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EDITORIAL

Purpose of a Journal in Service Management

1. Introduction

The services sector in Sri Lanka is the largest contributor to the Sri Lankan economy among the four major sectors, namely agriculture, industry, services and taxes. A report of the Department of Census and Statistics on economic growth of Sri Lanka during 2017 reports that contribution to the national GDP by the services sector, at current prices, was 55.8% (Sri Lanka Department of Census and Statistics, 2018).

During the past five years, professional managers in the Sri Lankan private and public services sector, and the academics have voiced their concern about the lack of a formal professional organization in the field of service management comparable to other organizations such as the Institute of Personnel Management, Institute of Management and the Institute of Marketing. In January this year, this was achieved with the formation of the Sri Lanka Institute of Service Management (SLISM), the main objectives of which is to bring together professional service managers of the public and private sectors, and academics teaching and conducting research on service management to provide input and advice on improving service management practices, education, research and training in Sri Lanka, and organizing and conducting educational activities towards this objective.

One of the key objectives of SLISM included establishing this journal, the Sri Lanka Journal of Service Management (SLJSM), which will be the main forum for disseminating research, case studies, and best practices in service management in Sri Lanka. Gunawardane (2017) highlights that a substantial amount of research on service management issues relevant to Sri Lanka, or applicable to other countries by authors of Sri Lankan origin, does exist, but mainly in foreign journals and local general management journals. This adds to the case of having Sri Lanka's own high-quality journal in service management.

As SLISM embarks on this important task, it would be prudent to open a dialogue on several issues relating to its intended function, namely

1. The role of an academic journal in general,
2. The role of an academic journal in service management, and

3. The need to achieve a balance between academic rigor and practical value to professional managers.

2. Purpose of Academic Journals

Academic journals are peer-reviewed periodicals published by an institution, corporation or a professional or scholarly society in which researchers publish current research work in the form of articles (papers). The term academic journal applies to all scholarly publications in all fields, from scientific and quantitative social sciences to humanities and qualitative social sciences. (Explorable, 2017). Peer review is the evaluation of work by one or more people of similar competence to the producers of the work (peers). It constitutes a form of self-regulation by qualified members of a profession within the relevant field. Peer review methods are employed to maintain standards of quality, improve performance, and provide credibility. Peer review is often used to determine an academic paper's suitability for publication. SLJSM falls into the category of academic journals,

The purpose of academic journals is to facilitate scholarly communication, filter for errors, and maintain the record of scientific advance (Conley, 2012). Academic journals serve as permanent and transparent forums for the presentation, scrutiny and discussion of research. They are usually peer-reviewed or refereed (Blake and Bly, 1993) Content typically takes the form of articles presenting original research, review articles, and book reviews. The purpose of an academic journal, according to the first editor of the world's oldest academic journal Henry Oldenburg, is to give researchers a venue to "impart their knowledge to one another and contribute what they can to the grand design of improving natural knowledge, and perfecting all Philosophical Arts, and Sciences." (Royal Society, 2011).

In addition to original research work, academic journals also publish review articles. Review articles usually survey previously published studies, rather than reporting new facts or analysis. Therefore, review articles are sometimes also called survey articles. Review articles are useful to learn recent major advances in the field and current debates on key issues. SLJSM is also expected to publish review articles.

Academic journals are different from trade or professional magazines. They do not undergo peer-review. They are reviewed by the editors. In addition to SLJSM, SLISM intends to publish a magazine called "The Service Manager" which will carry "how to do" type guidance of service management professionals.

3. Who are Academic Journals Targeted at?

The criticism of academic journals stems from the theoretical rigor imposed by editors of academic journals. For example, McKenzie (2017) describes academic journals as those that publish articles written by and for faculty, researchers or scholars (chemists, historians, doctors, artists, etc.), using scholarly or technical language, usually long and detailed, about research in a particular academic discipline, including full citations for sources. A general criticism is that such articles are too theoretical for reading by practitioners.

Kay (2013). Investigated which journals and periodicals are preferred for various uses by lodging managers, a service industry. Readership level and usefulness of 17 journals/periodicals (academic and non-academic) by senior managers were explored. The research found that a significant number of lodging professionals tend to use hospitality industry and general business publications over academic research journals. However, several academic journals were rated higher by managers regarding usefulness as a source for information on research, employee management, marketing, hospitality industry, general business, as well as professional and personal development.

