

**IMPACT OF ENTERPRISE SOCIAL
NETWORKING ADOPTION PRACTICES ON
EMPLOYEE PERFORMANCE IN SRI
LANKAN SOFTWARE INDUSTRY**

**MASTER OF BUSINESS ADMINISTRATION
IN
MANAGEMENT OF TECHNOLOGY**

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IMPACT OF ENTERPRISE SOCIAL NETWORKING ADOPTION PRACTICES ON EMPLOYEE PERFORMANCE IN SRI LANKAN SOFTWARE INDUSTRY

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DECLARATION

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ABSTRACT

Enterprise Social Networking (ESN) tools have become the norm for organizational collaboration as they support organization-wide communication, content sharing, and fostering comradery. Though it is widely believed that ESN tools are generally beneficial, it is not clear to what extent ESN tools contribute to enhancing the productivity given various adoption practices at organizational and employee levels. In this research, we focus on identifying how the ESN tool adoption practices contribute to enhancing the employee performance. Other objectives of this research are to identify how the organizational culture, management style, and leadership moderate the impact of ESN tools on employee performance and to provide recommendations for improving ESN tool adoption in Sri Lankan context as well.

Backed by the literature review findings on effective ESN requirements such as socio-technical perspectives, as well as the utilitarian and hedonic value approaches, we derived the conceptual model with three hypotheses. We also used the deductive approach and employed survey-based online questionnaire to collect data from professionals attached to medium to large-scale software companies in Sri Lanka who have experience, knowledge or involved in organizational ESN tool promotion activities. Statistical analysis was carried out to test the hypotheses via Pearson correlation. Subsequently, a set of linear models were developed based on multiple regression. Based on the findings of the first regression model, it was observed that the workflow alignment, ability to collect metrics, solicit feedback and communication strategy were among the significant adoption practices. A positive correlation was identified between ESN tool adoption practices and employee performance. It was further identified that the management style and leadership have a moderate impact on adoption practices, and hence on the performance as well. In summary, it was identified that ESN tool adoption practices have a positive impact on employee performance, and this relationship is significantly moderated by the management style and leadership.

Key Words: Employee Performance; Enterprise Social Networking; Management Style and Leadership; Organizational Culture

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LIST OF ABBREVIATIONS

ANOVA	Analysis of Variance
BPM	Business Process Management
CFA	Confirmatory Factor Analysis
ESN	Enterprise Social Networking
ICTA	Information and Communication Technology Agency of Sri Lanka
IT	Information Technology
KPI	Key Performance Indicator
PCA	Principal Component Analysis
SLASI	Sri Lanka Association for Software Industry
SLASSCOM	Sri Lanka Association of Software Companies
SNS	Social Networking System
SPSS	Statistical Package for Social Sciences
TOSI	Technological, Organizational, Social and Individual

CHAPTER 1: INTRODUCTION

1.1 Background

Increasingly, organizations regard the employee as the key element who produces and consumes the much-needed knowledge for the benefit of the organization. Moreover, an employee can be elaborated as a knowledge worker, one that mainly works with the information or improves and make use of the knowledge in the workplace (Drucker, 1973, 1999). For knowledge-driven industries like the software development industry, it is imperative to have employees who are very productive and motivated, as they are mainly dealing with the knowledge within the collaborative environment that the software industry inherently embodies. Therefore, employees are likely to become more productive when they work collaboratively. Even the notion of an individual contributor has become a thing of the past and much emphasize is on collaboration-based mechanisms to get things done more efficiently and effectively. Accordingly, collaboration in every aspect has become increasingly important in the contemporary organizations which have evolved as connected entities to realize business objectives.

With the advancements in cloud computing and faster internet connections, employees are empowered with tools that enable them to collaborate with each other much more efficiently and effectively, eventually producing a more educated, skilled and engaged workforce than ever before. Moreover, it is observed that most of the collaboration is increasingly happening online, rather than in physical form. Organizational collaboration has the potential to be a very competitive and strategically significant area to explore more broadly which provides an ideal ground for researchers to investigate factors that impact on employee performance. Such studies can incorporate supportive and constraining factors regarding the use of collaborative tools within the organizational context.

In this context employee collaboration and performance can be identified as significant aspects of organizational success. In general, performance assesses whether or not a person performs a task satisfactorily. However, it is also essential to understand the factors related to collaboration and their impact on performance. Such understanding

is especially useful to derive effective and efficient mechanisms to improve the performance of the workforce.

Among many factors to employee performance, the adoption and usage of Enterprise Social Networking (ESN) tools within the organization is a major contributing factor owing to its main communication and collaborative aspects. Adoption and usage of ESN are generally understood as the use of online social media, social networking or social relations within organizations, between organizations and their associates or customers for sharing business interests or activities, which is also regarded as a primary component of Enterprise 2.0 (McAfee, 2006). According to Osch and Coursaris (2013), ESN can be identified as an online corporate social networking platform that simplifies the organizational communication between, employees, management and external stakeholders (e.g., customers, partners, and suppliers) to nurture knowledge management, social relationship creation, and collaborative society formation.

Further, ESN has a profound impact on how employees collaborating and sharing as it has been transforming the knowledge-driven organizations into a new social dimension which has many implications for organizational workforce performances. Therefore, to deliver the expected needs, management will have to leverage employee within the adopted ESN social context. Driven by the potential, it holds major international technology companies have now been investing and consolidating in the social market competitively. For instance, Microsoft, which merged Yammer with its popular SharePoint product right after acquiring it recognized the potential benefit of collaboration. Teams is another social collaboration software poised to form that kind of community around Office 360 productivity suite (Miller, 2016).

Collaboration concept is based on the premise that employees are more productive when they are working together than on their own, also they can be bounded by a shared goal to achieve. In most of the situations, employees are more empowered when they are engaged effectively. In a recent survey by McKinsey Global Survey on social tools revealed that their fellow employees rely more often on social methods of communication than on traditional methods in their work. Which justifies the extent

of evolving nature of collaborative tools within the organization. It further reveals that integrating social tools into their daily routine workflow on the rise than ever before (McKinsey & Company, 2017). Therefore, it is also significant to understand the employee's motivation aspects regarding knowledge sharing behaviors. Therefore, ESN has underlying principles that help the organization to exploit the potential avenues to increase the employee performance and motivation aspects. To better understand the impact of ESN tools on employee performance, the organization must engage with its workforce to explore research tools and techniques to achieve organization goals more collaboratively.

In many cases, it was observed that the ESN tools have been merely deployed in organizations without considering its underlying benefits and positive implications to organizations goals. Therefore, it is imperative to understand what factors lead to the effective adoption of ESN tools. Enterprises that do not develop a strong ESN adoption practices run the risk of employees opting out of social tools, inappropriate use of social media could lead to the unproductive use of employee time and effort. In this context, it is essential to understand the key factors that should be included in an enterprise ESN adoption practices and who and what should be incorporated for developing an organization specific.

1.2 Problem Statement of the Study

Although there are many collaborative tools like ESN has been adopted by many software organizations, yet the adoption practices are not found to be in a state of beneficial to both organization and employee alike. The industry projects over 90% of the Fortune 500 companies to adopt ESN either fully or partly (Deloitte, 2013), nevertheless it is forecasted that 80% of those social and collaborative efforts will fail to realize its projected benefits (Gartner, 2013).

It was estimated that a number of social network users surpass 2.55 billion mark by 2017 (eMarketer, 2013), it is arguable and promising that the ESN would reflect the similar figures by that time. As per the global industry analysts, the global market for

enterprise social networking is growing at a rapid rate globally and is predicted to reach US\$4.8 billion by 2020.

Reportedly, it is forecasted over 70,000 strong workforces in the Sri Lankan ICT industry as of 2015 with an annual growth rate of 13%. The majority equipped with skills in the areas of social, mobile, analytics, and cloud computing (SLASSCOM, 2016). Also, Sri Lanka is ranked with a global services location index of 11 and known for its high-quality output to attract prospective employers (Sethi & Gott, 2017). Furthermore, it is rated as a primary location in the Asia Pacific for offshore delivery (Gartner, 2014). In this backdrop, Sri Lanka's IT/BPM industry has set its vision to achieve USD 5 billion revenue in exports by 2022 while creating 200,000 jobs and forming 1,000 start-ups in this process. Accordingly, it is significant to identify ways and means of supporting this strategic vision within the context of Sri Lankan software development organizations. In this study, ESN can be looked upon as a mechanism to improve the employee productivity and creating an innovative and collaborative environment that conducive for fulfilling the organizational and national objectives.

However, achieving the productivity is challenging as many organizations merely deployed the ESN tools and not realizing the expected benefits. Unlike conventional technological implementations such as ERP, SAP or CRM which requires the *push* approach in which the workforce is trained and expected to make use of the systems. In contrast, social deployments demand more or less the *pull* approach to make use of the systems. Hence, studies stress the significance of identifying and supporting voluntary employee efforts and requires the necessary involvement from leadership with sheer commitment to cultivate a conducive environment within the organization (Gartner, 2013).

Therefore, the need of consistent and effective collaboration practices arises within the organization. Effective ESN is facilitated by both technical and social subsystems Bostrom and Heinen (1977), and the inefficiencies of those must be eliminated with influential factors found within the organization context, in where the organizational culture and management style and leadership have become the moderating forces that

found to have backing from both empirical and literature studies.

In the industry, specifically software industry employee's performance, motivation factors are, not always contributing to organizational performance. Also, business cost increases due lack or inconsistent ESN tool adoption practices, for instance, not selection of effective use of tools and techniques, and employee workflow non-alignments. Even management support exists for ESN within the organization, yet they are not sufficient to capture and integrated with social media based on Organizational culture, support, and feedback. In another way, having social networking does not imply that the organization is socially well-rounded. Therefore, the necessity of a more responsive or engaged workforce to face the constantly changing world as and when necessity arises.

While referring to the previous studies on collaborative tools or technologies, Razick's (2011) study had gone to the extent of exploring the influence of Enterprise 2.0 tools on the voluntary act of knowledge sharing behavior based on socio-psychological factors, which had limitations on the organization perspective but provided positive implications to research ESN for the betterment of employees, Consequently, this study examines the impact of ESN tool adoption practices on employee performance, as well as how ESN tool adoption practices moderate with organizational culture and the management style and leadership, from which this study become distinctive from the rest of the related studies. Furthermore, this study goes beyond the focus of technological adoption aspects of Enterprise 2.0 tools as done by Gunasekara (2009), to the extent of investigating the impact of ESN tool adoption practices on employee performance.

Also, a study on the effects of online social networking on the work performance of software professionals has been carried out by Nisaf (2010). That study was concentrated on Web 2.0 technologies in general without focusing on Enterprise 2.0 or ESN tools adoption usage specifically. Therefore, it is evident that there is a significant lack of detailed understanding of the impact of ESN adoption practices on employee performance. The scope of the study limited to software firms in Sri Lanka. Owing to its growing ICT workforce with the notion of organizational adoption of

ESN tools, it is essential to ensure that eventually the ESN tools contribute to the organizational performance. Based on the above understandings, the study formulates the research problem as follows:

With regard to the software industry in Sri Lanka, to what extent the adoption of ESN tools enhances the productivity of employees?

1.3 Research Questions

The list of questions to be addressed by this research be stated as follows:

1. Do software development organizations in Sri Lanka consider ESN tool adoption practices to improve the performance of the employees?
2. Do ESN tool adoption practices impact the performance of employees?
3. Do management style and leadership moderate the relationship between ESN tool adoption practices and employee performance?
4. Do organizational culture moderates the relationship between ESN tool adoption practices and employee performance?
5. What can be given for organizations when improving ESN tool adoption practices in Sri Lankan context?

1.4 Research Objectives

The following objectives are to be achieved to address the above research questions:

1. To identify whether the organizations are considering ESN tool adoption practices to improve the performance of the employees.
2. To investigate the impact of ESN tool adoption practices on the performance of employees.
3. To explain whether the management style and leadership moderate the relationship between ESN tool adoption and employee performance.
4. To examine whether organizational culture moderates the relationship between ESN tool adoption and employee performance.
5. To provide recommendations for improving ESN tool adoption in Sri Lankan context.

1.5 Significance of the Study

This study will contribute in filling the theoretical gap by addressing the interrelationship among main constructs of this study. Thus, ESN tool adoption practices, management style and leadership, organizational culture and employee performance in context to software development organizations, the researcher has found that the stated gap has not yet been successfully addressed in the organizational literature.

Addressing the theoretical gap of this nature can generate new understandings which would provide new directions for organization management to undertake further research on employee performance regarding the usage of ESN tool adoption practices. Therefore, much potential lies to enrich the existing literature in the same area. The new understandings of this study would create the organization environment to be more effectively utilized with the adoption of ESN tools while incorporating other moderating constructs of this study.

Because organizations are always on the lookout for new ways and means to increase workplace productivity, and to enhance job satisfaction, organizational commitment, absenteeism, turnover intention motives, and to cultivate innovative behavior, and specifically the worker performance, therefore the findings from this study would fill the lack of understandings in those aspects and take measures accordingly.

Although organizations have adopted ESN tools, yet they have a less understanding on the utilization within the organizational context. Hence, this study would provide the user many beneficial implications like making the effective utilization or meeting productivity goals of those tools and identify the most effective tool type for organizational context, projects and whether they are any other companies that had adopted same tools as a reference guide.

Although ESN tools have been in the industry for a considerable time, a limited understanding exists on their effective adoption. Also, the majority of software companies engage with foreign companies and the communication and collaboration with them in real time has become an essential factor to remain competitive in the

industry. Consequently, the effective utilization of ESN tools become mandatory. In many aspects, it is essential for companies to fine tune or reorganize their ESN tool adoption.

1.6 Research Scope

The theoretical study consists of following aspects or determinants identified within the organization context. Hence, ESN tool adoption practices, management style and leadership, organizational culture, and employee performance. Whereas the empirical scope of the study narrowed down to IT professionals attached to software companies in Sri Lanka that belong to the category of medium to large scale as to the sources of SLASI, SLASSCOM and ICTA, of those that make use of ESN tool adoption practices regarding the identified ESN tools that are most prevalent in the industry.

This study focused on the organizational level (meso-level) employees, and the relevant target population is based on selected software organizations as to the sources stated previously. Also, this study focused on gathering data from the organizations that have already adopted the ESN tools since the perception and organization context may differ in already adopters and the ones that are about to adopt. Because there are many ESN tools and types varying from licensed to free and open source. The researcher incorporated a popular list of ESN tools that are used heavily in the industry and provided the respondent to name any ESN tool found other than the provided list thereby enriching the study with more findings.

1.7 Outline

Rest of the report is structured as follows. Chapter 2 elaborates the literature review that carried out when meeting the research objectives of this study. Initially, it covers the core concepts of ESN from the onset of its predecessors, which is followed by the mainstream ESN tools, types and their benefits. Also, the details on related work along with the adopted research models of this study explained. Thereby identifying the research gap in literature study that this study attempts to fill. Finally, the significant aspects of this study; hence, ESN tool adoption practices, employee performance,

organizational management style, and leadership and organizational culture are looked at critically.

Chapter 3 presents the research design and methodology. With the findings of the literature review accompanied with the relevant findings from past studies in the same areas, the conceptual model that lay the basis for this research study was formed. After that, the derived hypotheses from the conceptual model listed out to assist the operationalization of the main constructs of the study. Finally, it describes research design, data collection and analysis methods that were followed.

Chapter 4 presents the details of the statistical analysis. Initial steps taken for establishing the face validity of the instruments are explained before the pilot study. Upon pilot study output, the reliability and validity test results of the final data are succinctly elaborated. Subsequently, statistics outputs of descriptive statistics are provided along with the demographic factor analysis to gain an idea of characteristics of the sample data. Finally, the testing results of normality of the data, hypotheses testing, and regression analysis are explained with the outputs of advanced analysis.

Chapter 5 presents the research conclusions, backed by the findings of Chapter 4 particularly through the section of the goodness of data and degree of relationships. It also describes the limitations of the research and indicates future directions in the prospective area with identified recommendations.

CHAPTER 2: LITERATURE REVIEW

A literature review is conducted mainly to understand the ESN concepts from its formation to contemporary organizational usage, and to infer their contribution within the organizational context, especially for employee performance. Also, the literature review has aided the researcher to identify important dimensions found within the organizational setting by incorporating previous research studies and recent international empirical studies.

2.1 Web 2.0

Web 2.0 can be identified as how the world-wide-web is accessed in ways that encourages the creativity, sharing, and communication among its users. It can be also being viewed as an enhanced generation of Web 1.0 in where the limitations like passive viewing of content are replaced by more interactive and collaborative form of communication among its users. Instances of Web 2.0 features can be witnessed over the mainstream social networking and media sites (e.g., Facebook, Twitter) blogs, wikis, folksonomies (*tagging* keywords on websites and links), video sharing sites (e.g., YouTube) hosted services, web applications (aka., apps), collaborative consumption platforms, and mashup applications.

By recognizing noticeable differences between current and earlier web applications, O'Reilly articulated seven principles that characterize Web 2.0 and its applications (O'Reilly, 2005). Such as web as a platform, harnessing collective intelligence, data as the next Intel Inside, end of software release cycle-the perpetual beta, lightweight programming models, software above the level of a single device and rich user experience. Primarily, Web 2.0 comprised of following components:

Rich Internet application (RIA) – Defines a way of bringing the same features and functions of desktop applications and they make use of advanced tools to deliver faster response coupled with more engaging media.

Web-oriented architecture (WOA) – Defines the interface that the Web 2.0 applications support their functionality thereby rest of the applications can

incorporate the same to deliver a set of many advanced applications. Examples are web services, mashups, feeds, RSS feeds.

Social Web (SW) – Defines the interface that the Web 2.0 websites interact with the end user and almost make the end-user an integral part of the website, from profile creation to posting comments on content and uploading content.

As such, Web 2.0 comprises of functionalities that resemble client and server-side software, content syndication and the comply to the network protocols or standards. Web 2.0 sites provide users with information storage, creation, and diffusion or dissemination functionalities which were not achievable or found in the environment now known as Web 1.0.

2.2 Enterprise 2.0

Following the popularity of Web 2.0, accelerated the integration of emergent social networking and collaborative technologies into an organization; hence, to engage with the employees and with the outside parties can be identified as the use of Enterprise 2.0. The term Enterprise 2.0 was developed by Andrew McAfee stated the idea of make using Web 2.0 technologies such as wikis and blogs inside the company intranet, clients to openly remark and discuss their content as part of the Enterprise 2.0 (McAfee, 2006). Thus, the concept of using tools and services that employed by Web 2.0 techniques such as sharing, tagging, ratings, networking, RSS, and, blogging, wikis in the context of the organization, e.g., public bookmarking and social websites like Twitter and Facebook. Similarly, most of the ESN concepts can be encapsulated into a generic model that consists of ESN tools that have been developed (Bradely et al., 2011). The generic ESN tools model in Figure 2.1 depicts tools in the form of generic labels, namely employee's social profile, activity streams, micro-blogging, groups and communities, instant messaging, content management system, enterprise search, and ratings and reviews. Succinctly, each component in the figure is accompanied with a caption to understand the related function it serves.

Progressively, organizations have recognized the potential contribution that it brings into their business activities and value chain through Web 2.0 applications and social software (Bughin et al., 2009), this has also verified by the leading industry studies that emphasize the market value it brings in future. Enterprise 2.0 is used to gain many benefits other than streamlining the organizational communication channels to effectively engage with its stakeholders. Following are some of them:



Figure 2.1: Generic enterprise social network tools
(Source: The social organization (2011).

1. For communication improvement and information sharing among users.
2. As a medium to access organizational information.
3. For retrieving accurate and better quality organizational information.
4. For benefits such as simplicity and cost-effectiveness.
5. To get notifications from other parties when they make updates through subscription services like RSS for a blog or a Wiki.

Despite the benefits and positive implications to the organizations, varying

productivity results have been observed with regards to Enterprise 2.0. Accordingly, consideration has shifted from identifying benefits to understanding means and ways to quantify the same towards deriving a long-term value (Wilkins & Baker, 2011). This will eventually benefit the organization both financially and qualitatively.

2.3 Enterprise Social Networking

Adoption and usage of ESN are generally understood as the use of online social media, social networking or social relations within organizations, between organizations and their associates or customers for sharing business interests or activities, which is also regarded as a primary component of Enterprise 2.0 (McAfee, 2006). According to Osch and Coursaris (2013), ESN is identified as an online corporate social networking platform that simplifies the organizational communication between, employees, management and external stakeholders (e.g., customers, partners, and suppliers) to nurture knowledge management, social relationship creation and collaborative society formation.

McKinsey forecasted that 70% of companies would have an ESN deployment by 2017 (McKinsey, 2017). With the mounting level of adoption, it is essential to consider the ESN utility within the organization and its applicability for employees. Although ESN Adoption figures are promising and compelling, yet it is vital to look into the value creation from ESN is realistic or not, for instance, Facebook at Work may boast of having 90% active rate amongst its beta users, nevertheless less information is available to peruse its actual value creation (Overby, 2017). In that respect, this study attempts to fill the void to some extent by attempting to realize the objectives like understanding whether there are organizations that use of ESN tools and the expected performance value creation is met through its employees.

Because there are many ESN systems to be chosen and they cater to the various type of business needs, identifying the ideal system for the organization is a challenging task that requires careful consideration. For instance, the size of the company determines the required ESN system considering its employee count. Also, issues of

integration with the existing systems such as ERP, CRM, and HRM as well as processes, practices, or policies are difficult problems (Wilkins & Baker, 2011).

2.3.1 ESN Types

Following is a list of mainstream ESN types and the specific function that each support:

1. Enterprise microblogging – Allows initiate conversations, create polls, share news, files, and links, and to view and reply to posts from colleagues.
2. Mobile apps – Provides full-featured apps for Android, iOS, Windows Phone, and Blackberry with real-time updates and notices.
3. Instant messaging and group chat – Allows chat 1-to-1 with a team member or group chat will all the project members at once.
4. Blogs, Wikis, and Posts – Allows to create and collaboratively edit web pages using a WYSIWYG editor.
5. Video conferencing – Provides user to participate in a video conference using computer's webcam and microphone.

2.3.2 ESN Tools

Table 2.1 lists some of the industry leading ESN tools that are currently being used by many organizations to gain business values. They are rapidly evolving as to the needs of the industry. The researcher has selected them based on leading research studies and market analysis indexes.

2.3.3 Benefits of ESN Tools

Some of the key benefits of ESN tools are presented next:

- Wider Reachability – The ability to connect any party across geographical boundaries and hierarchies. It demands much organization to grow and expand their presence globally to meet the competitive targets; hence, it is increasingly important to have a connected workforce that collaboratively work and share in real time. Especially in a time where the organizations are no longer bounded by physical structure to exists but the ability to connect and work together matters the most.

- **Increased Productivity with Mobility** – ESN tools enable employee to quickly and easily locate other party who have a particular skill, expertise and to share knowledge and work together on tasks despite hierarchical and geographical limitations. Employees further experience benefits such as decreased number of repetitive tasks, less emails due to streamlined communication, and the added satisfaction of being contributive makes them more productive at work.
- **Fostering Employee Engagement** – The most significant thing about collaboration is to connect employees across diverse generations, expertise levels, different cultures with many backgrounds. Subsequently, forming bonds and connections with one another, resulting to build relationships that aid in deliver the business value. Further engagement ensures that the equal opportunities for learning and development within organization occurs. Relationships and the engaged employees contribute to ideas and findings within organizations.
- **Fostering Innovation and Creativity** – Organization is facilitated by getting the best idea or view that originates from the engaged employees that make use of ESN tools. More the employees can share, communicate, collaborate, and engage with one another, the greater the flow of ideas that are used to create the atmosphere to innovate and to solve complex problems at hand.

Table 2.1: Mainstream ESN tools.

