sure that changes to a product work well. It includes things like managing the risks of a newly released product, getting permission to make changes, and managing the company's change schedule. Paulo, Adriano, Wesklei-Dourado, and Fátima (2016) say that organizations put an emphasis on improvement not only to make more money but also to improve their internal processes. In an organization, the change enablement scope

is set to include IT services, software applications, procedures, documentation, and anything else that could improve service. It focuses on modifications that have an impact on goods and services to suit the needs of end customers, while the change team manages them (Noema & Will, 2015). Prior to implementation, the requirements for change management are evaluated by a certified team. This group is aware of the advantages and dangers associated with change releases. "Change authority" is the official name for the person in an organization who approves changes for deployment. Having the proper individual in a company is crucial in charge of changes at different service levels (Axelos Global Best Practice, 2019).

Three sorts of organizational changes must always be considered: (1) Standard Change: pre-approved, fully documented, and low-risk alterations. They are deployed without requiring authorization. It is often a service request from the end users and sometimes a change in how things are done. Every procedure for a standard modification must have a comprehensive risk management system. (2) Normal Change: Changes that must be evaluated, scheduled, and permitted. This might be a low-risk alteration that required authorization from a different authority. Some small changes need the help of people in charge, like the organization's board of directors. A typical modification is initiated by a service request from end-users of IT products. (3) Emergency Changes: These are adjustments that must be made immediately in order to restore regular service operations. This sort of modification is not included in the change schedule. It calls for quick responses and fixes to unplanned problems that could cause service interruptions. Due to scheduling restrictions, some modifications are implemented with minimal testing and documentation. For emergency changes inside an organization, it is vital to have a team or change authorities who are aware of the dangers to the service. A changing schedule facilitates communication, dispute resolution, and change management. It provides information important for event management, issue management, and improvement planning. Planned modifications to products, services, and gadgets are required (Axelos Global Best Practice, 2019). Changes are made to achieve enhancements, which must be allowed prior to deployment. Users might need to know about product modifications. When IT product end-users are involved in making changes, the creation of the service update and its execution. Transition, on the other hand, needs change management. Delivery and support of changes may be affected, but the person taking part in the value chain activity should be told about changes. (Sebastian & Kemper, 2011) Change management should make sure that risks are minimized and that organizational goals are met.

2.8 Competitive Advantage

Competitive advantage (Mauricio & Lutz, 2011) describes the things a company does that make it more valuable than other companies in the same industry. It can be caused by many things in a business, such as marketing, good IT services, good IT solutions, etc. These operations are motivated by the possibility of a cost-benefit analysis. Gad (2016) says that a business has a competitive advantage when its customers or end users are happier with the service it offers than with that of its competitors. The consumer values this benefit that separates the firm from its rivals. ITSM tools have been used to improve corporate productivity and reduce downtime with the help of problem management, SLA management, incident management, and availability management. ITSM has made it easier to use unused assets and track IT devices. This is because it cuts down on time, money, and effort that isn't needed for

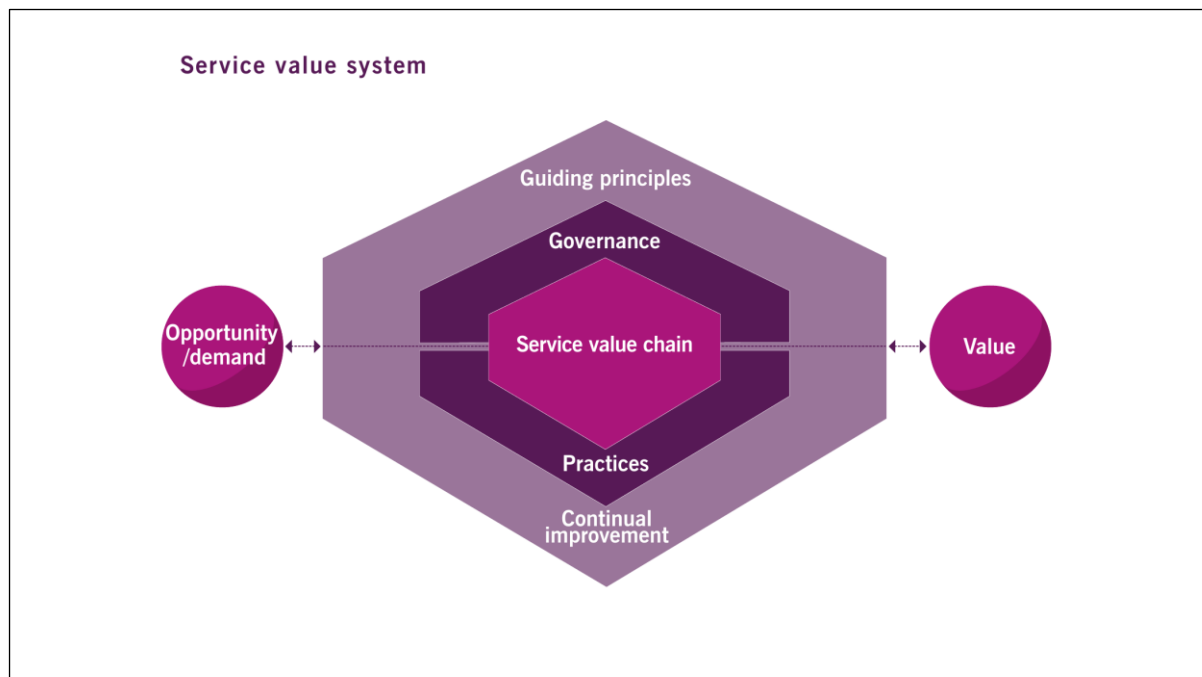
service delivery and optimizes costs by using bought IT assets to the organization's advantage. Because of this, both customers and employees have a better idea of how valuable IT services and business value are (Stuart, Helana, and Ravinda, 2014). This has led to better management of expectations, the ability to measure and improve operational performance while reducing the business impact of incidents, higher customer satisfaction, better quality services, lower IT costs, more innovation, and business value, and a stronger competitive advantage for the company, and more business output. In addition, organizations gain a competitive edge by enhancing efficiency through best practices, workflow, and automation, concentrating on efficiency in service delivery, and improving services and processes (Mauricio & Lutz, 2011). For a small business to have an edge over its competitors, it needs to manage its limited resources well and have experienced, qualified workers on hand. It also needs to show and carry out a plan of action. A strategy might be used to explain such a plan. The strategy may comprise a long-term aim and a plan of action. The system implemented by an organization determines the origins of its competitive advantage. This strategy needs to make sure that the day-to-day operations of the company are in line with its resources and environment. While the goal is to give consumers value in a way that makes them happy and keeps the business going in the long run, an organization needs to improve its efficiency, effectiveness, and economy (George, 2007) if it wants to stay competitive and do things like its competitors.

2.9 Information Technology Infrastructure Library Practice

Throughout the years, the majority of the world's IT service management has employed ITIL protocols, which act as structured recommendations for enterprises (Abir, Souad, Khalifa Mansouri, Mohammed, & Elhossein, 2017). By combining and implementing cutting-edge techniques with time-tested and established know-how, ITIL continues to assure continuity and improvements with the current method of functioning (Jose Antonio, Lohana, Magdalena, & Juan Luis, 2015). The design of ITIL 7 makes sure that it satisfies contemporary standards and organizational flexibility. Its main goals are to have an effective foundation for service administration and a great setup for implementing cutting-edge technology (Jon & Tom, 2014). By concentrating on integrating IT service tools and business unit together without discrepancy, it is intended to lead organizational needs and manage services by aiming value as its output (Kasman & Ford Lumban, 2012). Several IT organizations have recently shown interest in implementing ITIL for their operations. ITIL is the result of extensive global research and development in the fields of information technology management and services (Jan-Helge & Carsten, 2010). Many companies have successfully deployed and tested ITIL processes, making it an appropriate practice for ITSM (Yajun, Jinlong, & Jiangtao, 2013). On the other side, ITIL procedures and practices are not a benchmark that demonstrates accomplishment. Consequently, a corporation does not have to implement all of its procedures. The ability to choose what procedures, activities, or software tools to use to improve the quality of the company are significant justifications for embracing ITIL (Juan & Roberto, 2018). It can be used in both public and private enterprises as a collection of ITSM best practices (Sona, 2018). To increase the integration and linkages between IT and business, ITIL offers change enablement and continuous quality service improvements in the operation and design of IT services (Rachid & Imad, 2010). Moreover, the ITIL guiding concept is value-oriented in figure 1 below. It is a framework that has been chosen for creating plans, choices, and actions to direct companies and guarantee consistent understanding throughout the organization's deployment of service management and ITSM software solutions (Zaydi & Nasserredine, 2019). Its

guiding principles centre on creating value while utilizing existing resources, emphasizing iterative feedback for development, and boosting transparency for IT services instruments utilized in carrying out business tasks. Moreover, the ITIL service value chain is a model used for providing and producing value and refining the continuous development of IT services, whereas ITIL governance is how the organization is controlled and directed (Axelos Global Best Practice, 2019).