The question often raised is whether academic journals are only for reading and use by academicians? The modern trend seems to answer this question in the negative. For example,

- Harvard Business Review's Guidelines for Contributors states, "Usefulness: HBR readers come to us not only to stay on top of new developments in management thinking, but also to change the way they and their organizations actually do things. If you can explain your thinking so that the reader understands how to apply it in a real situation that will make it more powerful". Noticeable here is the emphasis on applicability of content of articles to real organizational situations. (Harvard Business Review, 2018).
- The Indian Journal of Public Administration published (since 1955) by the Indian Institute of Public Administration, New Delhi, claims that it is "a peer-reviewed quarterly professional journal of national and international repute catering to the needs of administrators and academics alike. IJPA includes research papers, research notes,

book reviews, and occasionally documents and interviews/dialogues.” Sage Publishing (2018). Note, again, the reference to (public service) “administrators.”

- Singaporean Journal of Business Economics and Management Studies (SJBEM), “Encourages and provides insights of research in the fields of Business, Management, Marketing, Finance, Economics, Human Resource Management and relevant subjects, establishing a new publishing platform for practitioners and researchers that can address their publishing needs in timely manner. Creation of a forum for dialogue and debate between business and management researchers and practitioners and stakeholders. (SJBEM, 2015). Again, we note the emphasis on “researchers and practitioners”
- Production and Operations Management Journal
“The journal publishes scientific research into the problems, interest, and concerns of managers who manage product and process design, operations, and supply chains. Practitioners evaluate our research by three criteria: whether academic research is applicable or implementable (solution oriented), whether academic research provides novel insights or new perspectives to management (eye opening), and whether academic research helps practitioners recognize their situations (accessibility) (De-Margerie and Jiang, 2011)

The conclusion is that, while some academic journals especially in scientific and mathematical fields remain to be highly rigorous and theoretical, the trend among business and management academic journals is to provide a forum for, and provide information useful for, practitioners as well. We will discuss how this balance can be achieved later in this article.

4. Academic Journals in Service Management

What is the approach taken by well-known academic journals in service management? Let us examine, editorial policies of some of the most reputed international journals in service management.

- Journal of Service Management (JSM)
Editorial Policy states, “Key journal audiences: Academics and researchers in the field, management consultants, and senior personnel in service industries.”
- Journal of Service Research (JSR)

Widely considered the world's leading service research journal, JSR claims, "JSR offers the necessary knowledge and tools to cope with an increasingly service-based economy. JSR features articles by the world's leading service experts, from both academia and the business world."

- International Journal of Service and Operations Management (IJOSM)
"IJOSM focuses on new strategies, techniques and technologies for improving productivity and quality in both manufacturing and services."

Again, we see that service management journals are also highly conscious that, in addition to academicians and researchers, practitioners in service industries should also be included in their target audience, and that material published should offer knowledge and tools to meet the need of the modern service economy. It is imperative that SLJSM follows a similar philosophy and editorial policy.

It may also be worthwhile to examine the subjects and issues focused by these service management journals.

- JSM:

The service encounter, the servicescape and service experiences, Service quality, moments-of-truth and word-of-mouth, Service concept and the service logic, Value creation through services and service competition, Complaints management, service recovery and service guarantees, Customer involvement and customer focus in service organizations, Customer satisfaction, loyalty and profitability, Customer engagement, customer communities, New Service development and service design, Technology in services and self-service technology, Service culture, employee empowerment and engagement, Service operations management, Services in manufacturing companies.

- JSR

Service marketing, Service operations, Service human resources, E-Service, Service information systems, Customer satisfaction and service quality, Global issues in service

- IJSOM (we include only the service management topics)

Operations strategy in services/manufacturing, Designing service/manufacturing enterprises, Service delivery process, performance measures/metrics, Managing service

capacity, Managing and measuring quality, Information technology, Human resources, Supply chain/inventory management, Service and process design, Service location and facility planning

Comparing these lists with the topics and issues SLJSM plans to focus on, one can see that SLJSM is not behind any of these international journals. In fact, SLJSM appears to cover the most relevant topics and issues from the entire collection of topics in all three journals above.

5. How can SLJSM Achieve the Balance between Academic Rigor and Managerial Relevance?

First, three well-known international journals, which are known for their academic quality and rigor, provide us some clues. For example,

- Journal of Operations Management “Manuscripts accepted for publication meet the following criteria: Cross-functional and cross-enterprise decision making. Research rigor applied through the scientific theory-building approach and Managerial relevance”.
- Decision Sciences. “Ground-breaking research articles that enhance managerial understanding of decision-making processes and stimulate further research in multidisciplinary domains are particularly encouraged”

The focus seems to be on “cross functional decision making” and “multi-disciplinary domains”. In services, the most relevant cross-functional decision making arises with integrated decisions involving service marketing, service operations and service staff management.