Tool	Description
Jive	<p>A commercial Enterprise 2.0 collaboration and knowledge management tool by Jive Software for both internal employees and external customers. Initially named as Clearspace in 2006. Later, acquired by Aurea in 2017. Key features include:</p> <ul style="list-style-type: none"> • Comprehensive user profiles • Provides facilities like “Recommendations” which is quite similar to Facebook’s “People You May Know,” shows profiles of people one should get to know based on useful analytics such as common interests and expertise. • Supports sharing multimedia content types • Advanced search • Fast implementation • Analytics driven dashboards • Mobile functionality and compatible with iOS and Android devices • Integrated support for many existing productivity apps

Slack	<p>A cloud-based proprietary messaging app that brings all communication together into one place, created by Stewart Butterfield in August 2013 and it offers real-time messaging, archiving and searching functionalities. Key features include:</p> <ul style="list-style-type: none"> • Mobile and a cloud-based team messaging tool. • Comprehensive messaging functionality Conversations are grouped into different “channels” that one creates for open and for private use as well. • Drag, drop, and share feature for enhanced sharing with team members • built-in internal and external sharing options for intended audience. • Advanced search functionality, by recent type, relevance or file type to find precisely what you need. • Offers fully native apps for iOS and Android and equipped with read state synchronization • Intelligent notification system • Mobile applications are compatible with iOS and Android devices
Yammer	<p>A freemium enterprise social networking service used for private communication within organizations. Initially created as a part of internal communication system for a website later released as product in 2008. Microsoft later acquired Yammer in 2012 for its market value. Key features include:</p> <ul style="list-style-type: none"> • Yammer communication takes the form of conversations and it allows both public and private modes. • Access to a Yammer network is determined by a user's Internet domain so that only individuals with approved email addresses may join their respective networks • Included as a part of Microsoft Office 365 subscriptions to promote collaboration in an organizational environment. • Facilitate communication across large organizations in over 28 languages with added real-time translation features. • Enable collaboration through Microsoft office and third-party applications integrations. • Set up individual profiles or form groups with memberships hence, allow one to collaborate with people outside the organization, such as vendors and customers • Allows free and subscription options • Provides backward compatibility • Support for iOS, Android, and Windows mobile devices in addition to desktop versions.
Salesforce Chatter	<p>An enterprise-scale social network that built on Salesforce.com platform which was created by salesforce in the fall of 1999. chatter provides collaboration features and capabilities that works within customer relationship management (CRM) software. Key features include:</p> <ul style="list-style-type: none"> • Creation of a full-featured enterprise social network from its built-in framework • Create individual profiles • Easily create and join groups • Create customize actions for employees to take quick actions as required • Provides intelligent recommendations to users • Encourage innovation through facilities like groups, Rich feeds, polls, Topics • Desktop and mobile device options available • Allows integrate with third-party or own custom applications <p>The Chatter interface is “mobile first,” meaning it was created for mobile</p>

Sap Jam	<p>A cloud-based enterprise social networking suite that built on its prior collaborative platform StreamWork together with the acquired product Jam from SuccessFactors, to enable connectivity to employees, customers, and partners. Thus, bringing social collaboration to individual departments. Key features include:</p> <ul style="list-style-type: none"> • Enterprise social networking with cloud deployment • Integrates core business applications • Facilitates information sharing and collaboration • Individual and group updates and feeds • Create events and invitations • Provides Auditing, collecting metrics on user activities • Equipped with enhanced security measures like a blacklist, a whitelist for accessibility for the social system.
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2.4 ESN Tool Adoption Practices

In the midst of heightened competition, together with the evolving workforce in the industry, rapidly proliferating models like ESN tools for social and real-time interaction have become the norm for many organizations. This is mainly to allow employees to share knowledge and resources, to collaborate across geographical boundaries, to improve business processes, and to communicate with clients. Unlike any other IT solution or system implementation, The ESN model revolves around people rather than the information alone. Therefore, having a successful ESN tool adoption practices require many social factors to be considered. Hence, organizational culture, top management support and organizational willingness to embrace changes. Those can be regarded as significant ones out of the many found within the organizational context.

Organizations that adopted ESN tools must reconsider on how to increase their utility and usefulness since the number of profiles or existing practices not necessarily convey their effective usage for employees' benefit rather they may merely become another deployment in the organization. Essentially the purpose of ESN adoption practices is to revolutionize the way that the employees communicate, collaborate with each other for better engagement, also to realize individual and organizational performance needs. Many studies have signified the importance of integrating ESN tools into existing business processes and employee workflows thereby to manage those adoption practices more strategically (Wilkins & Baker, 2011). Although adoption practices and their desired returns on worker performance remain challenging for many

organizations, yet many have been working to improve those regularly, despite they vary according to organization context, culture, and many more unseen aspects. Many studies have reiterated usefulness and the necessity of measurement aspects for incorporating into adoption practices since they highlighted the ESN usage is not the same thing as its usefulness. This has also been disclosed in many studies, that the adoption statistics like a number of profiles and even baseline usage metrics do not assist in determining the effectiveness. For instance, Facebook at Work may enjoy a 90% active rate amongst its beta users, but it does not matter how many people use an ESN if the value created found to be minimal (Overby, 2017).

Gallup (2013) revealed that the lack of employee engagement costs hundred billion dollars for American businesses yearly and further indicates that 87% of employees worldwide are not engaged at the workplace. In this context, an organization can make use of ESN tools as an ideal mechanism to engage with its workforce and infer their solicitation or feedback regard to the usage of ESN tools from the onset. It is likely that more the organization engaged with its employees, more the involvement, enthusiasm, and commitment to their work.

Also, the capability to integrate across the entire ecosystem of organizational stakeholders like partners, suppliers, employees, and customers are considered essential for effective adoption, as it is necessary to have a streamlined communication over them. The organization has to consider the adopted ESN tools are capable of fulfilling those requirements and whether they support the functionalities like an extension, and usability of ESN tools with existing organizational, technical or management tools or services.

Adopting ESN tools are also subjective to the proper authorization and to comply with legal and regularity aspects of organizations. Therefore, the organization should consider privacy and security aspects as a critical adoption practice.

2.5 Discussion of Incorporated Models

It is observed that the ESN usage within the organization is increasingly happening yet the comprehensive explanation support that can be gained from theoretical and

practical perspectives is very limited. In these circumstances, the researcher has explored the previous studies having consistent findings regarding research objectives of this study.

It is significant to identify ESN as to Bostrom and Heinen's perspectives (1977, p. 17). Hence, ESN is facilitated by both the technical and social subsystems, in which the technical subsystem refers to "the processes, tasks, and technology needed to transform inputs to outputs," and the social subsystem represents "the attributes of people (e.g., attitude, skills, values), the relationship among people, reward systems, and authority structures.

Furthermore, the previous studies that done on ESN platforms revealed that the employees' use of social networking is mainly influenced by utilitarian and hedonic values (Brecht et al., 2012). Utilitarian denotes the instrumental value that gains over the use of something (i.e., workflow aligning with ESN tools enhances the productivity or performance) whereas hedonic refers to the state of self-fulfillment value that one experiences. (i.e., to gain better recognition and reputation).

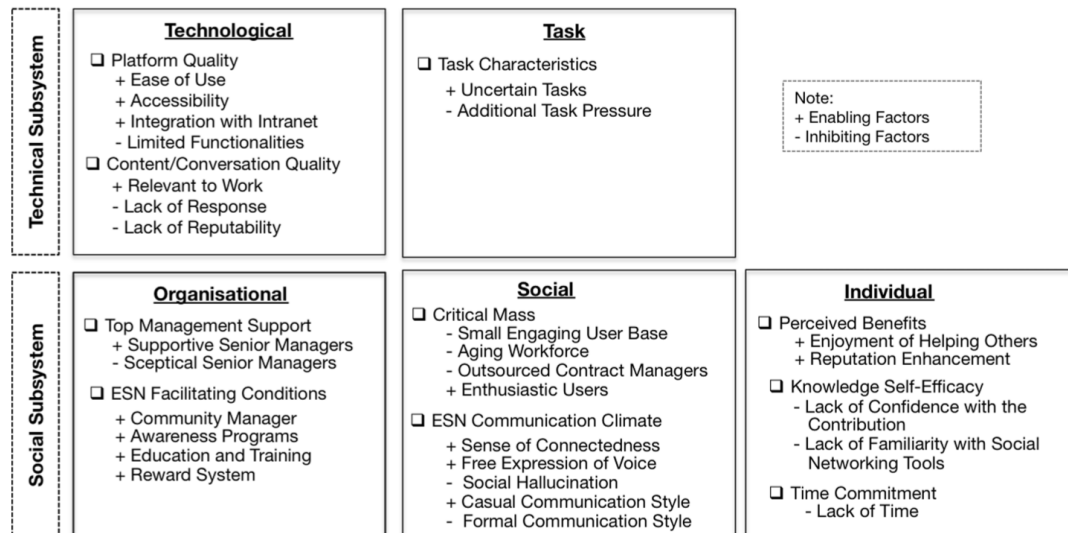


Figure 2.2: Socio-technical factors influencing the ESN use
(Source: Enterprise Social Networks: A successful implementation within a telecommunication company).

Inspired by the socio-technical perspectives model by Bostrom and Heinen (1977), a

model shown in Figure 2.2 was developed to delve into factors that influence employees towards ESN usage behavior. Mainly, it considered five-dimensional factors: *technological* and *task* (technical subsystem), and *organizational*, *social* and *individual* (social subsystem). In each dimension factor, it identifies organizational enabling and inhibiting factors to better understand the ESN use.

Similarly, Figure 2.3 illustrates another research attempt of incorporating utilitarian and hedonic value approach to understand employees' perception of value towards ESN, hence to determine whether they utilize ESN. Also, it integrated dimensions like technological, organizational, social and individual (TOSI) inspired from socio-technical perspectives (Bostrom & Heinen, 1977).

In this model, the technological factors refer to the characteristics of ESN platform and its outputs, while the task factors are associated with task characteristics supported by ESN. Organizational factors refer to the organizational processes and environment that influence the use of ESN. Social factors are related to various social processes and instruments that influence an individual to conceive perceptions of ESN use, and the individual factors are related to the context of individual employees such as their characteristics and benefits that can influence their ESN use behavior.

Mainly, this model is constructed to determine whether each TOSI factors influence the perceived value of ESN use regarding utilitarian and hedonic value and, thereby to deduce the ESN usage.

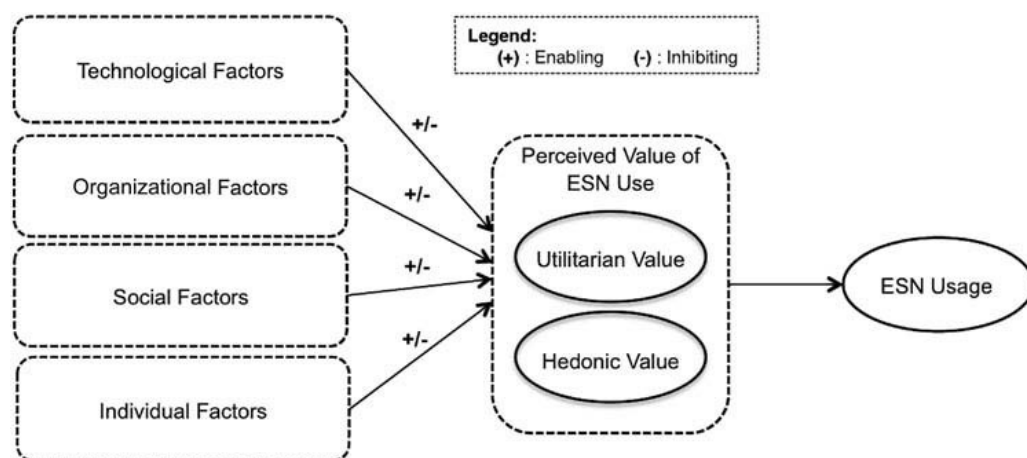


Figure 2.3: A conceptual model of ESN use
(Source: An analysis of utilitarian and hedonic value).

Although many researchers have incorporated the socio-technical approach to gain understanding into aspects contributing to its internal work systems such as decision support system Mackrell et al. (2009) and IT governance by Chong and Tan (2012), yet limited number of studies have used socio-technical approach when studying into ESN due to many unforeseen implications. Nonetheless, this study incorporated socio-technical factors to a certain extent when investigating organizational ESN tool adoption practices.

In the context of the organization, it is essential to consider both the utilitarian and hedonic value approach when identifying enabling and inhibiting factors of ESN that are used by employee and organization for performance improvement. Researcher adopted the stated value approach to determine the research objectives and related conceptualized constructs due to their significance (see Chapter 1 and 3).

2.6 Organizational Facilitating Factors for ESN tool adoption

2.6.1 Organizational Culture

ESN has many implications when it comes to supporting knowledge creation and sharing at individual and organizational levels (Ellison et al., 2014). In this context, effective adoption of this social tools in a formal organizational setting requires particular attention to be placed on the cultural aspects of the environment.

From the cultural perspective, the perception of most of the employees plays a pivotal role in the means and ways of how things are done with regards to employee workflow actives. For instance, when there is sufficient level of employees that appreciate information sharing, then the value of adoption of ESN will increase as stated by the theory of network externalities (Katz & Shapiro, 1986). Also, empirical studies reveal whenever the population consists of the minority which contributes towards information sharing and engaging then that becomes a barrier as they have become the

dominating force and the consistency of open culture is broken. In that respect, it is essential to understand the whether the organizational culture appreciates the importance of information sharing among throughout the organization.

Whenever the presence of enthusiastic employees playing the champion role and lead by advocating others create the conducive culture within the organization setting. Therefore, it is significant to consider empowering employees to take initiatives regard to their work; it is also essential to have an environment that is encouraged to communicate employee views and ideas and to build and maintain relationships with the rest of the employees without discrimination. Altogether it is likely to increase the use of ESN adoption (Boh & Wong, 2013; Kügler et al., 2012).

Many studies have explored the role of ESN adoption within a team environment for employee performance since the adequate member count, and the environment provides the necessary structure to adopt ESN tool effectively. This is due to organization provide flexible hierarchy to support team-based environment.

An ESN platform offers an alternative virtual environment for employees to have a voice and engage with each other without any discrimination based on rank or job title. It is, therefore, not surprising that the sense of connectedness provided by ESN use increases the perceived values of ESN use and motivates its adoption (Grieve et al., 2013). Riemer and Richter (2010) state that ESN aid significantly in team awareness creation and team coordination. This is due to ESN enables information or content to be posted, and notify concerns of team members, and they are encouraged to share information, to coordinate tasks in a more engaging atmosphere. Therefore, it is significant for the organization to consider team building efforts in view of promoting and appreciating employee team orientation.

2.6.2 Management Style and Leadership

An effective ESN can also be understood from the management perspective, hence whenever the management is providing the due support and encouragement towards the adoption of the organizational social platform to meet the desired objectives (Van Osch & Coursaris, 2013). It is significant that the top management (i.e., senior managers and decision makers) involvement to ensure consistency and commitment towards ESN initiatives within the organization (Berger et al., 2014b).

Above is reflected in many empirical studies which emphasize the importance of leadership support and their lead by example role since a considerable number of managers are under the notion of losing their authority if they are about to engage more openly and actively. In that context, it is likely that the use of ESN would become another broadcast medium that further widens the hierarchical gap or the silo that they reside in. Therefore, the researcher has incorporated management involvement as a significant factor to determine the success of organizational adopted ESN initiatives.

Also, it is a fact that ESN tool adoption likely to increase when having top management mediation for creating the much-needed climate to encourage the communication among employee's opinions and ideas to benefits ESN initiatives. Especially, when management adhering to consistent practices throughout the organization and proper enforcement as and when needed (Boh & Wong, 2013; Kügler et al., 2012).

Past studies have shown that even though employees enjoy sharing information and helping to solve tasks of others, the majority of employees are not willing to share their knowledge without getting something in return. In that context, it is important to consider the management involvement or enforcement either by rewarding employees to appreciate their contribution regularly. As it eventually impacts to the worker motivation level and to thereby improving performance. Management can also mediate cordially in drafting ESN procedures, policy control, and problem-solving initiatives.

The researcher also observed that the employees to a certain extent avoid the use of ESN tools initiatives due to lack of confidence or negative perceptions in their contribution from empirical evidences in the industry. It is further observed that the lack of awareness on ESN tools among most of the population of employees is also an influential factor to ESN adoption initiatives. Therefore, it is important for the top management to provides awareness programs and training on ESN tools, features, and their benefits regularly.

2.7 Implications of ESN Tool Adoption Practices

2.7.1 ESN Tools for Employee Performance

At the employee level, the use of ESN within the organization relies on aspects like self-interest (i.e., the satisfaction of assisting others and this can be further propagated to the level of reputation development), knowledge self-efficacy and time commitment. Which are consistently correlated with the previous studies such as Kankanhalli et al. (2005), Ye et al. (2006) and Stewart and Osei-Bryson (2013). Reputation enhancement is complemented by the use of ESN tools/features such as comments, ratings, and likes which strengthens the employee confidence and reinforce the knowledge for improved contribution. Particularly, employees are empowered when they are valued and further encourage them to partake in discussions which eventually benefit positively.

At the employee workflow activity level, it is found that ESN tools benefit the user by supporting with the right information and the right people when in need of support for their work-related problems (Koo et al., 2011). Studies further reveal that the task characteristics such as analyzability, urgency and complexity said to have a pivotal role in influencing the social communication usage among employees. Which have found to be a major beneficial factor in software development organizations as most of their daily tasks coincide with the stated task characteristics. Consequently, organization experiences cost, time and effort savings over the ESN tool adoption.

Empirical studies have also shown that the active ESN user is effectively utilizing the ESN tools to benefit or contribute towards uncertain and challenging tasks, thereby

influences its ESN adoption. Mainly, this is due to the availability and penetration to organization-wide access created by ESN tools. Even the minor response has found useful to get to know whether anyone has done a similar activity or task before directing toward on other employees that have relevant resources or capacity to solve. Nevertheless, as several studies claim that the same availability and penetration to each other in the organization would demand additional tasks that cost time and additional effort which is this study also intends to reveal through whether the ESN tools make additional workload in their day to day activities. Studies also suggest that the employee time commitment toward additional task or workload has become as a significant challenge that needs to be addressed (Connelly et al., 2014).

Increasingly, organizations rely on enterprise social networking for most of the communication needs as it reflected with the reduced number of emails or with the usage of minimum conventional communication mechanisms. Therefore, it is important to have social communication strategy built within the organization to streamline the communication which will indirectly impact to the employee work performance.

2.8 Summary

This chapter mainly covered the literature comprised of past researches, studies that are done related to the core concepts of ESN, hence from the onset of Web 2.0 to the contemporary usage of ESN tools within the organizational context. Also, followed by sections to highlight the benefits of ESN tools and a list of mainstream ESN tools respectively. Further, this chapter has taken steps to enlighten the user by supporting research objectives through the sections that comprised of major research construct areas with succinct elaborations.

CHAPTER 3: METHODOLOGY OF THE STUDY

This chapter presents the research methodology in relation to the research design and the data collection process. The research approach that was adhered is specified in Section 3.1. In Section 3.2 conceptual model is explained. Subsequently, in Section 3.3 lists the hypotheses of the study that are derived against the conceptual model. Operationalization table of the construct for identifying research item retrieval is presented in Section 3.4. The research design is elaborated with the sampling framework along with the questionnaire design is presented in Section 3.6. Finally, essential data collection and analysis mechanism that relies upon on the questionnaire output are explained.

3.1 Research Approach

This research is based on deductive or top-down approach. Initially, the researcher developed hypotheses based on the findings from the literature, conceptual framework, and views from the industry experts. To establish the research objectives, the researcher incorporated concepts that were theoretically and empirically established. Derived hypotheses were then tested through quantitative approach with the aim of narrowing down the conclusions. Thereafter, the researcher incorporated industry experts' suggestions, opinions and questionnaires to collect data to test hypotheses and to give recommendations. This study focused on medium to large scale software development organizations in Sri Lanka, to analyze the use of ESN tool adoption practices. The researcher took insights from the software industry and supportive literature studies. Also, considered related work on the organizational use of social media, based on which the moderating factors of organizational culture and management style and leadership were incorporated. Consequently, the employees that make use of ESN tools are the focused entity for this study.

3.2 Conceptual Model

This study incorporated key findings from literature along with research objectives when constructing the conceptual model. More specifically based on the past studies

on employee performance, ESN tool adoption practices, organizational culture and management style, leadership. The researcher identified organizational ESN tool adoption practices as the independent variable whereas employee performance as the dependent variable. Management style, leadership and organizational culture as the moderating variables. This study contributed to. developing hypotheses to fill the theoretical gap while empirically exploring the Sri Lankan software industry as the main context for testing the identified constructs.

Researcher adopted the Bostrom and Heinen's (1977) socio-technical perspectives model (see Section 2.5) to construct the research main instruments. Subsequently, each instrument is further identified according to their utilitarian and hedonic values as well (Brecht et al., 2012).

Understandingly, the technical subsystem is represented through technological and task dimensions, and it is represented through the elements like processes, tasks, and technology needed to transform the inputs to outputs. The technological dimension is concisely elaborated in Chapter 2. The researcher further adopted the task dimension of TOSI model to elaborate processes and tasks entities and it was further incorporated when formulating the independent variable, namely organization ESN tool adoption practices. In this study, organizational ESN technology adoption practices are identified over eight enabling factors.

Subsequently, the social subsystem is identified through organizational, social and individual dimensions of TOSI model and they are explained related to study research construct in Table 3.2.

The dependent variable, namely employee performance, is better understood through individual dimension (TOSI) model depicted in Figure 2.2, In this study it is identified as eight enabling factors along with two inhibiting factors as listed in Table 3.1:

Table 3.1: Factors related to independent, dependent and moderating variables.

Independent Variable	Dependent Variable	Moderating Variables	
ESN Tool Adoption Practices	Employee Performance	Organizational Culture	Management Style and Leadership
<ol style="list-style-type: none"> 1. Workflow alignment 2. Strategic alignment 3. Ability to collect metrics 4. Solicit feedback 5. Endorsed tools and techniques 6. Integration and user accessibility 7. Communication strategy 8. Security and privacy aspects 	<ol style="list-style-type: none"> 1. Better decision control 2. Knowledge reinforcement 3. Additional task overhead 4. Dependence 5. Better time management 6. Better productivity management 7. Reputation enhancement 8. Confidence of contribution 9. Stress control 10. Indirect benefits 	<ol style="list-style-type: none"> 1. Engagement 2. Information Sharing 3. Involvement 4. Empowerment 5. Team building effort 6. Team environment 7. Capability development 8. Skills development 	<ol style="list-style-type: none"> 1. Support & encouragement 2. Leadership style 3. Top/senior management mediation 4. Resource support 5. Awareness programs and training 6. Top/senior management enforcement 7. User suggestion incorporation 8. Rewarding initiatives

Each dimension was then fragmented into indicators when measuring them. According to literature review findings, the researcher incorporated two moderating variables, namely management style, leadership and organizational culture within an organizational setting. Respectively organizational culture was better represented according to social dimension, and it was analyzed using eight enablers. Whereas management style, leadership is understood through organizational dimension and it was analyzed using eight enablers Both moderating variables are listed in Table 3.1.

Accordingly, above specified enables and inhibitors were also identified as sub-variables. All the sub-variables are succinctly defined separately to better understand the model. Author adjusted and incorporated relevant enablers in each of the dimensions to complement the measuring construct for better reflecting the realistic organizational or industrial setting that seemed adhered to software organizations, and they are mentioned under author developed in the operationalization table.

More specifically, every sub-variable (enabling or inhibiting factor) is reflected with resultant survey question which captures the utilitarian or hedonic value and they are depicted in Table 3.2.

Table 3.2: Factors as to utilitarian and hedonic value approach.

ESN Tool Adoption Practices		
Sub -Variable (Enabling/ Inhibiting Factor)	Utilitarian / Hedonic	Survey question
1.Workflow alignment	Utilitarian	I believe ESN tools/initiatives are in line with my day-to-day workflow.
2.Strategic alignment	Utilitarian	ESN initiatives in my organization are implemented strategically with regards to employee workflows.
3.Ability to collect metrics	Utilitarian	My organization evaluates adoption of ESN tools periodically or I get appraisal points for my contributions on ESN tools.
4.Solicit feedback	Utilitarian	My organization solicits feedback on the usage of ESN tools in our workflows.
5.Endorsed tools and techniques	Utilitarian	I believe ESN tools are implemented in my organization incorporating employee feedback and suggestions.
6.Integration and user accessibility	Utilitarian	My organization considers integration, extension, and usability aspects of ESN tools with existing tools/resources.
7.Communication strategy	Utilitarian	My organization employs clear communication strategy about ESN use and its benefits to Employee.
8. Security and privacy aspects	Utilitarian	My organization considers security and privacy aspects of ESN tools and its usage.
Employee Performance		
1. Better decision control	Utilitarian	Use of ESN tools helps me to take better decisions based on feedback from others.
2. Knowledge reinforcement	Utilitarian	ESN tools/features such as comments, ratings, and likes reinforces my knowledge.
3. Additional task overhead	Hedonic	My workload has increased because I have to use ESN tools provided by organization.
4. Dependence	Hedonic	Use of ESN tools make me dependent more on others and their feedback.
5. Better time management	Utilitarian	ESN tools used in the organization helps me better manage my time.
6. Better productivity management	Utilitarian	ESN tools helps me become more productive saving both time and effort.
7. Reputation enhancement	Hedonic	ENS tools help me to gain better recognition and reputation within the organization.
8. Confidence of contribution	Hedonic	I feel more confident and valued when contributing to discussions on ESN tools.
9. Stress control	Hedonic	I feel ESN helps me to better control my stress.