Figure 2. ITIL Service Value System



Axelos Global Practice, 2019. ITIL Foundation ITIL4 pg.55. ITIL Management Practices.

2.10 Practice in Information Technology Asset Management

Information technology asset management is the method of keeping track of how long IT assets last, how much they cost, and how they are bought, maintained, and removed after a predetermined amount of time (Khaled & Richard, 2013). An IT service manager oversees an organization’s IT assets, which are important parts that are necessary for good IT service delivery. IT equipment that helps the company's services and networking infrastructures (Grzegorz, 2019) can also be considered an IT asset in an organization. This is a service that takes care of both hardware and software assets while also describing the administration and upkeep of IT infrastructure, i.e., inspecting, repairing, replacing, and maintaining assets at Mini-Chance (Vhance, John, Alfred, & William, 2011). IT businesses need IT asset management because the hardware will break, the software will become outdated, licenses will need to be renewed, and subscriptions will need to be canceled at certain times, and all of these things require a well-established process for keeping track of all assets and keeping them up to date (Gang & Liping, 2012). i.e., hardware life cycle.

The goal of this approach is also to plan and manage the entire lifecycle of IT assets to help the company maximize value, limit costs, manage risks, keep control, and make decisions about all IT products needed for business operations. This approach is based on purchases, the re-use of IT goods, the return of IT assets, the disposal of IT assets after a certain amount of time and following the law and contract terms. Software asset management is a part of IT asset management that is used to keep track of how IT software assets are made, maintained, deployed, and released. Part of the software asset management process (Samer, 2016) is making sure that software subscriptions, licenses, and security updates are managed and controlled well. As part of IT software asset management, software licenses are much easier and cheaper to manage, which lowers the costs of licenses. Christos and Kari (2013) say that good IT asset management helps keep track of costs and cases. (Vhance, John, Alfred, and William, 2011) It talks about the management and maintenance of IT infrastructures, such as inspection, repair, replacement, and maintenance that keeps costs down. (1) Software Assets: The company makes sure that software licensing rules are followed and that this license can be used again under contract. Proof of purchase is made accessible to validate the software license entitlement. (Axelos Global Best Practice, 2019) Part of IT asset management is keeping track of software bills, and user counts, buying extra licenses, and putting in place security for all users. (2) Hardware assets: this form of IT asset ensures labeling for identification. It is important to protect physical assets and keep their locations safe so that data doesn't get leaked, stolen, or damaged. Before this sort of asset is reused, an organization's IT manager must handle it properly while tracking its lifetime towards retirement (Gang & Liping, 2012). Grzegorz (2019) says that asset management needs an asset register to keep track of accurate inventory information and make the best use of resources.

2.11 Release and Development Practices

The process sends high-quality software to the right team while keeping an eye on the flow of changes and making sure they follow the rules (Samer, 2016). This process makes it possible to use the new features and services (G. & RSD Wahida, 2019). The release plan process involves three parts; release objectives, release execution, and release management, which are all procedures of release plans to enhance product quality and mostly install new IT solutions (G., S.Jagadheesh, R., & Banu, 2010). In general, a major and important version adds new features, changes, and capabilities, while a minor release fixes a lot of problems (Ahmad & Abolghasem, 2014). A release manager's responsibility is to engage and communicate with the team responsible for release control to comprehend the demands, requirements, and technical challenges, and to be able to create a release note and coordinate the distribution of new software for successful planning (Amir, Mahmoud, & Seyed, 2011). The company or an external service provider supplies release control components. Typically, it includes functionality that provides additional services. A release schedule tells potential users when the service will be ready and how it will be used. After each deployment, the service is reviewed to see if users are happy with it. Successfully planned are the organization's policies and advice for the release management approach. Lastly, the release is meant to improve the services, and its content was made with the help of people who use the services (P. & B., 2018). The most

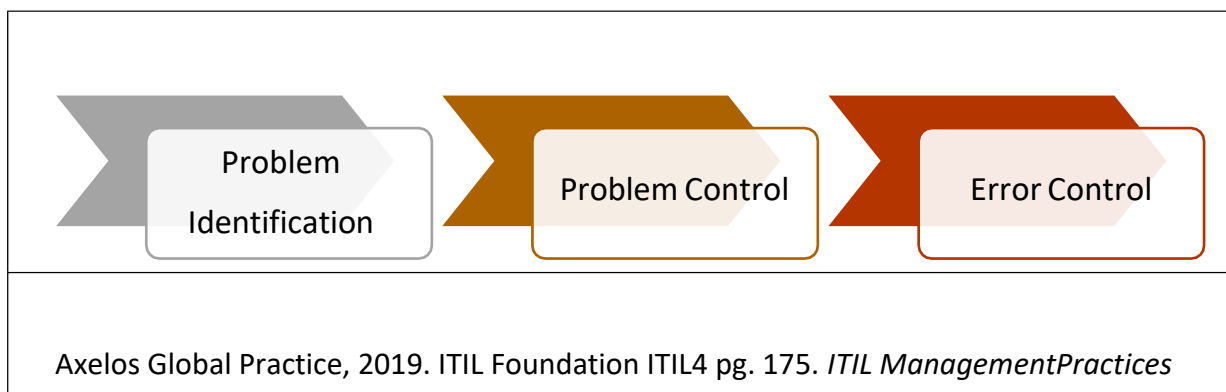
important part of deployment management practice (Gilmar, Paulo D., and Sergio, 2019) is moving hardware, software, or any other physical part to a live environment. Release management is the process of keeping track of new software and hardware that has been set up in a part of an organization. Under change-enabled service management methods, the release of new software that is easily available for usage is classified. Communication regarding newly bought software to intended users is important inside the company, whereas the installation of newly acquired software and hardware is performed after business hours to avoid service disruptions (Abir EL, Khalifa, Mohammed, & Elhossein, 2018). The team is told when the software will be deployed, and the release date of this software is also shared (P. and B., 2018).

2.11 Practice in Problem and Incident Management

Firms that use ITIL must deal with problems from two angles: problem management and incident management. First, problem management control is used to lessen the impact of events by focusing on the root causes of problems and addressing known faults and workarounds (Niklas, Tobias, Stefan, and Dirk, 2016). After an incident has been addressed or a remedy has been implemented to stabilize the service disruption, the problem is handled (Mudiana et al., 2018). A known mistake is a problem that has been found, reported, and looked at, but hasn't been fixed yet. Jiqing and Shuhai (2016) say that organizational services are often weak or broken, which could lead to events. Problems are related occurrences, but they are handled and addressed differently in ITIL. To offer a longer-term remedy that might minimize the frequency of recurrences, it is necessary to conduct a thorough study and inspection of problems that are a primary source of occurrences (Martin & Juraj, 2018).

Problem identification entails documenting issues that necessitate incident record examination. It involves analysing information from end users about problems they ran into while using a service (Stefan, Wolfgang, and Helmut, 2011) to find out what users' most common concerns are. Problems are ranked by how dangerous they are to services, and it is more important to focus on the ones that are higher on the list. When a problem can't be fixed right away, a workaround is used to lessen the effects of the problem until a permanent solution can be found (Abtin & Faras, 2011). Error control actions fix a problem that has already been found, while workaround documents explain in detail what the problem is and how it can be fixed (Puneet, 2013).