- Management Science. The journal “publishes scientific research into the problems, interests and concerns of managers. In addition to managerial relevance, articles must meet high standards of originality and rigor”

Implicit here is the policy of getting service manager/practitioner input on “problems, interest and concerns of managers”. Interviews, surveys and focus group discussions with practitioners (and leading practitioners in the SLISM advisory council) will be essential for SLJSM.

Nest, a few important and relevant points made in the literature:

- Often, research in service management loses focus on managerial relevance and attempt to demonstrate rigor in statistical methods and analysis. Lawrence (1992) points out that when we borrow scientific methods from “hard sciences” (e.g. mathematics, chemistry, or physics) to make our business research rigorous, we ignore a very fundamental difference between the subject matter of chemistry and physics and our subject matter, human behavior. The objects of study of chemists and physicists, physical and chemical substances, have no voices. On the other hand, our subjects, customers/consumers, most definitely do have voices. Their subjects cannot tell them about their problems, whereas ours most emphatically can. Our subjects, customers, can tell us what needs to be studied. This single insight has important implications about the way we should do service management research.
- Theorizing with managers is an effective way of producing and socializing both academically sound and managerially relevant knowledge. Thus, academic researchers can theorize with managers to bridge the theory practice divide and thus generate results that are both academically rigorous and managerially relevant (Nenonen et al. 2017).
- Perea and Brady (2017) interviewed over 150 senior business practitioners, in order to capture their views on the usefulness of academic research to them in their roles as practicing managers. Survey questions covered both their current access and reading of business-related publications and what the ideal academic business journal should be, in terms of access and contents. Academic journals are not very well known among business professionals. If these professionals could choose, they would like academic journals to be written by experienced business people, to contain business cases and to be accessible on line. Academic journals should also change the approach regarding vocabulary, topics and dissemination.
- Subramony and Pugh (2016). The nature of services requires a multidisciplinary approach to research emphasizing both customer experiences of service delivery (services marketing research) and the organizational and employee processes that lead to those outcomes (services management research).

Some of their recommendations from these studies SLJSM plans to adopt are:

- Make academic journals easily available and at low cost, and perhaps accessible online;
- Ensure they are written by, or in collaboration with, experienced business people; encourage academics to co-write with business practitioners;
- Ensure that contents are directly useful to practitioners, i.e. are practical;
- Encourage multi-disciplinary studies involving service management and services marketing;
- Include situations of practical application for businesses and actual business cases;
- Publish great leaders sharing experience and best practice sharing; and
- Ensure that papers directed at practitioners are written in plain language;

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A Conceptual Framework on Service Design in Distance Education

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Executive Summary

Education is a major subsector of the service sector in Sri Lanka. Therefore, educational services, both regular university type education and distant education, come within service management which is the focus of this Journal.

In many countries including Sri Lanka, distant education (DE) is considered a useful system to provide educational opportunities for those who missed the regular higher education opportunities through regular channels like advanced level examinations and university admission.

This paper discusses how to improve distant education services. One of the key concepts in service management is that service experience of customers depends on the service package offered to the customers. Designing good service packages is a main activity in service management. This paper argues that distant education services can be made more useful to students who are the customers for this service by making improvements in the service package offered to them.

As in other services, distant education services also offer core services and peripheral services to customer students. Core services include courses, teacher characteristics, facilities, assessment systems etc. Peripheral services include admission processes, advisory studies and information services. This paper proposes that a new element, student involvement, should be added to this service package.

The paper reviews previous studies on the subject and shows that these studies establish (a) student involvement depends on core and peripheral services, (b) student experience also depends on core and peripheral services, and (c) greater student experience will cause greater student involvement, and (d) greater student involvement makes quality of distant service education programs better.

In summary, quality of distant education service programs can be improved by core and peripheral services designed with student involvement.

Abstract

Since the inception, Distance Education (DE) has been identified as an effective system of education particularly among those who missed their higher education opportunities. Despite its usefulness and popularity, higher dropout rates and comparatively poor academic excellence of students have been reported in recent years across the world. Hence, this paper argues that these issues could be overcome by making the student involved in academic activities by offering a well-designed service package. Therefore, the paper presents a conceptual framework proposing a positive impact of core services and peripheral services offered by DE institutes on student involvement. The relationship is argued to be mediated by student experience quality since every service is resulted in experiential effects. Accordingly, the framework suggests that properly designed services would offer quality experience to students and thereby enhance their involvement. The framework provides a novel contribution as it proposes service package offered by DE institutes as a predictor of student involvement which has not gained attention in the scholarly work. Upon the validation, framework provides valuable input for decision makers of the DE institutes in designing and re-designing their service package offered to students.