10. Indirect benefits	Utilitarian	My organization considers security and privacy aspects of ESN tools and its usage.
Organizational Culture		
1. Engagement	Utilitarian	My organization welcomes our engagement as a positive impact.
2. Information Sharing	Utilitarian	My organization appreciates practices of information sharing.
3. Involvement	Utilitarian	Organizational-wide decision making incorporates our involvement most of the time.
4. Empowerment	Utilitarian	My organization's decision-making is distributed, and employees are free to experiment and take initiatives with regard to their work.
5. Team building effort	Hedonic	My organization promotes and appreciates our efforts for team orientation.
6. Team environment	Utilitarian	My organization has a flexible hierarchy to support team-based environment.
7. Capability development	Utilitarian	My organization promotes and appreciates capability development of employees.
8. Skills development	Utilitarian	My organization invests in skill development of its workforce.
Management Style and Leadership		
1. Support & encouragement	Utilitarian	My Management supports/encourages the use of ESN tools.
2. Leadership style	Utilitarian	My top/senior management is actively involved in ESN and lead by example in supporting ESN initiatives.
3. Top/senior management mediation	Utilitarian	My management mediates cordially in drafting ESN procedures, policy control, and problem-solving initiatives.
4. Resource support	Utilitarian	My top/senior management provides resources for ESN initiatives.
5. Awareness programs and training	Utilitarian	My management provides awareness programs and training on ESN tools, features, and their benefits.
6. My top/senior management enforces the use of ESN tools	Utilitarian	My top/senior management enforces the use of ESN tools.
7. User suggestion incorporation	Utilitarian	My management incorporates our suggestions on what ESN tools to use and how to use them.
8. Rewarding initiatives	Utilitarian	My management rewards employees who actively contribute to and promote ESN activities.

Figure 3.1 depicts the conceptual model that based on Bostrom and Heinen's (1977) socio-technical perspectives (TOSI), and related models stated previously in Chapter 2. In this conceptual model, the researcher had taken steps to map each research construct into TOSI dimensions and to represent the interrelationship among them.

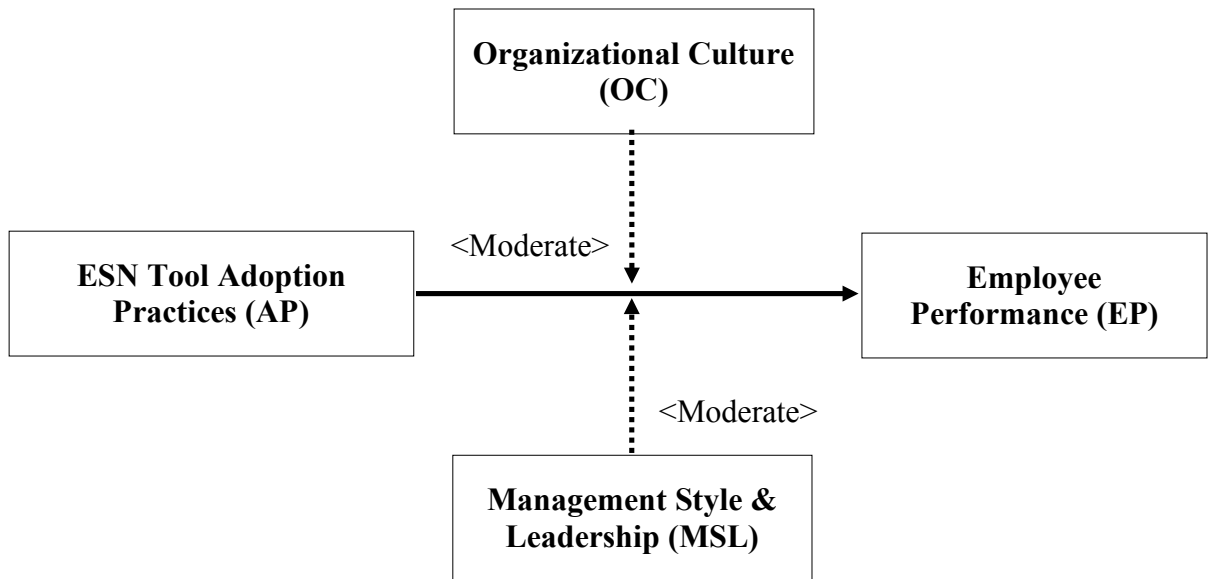


Figure 3.1: Conceptual model of the research.

3.3 Hypothesis Development

Using the relationships identified in the conceptual model and the outcomes of literature review following list of hypotheses are derived. The researcher has specified the inter-relationship of each of the construct with the backing of the literature review. Hypotheses can be considered as the primary sources when answering research questions defined in Section 1.3.

Hypothesis 1: ESN tool adoption practices would impact the performance of employees.

H01: There is no relationship between ESN tool adoption practices and performance of employees.

H11: There is a relationship between ESN tool adoption practices and performance of employees

Hypothesis 2: Organizational culture would moderate the relationship between ESN tool adoption practices and employee performance.

- H02:** Organizational culture does not moderate the relationship between ESN tool adoption practices and employee performance.
- H12:** Organizational culture moderates the relationship between ESN tool adoption practices and employee performance.
- Hypothesis 3:** Management style and leadership would moderate the relationship between ESN tool adoption practices and employee performance.
- H03:** Management style and leadership do not moderate the relationship between ESN tool adoption practices and employee performance.
- H13:** Management style and leadership moderates the relationship between ESN tool adoption practices and employee performance.

3.4 Operationalization of the Constructs

Operationalization is defined as the specific procedure used to measure a concept or construct, and Table 3.2 illustrates the operationalization of variables identified in the study. Main variables are understood according to adopted socio-technical dimension model and each dimension variable understood by dividing into sub-variables known as enablers and inhibitors on which the indicator to measure is defined, they are also accompanied with the sources or origins. The multiple indicators are derived from the variables and researcher measured them using a five-point Likert scale.

Table 3.2: Operationalization table.

Concept / Dimension	Variables	Sub-variables (enable/inhibitors)	Indicators	Source	Questions
Management Style & Leadership	Management Style & Leadership	Support & Encouragement	Support & Encouragement	Van Osch and Coursaris (2013)	B1
		Leadership Style	Leadership Style	Kuo and Lee (2011), Bock et al. (2006)	B2
		Top/Senior management Mediation	Top/Senior management Mediation	Berger et al. (2014b), Author Developed	B3
		Resource support	Resource support	Author developed	B4
		Awareness programs and Training	Awareness programs and Training	Kuo and Lee (2011), Bock et al. (2006)	B5
		Top/senior management enforcement	op/senior management enforcement	Boh and Wong (2013), Kügler et al. (2012), Berger et al. (2014b)	B6
		User suggestion incorporation	User suggestion incorporation	Kuo and Lee (2011), Bock et al. (2006)	B7
		Rewarding Initiatives	Rewarding Initiatives	Kankanhalli et al. (2005), Ye et al. (2006), Stewart Osei-Bryson (2013), Bostrom and Heinen (1977, p. 17).	B8
Organizational Culture	Organizational Culture	Engagement	Engagement	Berger et al. (2014a), Wang et al. (2009)	B9
		Information Sharing	Information Sharing	Ellison et al. 2014	B10
		Involvement	Involvement	Berger et al. (2014b)	B11
		Empowerment	Empowerment	Boh and Wong (2013); Kügler et al. (2012))	B12
		Team Building Effort	Team Building Effort	Riemer & Richter	B13
		Team Environment	Team Environment	Boh and Wong (2013); Kügler et al. (2012))	B14
		Capability development	Capability development	Author developed	B15
		Skills Development	Skills Development	Author developed	B16
Employee Performance	Employee Performance	Better decision control	Better decision control	Riemer & Richter	B17
		Knowledge Reinforcement	Knowledge Reinforcement	Berger et al. (2014a); Wang et al. (2009)	B18
		Additional Task overhead	Additional Task overhead	Wu (2016)	B19
		Dependence	Dependence	Author developed	B20
		Better Time management	Better Time management	Connolly et al. (2014)	B21
		Better productivity management	Better productivity management	Wu (2016)	B22

		Reputation enhancement	Reputation enhancement	Wu (2016), Kankanhalli et al. (2005), Ye et al. (2006), Stewart and Osei-Bryson (2013)	B23
		confidence of contribution	confidence of contribution	Author developed	B24
		Stress control	Stress control	Wu (2016)	B25
		Indirect Benefits	Indirect Benefits	Kankanhalli et al. (2005), Ye et al. (2006), Stewart and Osei-Bryson (2013)	B26
Adoption Practices	Adoption Practices	Workflow Alignment	Workflow Alignment	Wilkins and Baker (2011)	B27
		Strategic Alignment	Strategic Alignment	Wilkins and Baker (2011)	B28
		Ability to collect Metrics	Ability to collect Metrics	Wilkins and Baker (2011)	B29
		Solicit feedback	Solicit feedback	Author Developed	B30
		Endorsed Tools and techniques	Endorsed Tools and techniques	Author Developed	B31
		Integration and User Accessibility	Integration and User Accessibility	Wilkins and Baker (2011)	B32
		Communication strategy	Communication strategy	Aral, Dellarocas, and Godes (2013); Gartner (2013)	B33
		Security and privacy aspects	Security and privacy aspects	Shin (2010)	B34

3.5 Target Population

The population denotes to the entire group of people, events, or things of interest that the researcher desires to investigate (Sekaran, 2003). The population of this study was comprised of IT professionals fall into specific streams working in software organizations that have adopted ESN tools and make use of the most of the identified ESN tools. According to the sources of SLASI, SLASSCOM and ICTA there are large number of software development companies operating in Sri Lanka within the range of small to medium and large scale based on its employee count. This study incorporated software companies that varying from medium to large scale among those companies. The researcher employed the random sampling to select a set of sample organizations as each organization had the employee headcount of at least 300 and researcher had to select a subset of randomly selected employees out of them to participate to the survey. As to the sources stated previously this study considered the employees attached to software companies that make use of ESN tools.

3.6 Sampling Method

Owing to practical issues of covering the entire population, the sample of this study was selected according to convenient sampling, a mode of nonprobability or nonrandom sampling method that focused on selected organizations that meets certain common criteria such as geographical proximity and easy accessibility. Because of limitations and unavailability of formal data sources about the companies that adopted ESN tools and types, respondents were contacted personally by explaining the purpose of the research.

The sample size selection of this study was based on Sekaran (2013), and the rules and guidelines are as follows:

- Sample size should be between 30 and 500 which are valid for research.
- When the sample is to be broken into sub-systems (e.g., gender, experience, and education level) a minimum sample size of 30 for each category is required. In multi-variance research (including multiple regression analysis) the size should be several times (preferably 10 times) larger than the variable of the questionnaire study
- As per Kuruppuarchchi (2015), the industrial sample size will vary with the target population, and it accepted that the sample size is to be taken more than five times larger than number or indicators of the research study.

3.7 Questionnaire Design

The questionnaire for this study was constructed based on the guidelines of Sekaran (2013). Also, due care was taken to ensure the accuracy and the understandability of wordings of the questionnaire as well. Further, the researcher incorporated an online research questionnaire to collect data mainly due to its inherent advantages such as the wider reach of the target population easily, and the anonymity of the respondent can be maintained, more beneficially with minimal time and cost effort. Research questionnaire is given in Appendix A.

3.8 Method of Data Collection

This study employed structured questionnaires as the main mechanism for data collection. Due to limitations of research studies on ESN tool adoption, the researcher had to gather data from both formal and informal means and ways such as industry experts, supervisor suggestions, opinions, personal contacts, and questionnaires. Nevertheless, the questionnaire was identified as the primary data collection method. To validate the structured questionnaire with the aim of minimizing the research gap, it was distributed among eight selected industry experts in software companies. Based on the feedback together with the suggestions from the supervisor, the preliminary questionnaire was formed for a pilot study that consists of twelve respondents. Thereafter, the questionnaire was revised based on the pilot study results deduced from its reliability analysis outputs. Based on this several rounds of adjustments were made to the final questionnaire. All the incorporated adjustments with its statistical analysis are specified in Chapter 4.

For this survey, the population was all the employees those who make use of ESN tools within their software companies, and the software companies belonged to medium to large scale category as to the sources of SLASI, SLASSCOM, and ICTA. Through the population, 200 number of respondents selected as the sample using non-probability convenient sampling method. Those were selected from companies that have adopted ESN tools. Initially, the majority of the questions (see Appendix A) were designed to cover management aspects towards the use ESN tools within the organization. Additionally, questions that gather demographic aspects were also included. To maintain the anonymity of participant personal information such as name, mail address, company names were not gathered to ensure higher response rate. Also, some questions in the questionnaire were negatively worded to adhere to the guideline in research questionnaire structuring (Sekaran,2013). Further testing of questions was done by sending and getting cues from selected professionals from different companies, and some of the suggestions were incorporated when finalizing the questionnaire as well.

3.9 Method of Data Analysis

The main aim of the data analysis is to test the goodness of the data and the conceptual model constructed for the research. Pearson's correlation coefficient and multiple regression were used to statistically analyze the relationship between research constructs. SPSS version 24.0 was employed in this regard. With the help of SPSS tool, PCA, or the factor analysis was performed to confirm the items in the research are appropriate or not. Cronbach's alpha was used to retrieve the reliability of the independent and dependent variables. Also, Pearson's correlation was used to measure the level of correlation among items. Initially, the multiple regression analysis was performed on dependent and independent variables. It is used to predict the unknown value of a variable from the known value of two or more variables known as the predictors or independent variables. Subsequently, multiple regression was employed on moderator variable analysis of this study as well.

3.10 Summary

This chapter explained the methodology and the philosophy that this research has incorporated to address the research objectives which involved the representation of literature review findings and the research objectives through a conceptual model. This study identified employee performance as dependent variable whereas ESN tool adoption practices as an independent variable along with two moderate variables, namely the management style, leadership and the organizational culture. Each were mapped as to the relevant dimension of socio-technical perspectives model (TOSI), moreover, study adopted the utilitarian and hedonic value approach to identify research constructs as well. Subsequently, it identified 34 indicators to represent the model. adhered the stated standards when selecting the sample size of 200. Thereafter, listed the operationalization of the constructs through dimensions and indicators. Subsequently, sections like target population, sample calculation techniques, questionnaire design, data collection and data analysis methods on statistical measures are adequately elaborated as well.

CHAPTER 4: DATA ANALYSIS AND DISCUSSION

This chapter presents the analysis of survey data to support the research objectives and hypotheses. The SPSS tool was employed to perform the quantitative analysis. Section 4.1 presents the pilot study validity analysis in where the establishment of the research instruments and the adjustments made to the questionnaire are discussed. Subsequently, the reliability and validity analysis were performed on the main research constructs and presented in Section 4.2. Descriptive statistics and demographic factor analysis sections are presented in Section 4.3 and 4.4 respectively. Inferential statistical analysis and hypotheses testing on the purified sample is elaborated in Section 4.5. Lastly, the correlation analysis summary to sum up the finding of the quantitative analysis are presented.

4.1 Face Validity of the Instruments

As per the research methodology of this study, the researcher had to gather necessary ESN tool related information and insights from decision-making employees attached to leading software organizations. Researcher incorporated both formal and informal approaches such as industry experts, lead-level IT professionals, supervisor suggestions, opinions, personal contacts, popular social networking tools and methods like LinkedIn and Facebook. Subsequently, a questionnaire was constructed with the support of gathered information and literature review. The structured questionnaire was sent to several industry experts in SLASSCOM member software organizations to validate and ensure its understandability and quality. Followed by the suggestions from industry experts and research supervisor, several questions were revised to capture the necessary details and made to appear more understandable. Also, the size of the indicators was reduced to clear the clutter of the structure.

Following are the adjustments made prior to pilot study based on feedback, suggestions from industry experts and research supervisor.

1. Some pointed out that the deviation from actual workflow activities make them stress-free and beneficial to the performance indirectly.

Although there was a question already capturing stress level, the researcher had to include a new indicator and a related question to capture whether there is any another benefit that they experience. Hence, the question: “Use of ESN tools brings more indirect benefits.”

2. Some pointed out that section C in questionnaire would be better answered by management and lead-level professionals as they have a more overall picture of ESN tool usage rather than seen individually because they have authority and influence over their subordinates. Therefore, with supervisor advice, the researcher had to analyze the managerial level feedback separately.
3. As to some respondents that the ESN usage is voluntarily rather than enforced, and it takes time even with extra effort. Though ESN tools indirectly impact employee performance, there was not a question to capture above. Thus, the researcher included the question. “My workload has increased because I have to use ESN tools provided by the organization.”
4. Further identified that some employees were not clear about the ESN tools and types that they have in their organizations as they were only confined to their team environment and had limited understanding of the overall adoption of ESN tools within their organization. To benefit the research objectives; Therefore, researcher included the question “What type of ESN tools are supported by your organization.”

Following the necessary adjustments, the pilot questionnaire was published online through Google Forms. The sample size for the pilot study based on the statistical theories and literature suggested that a proper pilot study sample ought to be of 10% of the sample projected for larger parent study by adhering to that rule researcher planned for a sample size of 12. Subsequently, a reliability analysis was performed for the pilot study (see Appendix C) and for the main research constructs as well (see Section 4.2).

4.2 Reliability and Validity Analysis

Reliability analysis was performed to ensure consistency and reliability of the constructs that were derived from the conceptual framework. Data reliability

essentially checked the consistency or accuracy of the measuring instruments and Cronbach's coefficient alpha measurement was employed to assess the reliability of the constructs.

Whenever the reliability reaches 1.0, thereby provides indications that the data are reliable and valid. Also, it indicates the goodness for further analysis. Cronbach's Alpha value, greater than 0.7 is considered acceptable and above 0.8 considered as good (Sekaran, 2013). The Cronbach's coefficient alpha is used to check the reliability of the constructs, and it implies the extent of positive correlation to each other. Principal component analysis or Confirmatory Factor Analysis (CFA) is performed to the test the validity of measures.

Straub et al., (2004) stressed the significance of selecting research instrument items with factor loading value of greater than 0.4, to be considered as valid. Nevertheless, the researcher took measures not to incorporate values having less than 0.5 factor values, labeling them as invalid measures and removed from further analysis. Researcher incorporated the output that generated from SPSS v24.0 regarding above analysis, according to it each variable was validated and checked for reliability prior to proceeding further of this study.

4.2.1 Analysis of ESN Tool Adoption Practices

Table 4.1 describes the reliability of ESN tool adoption practices with eight items. Cronbach's alpha value is 0.840. which is higher than 0.7. Therefore, data related to adoption practices are taken as reliable for further analysis. Principal component analysis (PCA) was also carried out to check the validity of the ESN tool adoption practices and all the indicators were above 0.5, which indicates data were valid and they are specified in Table 4.2.

Table 4.1: Reliability analysis – ESN tool adoption practices.

Cronbach's Alpha	No. of Items
0.840	8

Table 4.2: Component matrix – ESN tool adoption practices.

	Component
	1
1.Workflow alignment	.660
2.Strategic alignment	.739
3.Ability to collect Metrics	.588
4.Solicit feedback	.650
5.Endorsed tools and techniques	.723
6.Integration and user accessibility	.749
7.Communication strategy	.809
8.Security and privacy aspects	.569

4.2.2 Analysis of Organizational Culture

Table 4.3 illustrates the reliability of organizational culture with eight items. Cronbach's alpha value is 0.803. which is higher than 0.7. Therefore, data related to organizational culture are taken as reliable for further analysis, PCA was also carried out to check the validity of the organizational culture and all the indicators are above 0.5 except for 1 and 2. That indicates data were valid results and they are specified in Table 4.4.

Table 4.3: Reliability analysis – organizational culture.

Cronbach's Alpha	No. of Items
.803	8

Table 4.4: Component matrix – organizational culture.

	Component
	1
1. Engagement	.105
2. Information sharing	.420
3. Involvement	.687
4. Empowerment	.703
5. Team building effort	.792
6. Team environment	.770
7. Capability development	.768
8. Skills development	.737

Upon removing the Engagement and information sharing items that listed above, researcher performed the validity test again for above construct and managed to retrieve valid loading results. Therefore, the researcher had to take the result of the

items other than the removed ones for the inferential analysis. Table 4.5 lists the new validity values after removing invalid indicators. All values are above 0.5 hence taken as acceptable.

Table 4.5: Component matrix– organizational culture after adjustment.

	Component
	1
1. Engagement	removed
2. Information sharing	removed
3. Involvement	.695
4. Empowerment	.716
5. Team building Effort	.787
6. Team environment	.769
7. Capability development	.785
8. Skills development	.745

4.2.3 Analysis of Management Style and Leadership

Table 4.6 lists the reliability of management style and leadership that consisted of 5 items. Cronbach's alpha value is 0.755. which is higher than 0.7. Therefore, data related to management style and leadership are taken as reliable for further analysis. PCA was also carried out to check the validity of the management style, and leadership and all the indicators are above 0.5 except for Resource support which indicates data are valid results and they are specified in Table 4.7.

Table 4.6: Reliability analysis of management style and leadership.

Cronbach's Alpha	No. of Items
0.755	8

Table 4.7: Component matrix – management style and leadership.

	Component
1. Support and encouragement	.694
2. Leadership style	.637
3. Top/Senior management mediation	.626
4. Resource support	.482
5. Awareness programs and training	.557
6. Top/senior management enforcement	.690
7. User suggestion incorporation	.677
8. Rewarding initiatives	.506

Upon removing the Resource support item that listed above, the researcher had performed the validity test for above construct again and managed to retrieve valid loading results, and they are shown in Table 4.8. Therefore, the researcher decided to use the results of the items other than resource support for the inferential analysis.

Table 4.8: Component matrix – management style and leadership after adjustment.

	Component
	1
1. Support and encouragement	.661
2. Leadership style	.585
3. Top/Senior management mediation	.644
4. Resource support	removed
5. Awareness programs and training	.609
6. Top/senior management enforcement	.670
7. User suggestion incorporation	.719
8. Rewarding initiatives	.567

4.2.4 Analysis of Employee Performance

Table 4.9 lists the employee performance which contains 10 indicators. Cronbach's alpha value is 0.837 which is above 0.7. Therefore, data related to employee performance are taken as reliable for further analysis. Table 4.10 lists the factor analysis or PCA of employee performance. Additional task overhead, Dependence factor value is less than 0.5. As to Factor analysis is proved that the Additional task overhead, Dependence indicator need to be removed from further analysis.

Table 4.9: Reliability analysis – employee performance.

Cronbach's Alpha	No. of Items
0.837	10

Table 4.10: Component Matrix – employee performance.

	Component
	1
1. Better decision control	.739
2. Knowledge Reinforcement	.756
3. Additional Task overhead	.279
4. Dependence	.400
5. Better Time management	.697

6. Better productivity management	.742
7. Reputation enhancement	.720
8. confidence of contribution	.811
9. Stress control	.614
10. Indirect Benefits	.599

Upon removing the Additional task overhead and Dependence items that are listed above, researcher performed the validity test again for above construct and managed to retrieve valid loading results. Therefore, the researcher had to take the result of the items other than the removed ones for the inferential analysis. Table 4.11 lists the new validity values after removing invalid indicators. All values are above 0.5 hence taken as acceptable.

Table 4.11: Component Matrix – employee performance after adjustment.

	Component
	1
1. Better decision control	.758
2. Knowledge reinforcement	.774
3. Additional task overhead	Removed
4. Dependence	Removed
5. Better time management	.700
6. Better productivity management	.758
7. Reputation enhancement	.725
8. confidence of contribution	.802
9. Stress control	.617
10. Indirect benefits	.598

4.3 Descriptive Statistics

Descriptive statistics used to describe the basic features of a population or a data set and can be generated in the form of numeric calculations, graphs, and tables. Whereas inferential statistics used to make inferences and predictions about a population based on a sample of data obtained from the respective population and this study utilized both of them to further understand the data and thereby to realize the research objectives.

Descriptive statistics make use of univariate analysis to examine the research variable at a time to provide following major characteristics. Hence, the distribution, the central

tendency, and the dispersion. They are essential to understand the collected data in a summarized manner.

The distribution can be identified as a summary of the frequency of individual values or ranges of values for a given variable. For instance, to describe the gender distribution of the ESN respondents by listing the percent of males and female as depicted in Figure 4.2. The central tendency is determined as an estimate of the "center" of a distribution of values. This study utilized the main types of estimates of central tendency. Thus, they are namely the Mean, Median and Mode and are listed in Figure 4.12 and in Appendix to gain a summarized understanding of the data. Furthermore, the study incorporated two commonly used measures of dispersion. Thus, the range and the standard deviation to determine the spread of values around the central tendency for more accuracy.

Table 4.12 summarizes the descriptive statistics of all the dependent and independent variables. All the indicator variables are recorded on a 5-point scale. From this tabular representation, it is evident that the mean of all variables is in the range of 3.51 to 3.74.

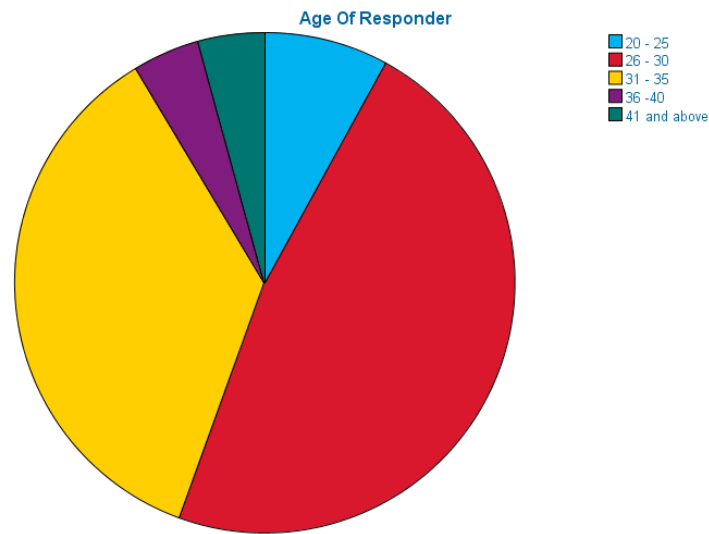
Table 4.12: Descriptive statistics – main research constructs.