Figure 3. Phase of Problem Management



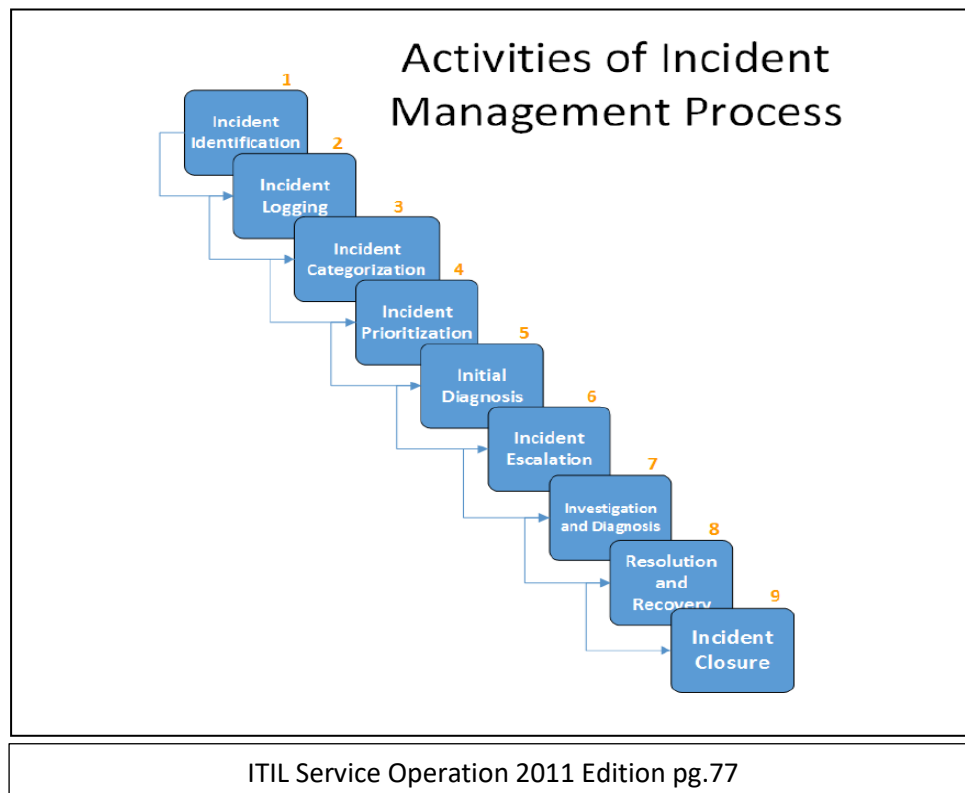
The phases of difficulties include problem identification, problem management, and error control, as shown in figure 2. Risk management and problem management might be related inside a company. Its objective is to identify and mitigate threats that might have a detrimental influence on the organization's operations. Change control is used to solve problems, and problem management control is used to write down information about workarounds and how to solve problems. According to ITIL, this is beneficial due to the improvement given for the reduction of events and their negative impact on the company (Axelos Global Best Practice, 2019).

Controlling incidents is the goal of incident management and reduce the negative consequences of occurrences by quickly returning services to normal functioning levels. Handling incidents in a uniform manner and quickly restoring service. An incident might be defined as an unscheduled disruption of service delivery that degrades the intended service quality (Martin & Juraj, 2018). The management of events can have a significant effect on users, influencing their perception of the service provider. All events should be registered and carefully recorded so that they can be solved quickly, and regular service can be restored. To limit risks, incidents should be acknowledged according to their greatest impact on the business, particularly security incidents (Stefan, Wolfgang, & Helmut, 2011). The service level agreement should include a written record of how long it takes to deal with events.

The organization created incident management strategies to manage various sorts of incidents with the given reaction team resources. Consequently, the incident response team manages incidents effectively from low to high risk through escalation, whereas there are distinct, potentially extremely complicated procedures for handling incidents with high risk. All incident information is saved in the incident record tools. This sort of technology can aid in the automation of reported occurrences into known incidents and issues in the system record, facilitating quick access to remedies (Jiqing & Shuhai, 2016). The team responsible for the handling of incidents provides timely and accurate updates. Therefore, an incident that affects business actions should be presented with a timestamp to remedy the issue. Several groups address incidents; these groups must be aware of the service's-controlled values and outcome risks. The customer requests assistance via the service help desk as the support staff classifies the occurrence in the database of incidence records (Niklas, Tobias, Stefan, & Dirk, 2016). With self-help, for example, some problems are taken care of by the end users, others are fixed by the service desk, and the support staff is told about more complicated problems. Incidents can also be rectified by vendors that provide product support. In addition, significant and complicated disasters may necessitate disaster recovery strategies (Cathrine, Marte, Maria B., & Karin, 2014). Sometimes, managing incidents requires regular contact with suppliers, who must be willing to follow the product's service level agreement. A provider must be able to function as a service helpdesk by tracking and documenting all issues and responding to crucial inquiries regarding the incident's resolution (Joo, Ruben, José, and Isaas, 2018). There should be a method for diagnosing, investigating, and resolving events for incident management. These methods can provide ways for more effective diagnosis and inquiry. Low-level problems might be easier to find and fix with the help of a script that asks users for information at the first meeting. (James J. & Gary, 2010) Instead of following the steps for resolving an incident, you might need knowledge and skills to deal with a complicated problem. The resolution of

incidents is a big improvement to the service, while the participation of end users and customers is essential for learning about problems and difficulties and setting expectations for how long it will take to resolve incidents. Control of incident management is crucial throughout the delivery and maintenance of services since it contributes significantly to user support (Jarot, Siska, & Sasmoko, 2017). The focus of the incidence lifecycle is on preventing, finding, analysing, and containing incidents. This includes protecting data for running services and focusing recovery on getting things back to normal. Every piece of information about resolved incidents is uploaded to the audit system, where it may be evaluated alongside the resolution of incident-related concerns (Victor, Andrew, Thomas, and Teodor-Florin, 2014).

Figure 4. Activities of Incident Management

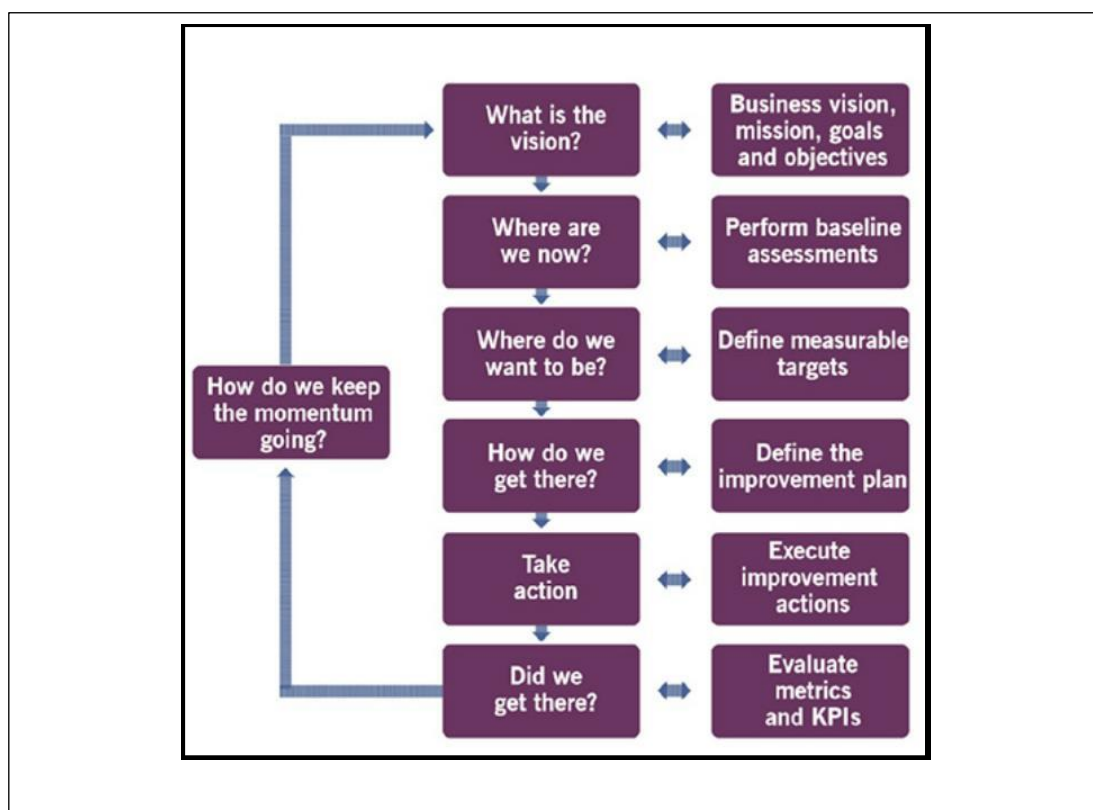


2.12 Continual Improvement Cycle

ITSM uses techniques, processes, procedures, activities, and guiding principles to manage, plan, improve, and run IT services while optimizing and automating IT operations (Antoni, Antonia, Esperanza, and Jose, 2012). Through assessment activities, process evaluations give an organization the chance and ability to improve the IT services it already has. Anup, Aileen, and Mark (2015) imply that ITIL framework brings together technology and knowledge for events, reporting, and monitoring of processes to ensure that they are always getting better. This method makes sure that a business that is always changing and growing can improve its