Keywords: *Core services, Peripheral services, Student experience quality, Student involvement, Distance education*

Introduction

Education systems are multiple. They can be placed on a continuum ranging from highly contiguous to non-contiguous (Rumble, 1989). Contiguous education represents traditional or conventional education where the teacher and the student meet at a predetermined time and a location. At the other extremely non-contiguous education lies which can be termed as pure distance-based education (Rumble, 1989). The purest form of Distance Education (DE) occurs at different time and different places (Simonson, et al., 2008). Teachers and students are geographically and temporally dispersed where teaching behaviours are executed apart from learning behaviours (Moore et al., 2011; Rumble, 1989; Simonson et al., 2008; Woolls et al., 2002). This arrangement eliminates the need of attending classes which are prearranged at a specific time and a location, and thereby creating residential based education. The system allows students to make their own learning decisions as what to learn, how to learn, when to

learn, and which pace to learn, and thereby making them self-responsible towards their academic activities (Sachar and Neumann, 2003). The gap between the teacher and the student is bridged using education technology which can either be in printed or electronic medium (Woolls et al., 2002). Telecommunication revolution backed by the advancement of information technology contributed in making the distance-based study programmes more effective and popular across the world (Wang and Liu, 2013).

The rationale for the DE since its inception has been to create an open opportunity for everyone despite constraints for education (Maxwell, 1995; Rumble, 1989). It removes barriers for education such as age, gender, social status, financial conditions, experience as well as geographical and temporal restrictions (Attri, 2012; Gunewardene and Lekamge, 2012). Anyone with inner quest for education is offered with the opportunity to pursue study programme they like. This results in significant diversity in learner profile (Attri, 2012). Therefore, people embraced the DE system as an effective mean of education since its inception. Acceptance of the system and its popularity are backed by unique features of the system as well as fluctuating demographic conditions and social requirements. Such factors include aging population, increasing pressure on employed people to obtain educational qualifications, learning while earning as well as maintaining social status (Attri, 2012; Wasala, 2010a, 2010b).

However, the system is not free of problems. Previous studies have identified that dropping out from study programmes without completing them within the stipulated time period and comparatively low academic performance by students are major issues in the DE system across the world (Attri, 2012; Dedigamuwa and Senanayake, 2012; Willging and Johnson, 2004). Since the purpose of any education system is to create a successful student with the ability of applying what they learnt in their day to day life, it is imperative to identify root causes and remedies for these problems as they have an impact towards the development and the well-being of people (Dassanayake et al., 2017).

As per the previous studies, root causes can be broadly categorised as student specific causes and system specific causes (Attri, 2012; Dedigamuwa and Senanayake, 2012; Farajollahi and Moenikia, 2010). However, most of the solutions to overcome these issues have mainly directed towards system specific causes which in turn can categorise as academic related solutions and non-academic related solutions. Curriculum of the study programme, student assessments mechanisms, teaching methods, nature of teacher student interactivity and

relationship, quality of learning material, and availability of learning facilities are identified as academic related solutions (Attri, 2012; Dedigamuwa and Senanayake, 2012; Farajollahi and Moenikia, 2010; Lowes et al., 2007). Similarly, student induction programmes, administrative procedures, payment methods, financial support, career guidance, counselling, and opportunity for recreational activities are identified as non-academic related solutions (Attri, 2012; Dedigamuwa and Senanayake, 2012; Hopland, 2013; Hopland, 2016).

Notably, when analysing these solutions, they represent variety of services offered by the DE institutes to their customers, i.e. students. Some of these activities address the basic needs of students while others make the service more appealing and differentiating. These services include both tangible and intangible elements, and together they offer benefits and value to the student. Altogether they can be termed as the service package offered by the DE institutes

(Gronroos, 2008; Roth and Menor, 2003). Therefore, previous scholarly findings imply that attention should be diverted towards careful design of the services since a well-designed service package could be used as a mean in overcoming identified problems in the DE context.