	N	Minimum	Maximum	Mean	STD
Organizational culture	162	2.875	4.625	3.74	0.368
Management Style and Leadership	162	2.790	4.222	3.526	0.3492
ESN tool adoption practices	162	3.062	3.821	3.566	0.4109
Employee Performance	162	2.747	4.185	3.512	0.4903
Valid N (list wise)	162				

4.4 Demographic Factor Analysis

This analysis provides an overview of the respondents, also as an insight into other organizational information regarding the ESN tool adoption and their important characteristics of the adopted ESN tools. Following the reliability and validity analysis of the pilot study, the research study questionnaire was distributed to over 250 IT professionals. As of this study compilation time, 162 IT professionals responded to the study. The survey recorded a response rate of 93.10% from responses.

4.4.1 Age Representation



Age of the responder					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	20 - 25	13	8.0	8.0	8.0
	26 - 30	77	47.5	47.5	55.6
	31 - 35	58	35.8	35.8	91.4
	36 -40	7	4.3	4.3	95.7
	41 and above	7	4.3	4.3	100.0
Total		162	100.0	100.0	

Figure 4.1: Age representation.

As depicted in Figure 4.1 represents the age distribution of the respondents. Main proportion of the sample is from 26-30 age category that represents 47.5% whereas 31-35 age category shows 35.8% and rest of the categories hold less the 10% representation. As to the sample data it is more likely that these two age groups mostly represent the ESN tool adoption practices findings and almost 94% of the respondents are below the age of 35 to signify the majority of age representation of this sample data.

4.4.2 Gender Representation

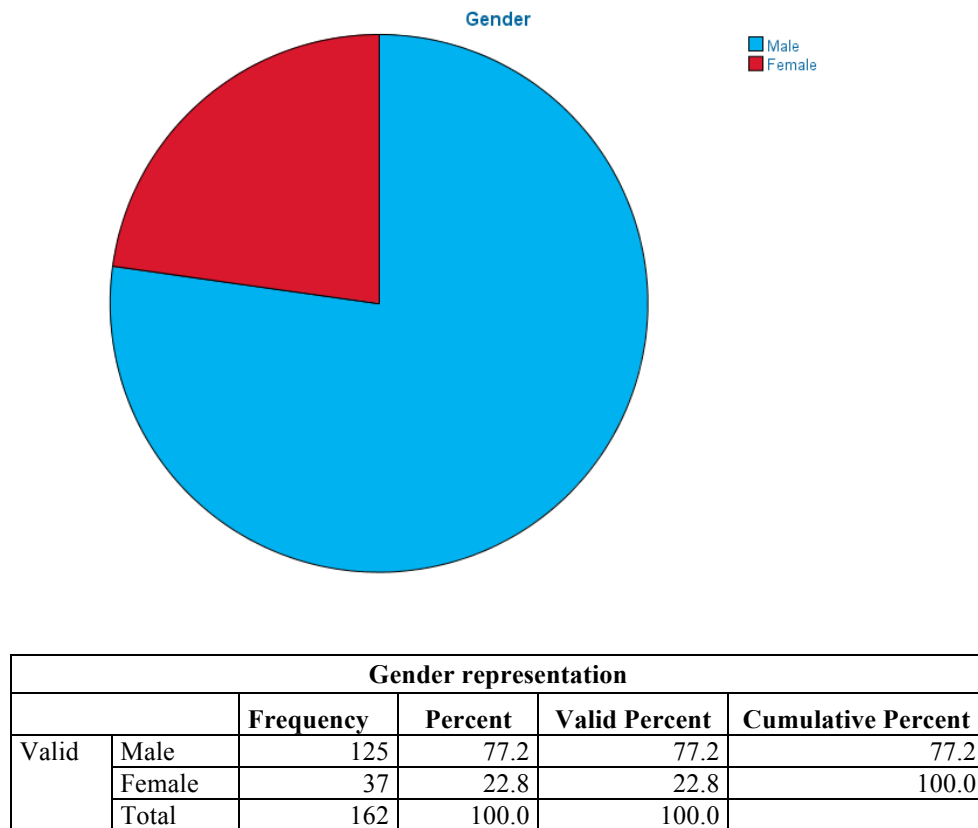


Figure 4.2: Gender representation.

As depicted in Figure 4.2 represents the gender distribution of the respondents. The male dominates the responses with 77.2% whereas female represents 22.8% respectively in the sample. Therefore, it can be deduced this sample data are mainly reflective of the male population which also coincide with the findings of the latest ICTA survey report Thus, the majority of software development companies are found to comprised of male employees (ICTA, 2013).

4.4.3 Primary Job Role

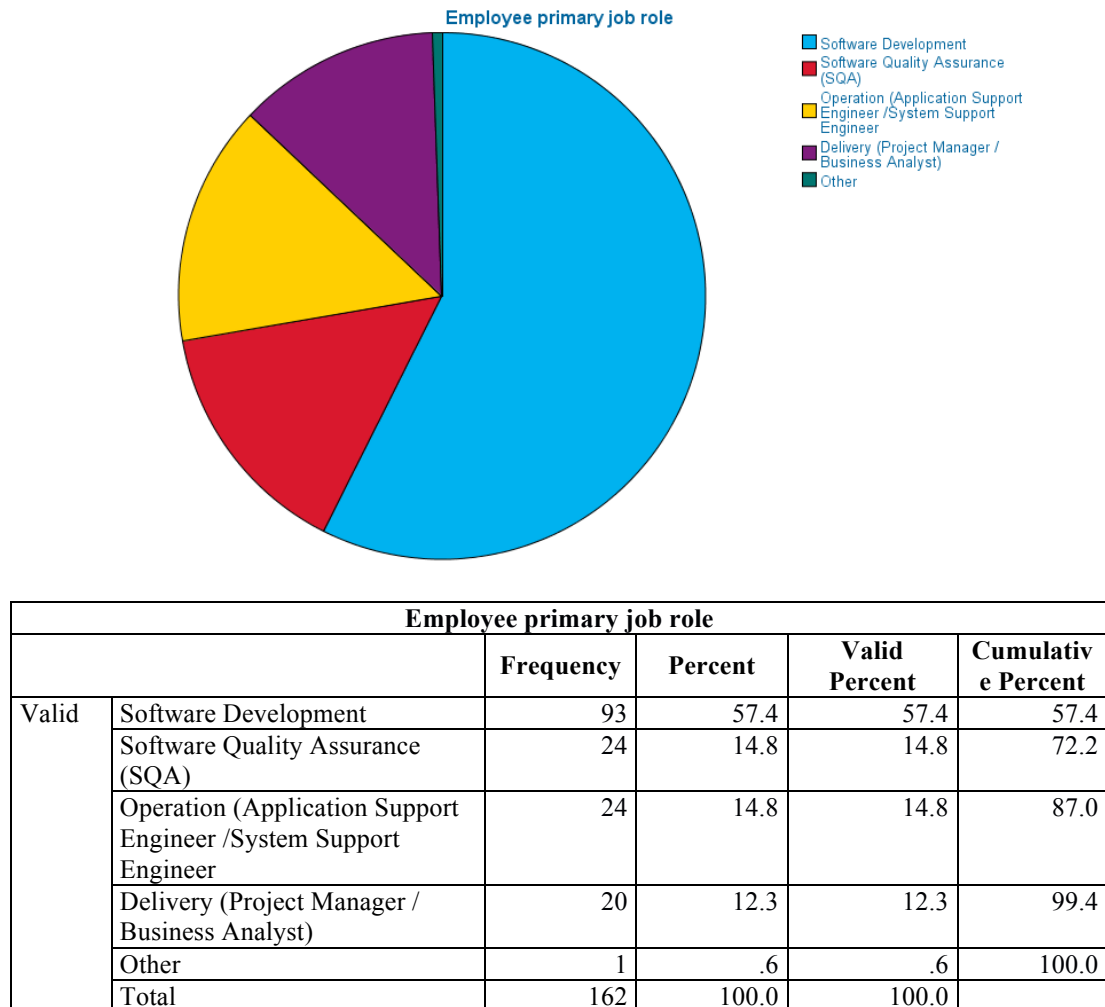


Figure 4.3: Primary job role.

As depicted in Figure 4.3 represents the primary job role distribution of the respondents. Software development role dominates with a 57.4%. Accordingly, software quality assurance and operation represent 14.8% equally. It can be deduced that the findings of this sample data more likely representing the software development professionals of those who make use ESN tools and its adoption practices in their development or technical tasks.

4.4.4 Industry Experience

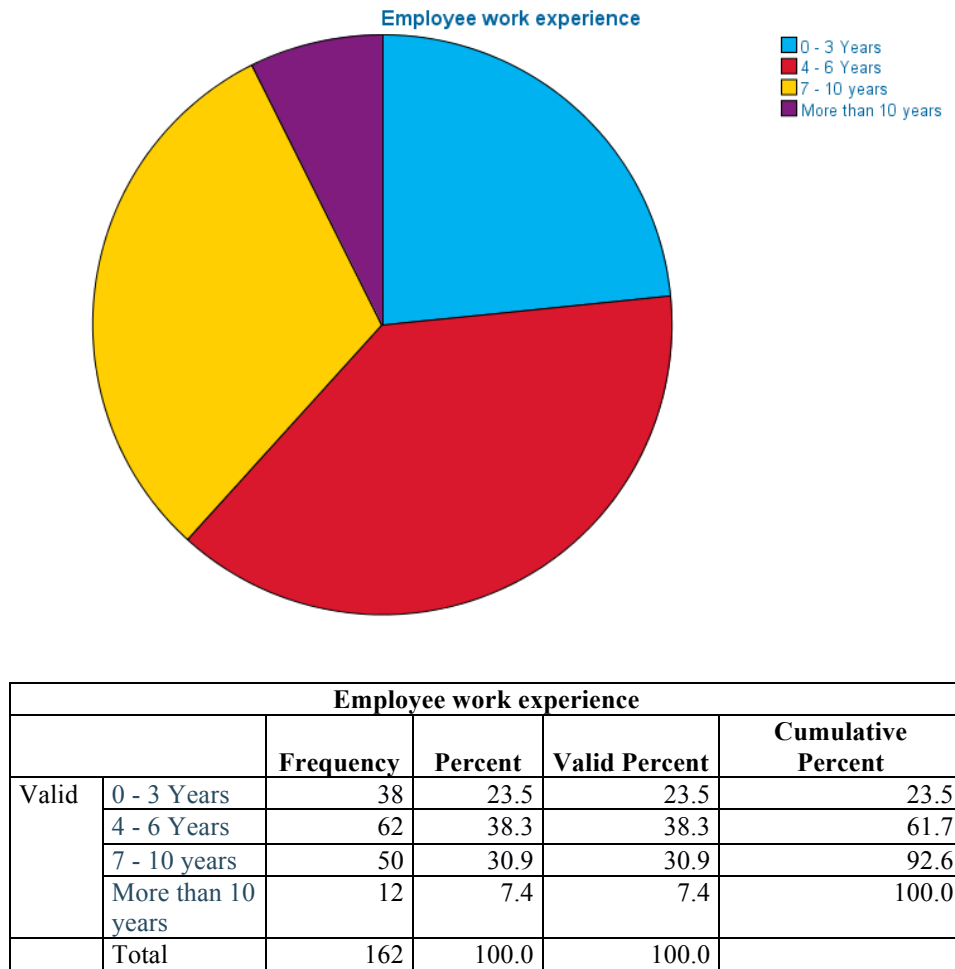


Figure 4.4: Industry experience.

As depicted in Figure 4.4 represents the industry experience distribution of the respondents. Main proportion of the sample is from 4-6-year category that represents 38.5%, whereas 7-10-year category shows 30.9%. Thus, it suggests that this sample data is more presentation of more experienced software professionals who are likely to be more conversant on ESN tools and its adoption practices.

4.4.5 Company Size

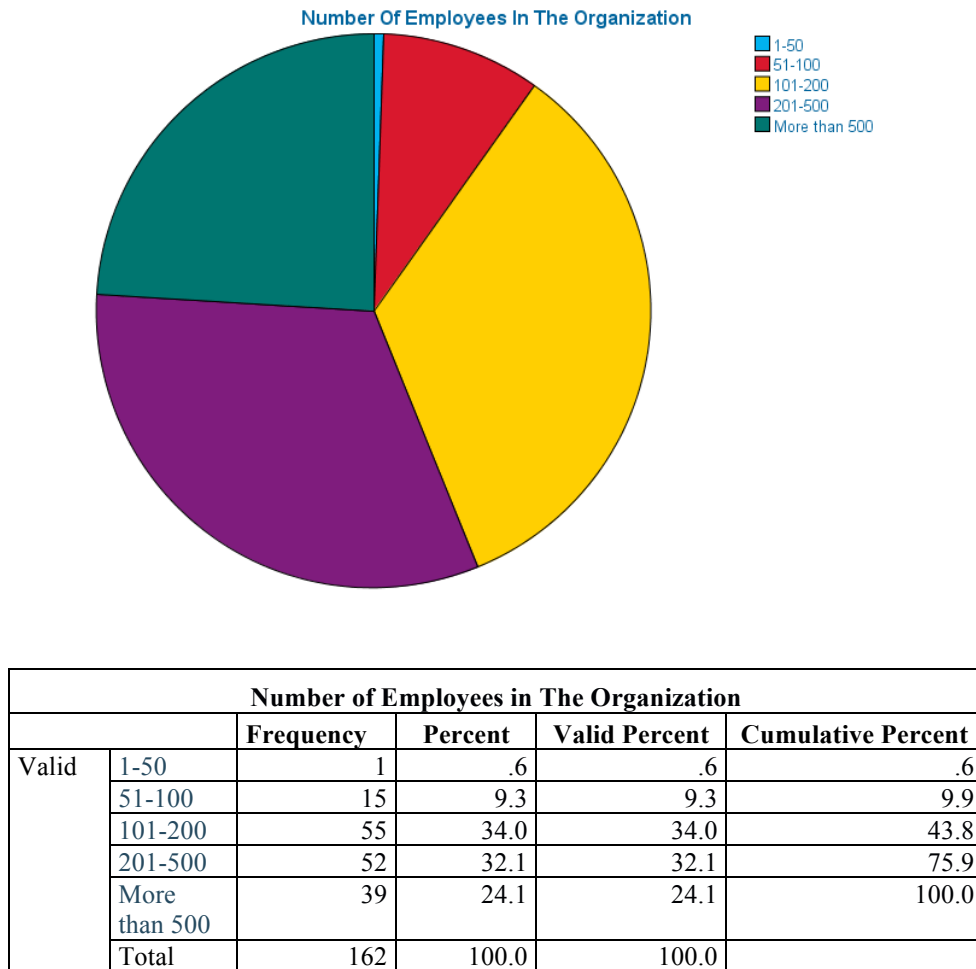


Figure 4.5: Size of the company.

As depicted in Figure 4.5 represents the number of employees in the organization related to sample. Main proportion of the sample comprised of organizations with employee headcount of more 100 to suggest that sample data is representative of medium to large scale organization as to the sources of SLASI, SLASSCOM and ICTA.

4.4.6 Company Ownership

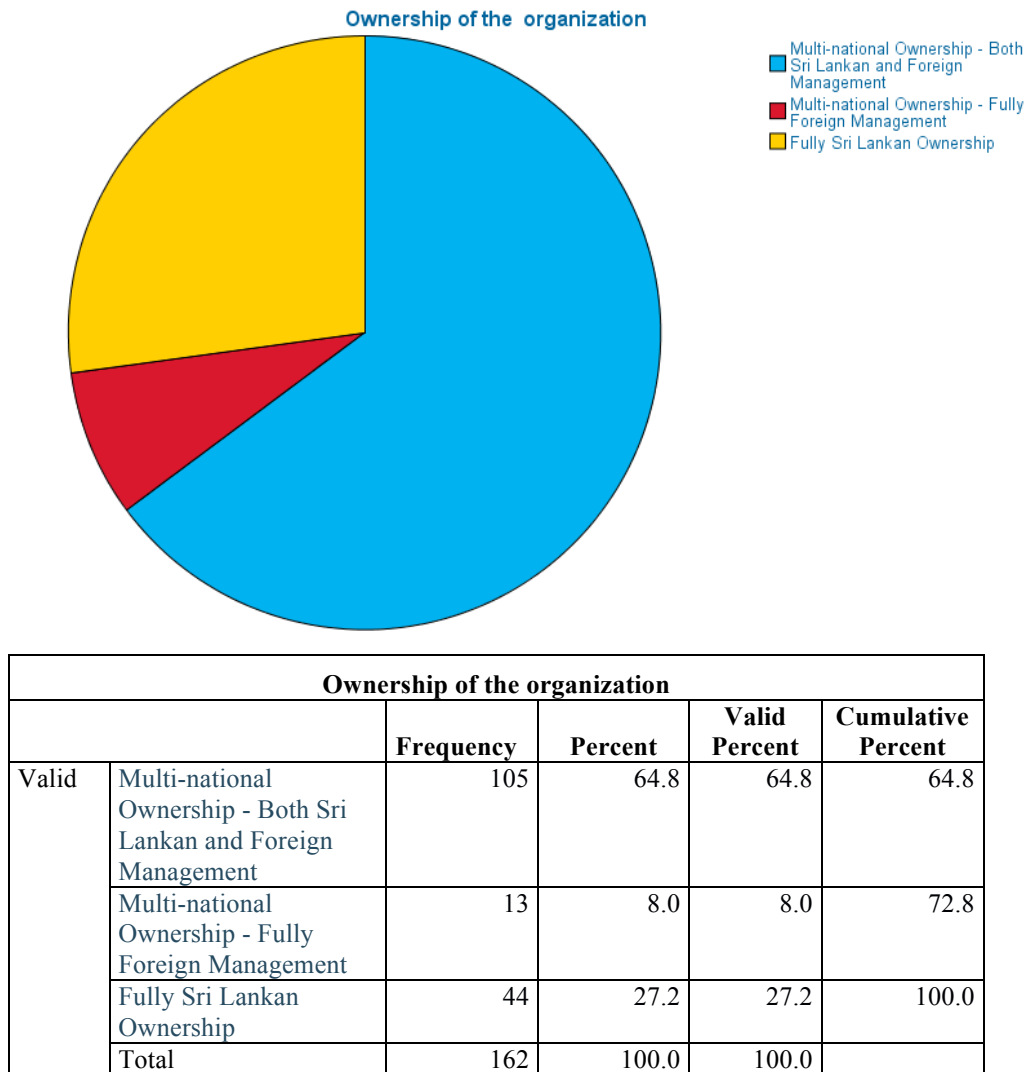


Figure 4.6: Ownership of the company.

As depicted in Figure 4.6 represents the company ownership information. Main proportion of the sample is from multinational ownership (both Sri Lankan and Foreign Management ownership shared) category that represents 64.8%, whereas Fully Sri Lankan ownership 201-500 category shows 27.2%. Therefore, findings suggest the predominant usage of ESN tool adoption practices exists in multinational ownership organizations.

4.4.7 Company Support for ESN Tools Usage

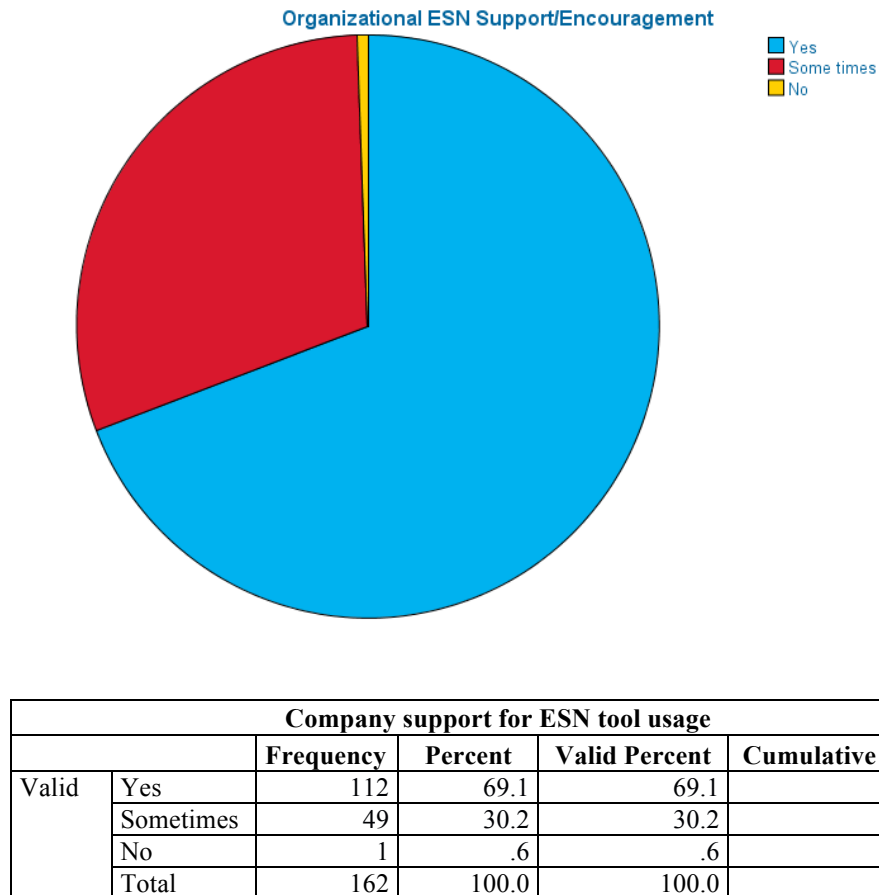


Figure 4.7: Company support for ESN tool usage.

As depicted in Figure 4.7 represents the company support for ESN tool usage. The main proportion of the sample is from Yes and Sometimes category which represented a 99.3% in total sample data. Which suggest the majority of sample data from ESN conducive organizations and positively impact to findings and scope of this study.

4.4.8 Frequency of ESN Tools Usage

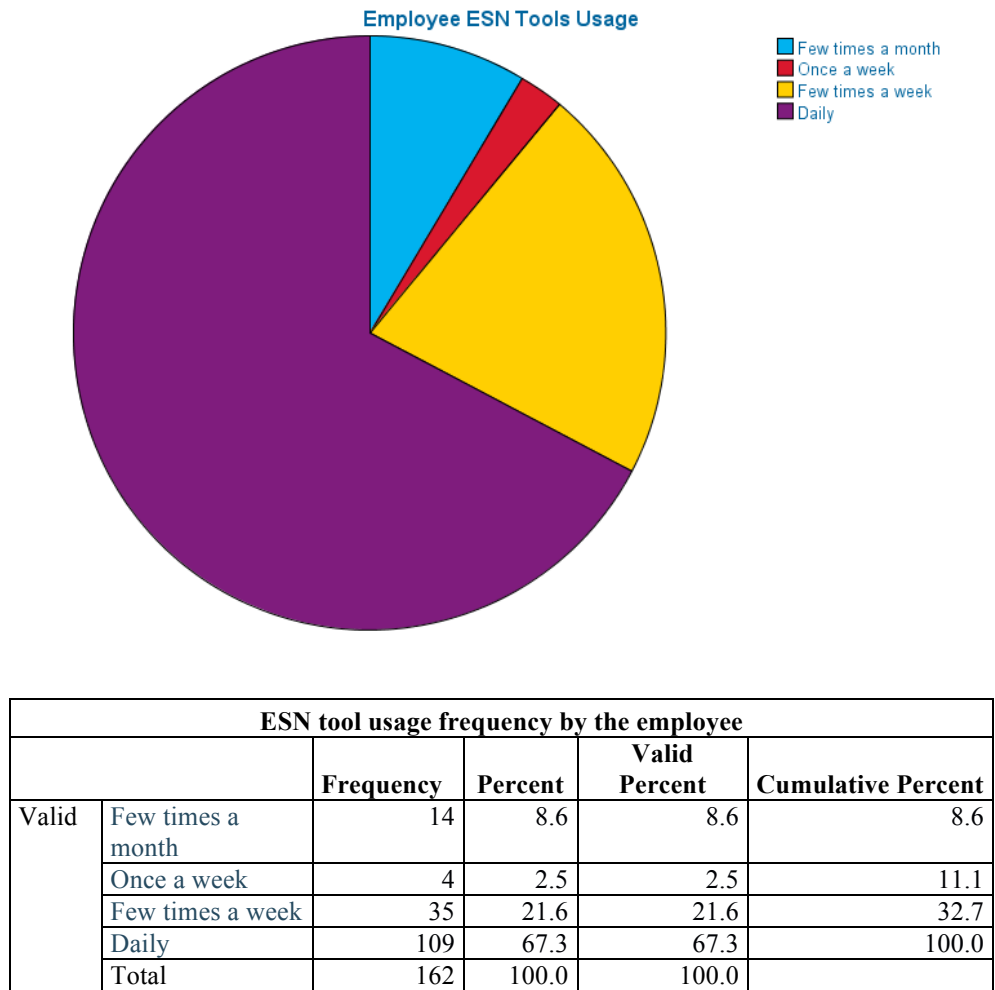


Figure 4.8 Frequency of ESN tool usage

As depicted in Figure 4.8 represents the frequency of ESN tool usage by the employees of this sample. Main proportion of the sample is in Daily category that represents 67.3 %, whereas once a week shows 2.5%. Therefore, the findings suggest a positive usage of ESN within the organization and further help understanding the usage patterns for the management.