services. The goal is to come up with ways to improve organizational practices that fit with the business plan. Practices for continuous improvement should be part of an organization's plan for moving forward and staying relevant in its industry. There should be a budget for improvements, and if ideas and possibilities for improvements are found, they should be evaluated (Axelos Global Best Practice, 2019). The phases of continuous improvement build effective plans for enhancing the present process. Then, put the plans for the new change process into action. Finally, analyse and evaluate the results of the new change. Continuous improvement actions are centered on business cases, prioritizing and planning, and improvement-oriented activities. Several models, such as PESTEL, SWOT analysis, and the balanced scorecard, can be used to figure out where an organization is at the moment. ITIL needs a company to be skilled in whichever business improvement model it chooses. Agile methods are an illustration of the improvement strategy. The agile technique emphasizes iterative feedback and incremental changes. An organization should think it's important to choose a way to improve and accept it in its entirety. This will let the team focus on making changes to make a more significant change. It is the responsibility of every member of the IT service team to contribute to improvements. Even though it takes a dedicated group of employees to focus on continuous improvement practices, an organization's management should still be involved in getting people to work and think in ways that support improvement. It ought to be consistent with the organization's culture. IT team members should get help with training so they could contribute to enhancing IT services of the organization. Lastly, a "continuous improvement register" is used to keep track of ideas and ways to make things better from the time they are thought of to the time they are put into action. This register is a database with information about problems that have already been reported. It makes sure that measuring and reporting business activities to play a big part in improving service, which is important for creating value in a competitive industry (Mohammed, Negar, Ali, Shirin, and Kalantarian, 2011).

Figure 5. ITIL Continual Improvement Cycle



ITIL Continual Improvement Cycle

Axelos Global Practice, 2019. ITIL Foundation ITIL4 pg.93. ITIL Management Practices

2.13 Research Questions

To achieve the research goal, the author aims to answers to the following research questions in this study:

1. What are the challenges / barriers of implementing ITSM solutions in SMEs?
2. How do the ITSM solutions benefit small-medium sized enterprise while adopting ITIL framework?

3 Research Methodology

The thesis employs a dual research strategy: the first section consists of a comprehensive literature review that serves as the foundation for the development of a research model to assist in analysing and understanding the implementation and effect of the ITIL framework on an organization's competitive advantage, as well as interview/survey research to collect data from employees of small- to medium-sized organizations regarding their experience with ITIL practices and the deployment of ITSM solutions, as well as their effect on competitive advantage.

3.1 Research Approach

3.1.1 Deductive Approach

Qualitative or quantitative research might be conducted. Quantitative research mainly refers to a study that creates numerical data, whereas qualitative data-gathering methods include interviews or observational data that result in non-numerical data classification (Saunders et al., 2009). The qualitative research method will be used in this thesis. Deductive or inductive research methods might be used. An inductive method necessitates that the author first collects facts and then develops a hypothesis based on that evidence. In contrast, in a deductive method, the author builds the study on existing models and theories and experimentally evaluates their validity.

This thesis work begins with a survey of the literature on the variables that facilitate and hinder ITIL deployment. A semi-structured interview and the enabling environment will be evaluated using a questionnaire. variables and obstacles against the experiences of ITIL practitioners. This study's research methodology is primarily deductive. Nonetheless, there are inductive components, as our study focuses on developing a framework instead of verifying a hypothesis.

3.2 Data Collection

3.2.1 Primary Data

Since the existing data covers an entire field of ITSM and the issue is dedicated to a specific area of IT service management, it has been opted for interviews and a survey to obtain first-hand information from the persons involved.

3.2.2 Secondary Data

Secondary data is defined as information that has previously been acquired for another purpose but has since been processed and saved for future use (Saunders et al., 2009). As a secondary source of knowledge, the writers used information on ITIL services in addition to other peer-reviewed scholarly journals in this thesis. They were published in a variety of scholarly publications and websites. ITIL services are described on the official website, as well as in hard-copy publications about IT service management. Businesses also submitted white papers, which were considered.

3.3 Data Analysis

3.3.1 Interviews

Content analysis can be done to evaluate the data collected from both primary and secondary sources when performing qualitative research. There are three methods for analysing material. They are traditional, guided, and summative in nature (Hsieh & Shannon, 2005). Content analysis is viewed as a versatile tool for assessing text content (Cavanagh, 1997; Hsieh & Shannon, 2005). The writers of this thesis have chosen a guided strategy. The author can convey a framework or concept by using a guided method. When working with a directed approach, there are several techniques to consider. The writers were able to extract essential factors or categories that may be utilized as a starting point by leveraging current or earlier research (Potter, & Levinson-Donnerstein, 1999). "Facilitating factors" and "Challenges/barriers" were the two key categories. Both the literature review and the interview data were analysed using directed content analysis.

3.3.2 Questionnaire / Survey

Senior scholar researchers wrote in (1989) that research instruments should be checked for their validity. The goal is to ensure that primary constructs are derived from the theoretical substance of what is being measured. Using literature reviews and panels of expert judges, construct validity is determined. Concept validity looks at how well the measurements chosen by the researcher "fit" together to show what the construct is all about (Detmar, Marie-Claude, and David, 2004). Instruments need to have real content to make sure that their designs are based on the theoretical content of what they are trying to measure. Also, reliability is a statement about how accurate the measurement is. Straub (1989) says that reliability is "how consistently the respondent can answer the same questions or give close estimates." Straub (1989) says that instrument validation at any level is needed to support their findings while

incorporating instrument validation into their research activities. This investigation's data was acquired using a survey. These questions were adapted from ITSM national conference research (Aileen, Wui-Gee, & Mark, 2009). Also, questions from the seventh version of the ITSM industry's annual survey (GoNavvia, 2013) were used. Lastly, questions from a cross-national research project (Mauricio, Francis, Aileen, and Lutz, 2014) on ITIL adoption and ITSM tool deployment were added. So, the modified survey in this study focuses on how the ITIL framework for ITSM systems is adopted, implemented, and used, how well it works, and what benefits are seen. While Table 2 offers the constructions in Appendix A.

Table.1 Survey Design Components

Variable Codes	Variable	Research questions	Reference
ITIL	A	Familiarity and knowledge of ITIL practices	(Aileen, Wui-Gee, & Mark, 2009), (GoNavvia, 2013)
ITSM	B	Understanding the adoption of ITSM solutions	(GoNavvia, 2013), (Aileen, Wui-Gee, & Mark, 2009)
CE	C	Systems for organization transformation management	(Aileen, Wui-Gee, & Mark, 2009)
OCR	D	Impact of organizational culture and its resources on ITSM solution installation	(Mauricio, Francis, Aileen, & Lutz, 2014), (Aileen, Wui-Gee, & Mark, 2009),
CA	E	Benefits of ITIL practices on implementing ITSM solutions	(Aileen, Wui-Gee, & Mark, 2009), (Karin, Abraham, & Marcelo, 2016)

The purpose of survey research is to collect views and data from a specified target population. This target audience is determined by the researcher's field of study and the reason for doing the research. Numerous researchers employ the survey approach due to its benefits and advantages, which include its high representation that enables the gathering of large amounts of data, the cheap cost of creating questionnaires, and the simple collection of data by e-mail or the internet (Roopa & Rani, 2012). The questionnaire has five distinct components. As shown in Table 2, the questions for this poll were taken from earlier ITIL adoption surveys. ITSM industry professionals and academia created and assessed these surveys. A pilot test was conducted on a sample prior to the survey's refinement and subsequent administration. The testing assists in determining the questionnaire's reliability and validity. (Francis, Catherine Steel, Mark, and Tan, 2011).

3.4 Literature Review

This research approach aids in the identification of research issues as well as connected study domains by synthesizing current research (Torres-Carrión, González-González, Aciar, & Rodríguez-Morales, 2018). Because of its evidence- and rigor-based conclusions, this technique is frequently employed (Yu & Maria, 2019). In addition, other researchers will be able to duplicate the discoveries that have been reported (Maurizio, John, & James, 2016). The criteria assist in reducing bias and mistakes, resulting in high-quality evidence studies (Sameh, Eva, & Wim, 2017). The researcher began his search with the following keywords: "Management of Information Technology Services", "Solutions" "Information Technology Services", "Information Technology Infrastructure Library", "ITIL Framework" and "Information Technology Tools Implementation". The keywords were utilized on six large databases using the connecting terms "OR" and "AND" as the search engine required.