Service design is an antecedent of service quality which leads to customer satisfaction and organisational performance (Fornell, 1992). Customers view a service as of high quality if it creates a value for them. Therefore, it is essential to plan and organize people, infrastructure, communication, and material components in order to deliver the customer expected value of the service. Further, understanding of users and their context, service providers and social practices, and translating this understanding into the development of evidence and service systems is critical in value creation. Accordingly, all these activities need to be incorporated in service design in order to create a delighted customer (Andreassen et al., 2016; Patricio, 2011). However, service design as a separate academic field is still in its infancy (Patricio, 2011). Similarly, in the DE context service design has not yet gained adequate attention (West, 2009). Therefore, it is important to address the prevailing gap in the service design field as well as specifically in the DE context in terms of prevailing problems.

Nevertheless, students in the DE context have a significant role to play as self-learners. Therefore, it is questionable whether a well-designed service package by itself can overcome the identified problems in the DE context. Pace (1984) has highlighted that even though institutes are responsible for establishing an environment with the capability of enhancing

student learning and development, students by themselves have to involve in academic activities in order to become successful. Further, significant positive impact of student involvement on academic success and student retention was extensively acknowledged by previous scholarly work (Astin, 1984; Fischer, 2007; Moore et al, 2011; Pace, 1984). Even though, student involvement has gained an attention as a predictor of student success and retention, there is a gap in the existing knowledge base with respect to its predictors. Particularly, the how the service package offered influences student involvement (Astin, 1984; Dassanayake et al., 2017). Therefore, this paper proposes a conceptual model to identify the impact of service package on student involvement.

Student involvement is a behavioural phenomenon (Astin, 1984), and behaviours are resulted by perception on stimuli received. Service package acts as stimuli, and consumption of which results in experiential effects (Lemon and Verhoef, 2016). Students tend to evaluate their perception on quality of service experience they gain through the consumption of elements in the service package and behave accordingly (Robbins and Judge, 2013). Hence, the conceptual framework further proposes a mediating impact of quality of student experience on the impact of service package on student involvement. Altogether, the proposed conceptual framework deals with the phenomenon that when well-designed services are offered, they create an appealing experience to consumers which in turn results in behavioural outcomes. In the DE context this phenomenon can be elaborated as when students consume a well-designed service package, they rate their learning experience as of high quality and thereby get involved in the academic activities.

Literature Review

Service Package offered by Distance Education Institutes

Service package describes the characteristics of service, what needs these characteristics will satisfy, and how they will be satisfied (Lovelock and Writz, 2013; Roth and Menor, 2003). Primarily it consists of core services and peripheral services. Core services offer the basic problem-solving benefits customer seeks or needs trying to fulfil and thereby the reason for their service transaction. Peripheral services are supplementary to core services. They provide additional benefits, enhance service value and contribute to differentiate service from substitutes (Gronroos, 2008; Lovelock and Writz, 2013; Roth and Menor, 2003).

Review of scholarly work indicated that studies that have exclusively focused on service package in the DE context are limited. Therefore, elements of core services and

peripheral services could be identified based on the dimensions used to determine and assess quality in the DE context (Dassanayake et al., 2017; Dursun, et al., 2013). Accordingly, nature of courses, teacher characteristics, assessment and evaluation, how students are treated and their feeling that best interest being served, physical and technological infrastructure as lecture halls, computer laboratories, LMS, and their usefulness as well as course material, other recommended and supportive study materials can be considered as the core services of service package offered by DE institutes (Mbweza, 2014; Jung, 2012; Douglas et al., 2006). Accordingly, this variable can be measured using the scale presented in Table 1 developed by modifying the scale used by Douglas et al. (2006) to measure product-bundle.

Table 1: Operationalization of Core Services Variable

Dimension	Indicator
Supporting facilities and goods	- Physical facilities of the university as lecture halls, library premises, administrative buildings, student areas and washrooms are high of quality - Technological facilities as computer labs and equipment are high of quality - LMS (MYOUSL Portal) is always accessible and usable - Printed study materials provided are relevant, interactive and up-to-date - Multimedia presentations used in day schools sufficiently cover subject specific knowledge - Supplementary study material provided through LMS as documents, audio or video files are accessible and usable
Explicit services	- Degree programme is well structured - Curriculum of the degree programme is relevant to needs - Knowledge covered by each course in the degree programme is comprehensive and up-to-date - Multiple teaching and learning methods (as face to face sessions, online discussion boards, emails, video conferencing, online chat, skype calls) are used - Multiple methods of assignments are used by each course to evaluate my knowledge and learning - Teaching staff is well trained and highly qualified - Teaching staff is competent in teaching - Structure of assignments and marking criteria used by each course are appropriate - I receive timely feedback to assignments and study related problems I have
Implicit services	- University environment is encouraging and making me feel comfortable - Day schools convey sense of competence, confidence and professionalism - University staff is friendly and approachable - University staff demonstrates concern and be responsive whenever I have a problem - My feelings and opinions are respected - My best interest is being served