4.4.9 Company ESN Tools Usage Period

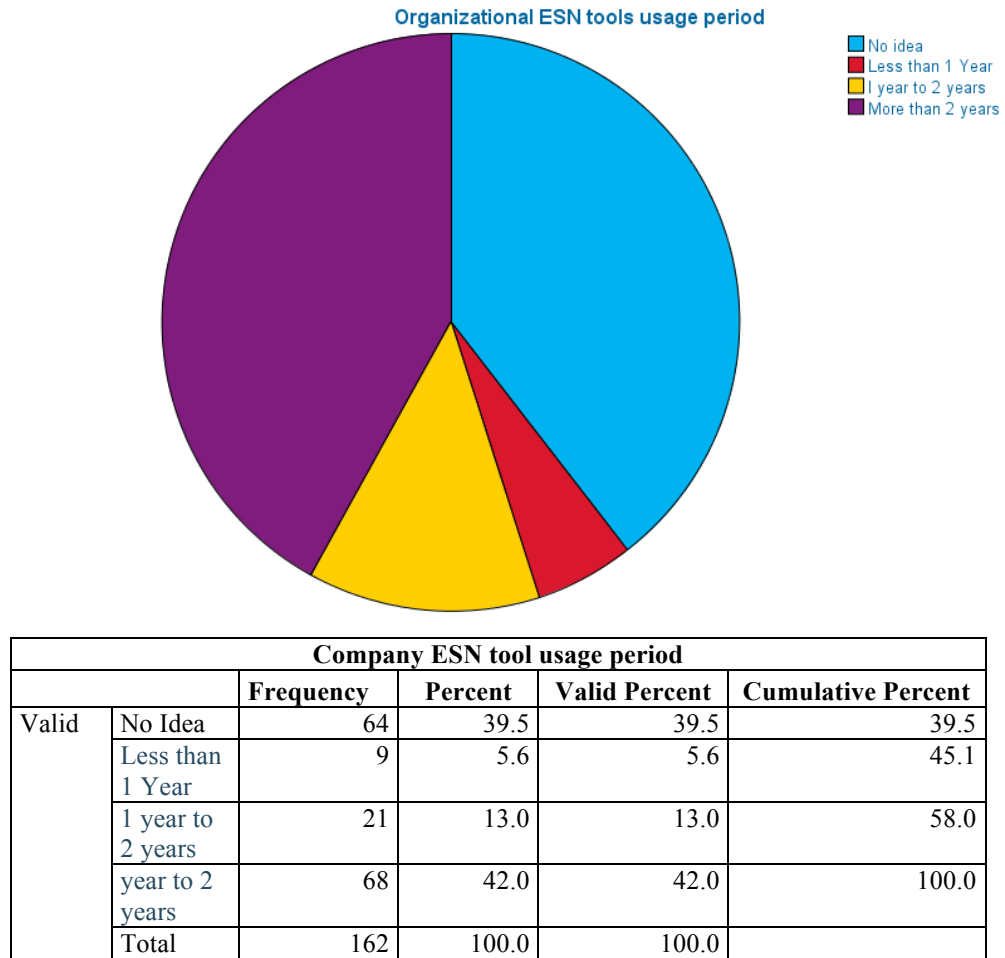


Figure 4.9: Company ESN tool usage period.

As depicted in Figure 4.9 represents the company ESN tool usage period information. Main proportion of the sample is using ESN for more than two years and it consists of 42% also a considerable number of sample is not aware of the organizational ESN tools usage history though they have adopted ESN tools.

4.4.10 ESN Tools Type Usage

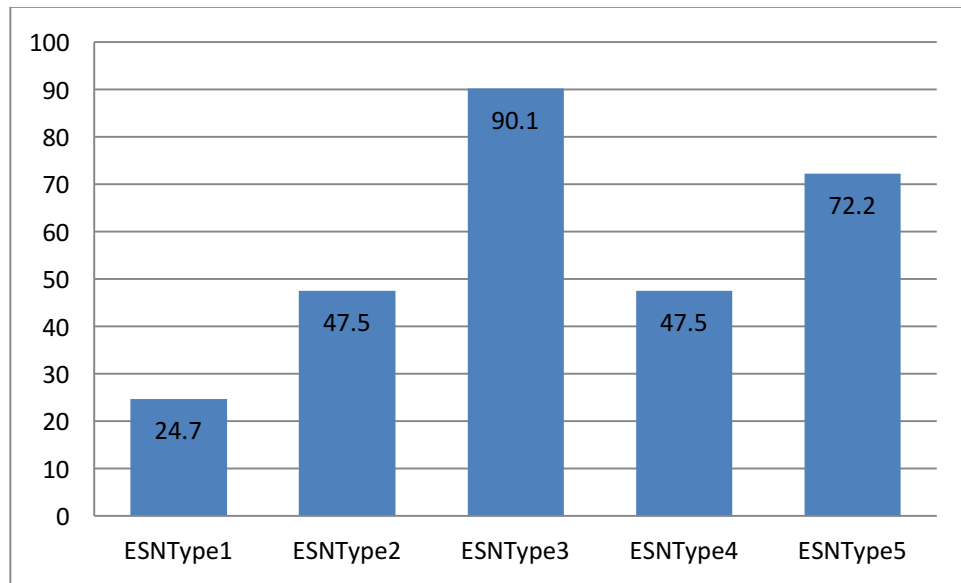


Figure 4.10: ESN tools type usage.

As depicted in Figure 4.10 represents the company ESN tool type frequency information. ESN tool type (X) and percentage (Y). Main proportion of the sample is from ESN Type 3 (Instant messaging and group chat) category represents 90.1 %, whereas ESN Type 1 is about category shows 24.7%. Enterprise microblogging (ESNTYPE1), Mobile apps (ESNTYPE2), Instant messaging and group chat (ESNTYPE3), Blogs, Wikis, and Forums (ESNTYPE4), Video conferencing (ESNTYPE5).

4.5 Inferential Statistical Analysis and Hypotheses Testing

The inferential statistical analysis is performed to understand the relationships between two variables, their differences, and to identify differences in indicators also how several independent variables explain the variances of depended variables (Sekaran, 2013). In this study, the inferential statistical analysis was used to validate the hypotheses and to reach conclusions of the research study.

4.5.1 Testing Normality

Prior to application of inferential statistical analysis on the defined construct, it is a pre-requisite to test the data for the correlations among its variables. Therefore, the researcher employed graphical statistical tools of SPSS v24.0. Hence, its boxplot diagram and normality plot tool used to measure whether the data are symmetric or not to have an understanding of the normality of data.

As to the SPSS generated boxplot and normality plot outputs, that are depicted orderly in *Figure 4.11*, *Figure 4.12*, *Figure 4.13*, *Figure 4.14*, *Figure 4.15*, *Figure 4.16*, *Figure 4.17* and *Figure 4.18* are having minimal outliers. Most importantly they are distributed symmetrically and found within the normal distribution (see Appendix).

4.5.2 Testing Hypotheses

Following the acceptance of reliability and validity of measures together with their successful result of normality testing, the hypothesis testing was carried out using the derived dependent, independent and moderate variables.

Hypothesis testing primarily yields possible rejection or acceptance to address the research problem or the stated objectives. It was identified that all variables are normally distributed and employed the significance level to validate the construct which is below the value of 0.05. Because of that, Pearson's correlation was used to infer a relationship between variables. Prior to application of Pearson correlation, the researcher also tested the scatter plot diagram to represent the relationship graphically between dependent and independent variables. Besides descriptive statistics researcher assessed the correlation among main construct of the research by using Pearson correlation analysis. Inter-functional correlation is measured to indicate the relationship between variables. The measurement is used to evaluate the direction and strength of the dependent, independent and moderate variables.

Testing Hypothesis I

Prior to testing hypothesis 1 (see Section 3. 3), it was necessary to understand the linear relationship among the related constructs. Scatterplot in *Figure 4.19* depicts the linear relationship between dependent and independent variable, namely ESN tool adoption

practices (X) and employee performance (Y). It can be seen that majority of sample data are scattered closely and shows a positive linear relationship between ESN tool adoption practices and employee performance. As per Table 4.13, the correlation coefficient is 0.67 indicating positive correlation coefficient at 99% confidence level between the two variables. Therefore, the researcher can reject null hypothesis H01 and accept H11 which means the impact of ESN tool adoption practices has positively impacted and increased the employee performance.

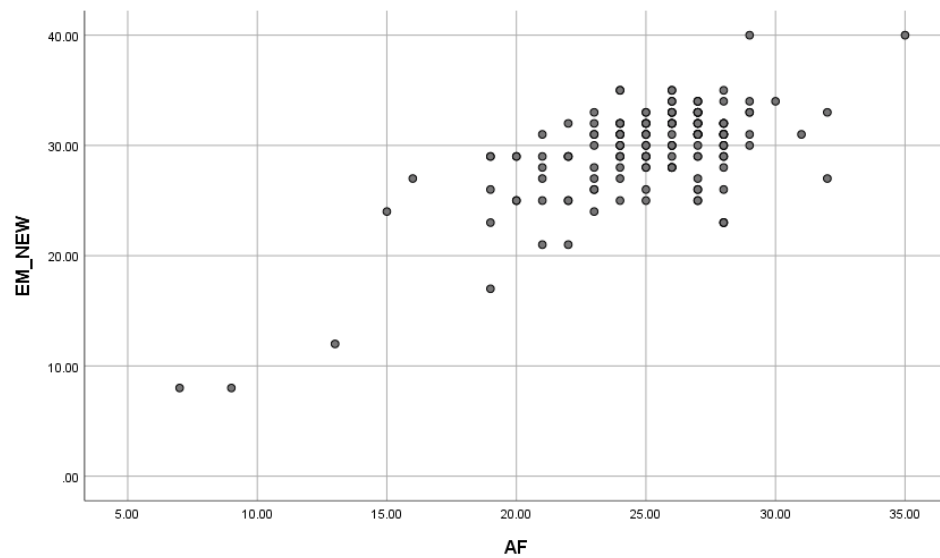


Figure 4.19: Scatter plot – Association between ESN tool adoption practices and employee performance.

Table 4.13: Pearson correlation – Association between ESN tool adoption practices and employee performance.

Correlations			
		EP	AP
EP	Pearson Correlation	1	.670**
	Sig. (2-tailed)		.000
	N	162	162
AP	Pearson Correlation	.670**	1
	Sig. (2-tailed)	.000	
	N	162	162

**. Correlation is significant at the 0.01 level (2-tailed).

Analysis of Variance (ANOVA) is a parametric statistical technique used to compare datasets derived from population distribution. This technique was coined by R.A. Fisher and is also known as Fisher's ANOVA.

Table 4.14 lists ANOVA output, which is used to identify the statistical significance of the regression model of employee performance and practices of ESN tool adoption.

Table 4.14: ANOVA Output – Association between ESN tool adoption practices and employee performance.

ANOVA ^b					
Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	1514.505	8	189.313	18.909	.000 ^a
Residual	1531.766	153	10.012		
Total	3046.272	161			

a. Predictors: (Constant), AP8, AP4, AP1, AP3, AP5, AP6, AP7, AP2

b. Dependent Variable: EP

Multiple linear regression analysis was then conducted as per the advanced analysis method. Table 4.15 lists the summary regression model when all independent variables are simultaneously influence the dependent variable. The Adjusted R square value is 0.471, which means 47.1 of the variation or representation of employee performance is explained by independent factors.

Table 4.15: Model Summary – Association between ESN tool adoption practices and employee performance.

Model Summary				
Model	R	R Square	Adjusted R Square	Std. The error of the Estimate
1	.705 ^a	.497	.471	3.16410

a. Predictors: (Constant), AP8, AP4, AP1, AP3, AP5, AP6, AP7, AP2

Coefficient values in Table 4.16 show the Beta value for all the independent variables that are used to construct the regression equation. The constant Beta of the model is 9.017. It is noted that four variables can be accepted at 95% confidence level ($p < 0.050$). Hence, it can be deduced that the model having a significant relationship regarding to ESN tool adoption practices. Therefore, Workflow alignment (AP1), Ability to collect metrics(AP3), Solicit feedback (AP4) and Communication strategy (AP7) represent much of the relationship.

Table 4.16: Coefficients – Association between ESN tool adoption practices and employee performance.

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	9.017	1.869		4.825	.000
AP1	1.183	.516	.192	2.291	.023
AP2	-.027	.499	-.005	-.053	.958
AP3	.966	.410	.167	2.358	.020
AP4	1.837	.463	.290	3.964	.000
AP5	-.585	.447	-.098	-1.311	.192
AP6	.430	.443	.079	.970	.334
AP7	1.472	.507	.249	2.905	.004
AP8	.515	.384	.092	1.343	.181

a. Dependent Variable: EP

Based on the output generated from the advanced analysis, the following linear regression equation can be developed. Notations used for the equations are given in Table 4.17.

$$\text{Improvement of Employee Performance} = 9.017 + 1.183(\text{AP1}) + .966 (\text{AP3}) + 1.183(\text{AP4}) + 1.472 (\text{AP7})$$

This linear model represents the linear relationship between employee performance and ESN tool adoption practices. Whenever a company needs to improve the performance of employee, they can get an idea such as what are the practices to

consider adopting with regards to ESN tools. Moreover, the model shows the performance of the employee can be improved with respects to increase in communication strategy than the ability to collect metrics. Hence, the management is advised to consider means and ways of increasing organizational communication aspects.

Table 4.17: Notations of research variables.

Notation	Description
EP	Employee Performance
EP1	Better Decision Control
EP2	Knowledge Reinforcement
EP3	Additional Task overhead
EP4	Dependence
EP5	Better Time Management.
EP6	Better Productivity Management
EP7	Reputation Enhancement
EP8	Confidence of Contribution
EP9	Stress Control
EP10	Indirect Benefits
AP	Adoption Practices
AP1	Workflow Alignment
AP2	Strategic Alignment
AP3	Ability to Collect Metrics
AP4	Solicit Feedback
AP5	Endorsed Tools and Techniques
AP6	Integration and User Accessibility
AP7	Communication strategy
AP8	Security and Privacy Aspects
OC	Organizational Culture
OC1	Engagement
OC2	Information Sharing
OC3	Involvement
OC4	Empowerment
OC5	Team Building Effort
OC6	Team Environment
OC7	Capability Development
OC8	Skills Development
MSL	Management Style and Leadership
MSL1	Support and Encouragement
MSL2	Leadership Style
MSL3	Top/Senior Mgmt. Mediation
MSL4	Resource Support
MSL5	Awareness Programs and Training
MSL6	Top/Senior Mgmt. Enforcement
MSL7	User Suggestion Incorporation
MSL8	Rewarding Initiatives

Testing Hypothesis 2

Prior to testing hypothesis 2 (see Section 3.3), It is necessary to understand the linear relationships from the moderator variable to each of the main relationship constructs.

Therefore, steps performed to understand the linear relationship between management style, leadership, and employee performance thereafter the linear relationship between management style, leadership and ESN tool adoption practices considered.

The first researcher took steps to ensure following relationship significant and its multiple regression analysis to identify each of construct's representations. Therefore, following sub-hypothesis were defined to understand above relationship:

Hypothesis 2.1: Management style and leadership would impact on the performance of the employee.

H01: There is no relationship between Management style, leadership, and performance of the employee.

H11: There is a relationship between Management style, leadership, and performance of the employee.

Scatterplot in Figure 4.20 shows a linear relationship between management style, leadership (X) and employee performance (Y). The correlation of the hypothesis testing is shown in the Table 4.18, where there is a 0.444 positive average correlation coefficient at 99% confidence level between two variables. Therefore, null hypothesis H01 can be rejected and accept H1 which means the impact of management style; leadership has positively impacted and increased the employee performance can be accepted.

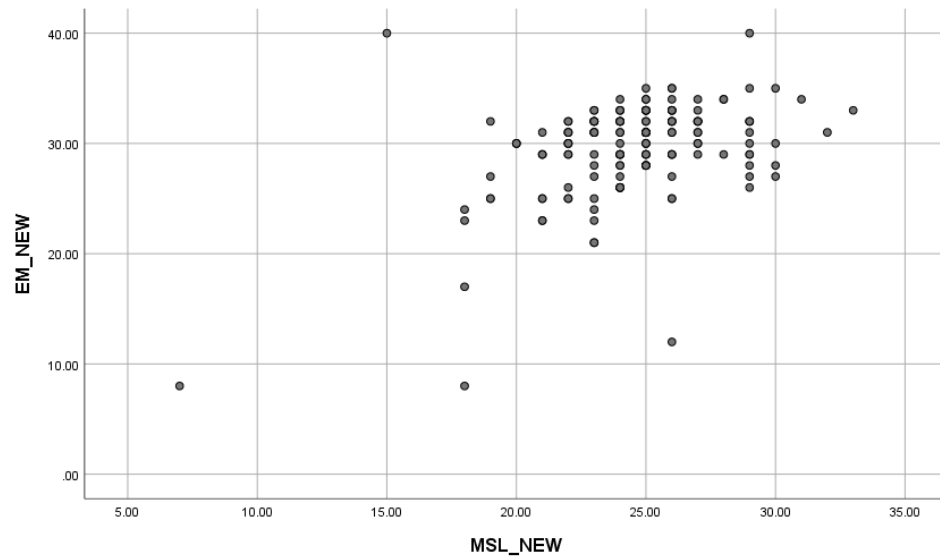


Figure 4.20: Scatter plot – Association between management style, leadership, and employee performance.

Table 4.18: Pearson correlation – Association between management style, leadership and Employee performance.

Correlations		MSL_NEW	EM_NEW
MSL	Pearson Correlation	1	.444**
	Sig. (2-tailed)		.000
	N	162	162
EP	Pearson Correlation	.444**	1
	Sig. (2-tailed)	.000	
	N	162	162

** . Correlation is significant at the 0.01 level (2-tailed).

Multiple linear regression analysis was then conducted as per the advanced analysis method. Table 4.19 lists ANOVA output which is used to identify the statistical significance of the regression model of employee performance and management style and leadership.

Table 4.19: ANOVA output – Association between management style, leadership and employee performance.

ANOVA ^b					
Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	822.264	7	117.466	8.134	.000 ^a
Residual	2224.008	154	14.442		
Total	3046.272	161			

a. Predictors: (Constant), MSL8, MSL2, MSL3, MSL6, MSL5, MSL7, MSL1

b. Dependent Variable: EP

Table 4.20 lists the summary regression model when all independent variables are simultaneously influence the dependent variable. The adjusted R square value is 0.237, which means 23.7 of the variation in employee performance explained by independent factors.

Table 4.20: Model Summary – Association between management style, leadership and employee performance

Model Summary				
Model	R	R Square	Adjusted R Square	Std. The error of the Estimate
1	.520 ^a	.270	.237	3.80021

a. Predictors: (Constant), MSL8, MSL2, MSL3, MSL6, MSL5, MSL7, MSL1

Coefficient values in Table 4.21 show the Beta value for all the independent variables that are used to construct the regression equation. The constant Beta of the model is 14.142. It is noted that three sub-variables can be accepted at 95% confidence level ($p < 0.050$). Hence, it can be deuced that model having a significant relationship with regards to following management style and leadership items. Empowerment (MSL5) and Skills development (MSL6), User suggestion incorporation (MSL7).

Table 4.21: Coefficients – Association between management style, leadership and employee performance.

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta		
1	(Constant)	14.142	2.441		5.794	.000
	MSL1	1.226	.626	.172	1.959	.052
	MSL2	.121	.511	.020	.236	.814
	MSL3	.316	.471	.054	.670	.504
	MSL5	-.906	.453	-.162	-1.998	.048
	MSL6	1.015	.486	.170	2.086	.039
	MSL7	1.685	.537	.274	3.137	.002
	MSL8	.798	.451	.142	1.769	.079

a. Dependent Variable: EP

As per the result of the advance analysis, the following linear regression equation can be developed. See Table 4.17 for used notations.

$$\text{Improvement of employee performance through management style and leadership} = 14.142 - 0.906 (\text{MSL5}) + 1.015(\text{MSL6}) + 1.685(\text{MSL7})$$

If a company needs to improve the performance of employee, they can get an idea about the practices to consider with regards to management style and leadership. From above model researcher identified MSL5, MSL6 and MSL7 to represent the linear relationship. Subsequently, the researcher had to identify the linear relationship of ESN tool adoption practices and management style, leadership.

Hypothesis 2.2: Management style and leadership would impact on ESN tool adoption practices.

H0: There is no relationship between Management style, leadership and ESN tool adoption practices.

H1: There is a relationship between Management style and leadership and ESN tool adoption practices.

Scatterplot in Figure 4.22 diagram depicts the linear relationship between management and leadership style (X) and ESN tool adoption practices (Y). There is a positive linear relationship between management style and leadership and ESN tool adoption practices. The correlation of the hypothesis testing is shown in Table 4.22. There is a positive, strong correlation coefficient of 0.461 at 99% confidence level between two variables. Therefore, the researcher can reject null hypothesis H0 and accept H1. which means the impact of management style, leadership has positively impacted, and increase in the ESN tool adoption practices can be accepted.

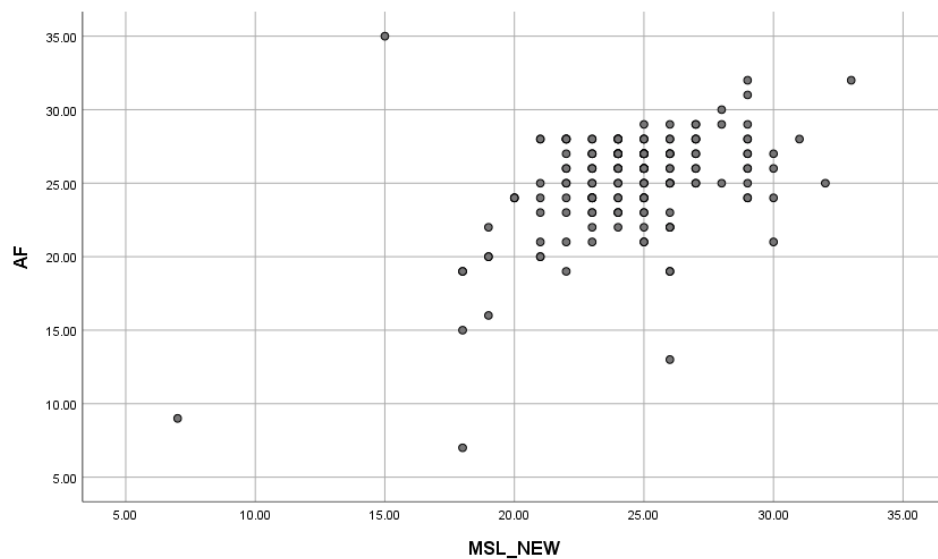


Figure 4.21: Scatter plot – Association between management style, leadership and ESN tool adoption practices.

Table 4.22: Pearson correlation – Association between management style, leadership and ESN tool adoption practices.

Correlations		AF	MSL_NEW
AP	Pearson Correlation	1	.461**
	Sig. (2-tailed)		.000
	N	162	162
MSL_NEW	Pearson Correlation	.461**	1
	Sig. (2-tailed)	.000	
	N	162	162

** . Correlation is significant at the 0.01 level (2-tailed).

Multiple linear regression analysis was then conducted as per the advanced analysis method. Table 4.23 lists ANOVA output which is used to identify the statistical significance of the regression model of management style, leadership and ESN tool adoption practices.

Table 4.23: ANOVA Output – Association between management style, leadership and ESN tool adoption practices.

ANOVA ^b						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	530.980	7	75.854	7.389	.000 ^a
	Residual	1580.977	154	10.266		
	Total	2111.957	161			

a. Predictors: (Constant), MSL8, MSL2, MSL3, MSL6, MSL5, MSL7, MSL1

b. Dependent Variable: AP

Table 4.24 depicts the summary regression model when all independent variables are simultaneously influence the dependent variable. The adjusted R square value is 0.217 which means 21.7 of the variation in quality is explained by independent factors.

Table 4.24: Model summary output – Association between management style, leadership and ESN tool adoption practices.

Model Summary				
Model	R	R Square	Adjusted R Square	Std. The error of the Estimate
1	.501 ^a	.251	.217	3.20407

a. Predictors: (Constant), MSL8, MSL2, MSL3, MSL6, MSL5, MSL7, MSL1

Coefficient values in Table 4.25 show the Beta value for all the independent variables that are used to construct the regression equation. The constant Beta of the model is 22.015. It is noted that three sub-variables can be accepted at 95% confidence level ($p < 0.050$). Hence, it can be deduced that model having a significant relationship with regards to following management style and leadership items. top/senior management enforcement (MSL6).

Table 4.25: Coefficients – Association between management style, leadership and ESN tool adoption practices.