ACM, Emerald, Google Scholar, IEEE, Web of Science, and ABI databases were utilized with the following search phrases: "Information Technology" or "Information Technology Infrastructure Library" or "ITIL Framework" or "Information Technology Tools Implementation" and "Information Technology Service Management). The second stage is to look for journal articles relevant to the subject of the study. The search was done using a period spanning the years 2000 to 2021, when ITIL methods began to gain traction in enterprises for the implementation of delivering services and providing service support. Six electronic repositories were chosen, and only English papers were accepted, leaving out editorial viewpoints and book chapters. These accepted papers are solely from journals and conference proceedings. Before they were approved, all of the papers were thoroughly reviewed for relevancy. An article was considered for this study if it provided information regarding the ITIL framework, the advantages of ITSM in companies, and/or the widespread implementation of ITSM solutions. This analysis aims to offer answers to questions about the ITIL framework's influence on small businesses in terms of competitive advantage when using ITSM solutions. This study was conducted on all relevant publications to offer insight into the general features of the investigated literature.

Table 2. Total Number of Articles Found

Used database	ABI	ACM	Emerald	Google Scholar	Web of Science	IEEE	Science Direct
Advanced settings	Peer Reviewed	Peer Reviewed	Journal Articles	Full text	Peer Reviewed	Full Text/Reviewed	Full Text/Reviewed
Search terms in	Title/Abstract	Title/Abstract	Title/Abstract	Title/Abstract	Title/Abstract	Title/Abstract	Title/Abstract
	Different combinations of. “Information Technology” OR “Information Technology Services” OR “Information Technology Infrastructure Library” AND “Information Technology Service Management Tools” “Barriers” AND “Implementation” “ITIL” AND “Implementation” “ITIL V4”				“ITIL Framework” AND “Information Technology Service Management Solutions Implementation”		
Results	6/28	9/76	5/19	23/244	7/40	5/18	3/22
Forward Search	3/8	2/2	4/8	9/21	2/5	1/7	2/4
Backward Search	4/11	6/16	2/3	2/7	3/11	4/14	1/2
Examination for Relevance							
	13	17	11	34	12	10	6
Result: ITIL practices in organizations, Overview of ITIL framework, ITSM solutions, Implementation, and their impacts on organizations competitive advantage.							
Adapted from (Fabiane & Tobias, 2018)							

All the adopted research publications were reviewed for relevance. Relevant data from a selection of articles are documented in an Excel file using a concept-centric approach (Webster & Watson, 2002). The researcher reviewed the summaries of the relevant studies as well. The researcher completed a thorough paper read to establish the relevance of the articles for the research. Duplication of research articles from other databases was prohibited, which helped to cut the quantity even further. The researcher assessed the overall relevancy of the remaining articles by deleting research papers that did not contain terms linked to ITSM tool installation, ITIL framework, ITIL advantages, or organizational competitive advantage. During the first search, 447 research publications were discovered.

Filters were used to reduce the number of publications from 447 to 103, which were the most relevant and could address the research questions. Just 58 articles (6+9+5+23+7+5+3) were deemed relevant. A forward (3+2+4+9+2+1+2) and reverse (4+6+2+2+3+4+1) search yielded a total of 45 research publications. As a result, 103 publications were eventually selected as appropriate for this study.

4 Findings and Analysis

4.1 Literature Review

4.1.1 Barriers/Challenging Factors

The authors highlighted four major challenges to ITIL adoption in nearly every institution: organizational culture, resistance to change, lack of interaction and collaboration, lack of financial support, and implementation cost. These challenges include a lack of ITIL and ITSM experience, a lack of personnel training and competency, and inadequate project governance and management.

Table 3. The Categories of Impediments to ITIL Implementation Described in the Literature are Presented.

Challenging Factors - Categories	Challenging factors - within categories	Tang and Todo (2013)	Shang and Lin (2010)	Marrone and Kolbe(2011)	Küller et al. (2012)	Hoerbst et al. (2011)	Yamakawa et al. (2012)	Carvone (2008)	Esteves and Alves (2013)
Organizational culture	Cultural Shift	x							
	Organisational			x					
	Changed required						x		
Opposition to the new change			x					x	
Ineffective departmental coordination and miscommunication	Disputes between expected outcomes and customary procedures request		x						
	Keeping the momentum			x					
	Process stagnates			x					
Lack of funding	Lack of executive sponsorship			x					
	Lack of funds			x					
	Missing budget				x				
	ITIL library costs							x	
The necessary process is not given priority	Various priorities					x			
	Lack of awareness of priorities								x
	No understanding of the business impact								x
Lack of ITIL and ITSM implementation experience	Expertise of ITIL/ITSM	x							
	Objectives of ITIL for business			x					

	Missing ITSM awareness				x				
	Insufficient internal professional staff	x							
Lack of staff expertise and training	Lack of autonomy and joint learning scope		x						
	People incapable of integrating information.		x						
	Lack of expertise				x				
Poor project management and governance	Clear management target	x							
	Project within budget	x							
	Project on time	x							
	Disconnect between quality improvement and customer satisfaction		x						
	Inefficiency in meeting customer needs		x						
	Work overload				x				
	Managing objectives	x							
Unsupportive management	Lack of resources (time, people)			x					
	No management commitment								x
	The missing motivation of management and staff				x				

4.1.2 Benefits/Facilitating Factors

The most important assisting variables for adopting ITIL have been identified in the literature and organized into groups. The first category is "Management Support," which includes all variables related to how top management assistance is critical for aiding with ITIL adoption. The second category includes staff management and the implementation of new organizational processes. This indicates that corporations should handle each new change they introduce in the firm by considering the employees' concerns and questions and making individuals feel at ease. The third area is improving the capacity of the IT personnel to change. This topic relates to how personnel in an organization deal with circumstances and the abilities needed to deal with them. Monitoring and assessment of the implementation phase refer to how an organization keeps track of the implementation's progress. Communication and collaboration inside the organization are defined as the internal organization of the various departments and how they interaction the issues at hand. Project management and governance are related to how project managers must motivate people and have a structure in place that is followed. The ITIL competency of concerned stakeholders is connected to the employee's training capacities, which must be considered. Employee abilities must match the work they are assigned; otherwise, more training must be planned. External assistance (consultants) refers to how outsourced personnel might add a fresh viewpoint to the project. The numerous

organizational change systems or other programs to aid in the deployment process are considered in tool selection. The methods that will be taken in adopting or assessing the processes are referred to as ITIL process mapping. Process analysis is concerned with prioritizing processes to ensure effective implementation. The process design includes the approach that will be employed in the project implementation as well as other factors that must be considered prior to implementation.

Table 4. Discusses the Literature's Classifications and the Facilitating Variables Within Each Category.

Facilitating factors - Categories	Facilitating factors – within categories	Ahmad and Shamsuddin (2013)	Ahmad et al. (2013)	Iden and Eikebrokk (2014)	Iden and Eikebrokk (2013)	Marrone and Kolbe (2011)	Cervone (2008)
Management Support	Management Support	x	x				
	Top management support				x		
	Senior Management involvement			x			
Managing employees and organization	Change Management.	x	x				
	Change management skills			x			
	Willingness to change				x		
	Staff expertise				x		
	IT staff's capacity to adapt to shifts	x	x				
	ITSM aligned culture				x		
Increasing the adaptability of IT workers	System skills			x			
	ITIL, management of training, awareness, and knowledge	x	x				
	Quality of IT staff allocated for ITIL	x	x				
The process of evaluating and monitoring the implementation		x	x				
Throughout the organization, there is interaction and cooperation	Interdepartmental collaboration	x	x				
	Broad participation						
	Efficacy in groups						
	Realization plan						
Project governance and management	Management of projects and ongoing service improvement program	x	x				
	Organizational commitment			x			
	Setting goals using a process maturity framework	x	x				
	Abilities in project management			x			
	Project champion	x	x		x		
	Customer orientation	x	x				

	Continuous reporting & auditing through a quality management framework	x	x				
Competence of involved stakeholders in ITIL	Comprehensive knowledge of ITIL concepts and perspectives is needed among management and staff			x			
External help (Consultants)	Use of consultants & consultant selection	x	x				
	External consultant				x		
Process analysis	Process priority	x	x				
	Providing effective ways of defining metrics and measuring their outcomes						x
Process design	Implementation strategy and design	x	x				
	Operation by putting a best practice into action					x	
	A methodical approach to managing and providing IT services						x

4.2 Survey/Questionnaire

The survey respondents are displayed in the table below (Table 5). From Razor Group, Bragi GmbH, Autodog AG, FKP Scorpio Konzert production GmbH, UNHCR and F. They were senior IT specialists. These participants' ITIL certifications attest to their familiarity with and proficiency in ITSM.