-
- My rewards are consistence with the effort I put into coursework and examinations
-

Peripheral services offered to augment the core services include enquiry, admission and pre-study advisory services, career guidance and counselling services, record keeping, provision of timely and relevant information, information management, other administrative support, multiple payment methods and related applications, financial aids, online registration and related online support, differentiated services for students with special needs of one sort or another, and extra-curricular and recreational facilities (Foreman and Retallick, 2013; Jung, 2012; Douglas et al., 2006; Kretovics, 2003). Scale developed by Jung (2012) to measure student support in the DE context can be modified and used to measure this variable as presented in Table 2 (Dassanayake et al., 2017).

Table 2: Operationalization of Peripheral Services Variable

Dimension	Indicator
Facilitating services	• Comprehensive training/ induction on distance learning skills (as how to manage time, how to succeed in DE) was given to us • There is considerable social support for us as students (as encouragement, interpersonal communication with faculty and tutors) • Adequate administrative support (as enrollment and admission services, appeal mechanism) is available for us as students • All the relevant course information (as course objectives, assignments, timelines, study requirements, resources, learning outcomes) are provided to us on timely manner
Enhancing services	• Psychological support (as counseling services, career guidance services) is available for us as students • Financial support (as multiple and flexible payment methods, scholarships) is available for us as students • There are alternative forms of information sharing methods (as SMS alerts, online notices, snail mail, email) • Latest technology is used in academic and non-academic activities (as online application, registration, payments, examinations, student forums, discussion boards, access to library facilities) • There are opportunities for extra-curricular activities (as student organisations, sports) for us as students

Student Involvement

The Theory of Student Involvement provides a comprehensive analysis for student involvement by providing the basis for further studies. As per the theory, student involvement is the amount of physical and psychological energy that the student devotes to college experience (Astin, 1984). It is the ability of an individual to take charge of own learning by setting goals, identifying gaps in knowledge and addressing them through a self-monitoring process (Bates, 1995). Since this is a behavioural phenomenon, if a student is involving, it can be observed through behaviour and measured quantitatively and qualitatively (Astin, 1984; D'arcy, 1984; Foreman and Retallick, 2013). Therefore, when a student is involved following behaviours can be observed. The student tends to utilise more time on reading course material and relevant books, using library, logging onto LMS frequently, preparing separate notes on subject matters, utilising their learning into day to day activities, attending lectures, and actively participating in classroom discussions. Similarly, he or she is interacting with teachers to discuss their subject matters, academic plans, and looking for feedback on performance, academic and career related matters. Further, he or she is taking part in collaborative learning with peers, spending time with them in studying and tutoring as well as sharing own experience on study programmes and future plans (Astin, 1984; Pass, 2013; Sidelinger and Booth-Butterfield, 2010). Accordingly, scale developed by Dassanayake et al. (2017) presented in Table 3 which is based on National Survey on Student Engagement by Indiana University can be used to measure the student involvement variable.

Table 3: Operationalization of Student Involvement Variable

Dimension	Indicator
Active participation	• I utilize time for my academic activities regularly • I log into LMS and get updated with the study programme regularly • I attend day schools regularly • I actively take part in class room discussions
Self- learning	• I normally summarize what I learn in day schools and from course materials • I normally combine ideas from different courses in discussions or when completing assignments • I normally connect my learning to societal problems or issues • I examine strengths and weaknesses of my own views on topics or issues
Student faculty interaction	• I talk about my career plans with academic staff members • I discuss course topics, ideas or concepts with academic staff members outside the class • I discuss my academic performance with academic staff members
	• I ask other students to help me understand course material and subject matters

Learning with peers	• I normally explain course material to other students • I normally prepare for exams by discussing or working through course material with other students
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Student Experience Quality

Experience is the intangible takeaways from service encounters. It originates from a set of interaction between the customer and a product, a company or part of its organisation over several touch points in the service or customer journey (Gentile et al., 2007; Walter et al., 2010). Services are always accompanied by experience (Lemon and Verhoef, 2016; Verhoef et al., 2009). Organisations therefore, cannot sell experience separately from service yet they can design the service in such a way to result in a better experience using service elements (Pine and Gilmore, 1998; Sundbo, 2015). In the education context, Ning and Downing (2011) have identified learning experience as students' interaction with the teaching and learning environment. As per the student life cycle, student experience starts when a student decides to study at the education institute and evolves through the phases as application, registration, teaching, learning and assessment, graduation, and post qualification experience (Arambewela and Maringe, 2012).