Coefficients ^a					
Model		Unstandardized Coefficients		Standardized Coefficients	
		B	Std. Error	Beta	
1	(Constant)	11.609	2.058		5.642
	MSL1	.841	.527	.142	1.594
	MSL2	.538	.430	.107	1.249
	MSL3	.349	.397	.071	.879
	MSL5	-.397	.382	-.085	-1.039
	MSL6	.981	.410	.197	2.391
	MSL7	.718	.453	.140	1.585
	MSL8	.686	.380	.147	1.803

a. Dependent Variable: AP

As the result of the advanced analysis, the following linear regression equation can be developed:

$$\text{Improvement of ESN tool adoption practices through management style and leadership} = 11.609 + .981(\text{MSL6})$$

If a company needs to improve the ESN tool adoption practices, they can get an idea of the practices to consider with regards to management style and leadership. From above model, researcher has identified MSL6 to represent the linear relationship.

Based on the following equations and outputs, the researcher has taken steps to identify common variables of following two linear equations hence top/senior management enforcement (MSL6) to represent the both of the relationships.

$$\text{Improvement of employee performance through management style and leadership} = 14.142 - 0.906 (\text{MSL5}) + 1.015(\text{MSL6}) + 1.685(\text{MSL7})$$

$$\text{Improvement of adoption practices through management style and leadership} = 11.609 + .981(\text{MSL6})$$

Moderator Analysis of Management style and leadership

Followed by the understanding of the linear relationships from moderator variable to each of the main relationship constructs. Subsequently, this study analyzed the moderating effect of the management style and leadership to the main relationship by forming a multiple regression model as follows:

A new variable (dummy variable) or interaction term labeled as MSL_MOD was created. Hence, multiplying with independent variable (ESN Tool adoption practices). Thereafter, all variables (dummy variable, independent variable, and depended were fed into multiple regression model. The coefficient value for dummy variable denotes the extent of the coefficient for the relationship between dependent and independent changes for each unit of the moderate variable. The researcher adopted the stepwise method of SPSS when generating the model output.

As table 4.26 explains, management style and leadership found to be the significant factor that determines the main relationship.

Table 4.26: Model summary for moderating effect of management style and leadership.

Variables Entered/Removed			
Model	Variables Entered	Variables Removed	Method
1	AP	.	Stepwise (Criteria: Probability-of-F-to-enter \leq .050, Probability-of-F-to-remove \geq .100).
2	MSL	.	Stepwise (Criteria: Probability-of-F-to-enter \leq .050, Probability-of-F-to-remove \geq .100).
3	MSL_MOD	.	Stepwise (Criteria: Probability-of-F-to-enter \leq .050, Probability-of-F-to-remove \geq .100).

a. Dependent Variable: EP

Table 4.27: Coefficient summary for moderating effect of management style and leadership.

Coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	9.429	1.786		5.281	.000
	AP	.805	.070	.670	11.423	.000
2	(Constant)	6.154	2.150		2.863	.005
	AP	.710	.078	.591	9.109	.000
	MSL	.231	.088	.171	2.634	.009
3	(Constant)	-11.333	5.600		-2.024	.045
	AP	1.465	.237	1.220	6.188	.000
	MSL	1.074	.265	.795	4.059	.000

	MSL_MO	-.036	.011	-1.087	-3.364	.001
	D					

a. Dependent Variable: EP

Moderate variable found as statistically significant when accepted at 95% confidence level ($p < 0.050$). It can be, therefore, said that there is a significant moderating effect of the management style and leadership on the relationship between independent variables and dependent variable.

Accordingly, Hypothesis 2: management style and leadership moderate the relationship between ESN tool adoption practices and employee performance was identified and proven.

Testing Hypothesis 3

Prior to testing hypothesis 3 (see Section 3. 3), It is necessary to understand the linear relationships from moderator variable to each of the main relationship constructs. Initially to understand the linear relationship between organizational culture and employee performance thereafter the linear relationship between organizational culture and ESN tool adoption practices.

Initially, the researcher took steps to ensure following relationship significant and its multiple regression analysis to identify each of construct's representations. Therefore, following sub-hypothesis defined to understand above relationship:

Hypothesis 3.1: Organizational culture would impact on the performance of the employee.

H0: There is no relationship between organizational culture and performance of the employee.

H1: There is a relationship between organizational culture and performance of the employee.

Scatterplot diagram in Figure 4.22 depicts the linear relationship between organizational culture (X) and performance of the employee (Y). It can be seen that

data are not scattered to represent the linear relationship positively. As per Table 4.28, the correlation coefficient There is a 0.233 at 99% confidence level. Hence, it is not a significant value to consider having a correlation among variables. Therefore, the researcher cannot reject the null hypothesis and accept H1 which means there is no relationship between organizational culture and performance of the employee.

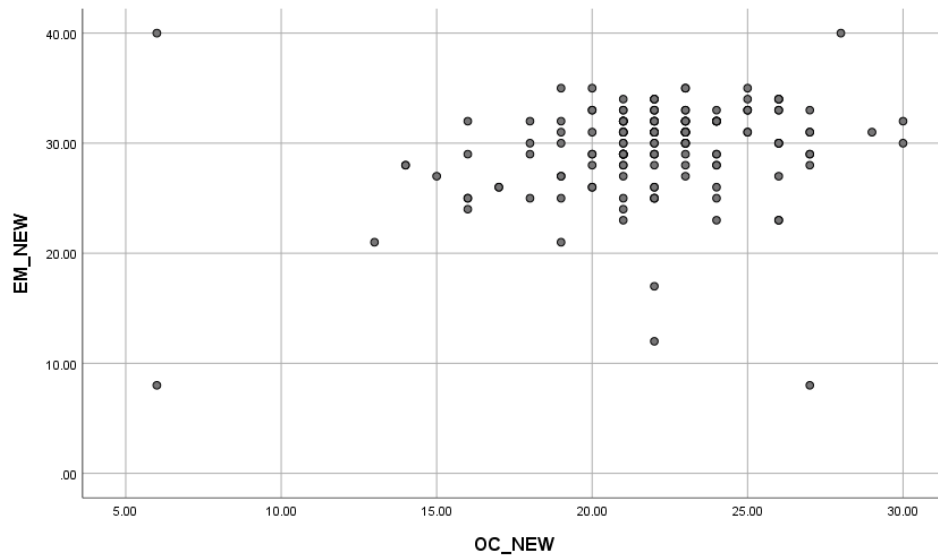


Figure 4.22: Scatter plot – Association between organizational culture and employee performance.

Table 4.28: Pearson correlation – Association between organizational culture and employee performance.

Correlations		EP	OC
EP	Pearson Correlation	1	.233**
	Sig. (2-tailed)		.003
	N	162	162
OC	Pearson Correlation	.233**	1
	Sig. (2-tailed)	.003	
	N	162	162

** . Correlation is significant at the 0.01 level (2-tailed).

Moderator Analysis of Organizational culture

Similar to previous multiple regression model, the researcher adopted the same steps when understanding the moderating impact of organizational culture

Table 4.29: Model summary for moderating effect of organizational culture

Variables Entered/Removed			
Model	Variables Entered	Variables Removed	Method
1	AP		Stepwise (Criteria: Probability-of-F-to-enter <= .050, Probability-of-F-to-remove >= .100).

a. Dependent Variable: EP

Table 4.30: Coefficient summary for moderating effect of organizational culture

Coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	9.429	1.786		5.281	.000
	AP	.805	.070	.670	11.423	.000

a. Dependent Variable: EP

Consequently, as to generated output, it was found that no significant impact from the organizational culture. Thus, it can be deduced that the organizational culture would not moderate the relationship between ESN tool adoption practices and employee performance.

4.5.3 Correlation Analysis Summary

Table 4.27 presents a summary of the correlations and the results of hypotheses testing. Which involved the testing of relationships between all the dependent, independent and moderator variables. As to the output they are positively correlated at 99% confident interval.

Table 4.31: Hypothesis testing summary.

No	Hypothesis	Null hypothesis	Alternative Hypothesis	Degree of Relationship
1.	Employee performance impact ESN tool adoption practices	Rejected	Not rejected	Moderate and significant
2.	Moderate relationship of management style and leadership on ESN tool adoption practices and employee performance	Rejected	Not rejected	Moderate and significant
3.	Moderate relationship of organizational culture on ESN tool adoption practices and employee performance.	Not rejected	Rejected	Not significant

4.6 Summary

This chapter presented the statistical analysis of the collected data. Upon establishment of the face validity of the measures, reliability was ensured through Cronbach's alpha whereas validity was verified with test results of PCA. This study accommodated necessary adjustments in each of the statistical tests to comply with the statistical guidelines. Thereafter, results of descriptive statistics and demographic factor analysis are presented. Finally, the testing results of normality test data, hypotheses testing, and regression analysis are explained with the outputs of advanced analysis. Study output findings are also correlated with literature review findings Wilkins and Baker (2011) and Gartner (2013).

CHAPTER 5: CONCLUSIONS AND RECOMMENDATIONS

The main objective of this chapter is to present a summary of the outcomes drawn from the research study. Hence, its implications for the organizations are elaborated in Section 5.1, which discusses the managerial implications succinctly. It also includes subsections like the goodness of data and the degree of relationship to describe the reliability and the extent of representation of the developed constructs. Which is followed by the identified recommendations. Limitations of the study are presented in Section 5.2. Lastly, researcher's prospective future research directions and conclusions are mentioned in Section 5.3 and Section 5.4 respectively.

5.1 Discussion and Managerial Implications

The main objective of this study is to analyze the relationship between dependent and independent variables along with the moderating relationships of the conceptual model to address the research objectives. The first objective was to analyze whether the software development organizations consider their ESN tool adoption practices to gain improved employee performance. Which was accomplished by identifying and elaborating useful statistics through demographic factor analysis with the backing of the descriptive analysis. Relevant data were collected through the structured questionnaire; further respective data were validated through formal and informal sources of respective companies. After that, the purified sample data have undergone in the process of statistical validation and analysis. Based on the findings organizations could make corrective measures or to get insights into their ESN tool adoption practices.

Afterward, to accomplish other research objectives, the researcher analyzed the collected data further and proved that there is a positive relationship between ESN tool adoption practices and employee performance. Therefore, it is significant to consider ESN tool adoption practices for realizing the enhanced employee performance within the organization. During multiple regression analysis, it was revealed that ESN tool adoption practices like workflow alignment (AP1), ability to collect metrics (AP3),

solicit feedback (AP4) communication strategy (AP7) have a positive impact on employee performance.

It is also significant to consider the moderating impact of management style and leadership to have an enhanced employee performance with regard to ESN tool adoption practices. As purified sample data with advanced analysis had proven the supportive conditions of the moderate variable on the main relationship. Top/senior management enforcement (MSL6) from management style and leadership signify most of the relationship to the main construct.

In overall, the output of this research will benefit existing and prospective software development companies in Sri Lanka to take prudent decisions on how to adopt effective ESN tool practices while considering supportive conditions to gain maximum benefit for enhancing the employee performance.

5.1.1 Goodness of the Data

Initially, the researcher analyzed related studies on ESN, and its tool adoption practices about employee performance. Based on literature review and information gathered from formal and informal sources stated earlier, the conceptual model in Figure 3.1 was constructed. The model comprised of dependent (employee performance), independent (ESN tool adoption practices) and two moderating variables (organizational culture and management style and leadership). Lastly, all the variables further segregated into sub-variables.

The researcher designed the preliminary questionnaire based on the conceptual model, and it was verified by conducting pilot survey study. After that, performed its reliability and validity testing for the purification. According to Sekaran et al. (2003) the goodness of the data can be measured using reliability and validity tests on the collected data. The researcher grounded the questionnaire on the literature inputs and suggestions from IT professionals, industry experts and from the research supervisor.

According to the sources of SLASI, SLASSCOM and ICTA, a vast number of IT professionals are scattered around in small, medium and large companies in Sri Lanka.

However, there were limitations and constraints to identify the exact number of individuals to determine the sample population. Consequently, this study focused on medium to large-scale organization specialized in software development to minimize the constraints.

With the identified sample population, researcher distributed the questionnaire to over 250 IT professionals and managed to obtain responses of 174. Out of all the responses, only 162 responses were selected to the final analysis due to initial selection criteria. Hence, employees who responded positively to the initial survey question stated that they are working in organizations with adopted ESN tools. This study recorded a response rate of 93.10% from the survey responses.

Subsequently, the conceptual model was tested with survey responses. Also, the goodness of data was verified before the start of the main analysis. Hence, a reliability analysis was performed on the data, and the Cronbach's alpha values were used to identify the valid factors using cut-off level of 7.0 for each loading. Also, PCA was conducted to ensure valid depended, and independent variables were taken into the statistical and inferential analysis.

Observations from the data analysis in Chapter 4 showed that the statistical mean values for variables are higher than 3.5 thus, indicating the significance of the collected data. As a measure of central tendency, the mean gives an understanding of the distribution or the clustering of the data. As to the analysis, IT professionals regard organizational culture, management style, and leadership as essential factors that impact to the performance improvement of employees. Results from the data analysis were also used to provide recommendations to adopt ESN tools within organizations.

Reliability analysis and component analysis were conducted to test the reliability and validity of the variables. According to the findings from the component analysis, following sub-variables were removed from the respective dimension or variable to ensure the validity of the data before inferential analysis.

- Engagement (OC1): My organization welcomes our engagement as a positive impact.
- Information Sharing(OC2): My organization appreciates practices of information sharing.
- Resource Support (MSL4): My top/senior management provides resources for ESN initiatives.
- Additional Task overhead (EP3): My workload has increased because I have to use ESN tools provided by the organization.
- Dependence (EP4): Use of ESN tools make me dependent more on others and their feedback.

Researcher accommodated the stated adjustments to variables and the research objectives and conceptual diagram, Pearson correlation was used as the statistical analysis technique. As the advanced analysis method, multiple linear regression test was applied. According to the correlation results are given in Figure 5.1, it can be concluded that there is a linear relationship between dependent and independent variables and the moderate relationship on the main relationship.

5.1.2 Degree of Relationship

As to the developed relationships, hypothesis summary diagram in Figure 5.1 was derived, which illustrates the relationships between dependent, independent and moderator variables used in the construct.

As to the statistical analysis following relationships are identified.

- There is a positive linear relationship between ESN tool adoption practices and employee performance.
- There is a positive linear relationship between management style, leadership and ESN tool adoption practices.
- There is a positive linear relationship between management style, leadership and employee performance.
- There is no linear relationship between organizational culture and employee performance.

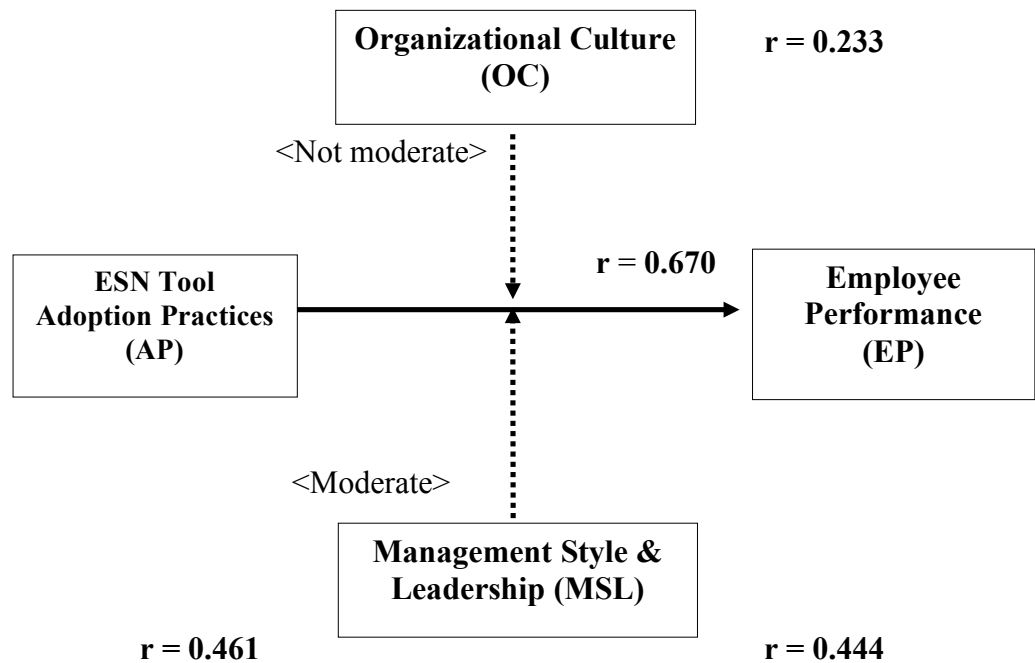


Figure 5.1: Summary of hypothesis testing.

Therefore, as the adoption practices improve, the employee performance increases. Adoption practices are known for their significance to reap the desired results by the organizational management. They can consider the study results when planning or re-design their organizational social strategy. Eventually, collaborative workforce delivers the results when adopting the ESN tool practices.

As mentioned in Chapter 4, the three objectives listed in Section 1.4 are well poised be satisfied based on the data analysis. The following are the final output of the study objectives.

Objective 2: To investigate the impact of ESN tool adoption practices on the performance of employees

There was a positive linear relationship between ESN tool adoption practices and employee performance; hence, improved performance was observed when ESN tool

adoption is high. As to the multiple linear regression analysis, following model was formed to capture the relationship between the variables (see Table 4.18 for variable):

$$\text{Improvement of employee performance (EP)} = 9.017 + 1.183(\text{AP1}) + 0.966 (\text{AP3}) + 1.183(\text{AP4}) + 1.472(\text{AP7})$$

This liner model represents the practices to consider while adopting ESN tools; Hence, workflow alignment (AP1), ability to collect metrics (AP3), solicit feedback (AP4) and Communication strategy (AP7) had positive impact on the employee performance.

These findings correlated with literature review findings of Wilkins and Baker (2011) and Gartner (2013). Whereas Strategic Alignment (AP2), Endorsed Tools and techniques (AP5), Integration and User Accessibility (AP6) and Security and privacy aspects (AP8) weren't significantly contribute to the employee performance despite having support from both empirical and literature studies. Significantly, this study had identified adoption practice like solicit feedback (AP4) that contribute to employee performance which was developed by the researcher.

Objective 3: To explore whether the management style and leadership moderate the relationship between ESN tool adoption practices and employee performance.

Upon ensuring the positive correlation coefficient at 99% confidence level for specified relationships (see Section 4.5.2), researcher performed multiple linear regression analysis to deduce the representation of each of the sub-variables of management style and leadership to the main relationship. Generated equations are as follows:

$$\text{Improvement of employee performance through management style and leadership} = 14.142 - 0.906(\text{MSL5}) + 1.015(\text{MSL6}) + 1.685(\text{MSL7})$$

$$\text{Improvement of adoption practices through management style and leadership} = 11.609 + .981(\text{MSL6})$$

This study identified following sub-variables as to the equations Hence, awareness programs and training(MSL5), top/senior management enforcement(MSL6) and user

suggestion incorporation(MSL7) to represent most of the linear relationships. Subsequently, the researcher identified a shared variable of above two linear equations hence top/senior management enforcement (MSL6) to represent most of the linear relationship.

Based on the multiple regression analysis, the researcher identified a significant moderating effect from management style and leadership to the main relationship. Hence, it is important to consider the management style and leadership practices by the management for enhanced employee performance through ESN tool adoption practices.

Objective 4: To examine whether the organizational culture moderates the relationship between ESN tool adoption practices and employee performance.

Due to low correlation coefficient at 99% confidence level (See Table 4.28) for the relationship between organizational culture and employee performance, it was not possible to perform subsequent steps to determine the moderate impact from the organizational culture.

Based on the statistical analysis and its outputs, this study had found that the organizational culture does not moderate the relationship between ESN tool adoption practices and employee performance.

Consequently, medium and large-scale software companies can look into identified adoption practices to enhance employee performance. Also, to any organization that is about to adopt ESN tools would benefit by understanding the impact of the critical and significant organization constructs such as management style and leadership through their identified dimensions.

5.1.3 Recommendations

As to the final objective of this study hence, to provide recommendations for improving ESN tool adoption practices within the software organizations, the researcher incorporated study outputs, findings that collected from industry expert's views, supervisor suggestions and opinions, personal contacts and survey-based questionnaire.

Following are the list of recommendations for the benefit of organizations:

Organization must align ESN tools and initiatives with the employee workflow (AP1)

This study identified the importance of aligning ESN tools and its initiatives with employee workflow as to the result of the findings of the first objective. It also coincides with the empirical research findings related to ESN tool adoption though it is not significantly adopted in Sri Lankan software companies as to the observations and sources of this study.

Therefore, this study advises the top management or decision makers to undergo ESN-related demonstrations to recognize its benefits for business objectives. Although most of the benefits appear in the long-term, management could appoint ESN related champions or early adopter employees to spearhead the adoption and rally the employees for greater engagement and involvement. Once the healthy engagement is observed then the management could introduce more training and discussions to demonstrate the use of ESN in their workflow. Also, management must devise a strategy to align workflow with Key Performance Indicators (KPI) to benefit and reward both of the organization and employee alike. For instance, rewarding employee over their active and significant collaborations in ESN related tasks.

Organization must improve communication strategy regarding the benefits of ESN (AP7)

This study also identifies the role of top/senior management involvement for communicating ESN and its benefits to employees. The management is advised to

consider every organizational communication channel to promote adoption of ESN tools. Specifically, with the support of ESN champions to demonstrate the benefits and to provide the support case by case analysis.

Organization must Incorporate KPI's and metrics (AP3)

This study suggests that organization should not limit to baseline statistics like user login activities and their postings but must proactively measure the ESN adoption. Therefore, the organization must come up with well-defined key performance indicators (KPIs that are carefully developed involving key stakeholders hence top management, senior managers, executives and ESN champion or early adopters). Once put into practice it has to be regularly monitored and make necessary adjustments by incorporating employees' suggestions or solicitation that mentioned previously.

The management can take the pilot basis approach hence initially to introduce the platform to smaller user group populations, and to learn from their experience solicitations, and later adjust the approach accordingly with short-term goals and to introduce incremental changes.

By having a minimal number of users in the ESN platform before the final adoption, management can minimize the risk of major failures regarding effort and time. Therefore, it is necessary to identify most appropriate metrics to incorporate with KPIs when adopting ESN tools by the management to observe the workforce is making the most of the utilization of ESN tools. The organizational reward structure is believed to attract and encourage more employees to use ESN tools. Also, the decision-making employees can monitor metrics to track the utilization whether they are effective or deviating from the desired trajectory paths and make corrective measures to secure positive outcome eventually impacting the performance of employees.

Organization should solicit feedback on the usage of ESN tools in their employee workflow (AP4)

As to the findings of this study, it was identified that the adoption practice like solicit feedback to significantly contribute to employee performance.

Solicitation is another significant practice as most of the workforce do not utilize the ESN tools voluntarily and expects acknowledgment and follow-through on their actions. In that regard, it is necessary for the management to intervene and identify any bottlenecks and to alleviate with the expert ESN support or they can refer the feedback from early adopters of the network as they are the most vocal sources of feedback and much reliance can be counted on.

Organization must incorporate top/senior management enforcement (MSL6)

Further this study identified that the top/senior management, hence the lead-level managers, product managers, and architects must actively participate in ESN tool adoption, as they set the path for the subordinates to follow and they must lead by example. This will help to increase the commitment from both parties for successful ESN tool adoption.

5.2 Limitations of the Study

This study was carried out using quantitative methods based on deductive reasoning. However, its main constraint is that it is only possible to test whether the hypothesized relationships exist and to what extent of the relationships that they have. This is because the deductive approach does not help the researcher to recognize other unexpected factors that may arise during the study. Such as contingent variables or new constructs that may appear in between the study. For instance, the possibility of factors like employee layoff, motivational aspects when announcing that the organization is in the process of an acquisition or a merger, managerial decision to consider the usage of ESN tools for appraisals and any technology upgrade changes of ESN tools.

The study was conducted while mitigating the constraining factors such as resources, time and budget which are common for any academic research. Further, there were several specific limitations to this research such as respondents' unwillingness to provide sensitive information like their organizational adopted ESN tools usage details, which was overcome by providing mainstream ESN tool list and an option to

fill many other similar tools that they adopted other than the provided list. Likewise, most of the questions in the survey were structured accordingly. Furthermore, professional bodies like SLASI, ITCA, SLASSCOM did not have updated information on ESN tool usage organizations in Sri Lanka.

Several employees expressed their lack of understandability on ESN tools even though they have adopted in their workplace. This limited the opportunity to query into other survey section more concisely and accurately. Therefore, the researcher had to incorporate an informal method like personal contact to verify their responses.

Furthermore, in several organizations, employees were asked to provide the rationale behind this study in more detail prior to responding to the survey. They had to seek the permission from their respective organization management this is due to the collected survey data capture the business intelligence value and present organizational details. Moreover, they were reluctant as adopted ESN tools and their statistics would disclose sensitive information for marketing purposes by others. Moreover, organizations did not want their employees to participate in this study as they had organizational policies preventing employees from taking part in external surveys.

Also, some respondents did not provide the much-needed information on challenges and barriers that they are facing or undergoing when make using ESN tools and that limited the opportunity to produce organizational-level recommendation or analyze exact causes and develop strategies to overcome. To minimize the impact of such cases, the researcher contacted several lead-level or managerial employees through personal contacts. Which helped to fill the void of incomplete comment section without disclosing organization, and the study incorporated those in the recommendations.