Table 5. Respondent Companies and Title

Company	Respondent Job Title
Razor Group	Senior Manager, IT Infrastructure & Operation
Bragi GmbH	IT Infrastructure Manager
Autodog AG	IT System Administrator
FKP Scorpio Konzertproduction GmbH	IT Integration Manager
UNHCR	IT System Administrator
F	IT Administrator

Table 6. ITIL Process Implemented in Respondent Companies

ITIL Process	Razor Group	Bragi GmbH	Autodog AG	FKP Scorpio Konzertproduction GmbH	UNHCR	F
Strategy Management for IT services	x	x	x			x
Portfolio Management for Services	x	x	x			x
Demand Management	x	x	x			

Business Relationship Management	x	x	x			x
Capacity Management	x	x	x			
Availability Management	x	x	x			x
Application Management	x	x				x
Management of IT Services Continuity	x	x	x	x	x	x
Transition Assistance and Planning	x	x				
SLA	x	x	x	x	x	x
Information Security management	x	x	x			x
Change Management	x	x	x			x
Management of Assets and Configurations	x	X				
Release and Deployment Management	x	x	x			
Testing and Validation of Services	x		x			
Change Evaluation	x	x				x
Incident Management	x	x	x			x
Facilities Management	x	x				
Access Management	x	x	x		x	
Problem Management	x	x				
Change Evaluation	x	x				x

4.2.1 Facilitating Factors

Table 8. Demonstrates which enabling variables help each respondent organization apply ITIL. The enabling variables that were identified during the literature study were used to build the possibilities for the closed-ended survey questions. According to the comments, various characteristics were found to be widely cited as enabling aspects inside firms. *Support from upper management, working to develop IT staff abilities for a new change, Monitoring and evaluation during execution, Interaction and cooperation within the organization, Project management and governance, The competence of stakeholders involved in ITIL, an external*

assistant (a consultant), ITIL process mapping, Process analysis, and Process design were among these.

Table 7. Facilitating Factors from the Questionnaire

Facilitating Factors	Razor Group	Bragi GmbH	Autodog AG	FKP Scorpio Konzertproduktion GmbH	UNHCR	F
Top Management Support	x	x	x	x	x	x
Managing employees/ Organization for new processes	x	x	x	x	x	x
Working to develop IT staff abilities for a new change.	x	x	x	x		
Monitoring and evaluation during execution	x		x	x		
Interaction and cooperation within the organization	x	x	x	x	x	x
Project management and governance	x	x	x		x	
Competence of stakeholders involved in ITIL	x	x	x			x
ITIL process mapping	x	x		x	x	x
Process Analysis	x	x	x			x
Process Design			x			x

4.2.2 Barriers / Challenges Factors

The table 8. Lists the challenges to ITIL execution in each firm. The options for the closed-ended survey questions were created from participant choices and identified impediments or problematic aspects from the literature research.

According to the comments, various reasons were identified as prevalent impediments inside businesses. *They included organizational culture, Resistance to change, and strengthening the IT staff's ability to adapt to change. Departmental communication and coordination are lacking. There was no financial assistance; there was no management support; Not given priority were necessary processes; Implementers lacked expertise with ITIL and ITSM; There was no personnel training and competency; And there was inadequate project management and governance.*

Table 8. Barriers / Challenging Factors from the Questionnaire

Challenging Factors	Razor Group	Bragi GmbH	Autodog AG	FKP Scorpio Konzertproduction GmbH	UNHCR	F
Organizational culture	x	x	x	x		x
Resistance to change	x	x	x			x
Strengthening the IT staff's ability to adapt to change	x		x		x	
Departmental communication and coordination are lacking	x	x	x	x	x	x
No financial assistance	x		x		x	x
Lack of management support			x	x	x	
No priority was given to needed procedures	x	x			x	x
Implementers lacked expertise with ITIL and ITSM		x			x	
No personnel training and competency			x	x	x	
Inadequate project management and governance.					x	x
Incapable external consultants					x	

4.2.3 Psychological Challenges / Barriers

Table 9. Accomplishes the same for psychological hurdles that were found in our research, in addition to pairing typical barriers and difficulties to effective ITIL implementation with their best-practice solutions. There are ways to address the difficulties of potential loss, employee dissatisfaction, a lack of staff support, and disturbance of group dynamics in order to enhance end users' psychological well-being throughout the transition to ITIL.

Table 9. Psychological Challenges/Barriers from the Literature, Interview & Questionnaire

Psychological Challenges
Lack of adaptability - Loss of status or income
Adaptation resistance and - Loss of comfort
Lack of control - A lack of employee engagement
Employee misunderstanding and - A lack of employee engagement
Changes to group dynamics

4.3 Analysis

4.3.1 Analysis of factors

We feel that the level of ITIL adoption in each organization is the reason why some companies listed a bigger number of influencing variables than others. Organizations with complete ITIL adoption have seen more influencing variables than those with partial implementation. The number of procedures that were implemented in each organization that completed the questionnaire and took part in the interviews is shown in Table 6. None of the participant companies have been implemented the full ITIL process.

Each of the enabling variables and barriers shown in the tables above is significant since it affects the implementation process. Yet, given that they apply to several companies, some of the discovered criteria appear to be more important. Critical Facilitating Elements

The most frequently mentioned enabling aspect is internal communication and cooperation within the organization. Six businesses refer to it in relation to their implementation procedure. This makes sense because all organizational divisions will need to communicate with one another and work together to develop new processes. People will better grasp the change if new procedures are well communicated. Six organizations cite senior management support, demonstrating the significance of this support. Changing the current procedures will be challenging for implementers if management does not support the change.

Four firms have assessed the involved stakeholders' levels of expertise in execution, process mapping, process analysis, and process design. This demonstrates the need for ITIL abilities for implementers since they must possess the capability to choose how to customize ITIL processes for their organization. Both interviewees discussed the value of implementer skills as well as their approaches to process selection and adaptation during the interviews. According to Razor official, implementers should only use the ITIL framework procedures that are essential to their company's operations before customizing them to fit their own workflows.

Four firms throughout the execution phase, emphasis project management and governance. This demonstrates how crucial it is for the deploying firm to properly manage the implementation project throughout. Four businesses highlight the importance of preparing IT staff for upcoming changes through training and development. This means that training for the upcoming ITIL procedures must be delivered to IT staff members who will administer the new procedures daily. Another major reason highlighted by participating organizations is that this will boost their satisfaction with new methods. There are additional characteristics that are only highlighted by one or two businesses, but we still think they are crucial.

4.3.2 Challenges

Five companies identify *the largest barriers to implementing ITIL are organizational culture and reluctance to change*. The literature research and the interviews both went into detail on these elements. It is emphasized four times that there is a *lack of cooperation and communication across the various departments*. When introducing new procedures to an organization and soliciting participation, implementers must overcome this hurdle. A few businesses also report a *lack of resources and funding*. With the cooperation of management, each of these variables may be reduced. Four firms note the *absence of ITIL and ITSM implementation experience and the lack of importance given to necessary processes*. This implies that before beginning the execution of the newly introduced procedures, implementers must have a solid understanding of ITIL. Two organizations highlight *bad governance and project management*. The implementation project must be managed and governed by the implementers, watch out for the necessary success. The corporations also identify *inexperienced consultants with tight schedules as other significant hurdles*.

4.3.3 Benefits

Organizations across the world are aware of the value of the ITIL framework. The most frequent reasons businesses use ITIL, according to Berntsen (2017), are to boost operational effectiveness and enhance service quality or client happiness (p. 1). Moreover, lower IT expenses are a result of ITIL practices. Moreover, the improved management of IT operational issues that results, including adherence to business rules and requirements, immediately and favourably influences certification and compliance with both domestic and international legislation (Chen & Chou, 2010).

According to Kashanchi and Toland (2006), one more important benefit of adopting and using ITIL is that it may aid in coordinating IT procedures with organizational objectives. They conducted a literature study on strategic alignment for their inquiry, concentrating on ITIL and different strategic alignment models (SAM). They defined the key alignment views that were utilized to assess how much the adoption of ITIL by SAM had a broader impact on the company. They discovered that the adoption of ITIL boosted alignment by facilitating interaction between IT and business, removing obstacles to knowledge exchange, and expanding ITIL's capacity to support business initiatives. According to Marrone and Kolbe (2011), there is a statistically significant correlation between high levels of IT/business alignment and mature ITIL deployment.