Most developed aspects of customer experience measurements concern customer perceptions of parts of the service journey or of the overall customer experience (Lemon and Verhoef, 2016). This is known as customer experience quality, which can be defined as the perceived superiority of holistic service encounter or customer experience (Jutter et al., 2013). On student point of view, student experience quality is the students' perceptions of direct and indirect inputs they receive from their college. This is about student perception which indicates student's own view towards the variety of aspects as curricula, program delivery, quality of instruction, and learning support of the education institute. If their expectations on these elements are met, they tend to rate it as a quality experience (Horvat et al., 2012; Neumann and Neumann, 1993). Scale developed by Dassanayake et al. (2017) which is presented in Table 4 can be used to measure the student experience quality variable.

Table 4: Operationalization of Student Experience Quality Variable

Student experience quality	• I am having a great time with my academic activities • My academic activities are interesting • I am having a very enjoyable time with this degree programme • I am having a very pleasant experience with this degree programme
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- My experience with this degree programme makes me happy
 - My experience with the degree programme is enjoyable
 - My experience is beyond words
 - I truly enjoy my experience
 - I believe that I receive a superior experience at university
 - My experience at university is excellent
-

Direct Impact of Core Services and Peripheral Services on Student Involvement

Theory of Student Involvement

Theory of Student Involvement provides the theoretical foundation for the impact of core services and peripheral services on student involvement. As per the theory, effective educational policies and practices of the higher education institutes will result in increased student involvement in academic matters (Astin, 1984). Policies and practices are directed towards the accomplishment of desired set of goals. They indicate the implicit or explicit specification of purposive action being followed in dealing with a matter of concern (Harman, 1984 as cited in Bell & Stevenson, 2006). Such that these policies and practices can be identified as the ground rules for the functionality of any organisation. Concerning educational institutes, therefore, these policies and practices determine the nature of service they offer; study programmes, their content, teaching methods, and infrastructure facilities they use. Hence, it can argue that policies and practices encompass elements of the service package offered and its composition is determined upon these policies and practices of education institutes. Further, the theory highlights that students are more likely to be involved if they have access to high quality programs and services that stimulate and challenge their learning (Astin, 1984). This can be further supported by the Subject Matter Theory and Resource Theory as cited in Astin (1984) and Neumann and Neumann, (1993). Therefore, it can argue that when effective core services and peripheral services are offered by the DE institutes, it can result in enhanced student involvement.

Empirically, there are limited amount of studies that have explicitly investigated the impact of core services and peripheral service on student involvement. However, by combining scattered findings on elements of these services, an impact on student involvement could be established.

Impact of Core Services on Student Involvement

Programme structure and the curriculum enable active student participation in academic activities (Astin, 1984; Kanungo, 1982; Powel, 1979). Study materials provided make students more engaged with them when they are more interactive, up to date, and enable students to learn by themselves. Well-designed study materials encourage student to seek for new knowledge by themselves (Attri, 2012; Dadigamuwa and Senanayake, 2012; Farajollahi and Moenikia, 2010). Teacher characteristics and teaching style are other important aspects of core services offered. Teacher has a principal role to be a facilitator, assessor, participant, and motivator in inspiring students, and make them actively involved in the course (Ramsden, 1991; Skinner and Belmont, 1993). Teacher centred class rooms and authoritative culture which encourages passive learning can negatively affect student involvement (Powel, 1979). When teacher uses active and collaborative teaching techniques, students tend to participate more in learning. Similarly, when student assessment is based on higher order learning skills, it naturally demands more effort from student's side (Kanungo, 1982; Pass, 2013; Umbach and Wawrynski, 2005; Webber et al., 2013). Timely feedback provided by the teacher on student activities acts as positive reinforcement (Astin, 1984; Umbach and Wawrynski, 2005). Similarly, presence of peers and interaction with them also affect student involvement. Close relationships with peers, friendliness, and their support directly affect active participation in terms of answering teacher questions and participating in classroom discussions (Shachar and Neumann, 2003). Even though student who follow study programmes on the DE platform are not frequent visitors to the university, provision of adequate facilities as well-equipped and arranged lecture halls can make learning environment more comfortable, appealing, and thereby encourage students to attend lectures and visit the institute frequently (Sam et al., 2013; Astin, 1984). Student interface of LMS, its user friendliness, availability, and continuous functioning without failure are other important aspects in core services (Jung, 2012; Mbvesa, 2014).