Due to minimal responses count at the time of compilation of this study restricted the researcher to limit the number of organizations that this survey distributed, therefore, it was a bit difficult to maintain the sample size. This was overcome by selecting the sample size accordingly to statically method which is five times or more than of the of

the parameters of research. This study also used personal contacts to verify the sample size by getting to know whether each organization already adopted ESN tool or not. The researcher also contacted several employees in software organizations and gathered information through personal contacts which were not explicitly published though they were used to develop recommendations.

This study had constraints when identifying an entire list of enablers and inhibitors regarding to organizational specific socio-technical dimensions in all of the respective medium to large-scale software organizations. Therefore, only a significant set of enablers and inhibitors were incorporated with literature support. This might limit effectiveness on the extent of representation each research constructs and eventually to research objectives. Nevertheless, in future research areas, prospective user can incorporate mixed method research methodology to capture organization-wise data to improve the understanding of ESN tool adoption practices towards employee performance.

5.3 Future Research Directions

As specified in the problem statement, the researcher conducted this study to contribute for the necessity in minimizing the lack of understanding or the research gap that exists in software organizations regarding the impact of ESN tool adoption practices towards employee performance. Therefore, this study is distinctive from other researches due to its primary emphasis on ESN tool adoption practices among employees.

Considering, the outputs and limitations of this study; Hence, as a basis for primary research on ESN tool adoption within software organizations, the prospective researcher can delve into organization-specific data to identify social-technical dimensions comprehensively. Thereby, to enrich the understanding of the ESN tool adoption and benefits the respective organization and employee alike. Also, it can be used to benchmark against the data of other companies and provide actionable recommendations for demonstrating business value.

Another significant area of interest would be to understand and analyze the employee preferred ESN tools and types more specifically by incorporating study outputs for enhanced ESN tool type adoption. Given to specific organizational circumstances as well as to satisfy security, privacy, compliance and integration aspects.

This study can be extended into several future research areas or topics. The main future research areas that stem from this study would be to analyze employee motivational aspects for collaboration within themselves regarding the ESN tools usage in their organizational tasks. This can be further complemented with past studies that are done mainly on the information sharing determinants.

Another significant area is to delve into understanding the ways of decreasing employee turnover rates as the adopted ESN tools indicate the engagement that leads to improving satisfaction and motivation.

Adoption of ESN tools seems to be at an initial or moderate level in Sri Lankan software development organizations. Therefore, it would be useful to identify factors that could enhance the adoption of ESN tools. Also, employee motivational aspects and their personality types are other areas of interest, as past studies have limited findings. If one incorporated those aspects prudently then discerned parties could make the employee performance improvements regarding the adoption of appropriate ESN tools and techniques.

Thus, the findings of this research project will be useful for any IT firm, to ensure effective use of ESN tools for knowledge management, particularly even if they are implementing in the organization for the first time.

5.4 Conclusions

The main purpose of this study is to analyze the impact of ESN tool adoption practices on employee performance while incorporating the organizational influencing constructs namely organizational culture and management style, leadership. This study gathered relevant information from the literature review which comprises of past

researches together with empirical information retrieved from the questionnaire, industry level professionals, experts and suggestion and feedback from the research supervisor.

Following the quantitative analysis of the gathered data. This study showed the significant statistics of the ESN tool adopted organizations through its employee responses. Most significantly researcher proved that there is a positive relationship between ESN tool adoption practices and employee performance within the context of software organizations, also this study revealed the positive influence or moderating relationship from the organizational constructs like management style and leadership.

In all aspects, this study provided the output that will aid medium to large-scale organizations to take prudent decisions on their adopted ESN tool practices. Hence, to look into ways and means of improving the performance of their employees by incorporating findings of this study. Especially to adjust or restructure their existing ESN tool adoption practices while considering the organizational management style and leadership.

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Appendix A – Questionnaire

Survey on Understanding the Impact of “Enterprise Social Networking” on Employee Performance in Software companies of Sri Lanka.

This questionnaire is prepared for data collection on Understanding “Impact of Enterprise Social Networking on Employee Performance”. Highly appreciate your assistance in answering this questionnaire as it is very important for the development of result of this study. The information and responses gathered will be strictly be used for academic purposes only and will be kept as confidential.

Section A - ESN tools Usage

Enterprise Social Networking (ESN) tools includes software products that support people working together in teams, communities, or networks in the work place. These products can be tailored to support a variety of collaborative activities.

Please consider your current organization when answering this questionnaire.

1. Does your organization use Enterprise Social Networking (ESN) tools? *

E.g., Yammer, Slack, Jive, Atlassian products, Cisco Products, Sap, etc.

- ☐ Yes
- ☐ No
- ☐ Other:

2. Does your organization formerly support or encourage the use of ESN tools? *

- ☐ Yes
- ☐ Some times
- ☐ No

3. How long your organization has been using ESN tools? *

- ☐ Never used
- ☐ Less than 1 Year
- ☐ I year to 2 years

- ☐ More than 2 years
- ☐ No idea

4. How often do you use ESN tools? *

- ☐ Daily
- ☐ Few times a week
- ☐ Once a week
- ☐ Few times a month

5. What type of ESN tools are supported by your organization? *

- ☐ Enterprise microblogging
- ☐ Mobile apps
- ☐ Instant messaging and group chat
- ☐ Blogs, Wikis, and Forums
- ☐ Video conferencing

Other:

Section B - IT Professionals

Please select the option that best describes your response to each of the following statements based on your ESN knowledge and its use by your organization.

Management Style and Leadership *

1. My Management supports/encourages the use of ESN tools

	1	2	3	4	5	
Strongly Disagree	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Strongly Agree

2. My top/senior management is actively involved in ESN and lead by example in supporting ESN initiatives

	1	2	3	4	5	
Strongly Disagree	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Strongly Agree

3. My management mediates cordially in drafting ESN procedures, policy control, and problem solving initiatives

	1	2	3	4	5	
Strongly Disagree	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Strongly Agree

4. My top/senior management provides resources for ESN initiatives

	1	2	3	4	5	
Strongly Disagree	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Strongly Agree

5. My management provides awareness programs and training on ESN tools, features, and their benefits

	1	2	3	4	5	
Strongly Disagree	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Strongly Agree

6. My top/senior management enforces the use of ESN tool

	1	2	3	4	5	
Strongly Disagree	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Strongly Agree

7. My management incorporates our suggestions on what ESN tools to use and how to use them

	1	2	3	4	5	
Strongly Disagree	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Strongly Agree

8. My management rewards employees who actively contribute and promote ESN activities

	1	2	3	4	5	
Strongly Disagree	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Strongly Agree

Organizational Culture

1. My organization welcomes our engagement as a positive impact

	1	2	3	4	5	
Strongly Disagree	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Strongly Agree

2. My organization appreciates practices of information sharing

	1	2	3	4	5	
Strongly Disagree	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Strongly Agree

3. Organizational-wide decision making incorporates our involvement most of the time

	1	2	3	4	5	
Strongly Disagree	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Strongly Agree

4. My organization's decision-making is distributed, and employees are free to experiment and take initiatives with regard to their work

	1	2	3	4	5	
Strongly Disagree	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Strongly Agree

5. My organization promotes and appreciates our efforts for team orientation

	1	2	3	4	5	
Strongly Disagree	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Strongly Agree

6. My organization has a flexible hierarchy to support team-based environment

		1	2	3	4	5	
Strongly Disagree	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Strongly Agree

7. My organization promotes and appreciates capability development of employees

		1	2	3	4	5	
Strongly Disagree	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Strongly Agree

8. My organization invests in skill development of its workforce

		1	2	3	4	5	
Strongly Disagree	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Strongly Agree

Employee Performance *

1. Use of ESN tools helps me to take better decisions based on feedback from others

		1	2	3	4	5	
Strongly Disagree	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Strongly Agree

2. ESN tools/features such as comments, ratings, and likes reinforces my knowledge

		1	2	3	4	5	
Strongly Disagree	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Strongly Agree

3. My workload has increased because I have to use ESN tools provided by organization

		1	2	3	4	5	
Strongly Disagree	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Strongly Agree

4. Use of ESN tools make me dependent more on others and their feedback

		1	2	3	4	5	
Strongly Disagree	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Strongly Agree

5.ESN tools used in the organization helps me better manage my time

		1	2	3	4	5	
Strongly Disagree	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Strongly Agree

6. ESN tools helps me become more productive saving both time and effort

		1	2	3	4	5	
Strongly Disagree	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Strongly Agree

7.ENS tools help me to gain better recognition and reputation within the organization

		1	2	3	4	5	
Strongly Disagree	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Strongly Agree

8.I feel more confident and valued when contributing to discussions on ESN tools

		1	2	3	4	5	
Strongly Disagree	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Strongly Agree

9.I feel ESN helps me to better control my stress

		1	2	3	4	5	
Strongly Disagree	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Strongly Agree

10.Use of ESN tools brings more indirect benefits

		1	2	3	4	5	
Strongly Disagree	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Strongly Agree

ESN Adoption practices *

1. I believe ESN tools/initiatives are in line with my day-to-day workflow

		1	2	3	4	5	
Strongly Disagree	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Strongly Agree

2. ESN initiatives in my organization are implemented strategically with regards to
employee workflows

		1	2	3	4	5	
Strongly Disagree	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Strongly Agree

3. My organization evaluates adoption of ESN tools periodically. Or I get appraisal points for my contributions on ESN tools.

		1	2	3	4	5	
Strongly Disagree	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Strongly Agree

4. My organization solicits feedback on the usage of ESN tools in our workflows.

		1	2	3	4	5	
Strongly Disagree	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Strongly Agree

5. I believe ESN tools are implemented in my organization incorporating employee feedback and suggestions

		1	2	3	4	5	
Strongly Disagree	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Strongly Agree

6. My organization considers integration, extension, and usability aspects of ESN tools with existing tools/resources

		1	2	3	4	5	
Strongly Disagree	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Strongly Agree

7. My organization employs clear communication strategy about ESN use and its benefits to Employee

	1	2	3	4	5	
Strongly Disagree	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Strongly Agree

8. My organization considers security and privacy aspects of ESN tools and its usage

	1	2	3	4	5	
Strongly Disagree	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Strongly Agree

Appendix B - Statistical Analysis

Reliability Analysis of the Pilot Study

Variables	Item	Cronbach Alpha	No. of Items	Comment	Status
Management Style and Leadership	1. Support & Encouragement	0.9032	8		Acceptable
	2. Leadership Style				
	3.Top/Senior management Mediation				
	4.Resource support				
	5.Awareness Programs and Training				
	6.Top/senior management enforcement				
	7.User suggestion incorporation				
	8.Rewarding Initiatives				
Organizational Culture	1.Engagement	0.8333	8		Acceptable
	2.Information Sharing				
	3.Involvement				
	4.Empowerment				
	5.Team Building Effort				
	6.Team Environment				
	7.Capability development				
	8.Skills Development				
Employee Performance	1.Better decision control	0.8168	10		Acceptable
	2.Knowledge Reinforcement				
	3.Additional Task overhead				
	4.Dependence				
	5.Better Time management				
	6.Better productivity management				
	7.Reputation enhancement				
	8.confidence of contribution				
	9.Stress control				
	10.Indirect Benefits				
ESN Adoption practices	1.Workflow Alignment	0.9419	8		Acceptable
	2.Strategic Alignment				
	3.Ability to collect Metrics				
	4.Solicit feedback				
	5.Endorsed Tools and techniques				
	6. Integration and User Accessibility				
	7.Communication strategy				
	8.Security and privacy aspects				

Reliability Analysis of the Main Study

Variables	Item	Cronbach Alpha	No. of Items	Comment	Status
Management Style and Leadership	1. Support & Encouragement	0.755	8		Acceptable
	2. Leadership Style				
	3.Top/Senior management Mediation				
	4.Resource support				
	5.Awareness Programs and Training				
	6.Top/senior management enforcement				
	7.User suggestion incorporation				
	8.Rewarding Initiatives				
Organizational Culture	1.Engagement	0.803	8		Acceptable
	2.Information Sharing				
	3.Involvement				
	4.Empowerment				
	5.Team Building Effort				
	6.Team Environment				
	7.Capability development				
	8.Skills Development				
Employee Performance	1.Better decision control	0.837	10		Acceptable
	2.Knowledge Reinforcement				
	3.Additional Task overhead				
	4.Dependence				
	5.Better Time management				
	6.Better productivity management				
	7.Reputation enhancement				
	8.confidence of contribution				
	9.Stress control				
	10.Indirect Benefits				
ESN Adoption practices	1.Workflow Alignment	0.840	8		Acceptable
	2.Strategic Alignment				
	3.Ability to collect Metrics				
	4.Solicit feedback				
	5.Endorsed Tools and techniques				
	6. Integration and User Accessibility				
	7.Communication strategy				
	8.Security and privacy aspects				

Principal Component Analysis / Factor analysis of the Main Study

Indicator	Communities	Component Factors
	Extraction	1
Management Style and Leadership		
1. Support and Encouragement	.482	.694
2. Leadership Style	.406	.637
3.Top/Senior management Mediation	.391	.626
4.Resource support	.232	.482
5.Awareness programs and Training	.310	.557
6.Top/senior management enforcement	.476	.690
7.User suggestion incorporation	.458	.677
8.Rewarding Initiatives	.256	.506
Organizational Culture		
1. Engagement	.090	.300
2.Information Sharing	.202	.450
3.Involvement	.463	.681
4.Empowerment	.480	.693
5.Team Building Effort	.626	.791
6.Team Environment	.585	.765
7.Capability development	.582	.763
8.Skills Development	.535	.731
Employee Performance		
1. Better decision control	.546	.739
2.Knowledge Reinforcement	.572	.756
3.Additional Task overhead	.078	.279
4.Dependence	.160	.400
5.Better Time management	.486	.697
6.Better productivity management	.551	.742
7.Reputation enhancement	.518	.720
8.confidence of contribution	.658	.811
9.Stress control	.377	.614
10.Indirect Benefits	.359	
ESN Adoption Practices		
1.Workflow Alignment	.436	.660
2.Strategic Alignment	.546	.739
3.Ability to collect Metrics	.346	.588
4.Solicit feedback	.423	.650
5.Endorsed Tools and techniques	.523	.723
6.Integration and User Accessibility	.561	.749.
7.Communication strategy	.655	.809
8.Security and privacy aspects	.436	.569

Appendix C – Descriptive Analysis

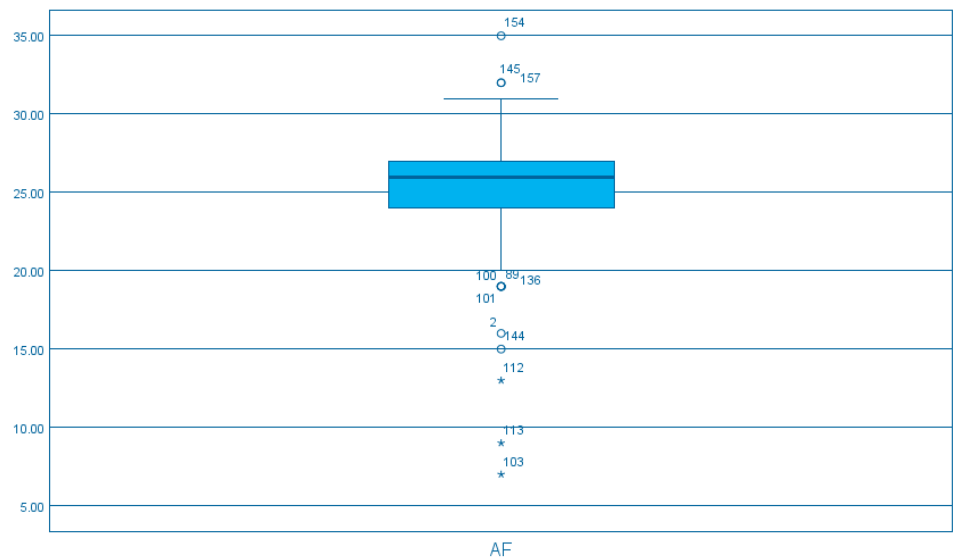


Figure 4.11: Box plot – ESN tool adoption practices.

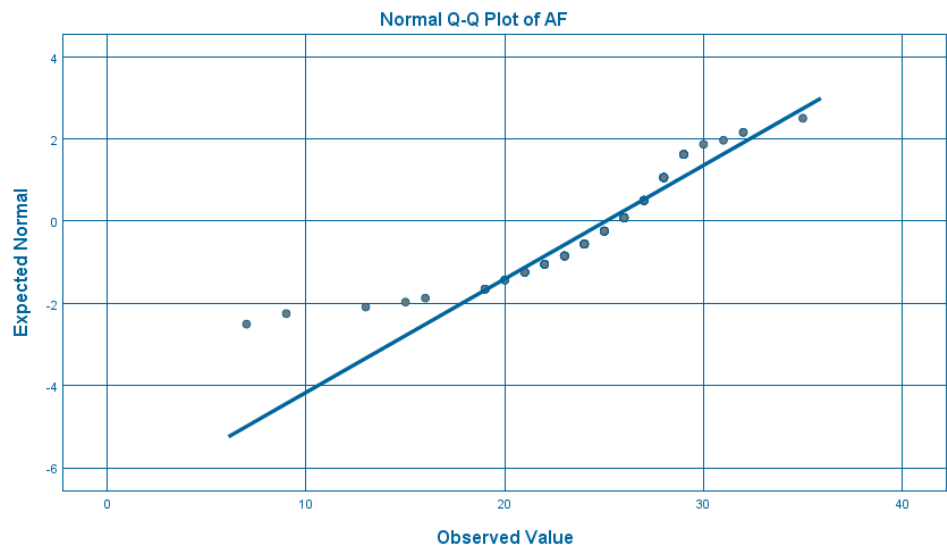


Figure 4.12: Normality plot – ESN tool adoption practices.

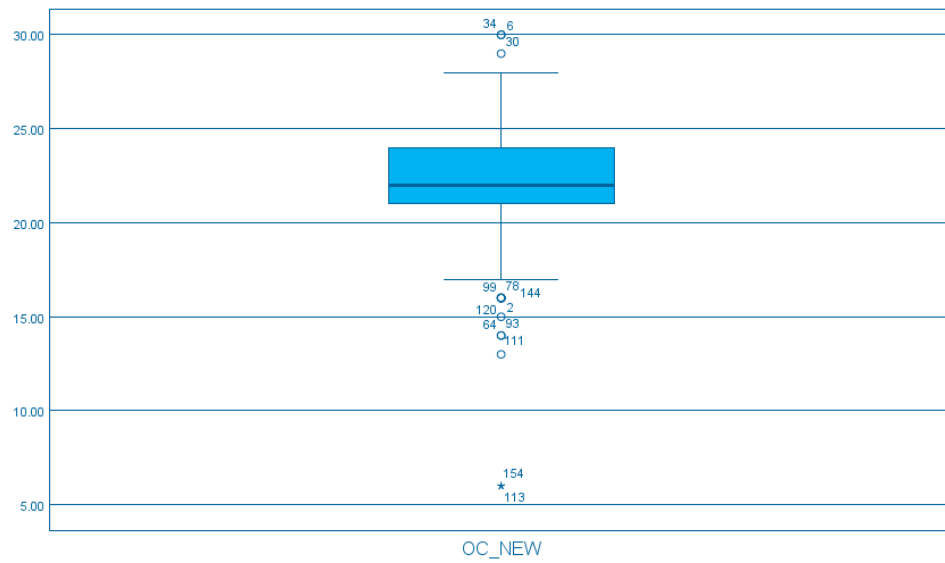


Figure 4.13: Box plot – organizational culture.

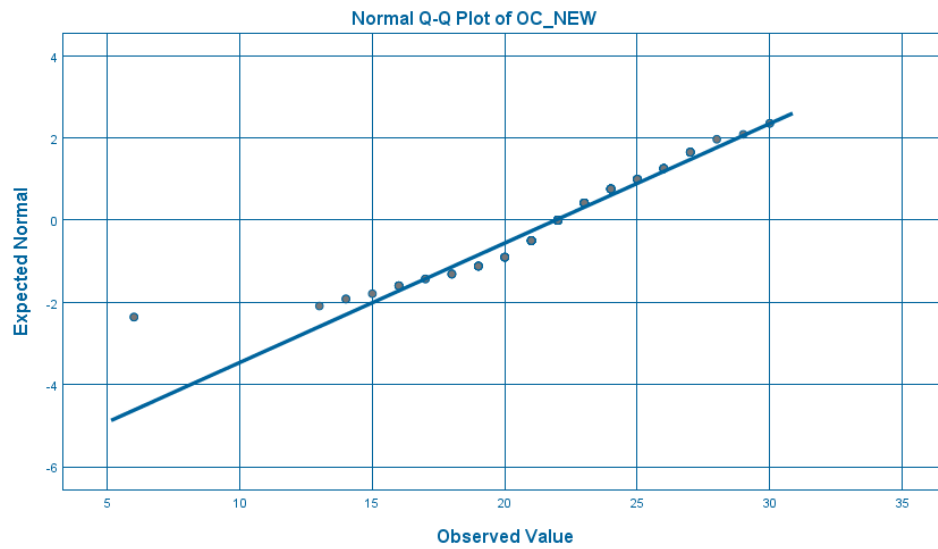


Figure 4.14: Normality plot – organizational culture.

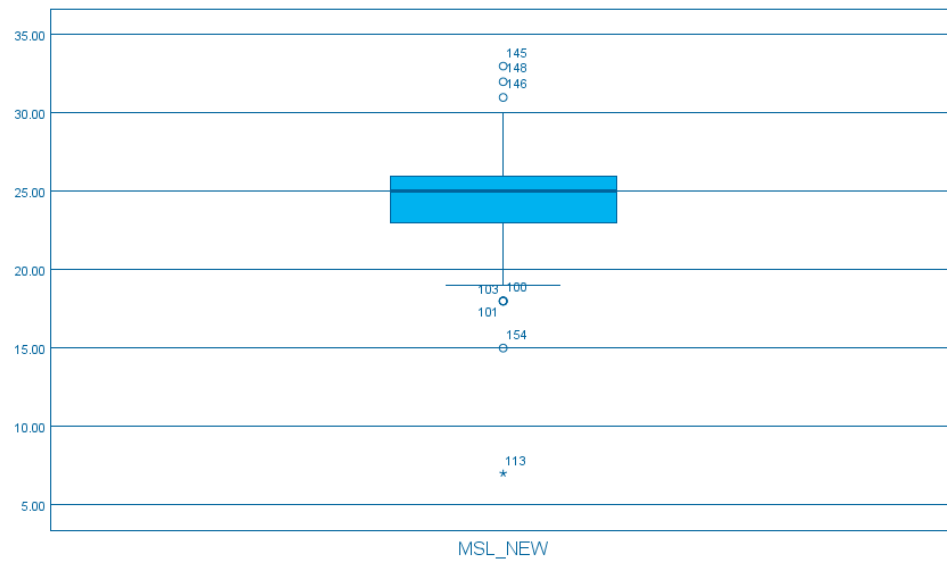


Figure 4.15: Box plot – management style and leadership.

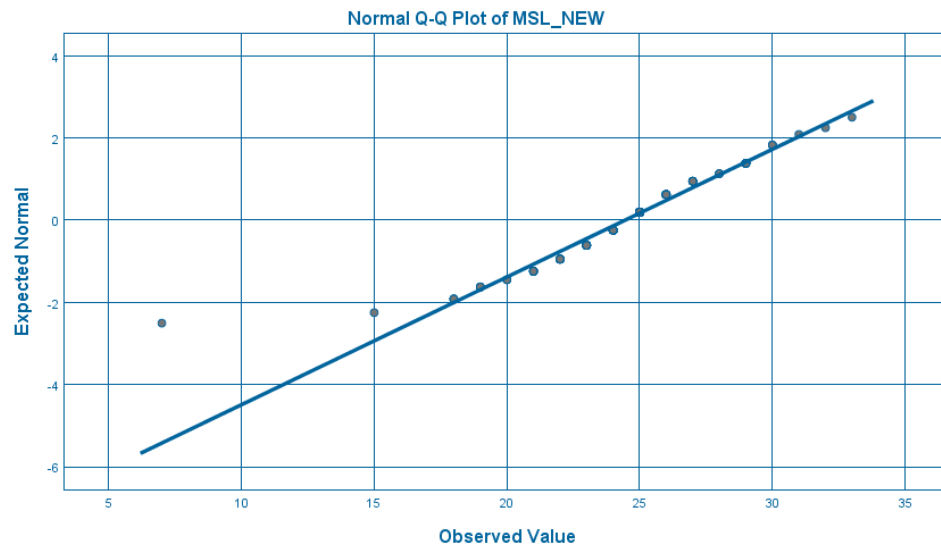


Figure 4.16: Normality plot – management style and leadership.