Although lower-level employees have also reported enjoying some of these perks, they are mostly visible at the corporate level. "[All] of the respondents indicated that ITIL generated an advance in service quality," Berntsen (2017) stated in her study. Moreover, ITIL improved product quality, brought predictability to services, and stabilized the workweek (p. 32). According to Berntsen's research, the implementation of ITIL gave the study's participants a more stable and balanced working environment, which in turn increased employee motivation and incentive.

An in-depth analysis of Norwegian businesses that utilize ITIL in their business processes was done by Berntsen (2017). Employees of the organization who dealt with customers and provided IT help daily at their workplace were research participants. Most of the participants

in Berntsen's research had worked with ITIL for more than four years, and most had attended ITIL training in Norway. According to Berntsen's findings 67% of those polled believed that the ITIL integration had positively affected the organization; 72% of participants noted that ITIL implementation had a positive impact on employee cooperation; 83% claimed that using ITIL had increased their awareness of how their work related to that of others in the organization; 58% said that communicating with management was easier; and 83% of participants recognized an increase in productivity.

5 Discussion

SME organizations have faced challenges in previous years because of a lack of enough resources to grow enterprise-level solutions like a bigger enterprise (Lohana, José-Antonio, Ricardo, and Magdalena, 2015). However, the circumstances are evolving. ITSM solutions, which were once mostly used by large companies, are now being used by SMEs (Schmidtbauer, Sandkuhl, & Stamer, 2013). Moreover, there is no established protocol for how firms might deploy these solutions. Ihme, Pikkarainen, Teppola, Kaariainen, and Biot (2014) state that small and medium-sized companies can deploy just the portions of a resource management system that best meet their company needs. This study focused on ITIL, ITSM solutions, organizational resources, and competitive advantage for small-medium size businesses, and more critically, how SMEs may implement ITSM solutions to achieve competitive advantage. This study concluded that ITIL and ITSM solutions have a beneficial impact on the competitive advantage of enterprises (Stuart, Helana, & Ravindra, 2014). In addition, this study reveals that a big number of small companies employed part-time resources to successfully integrate ITSM systems. The outcomes of this study also indicate that as ITIL practices improve, so do economic advantages (Mauricio & Lutz, 2011). ITIL methods are widely recognized as effective and well-organized; however, they have been heavily criticized for being unsuitable for SMEs (Abir E. Y., Souad, Khalifa Mansouri, Mohammed, & Elhossein, 2017). To successfully implement ITIL standards and ITSM solutions in SMEs, however, top-level management support is a must. This remark is consistent with previous scholarly publications and the results of this investigation (Aileen, Wui-Gee, & Mark, 2009). Smaller firms may find it difficult to implement an ITIL framework with ITSM solutions owing to a lack of resources, task conflicts, and a constrained management structure (Kanagi & Kashif, 2012).

Consequently, knowing business requirements is crucial for using the relevant ITSM technologies (Zigurds & Andrejs, 2014). While the ITIL framework lacks a clear guideline for implementation, SMEs are urged to choose the practice that best meets their business requirements (Lohana, José-Antonio, Ricardo, and Magdalena, 2015). This study discovered that incident management is predominantly utilized by small companies, which agrees with the results of another study (Mauricio, Francis, Aileen, & Lutz, 2014). In addition, this study demonstrates that ITIL enhances business and IT alignment, therefore enabling IT-enabled enterprises to generate a lasting competitive advantage (Mauricio & Lutz, 2011). Moreover, the goal of ITIL is to build lasting customer value within a business (Axelos Global Best Practice, 2019). Consequently, delivering value to customers becomes a competitive advantage

(Maria, 2003). ITSM solutions have been utilized by certain small organizations to improve IT/business process integration and IT service focus. It is confirmed by the results of this research and is consistent with the findings of other studies (Stuart, Helana, & Ravinda, 2014). According to the findings of this study, ITSM solutions favourably impact an organization's ability to obtain a competitive edge (Rajiv & Yolande, 2001). Over 70% of respondents said the assessment of ITSM solutions in their businesses demonstrates value and advantages to their organization's goals, and they also aim to deploy one or more solutions, confirming the findings of separate research (Aileen, Wui-Gee, & Mark, 2009). In addition, an evaluation of ITSM solutions reveals an increase in customer satisfaction as well as the belief that ITSM solutions have benefited the business by enhancing IT focus, incident management, and response and resolution (Magdalena, 2016). In addition, competitive advantage necessitates a distinctive positioning of the company and providing value to customers (Porter, 1985). Therefore, to remain competitive, all firms must increase their efficiency and efficacy (Maria, 2003). In addition, an organization's efficiency and effectiveness are the results of successful management and operations through IT, which contribute to its competitive advantage (Mahmood, Mahdi, & Marziyeh, 2010). In addition, competitive advantage requires doing new things and doing them better while deploying new IT technologies within a company (Callon, 1996). As a result, this study's findings include improvements in IT service quality, return on investment, IT service focus, competitive advantage, and customer satisfaction, all of which are aligned with the studies of other researchers (Aileen, Wui-Gee, & Mark, 2009; Cater-Steel, Tan, & Toleman, 2008; Marrone, Kiessling, & Kolbe, 2010; Potgieter, Botha, & Lew, 2005). This study also showed that most successful SMEs have adopted and used ITSM products with the help of part-time employees.

6 Limitations and Future Studies

This study employs three distinct instruments. Experts and practitioners were interviewed and surveyed, and a literature analysis was undertaken to initiate the study. A shortcoming of the article might be the literature review. ABI, Web of Science, and Scopus are utilized for the literature search. ACM, Google Scholar, and Emerald Consequently, further relevant research studies about ITSM solutions, the ITIL framework, and their influence on an organization's competitive advantage may be lacking. In addition to subjective judgments, the selection of relevancy may have been influenced by such interpretations. In addition, the questionnaire was only given to a select number of individuals. This may also be a drawback, as there are few specialists from other nations. A future study may concentrate on the advantages of implementing ITSM solutions in developing countries and the obstacles they may face while embracing current technology.

7 Conclusion

The author has reached the following conclusion after analysing data from interviews, questionnaires, and literature. In today's world, IT services are crucial to modern businesses and organizations and should be offered efficiently. In fact, this is an economical method. After literature review, getting responses from participants in questionnaire and interview, it got clear that the ITIL framework is the most widely utilized framework in major enterprises globally. ITIL principles and ITSM solutions are still critical for small and medium-sized businesses. This research provides deep insight into how difficult or what are the main challenges/barriers of adopting ITSM solutions in SMEs and how they affect an organization's competitiveness and how can a SMEs modify and put ITSM solutions into practice to add value. This research also relates to how IT administrators may utilize part-time employees for their firms in times of resource scarcity. Lastly, it has been demonstrated that ITSM solutions have a substantial beneficial influence on an organization's ability to acquire a competitive edge, enhance the company' profitability, and improve financial performance.

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Affidavit

I confirm that my thesis, "Impact of ITSM Solutions and ITIL Framework on Small to Medium-Sized Organizations: An Empirical Study on Challenges and Benefits," confirms this. The thesis lists and describes all the sources and/or materials used.

I also confirm that this thesis hasn't been turned in as part of another exam procedure, neither in the same way nor in a way that is similar.

Mohammad Shazzad Hossen
Matriculation No: 265524

Neu-Ulm, 15 March 2023
Place, Date

Appendix A

Survey

I am a master's student at HNU University of Applied Sciences studying International Enterprise Information Management (IEIM). For this research, I am examining Information Technology Service Management (ITSM) solutions and ITIL Framework for small and medium-sized businesses. I expect to gain helpful insight from your responses to this survey.

Your information will be kept private and only be used for research analysis.

I appreciate your time and assistance.

Section 1: Please respond to the questions that follow.

1. Gender
Male Female

2. Age
Less than 20 years 20 - 30 years
31 - 40 years 51 - 60 years
Above 60 years

3. Position
IT Service/Support Manager
Process Manager
Operations Manager
IT Consultant/Trainer
CIO/IT Manager
Other

4. Educational Level
Intermediate
Bachelor
Masters
Ph.D./MPhil
Other

5. Year(s) of Experience
- less than 1 year
 - 1 – 5 years
 - 6 – 10 years
 - 11 years above

Variables A. Knowledge and familiarization with ITIL practices (Aileen, Wui-Gee, & Mark, 2009), (GoNavvia, 2013).