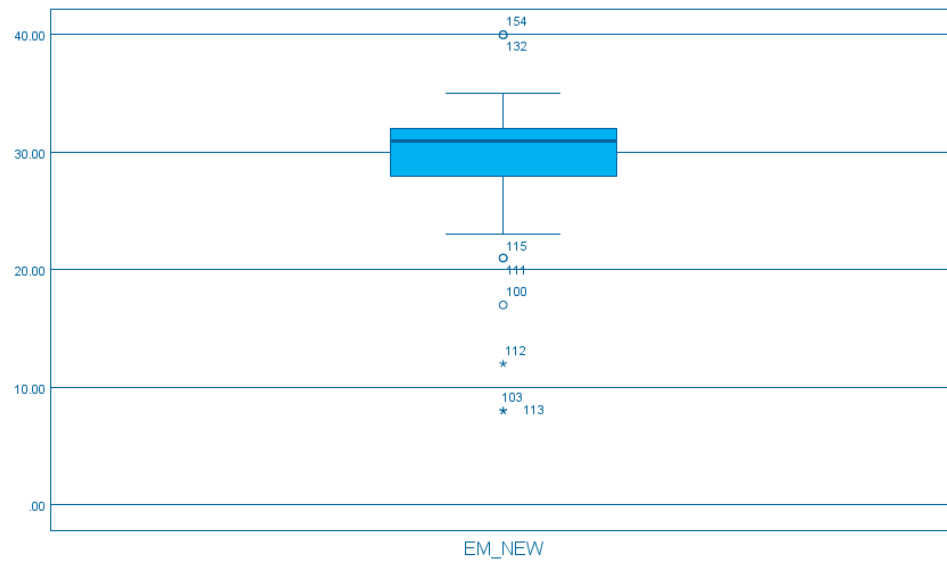


Figure 4.17: Box plot – employee performance.

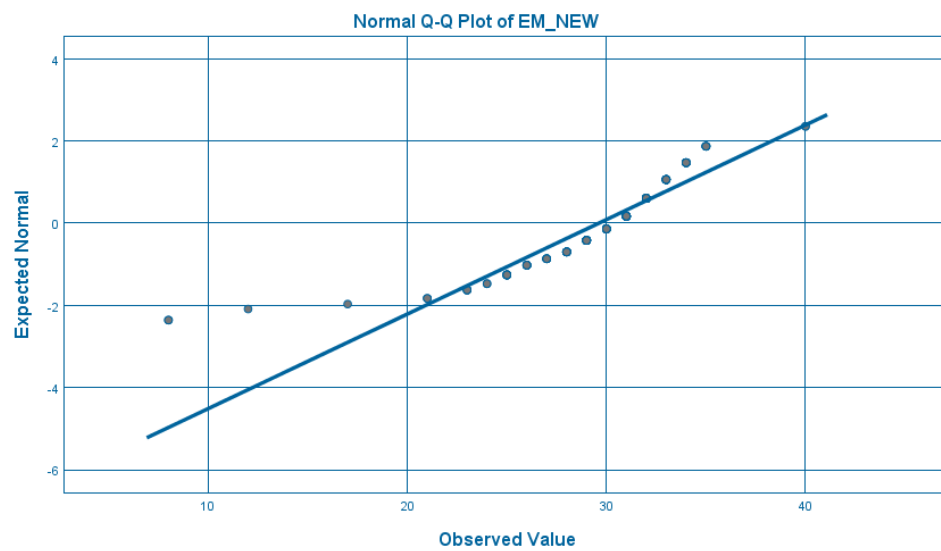


Figure 4.18: Normality plot – employee performance.

Employee Performance

Descriptive Statistics							
	N	Min.	Max.	Sum	Mean	STD	Variance
EP1 - Better Decision Control	162	1	5	678	4.1852	0.77397	0.599
EP2 - Knowledge Reinforcement	162	1	5	643	3.9691	0.68182	0.465
EP3 - Additional Task overhead	162	1	5	445	2.7469	0.83638	0.7
EP4 - Dependence	162	1	5	446	2.7531	0.7646	0.585
EP5 - Better Time Mgmt.	162	1	5	583	3.5988	0.84486	0.714
EP6 - Better Productivity Mgmt.	162	1	5	640	3.9506	0.79441	0.631
EP7 - Reputation Enhancement	162	1	5	599	3.6975	0.73162	0.535
EP8 - Confidence of contribution	162	1	5	602	3.716	0.69129	0.478
EP9 - Stress Control	162	1	5	513	3.1667	0.80565	0.649
EP10 - Indirect Benefits	162	1	5	540	3.3333	0.75593	0.571
Valid N (listwise)	162						

ESN Tool Adoption Practices

Descriptive Statistics							
	N	Min.	Max.	Sum	Mean	STD	Variance
AP1 - Workflow Alignment	162	1	5	608	3.7531	0.70545	0.498
AP2 - Strategic Alignment	162	1	5	573	3.537	0.7892	0.623
AP3 - Ability to collect Metrics	162	1	5	496	3.0617	0.75339	0.568
AP4 - Solicit Feedback	162	1	5	556	3.4321	0.68594	0.471
AP5 - Endorsed Tools & Techniques	162	1	5	559	3.4506	0.73131	0.535
AP6 - Integration & Accessibility	162	1	5	619	3.821	0.80298	0.645
AP7 - Communication Strategy	162	1	5	596	3.679	0.7364	0.542
AP8 - Security & Privacy Aspect	162	1	5	615	3.7963	0.7733	0.598
Valid N (listwise)	162						

Management Style and Leadership

Descriptive Statistics							
	N	Min.	Max.	Sum	Mean	STD	Variance
MSL1 - Support & Encouragement	162	1	5	684	4.2222	0.61047	0.373
MSL2 - Leadership Style	162	1	5	612	3.7778	0.72232	0.522
MSL3 - Top/Senior Mgmt. Mediation	162	1	5	567	3.5	0.74141	0.55
MSL4 - Resource Support	162	1	5	609	3.7593	0.67617	0.457
MSL5 - Awareness Programs & Training	162	1	5	509	3.142	0.77913	0.607
MSL6 - Top/Senior Mgmt Enforcement	162	1	5	596	3.679	0.72792	0.53
MSL7 - User Suggestion Incorporation	162	1	5	541	3.3395	0.70635	0.499
MSL8 - Initiatives	162	1	5	452	2.7901	0.77566	0.602
Valid N (listwise)	162						

Organizational Culture

Descriptive Statistics							
	N	Min.	Max.	Sum	Mean	STD	Variance
OC1 - Engagement	162	3	5	704	4.3457	0.53824	0.29
OC2 - Information Sharing	162	2	5	722	4.4568	0.60123	0.361
OC3 - Decision Involment	162	1	5	525	3.2407	0.83261	0.693
OC4 - Empowerment	162	1	5	509	3.142	0.81039	0.657
OC5 - Team Building Efforts	162	1	5	638	3.9383	0.70218	0.493
OC6 - Team Environment	162	1	5	607	3.7469	0.75025	0.563
OC7-Capability Development	162	1	5	632	3.9012	0.70675	0.5
OC8 - Skills Development	162	1	5	639	3.9444	0.7979	0.637
Valid N (listwise)	162						

Pearson Correlation Tables

ESN Tool Adoption Practices and Employee Performance

		Correlations								
		EP	AP1	AP2	AP3	AP4	AP5	AP6	AP7	AP8
EP	Pearson Correlation	1	.426**	.404**	.468**	.543**	.342**	.491**	.586**	.333**
	Sig. (2-tailed)		0	0	0	0	0	0	0	0
	Covariance	18.921	1.309	1.387	1.533	1.62	1.087	1.714	1.876	1.12
	N	162	162	162	162	162	162	162	162	162
AP1 - Workflow Alignment	Pearson Correlation	.426**	1	.697**	.157*	.248**	.337**	.382**	.444**	.351**
	Sig. (2-tailed)	0		0	0.045	0.001	0	0	0	0
	Covariance	1.309	0.498	0.388	0.084	0.12	0.174	0.216	0.231	0.192
	N	162	162	162	162	162	162	162	162	162
AP2 - Strategic Alignment	Pearson Correlation	.404**	.697**	1	.257**	.372**	.525**	.358**	.459**	.364**
	Sig. (2-tailed)	0	0		0.001	0	0	0	0	0
	Covariance	1.387	0.388	0.623	0.153	0.201	0.303	0.227	0.267	0.222
	N	162	162	162	162	162	162	162	162	162
AP3 - Ability to collect Metrics	Pearson Correlation	.468**	.157*	.257**	1	.501**	.389**	.347**	.484**	.182*
	Sig. (2-tailed)	0	0.045	0.001		0	0	0	0	0.021
	Covariance	1.533	0.084	0.153	0.568	0.259	0.214	0.21	0.268	0.106
	N	162	162	162	162	162	162	162	162	162
AP4 - Solicit Feedback	Pearson Correlation	.543**	.248**	.372**	.501**	1	.427**	.423**	.473**	.155*
	Sig. (2-tailed)	0	0.001	0	0		0	0	0	0.049
	Covariance	1.62	0.12	0.201	0.259	0.471	0.214	0.233	0.239	0.082
	N	162	162	162	162	162	162	162	162	162
AP5 - Endorsed Tools & Techniques	Pearson Correlation	.342**	.337**	.525**	.389**	.427**	1	.445**	.501**	.317**
	Sig. (2-tailed)	0	0	0	0	0		0	0	0
	Covariance	1.087	0.174	0.303	0.214	0.214	0.535	0.261	0.27	0.179
	N	162	162	162	162	162	162	162	162	162
AP6 - Integration & Accessibility	Pearson Correlation	.491**	.382**	.358**	.347**	.423**	.445**	1	.638**	.481**
	Sig. (2-tailed)	0	0	0	0	0	0		0	0
	Covariance	1.714	0.216	0.227	0.21	0.233	0.261	0.645	0.377	0.299
	N	162	162	162	162	162	162	162	162	162
	Pearson Correlation	.586**	.444**	.459**	.484**	.473**	.501**	.638**	1	.375**

AP7 - Communication Strategy	Sig. (2-tailed)	0	0	0	0	0	0	0	0	0
	Covariance	1.876	0.231	0.267	0.268	0.239	0.27	0.377	0.542	0.214
	N	162	162	162	162	162	162	162	162	162
AP8 - Security & Privacy Aspect	Pearson Correlation	.333**	.351**	.364**	.182*	.155*	.317**	.481**	.375**	1
	Sig. (2-tailed)	0	0	0	0.021	0.049	0	0	0	
	Covariance	1.12	0.192	0.222	0.106	0.082	0.179	0.299	0.214	0.598
	N	162	162	162	162	162	162	162	162	162
**. Correlation is significant at the 0.01 level (2-tailed).										
*. Correlation is significant at the 0.05 level (2-tailed).										

Management Style, Leadership and Employee Performance

Correlations										
		EP	MSL 1	MSL 2	MSL 3	MSL 4	MSL 5	MSL 6	MSL 7	MSL 8
EP	Pearson Correlation	1	.313*	.252*	.258*	.190*	0.111	.367*	.412*	.282*
	Sig. (2-tailed)		0	0.001	0.001	0.015	0.158	0	0	0
	Covariance	18.921	0.831	0.79	0.832	0.559	0.378	1.162	1.267	0.95
	N	162	162	162	162	162	162	162	162	162
MSL1 - Support & Encouragement	Pearson Correlation	.313*	1	.549*	.288*	.371*	.286*	.385*	.256*	.178*
	Sig. (2-tailed)	0		0	0	0	0	0	0.001	0.024
	Covariance	0.831	0.373	0.242	0.13	0.153	0.136	0.171	0.11	0.084
	N	162	162	162	162	162	162	162	162	162
MSL2 - Leadership Style	Pearson Correlation	.252*	.549*	1	.278*	.424*	0.112	.324*	.222*	.171*
	Sig. (2-tailed)	0.001	0		0	0	0.157	0	0.005	0.029
	Covariance	0.79	0.242	0.522	0.149	0.207	0.063	0.17	0.113	0.096
	N	162	162	162	162	162	162	162	162	162
MSL3 - Top/Senior Mgmt Mediation	Pearson Correlation	.258*	.288*	.278*	1	.167*	.317*	.368*	.409*	.184*
	Sig. (2-tailed)	0.001	0	0		0.033	0	0	0	0.019
	Covariance	0.832	0.13	0.149	0.55	0.084	0.183	0.199	0.214	0.106

	N	162	162	162	162	162	162	162	162	162
MSL4 - Resource Support	Pearson Correlation	.190*	.371*	.424*	.167*	1	0.042	.347*	0.12	-.004
	Sig. (2-tailed)	0.015	0	0	0.033		0.598	0	0.128	0.859
	Covariance	0.559	0.153	0.207	0.084	0.457	0.022	0.171	0.057	-.007
	N	162	162	162	162	162	162	162	162	162
MSL5 - Awareness Programs & Training	Pearson Correlation	0.111	.286*	0.112	.317*	0.042	1	.234*	.397*	.399*
	Sig. (2-tailed)	0.158	0	0.157	0	0.598		0.003	0	0
	Covariance	0.378	0.136	0.063	0.183	0.022	0.607	0.133	0.219	0.241
	N	162	162	162	162	162	162	162	162	162
MSL6 - Top/Senior Mgmt Enforcement	Pearson Correlation	.367*	.385*	.324*	.368*	.347*	.234*	1	.407*	.221*
	Sig. (2-tailed)	0	0	0	0	0	0.003		0	0.005
	Covariance	1.162	0.171	0.17	0.199	0.171	0.133	0.53	0.209	0.125
	N	162	162	162	162	162	162	162	162	162
MSL7 - User Suggestion Incorporation	Pearson Correlation	.412*	.256*	.222*	.409*	0.12	.397*	.407*	1	.448*
	Sig. (2-tailed)	0	0.001	0.005	0	0.128	0	0		0
	Covariance	1.267	0.11	0.113	0.214	0.057	0.219	0.209	0.499	0.246
	N	162	162	162	162	162	162	162	162	162
MSL8 - Initiatives	Pearson Correlation	.282*	.178*	.171*	.184*	-.004	.399*	.221*	.448*	1
	Sig. (2-tailed)	0	0.024	0.029	0.019	0.859	0	0.005	0	
	Covariance	0.95	0.084	0.096	0.106	-.007	0.241	0.125	0.246	0.602
	N	162	162	162	162	162	162	162	162	162
**. Correlation is significant at the 0.01 level (2-tailed).										
*. Correlation is significant at the 0.05 level (2-tailed).										

Management Style, Leadership and ESN Tool Adoption Practices

		Correlations								
		AP	MSL 1	MSL 2	MSL 3	MSL 4	MSL 5	MSL 6	MSL 7	MSL 8
AP	Pearson Correlation	1	.335*	.316*	.272*	.348*	0.15	.382*	.341*	.276*
	Sig. (2-tailed)		0	0	0	0	0.057	0	0	0
	Covariance	13.118	0.74	0.825	0.73	0.852	0.423	1.007	0.873	0.775
	N	162	162	162	162	162	162	162	162	162
MSL1 - Support & Encouragement	Pearson Correlation	.335*	1	.549*	.288*	.371*	.286*	.385*	.256*	.178*
	Sig. (2-tailed)	0		0	0	0	0	0	0.001	0.024
	Covariance	0.74	0.373	0.242	0.13	0.153	0.136	0.171	0.11	0.084
	N	162	162	162	162	162	162	162	162	162
MSL2 - Leadership Style	Pearson Correlation	.316*	.549*	1	.278*	.424*	0.112	.324*	.222*	.171*
	Sig. (2-tailed)	0	0		0	0	0.157	0	0.005	0.029
	Covariance	0.825	0.242	0.522	0.149	0.207	0.063	0.17	0.113	0.096
	N	162	162	162	162	162	162	162	162	162
MSL3 - Top/Senior Mgmt Mediation	Pearson Correlation	.272*	.288*	.278*	1	.167*	.317*	.368*	.409*	.184*
	Sig. (2-tailed)	0	0	0		0.033	0	0	0	0.019
	Covariance	0.73	0.13	0.149	0.55	0.084	0.183	0.199	0.214	0.106
	N	162	162	162	162	162	162	162	162	162
MSL4 - Resource Support	Pearson Correlation	.348*	.371*	.424*	.167*	1	0.042	.347*	0.12	-0.014
	Sig. (2-tailed)	0	0	0	0.033		0.598	0	0.128	0.859
	Covariance	0.852	0.153	0.207	0.084	0.457	0.022	0.171	0.057	-0.007
	N	162	162	162	162	162	162	162	162	162
MSL5 - Awareness Programs & Training	Pearson Correlation	0.15	.286*	0.112	.317*	0.042	1	.234*	.397*	.399*
	Sig. (2-tailed)	0.057	0	0.157	0	0.598		0.003	0	0
	Covariance	0.423	0.136	0.063	0.183	0.022	0.607	0.133	0.219	0.241

	N	162	162	162	162	162	162	162	162	162
MSL6 - Top/Senior Mgmt Enforcement	Pearson Correlation	.382*	.385*	.324*	.368*	.347*	.234*	1	.407*	.221*
	Sig. (2-tailed)	0	0	0	0	0	0.003		0	0.005
	Covariance	1.007	0.171	0.17	0.199	0.171	0.133	0.53	0.209	0.125
	N	162	162	162	162	162	162	162	162	162
MSL7 - User suggestion Incorporation	Pearson Correlation	.341*	.256*	.222*	.409*	0.12	.397*	.407*	1	.448*
	Sig. (2-tailed)	0	0.001	0.005	0	0.128	0	0		0
	Covariance	0.873	0.11	0.113	0.214	0.057	0.219	0.209	0.499	0.246
	N	162	162	162	162	162	162	162	162	162
MSL8 - Initiatives	Pearson Correlation	.276*	.178*	.171*	.184*	-0.014	.399*	.221*	.448*	1
	Sig. (2-tailed)	0	0.024	0.029	0.019	0.859	0	0.005	0	
	Covariance	0.775	0.084	0.096	0.106	-0.007	0.241	0.125	0.246	0.602
	N	162	162	162	162	162	162	162	162	162
**. Correlation is significant at the 0.01 level (2-tailed).										
*. Correlation is significant at the 0.05 level (2-tailed).										

Organizational Culture and Employee Performance

Correlations										
		EP	OC1	OC2	OC3	OC4	OC5	OC6	OC7	OC8
EP	Pearson Correlation	1	.216*	.255*	.159*	-0.013	.159*	0.122	.293*	.339*
	Sig. (2-tailed)		0.006	0.001	0.043	0.873	0.043	0.121	0	0
	Covariance	18.921	0.506	0.667	0.577	-0.045	0.486	0.399	0.9	1.177
	N	162	162	162	162	162	162	162	162	162
OC1 - Engagement	Pearson Correlation	.216**	1	.507*	0.035	-0.028	0.073	0.003	-0.008	-0.013
	Sig. (2-tailed)	0.006		0	0.659	0.726	0.354	0.973	0.923	0.871
	Covariance	0.506	0.29	0.164	0.016	-0.012	0.028	0.001	-0.003	-0.006

	N	162	162	162	162	162	162	162	162	162
OC2 - Information Sharing	Pearson Correlation	.255**	.507*	1	.188*	.172*	.303*	.285*	.165*	.222*
	Sig. (2-tailed)	0.001	0		0.016	0.029	0	0	0.036	0.005
	Covariance	0.667	0.164	0.361	0.094	0.084	0.128	0.129	0.07	0.106
	N	162	162	162	162	162	162	162	162	162
OC3 - Decision Involment	Pearson Correlation	.159*	0.035	.188*	1	.603*	.355*	.426*	.410*	.394*
	Sig. (2-tailed)	0.043	0.659	0.016		0	0	0	0	0
	Covariance	0.577	0.016	0.094	0.693	0.407	0.207	0.266	0.241	0.262
	N	162	162	162	162	162	162	162	162	162
OC4 - Empowerment	Pearson Correlation	-0.013	-0.028	.172*	.603*	1	.463*	.468*	.393*	.339*
	Sig. (2-tailed)	0.873	0.726	0.029	0		0	0	0	0
	Covariance	-0.045	-0.012	0.084	0.407	0.657	0.263	0.285	0.225	0.219
	N	162	162	162	162	162	162	162	162	162
OC5 - Team Building Efforts	Pearson Correlation	.159*	0.073	.303*	.355*	.463*	1	.583*	.588*	.515*
	Sig. (2-tailed)	0.043	0.354	0	0	0		0	0	0
	Covariance	0.486	0.028	0.128	0.207	0.263	0.493	0.307	0.292	0.288
	N	162	162	162	162	162	162	162	162	162
OC6 - Team Environment	Pearson Correlation	0.122	0.003	.285*	.426*	.468*	.583*	1	.491*	.474*
	Sig. (2-tailed)	0.121	0.973	0	0	0	0		0	0
	Covariance	0.399	0.001	0.129	0.266	0.285	0.307	0.563	0.261	0.284
	N	162	162	162	162	162	162	162	162	162
OC7 - Capability Development	Pearson Correlation	.293**	-0.008	.165*	.410*	.393*	.588*	.491*	1	.618*
	Sig. (2-tailed)	0	0.923	0.036	0	0	0	0		0
	Covariance	0.9	-0.003	0.07	0.241	0.225	0.292	0.261	0.5	0.349
	N	162	162	162	162	162	162	162	162	162

OC8 - Skills Development	Pearson Correlation	.339**	-0.013	.222*	.394*	.339*	.515*	.474*	.618*	1
	Sig. (2-tailed)	0	0.871	0.005	0	0	0	0	0	
	Covariance	1.177	-0.006	0.106	0.262	0.219	0.288	0.284	0.349	0.637
	N	162	162	162	162	162	162	162	162	162
**. Correlation is significant at the 0.01 level (2-tailed).										
*. Correlation is significant at the 0.05 level (2-tailed).										

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Correlations										
		AP	OC1	OC2	OC3	OC4	OC5	OC6	OC7	OC8
AP	Pearson Correlation	1	.225*	.334*	.212*	0.009	.212*	.254*	.255*	.365*
	Sig. (2-tailed)		0.004	0	0.007	0.912	0.007	0.001	0.001	0
	Covariance	13.118	0.438	0.727	0.639	0.026	0.539	0.691	0.654	1.054
	N	162	162	162	162	162	162	162	162	162
OC1 - Engagement	Pearson Correlation	.225**	1	.507*	0.035	-0.028	0.073	0.003	-0.008	-0.013
	Sig. (2-tailed)	0.004		0	0.659	0.726	0.354	0.973	0.923	0.871
	Covariance	0.438	0.29	0.164	0.016	-0.012	0.028	0.001	-0.003	-0.006
	N	162	162	162	162	162	162	162	162	162
OC2 - Information Sharing	Pearson Correlation	.334**	.507*	1	.188*	.172*	.303*	.285*	.165*	.222*
	Sig. (2-tailed)	0	0		0.016	0.029	0	0	0.036	0.005
	Covariance	0.727	0.164	0.361	0.094	0.084	0.128	0.129	0.07	0.106
	N	162	162	162	162	162	162	162	162	162
OC3 - Decision Involment	Pearson Correlation	.212**	0.035	.188*	1	.603*	.355*	.426*	.410*	.394*
	Sig. (2-tailed)	0.007	0.659	0.016		0	0	0	0	0
	Covariance	0.639	0.016	0.094	0.693	0.407	0.207	0.266	0.241	0.262
	N	162	162	162	162	162	162	162	162	162

OC4 - Empowerment	Pearson Correlation	0.009	-0.028	.172*	.603*	1	.463*	.468*	.393*	.339*
	Sig. (2-tailed)	0.912	0.726	0.029	0		0	0	0	0
	Covariance	0.026	-0.012	0.084	0.407	0.657	0.263	0.285	0.225	0.219
	N	162	162	162	162	162	162	162	162	162
OC5 - Team Building Efforts	Pearson Correlation	.212**	0.073	.303*	.355*	.463*	1	.583*	.588*	.515*
	Sig. (2-tailed)	0.007	0.354	0	0	0		0	0	0
	Covariance	0.539	0.028	0.128	0.207	0.263	0.493	0.307	0.292	0.288
	N	162	162	162	162	162	162	162	162	162
OC6 - Team Environment	Pearson Correlation	.254**	0.003	.285*	.426*	.468*	.583*	1	.491*	.474*
	Sig. (2-tailed)	0.001	0.973	0	0	0	0		0	0
	Covariance	0.691	0.001	0.129	0.266	0.285	0.307	0.563	0.261	0.284
	N	162	162	162	162	162	162	162	162	162
OC7 - Capability Development	Pearson Correlation	.255**	-0.008	.165*	.410*	.393*	.588*	.491*	1	.618*
	Sig. (2-tailed)	0.001	0.923	0.036	0	0	0	0		0
	Covariance	0.654	-0.003	0.07	0.241	0.225	0.292	0.261	0.5	0.349
	N	162	162	162	162	162	162	162	162	162
OC8 - Skills Development	Pearson Correlation	.365**	-0.013	.222*	.394*	.339*	.515*	.474*	.618*	1
	Sig. (2-tailed)	0	0.871	0.005	0	0	0	0	0	
	Covariance	1.054	-0.006	0.106	0.262	0.219	0.288	0.284	0.349	0.637
	N	162	162	162	162	162	162	162	162	162
**. Correlation is significant at the 0.01 level (2-tailed).										
*. Correlation is significant at the 0.05 level (2-tailed).										