1. What is your individual ITIL Certification level?
 - A. ITIL V2 Foundation
 - B. ITIL V3 Foundation
 - C. ITIL Practitioner /Intermediate
 - D. ITIL Service Manager / Expert
 - E. No Certification

2. ITIL practices are straightforward to apply.
 - A. Strongly agree
 - B. Agree
 - C. Neither agree nor disagree
 - D. Disagree
 - E. Strongly disagree

3. Your company has implemented ITIL procedures.
 - A. Strongly agree
 - B. Agree
 - C. Neither agree nor disagree
 - D. Disagree
 - E. Strongly disagree

4. What is the trend in service management, quality management, and governance currently?
 - A. ITIL
 - B. No plans to implement ITIL
 - C. Partially started
 - D. Fully implemented ITIL framework for an ITSM solution
 - E. None of the above

5. Which ITSM solutions architecture is currently employed by your organization?
 - A. ITIL V2
 - B. ITIL V3
 - C. ITIL V4
 - D. CoBIT/Microsoft MOF
 - E. Others

Variables B. Understanding of ITSM solutions implementation (Aileen, Wui-gee, & Mark, 2009), (GoNavvia, 2013).

6. You employ an established ITSM process structure
 - A. Strongly agree
 - B. Agree
 - C. Neither agree nor disagree
 - D. Disagree
 - E. Strongly disagree

7. Why is your business using ITSM and ITIL?
 - A. To improve IT/Business process integration
 - B. To improve IT service focus
 - C. To reduce cost
 - D. Internal compliance
 - E. External compliance

8. Are you organized to facilitate ITSM?
 - A. Dedicated ITSM organization with full-time resources
 - B. Dedicated ITSM organization with part-time resources
 - C. Part-time resources only
 - D. No resources allocated
 - E. Don't know

9. You have conducted an ITSM evaluation during the past year.
 - A. Strongly agree
 - B. Agree
 - C. Neither agree nor disagree
 - D. Disagree
 - E. Strongly disagree

10. You see the value of doing an ITSM evaluation.
 - A. Strongly agree
 - B. Agree
 - C. Neither agree nor disagree
 - D. Disagree
 - E. Strongly agree

Variable C. Organization change management systems (Aileen, Wui-Gee, & Mark, 2009)

11. Senior management's involvement is crucial for a successful ITSM adoption.
 - A. Strongly agree
 - B. Agree
 - C. Neither agree nor disagree
 - D. Disagree
 - E. Strongly disagree

12. You plan to implement one or even more ITSM procedures over the next 12 months.
- A. Strongly agree
 - B. Agree
 - C. Neither agree nor disagree
 - D. Disagree
 - E. Strongly disagree
13. Your organization has implemented an ITSM training program for staff.
- A. Strongly agree
 - B. Agree
 - C. Neither agree nor disagree
 - D. Disagree
 - E. Strongly disagree
14. What is the most advanced ITSM training that your team provides?
- A. ITIL Foundation
 - B. ITIL service manager/Experts
 - C. ITIL practitioners/Lifecycle/Capability
 - D. CoBIT
 - E. Other
15. What is your organization's most important success element for implementing ITIL?
- A. Commitment from senior management
 - B. Understanding of business needs
 - C. Effective change management for customers
 - D. ITSM training provider for IT staffs
 - E. Involvement of business staff
16. Successful ITSM implementation requires efficient handling of user changes.
- A. Strongly agree
 - B. Agree
 - C. Neither agree nor disagree
 - D. Disagree
 - E. Strongly disagree

Variables D. Impact of organization culture and its resources on implementation of ITSM solutions (Mauricio, Francis, Aileen, & Lutz, 2014), (Aileen, Wui-Gee, & Mark, 2009), (Karin, Abraham, & Marcelo, 2016)

17. The implementation of the ITIL framework depends on the financial capabilities of your firm.
- A. Strongly agree
 - B. Agree
 - C. Neither agree nor disagree
 - D. Disagree
 - E. Strongly disagree
18. Has the absence of short resources (professional people) affected the ITIL procedures of your organization?
- A. strongly agree
 - B. Agree
 - C. Neither agree nor disagree
 - D. Disagree
 - E. Strongly disagree
19. Have limited resources (in-house operations) prevented you from fully implementing some of your organization's preferred strategies?
- A. Strongly agree
 - B. Agree
 - C. Neither agree nor disagree
 - D. Disagree
 - E. Strongly agree

20. The implementation of the ITSM architecture by your company has been hindered by a lack of dedication or management support.
- A. Strongly agree
 - B. Agree
 - C. Neither agree nor disagree
 - D. Disagree
 - E. Strongly disagree
21. The present framework's complexity effects your organization's choice to implement the technology.
- A. Strongly agree
 - B. Agree
 - C. Neither agree nor disagree
 - D. Disagree
 - E. Strongly disagree

Variables E. Benefits of ITIL practices on implementing ITSM solutions (Aileen, Wui-Gee, & Mark, 2000).

22. ITSM solutions boost client satisfaction.
- A. Strongly agree
 - B. Agree
 - C. Neither agree nor disagree
 - D. Disagree
 - E. Strongly disagree
23. IT Service Management solutions enhance response and processing times.
- A. Strongly agree
 - B. Agree
 - C. Neither agree nor disagree
 - D. Disagree
 - E. Strongly disagree

24. ITSM solutions increase IT service availability.

- A. Strongly agree
- B. Agree
- C. Neither agree nor disagree
- D. Disagree
- E. Strongly disagree

25. ITSM helps increase IT employee productivity.

- A. Strongly agree
- B. Agree
- C. Neither agree nor disagree
- D. Disagree
- E. Strongly disagree

26. ITSM solutions help reduce expenditures and issues..

- A. Strongly agree
- B. Agree
- C. Neither agree nor disagree
- D. Disagree
- E. Strongly disagree

27. Which process from ITIL are being implemented or followed in your company?

- | | |
|---|------------------------------------|
| A. Strategy Management for IT Service | B. Information Security Management |
| C. Service Portfolio Management | D. Supplier Management |
| E. Demand Management | F. Transition Planning and Support |
| G. Request Fulfilment | H. Access Management |
| I. Financial Management for IT Services | J. Change Management |

- | | |
|---------------------------------------|--------------------------------------|
| K. IT Operation Control | L. Business Relationship Management |
| M. Asset and Configuration management | N. Facilities Management |
| O. Design Coordination | P. Release and Deployment Management |
| Q. Application Management | R. Service Catalogue Management |
| S. Service Validation and Testing | T. Technical Management |
| U. Service Level Management | V. Change Evaluation |
| W. Service Review | X. Capacity Management |
| Y. Incident Management | Z. IT Service Continuity Management |

28. Below is the list of identifying facilitating factors that helps in the implementation of ITIL process. Which of these helps your company?

- | | |
|--------------------------------------|--|
| A. Top Management Support | B. Communication and Cooperation within Organization |
| C. Project Management and Governance | D. Developing IT staff abilities for new change |
| E. Process Analysis | F. Managing employees |
| G. ITIL Process Mapping | H. Competence of involved stakeholders for ITIL |
| I. Process Design | J. External Help (Consultant) |

29. Below is the list of identifying challenges/barriers for ITIL implementation. Which these were challenges for your company?

- | | |
|---|---|
| A. Organizational Culture | B. No Training and Competence for Staff |
| C. Lack of Management Support | D. Developing IT Staff abilities for new change |
| E. Implementers lacking experience with ITIL and ITSM | F. Lack of communication within departments |
| G. Lack of Financial Support | H. Poor project Management and Governance |
| I. Resistance for change | J. Incapable external consultants |

Appendix B

INTERVIEW QUESTIONS

Interviewee Introduction:

1. What is your role inside the organization?
2. What tasks does your present role entail?
3. Please elaborate on your knowledge of the ITSM framework (ITIL).
4. Have you done any ITIL courses or earned any ITIL credentials?

Organization under discussion:

5. Please provide a concise description of your company.
6. Does your organization offer services to both people inside and outside of the company?
7. How do the services get taken care of? Is there any framework for service management?
8. How are the accomplishments of the given services measured?

ITIL Specific:

9. What version of ITIL does your organization use?
10. Which ITIL processes, if any, are employed to support the company's operations?
ITIL procedures (Service Strategy, Service Design, Service Transition, Service Operation, and Continual Improvement)
11. Do you take part in managing and implementing the ITIL process?
12. Please share your company's ITIL implementation experiences.
13. What implementation challenges have the new ITIL process experience?
14. What components (factors) promote ITIL adoption?
15. Do you feel ITIL helps organizations accomplish their goals?
16. How else do you measure your company's performance prior to and after adopting ITIL and ITSM?
17. Does your organization employ any specific IT tools to facilitate ITIL (Service Management and Support Software)?

Suggestions:

18. In your view, what steps should be taken by any company to deploy IT Infrastructure Library?