Therefore, based on these empirical findings it can be argued that when well-designed core services are offered by the DE institutes, it will eventually result in enhanced student involvement. Accordingly, this paper proposes the following proposition.

Proposition 1: Core services offered by the DE institutes have a positive impact on student involvement.

Impact of Peripheral Services on Student Involvement

On the other hand, it has identified that student support services result in effective student involvement (Foubert and Grainger, 2006; Huang and Chang, 2004). Administrative support and provision of timely information address alienation feature unique to the DE system whereas multiple and flexible payment methods in line with modern technological innovations make it convenient for students to execute their studies without constraints. For instance, majority of learners in the DE system are working adults with personal and professional responsibilities. Financial support in terms of scholarships or payment in instalments can assist students in continuation of their studies (Sam et al., 2013). These support services provide a hassle-free supportive learning environments and conditions for students where they feel committed and comfortable with the institution resulting better performance and reduced dropout rates (Foreman and Retallick, 2013; Kretoivics, 2003).

Accordingly, based on these empirical findings it can argue that when well-designed peripheral services are offered it will eventually result in enhanced student involvement. Therefore, this paper proposes the following proposition.

Proposition 2: Peripheral services offered by the DE institutes have a positive impact on student involvement.

Mediating Role of Student Experience Quality

Mehrabian and Russell Model

Mehrabian and Russell Model (1974) as cited in Billings (1990), which is based on Stimuli-Organism-Response framework provides the theoretical foundation for the mediating role of student experience quality. It assumes that individuals' feelings and emotions ultimately determine their behaviour which is evoked by environmental stimuli (Billings, 1990). The environmental stimuli are what people receive by their senses, as sight, hearing, smell, touch, and taste. After interpreting these stimuli by individuals on their own view, an emotional state expands into either one of pleasure or of arousal. Then, the person responds to the emotional state through behaviour. Emotions hence indicate individuals' perception on stimuli and determine their behaviour. Accordingly, perception mediates the stimuli-response relationship (Billings, 1990; Robbins and Judge, 2013). Accordingly, core and peripheral services of the service package can be treated as stimuli received by the student, more specifically contextual stimuli, and their involvement is the behavioural response to those stimuli which is mediated

by their perception on learning experience, i.e. student experience quality, gained from those core and peripheral services.

Impact of Core Services and Peripheral Services on Student Experience Quality

Successful service experiences are those that customers find unique, memorable and sustainable over time. They would like to repeat and build upon such experience and enthusiastically promote the related services via word of mouth (Meyer and Schwager, 2007; Pine and Gilmore, 1998; Pullman and Gross, 2004). It has been identified by Kozak and Gurel (2015), and Ng and Forbes (2008) that construction of actual value of experience requires proper construction of core and peripheral services in the service package offered to customers.

Accordingly, physical facilities where service is performed, and supporting study material are primary drivers of perceived quality of student learning experience (Arambewela and Maringe, 2012; Estelami, 2012; Martin-Ruiz, et al., 2012). Pedagogic pluralism, quality of interaction with student as timely feedback on their progression are likely to lead to a more satisfying learning experience in the DE system as it makes the isolated student closer to the institute (Arambewela and Maringe, 2010; Estelami, 2012). Particularly, the programme structure developed as per student requirements with clearly and properly linked goals, objectives, standards, and teaching and assessment methods make the learning more meaningful and will essentially drive towards a superior experience quality (Bocchi et al., 2004). Similarly, how the institution respects its students, values their opinions, and maintains a cordial relationship with them will make the student feel that they receive a quality service and thereby become satisfied with their experience as undergraduates (Martin-Ruiz et al., 2012).

Accordingly, based on these empirical findings it can argue that when well-designed core services are offered it will in turn encourage students to evaluate their learning experience as a quality experience. Therefore, this paper proposes the following proposition.

Proposition 3: Core services offered by the DE institutes have a positive impact on student experience quality.

Students who are attached to the DE system are not merely focused on curriculum, pedagogy, and assessment but go beyond and deal with how the institution responds to their

commitments and needs (Tan et al., 2016). Student perception of experience they receive is therefore influenced by additional and value-added service provided other than the core services. Well organized orientation programmes, dissemination of relevant information, guidelines, and instructions facilitate smooth functioning of student activities (Arambewela and Maringe, 2012; Estelami, 2012). Student support in terms of financial, psychological or social removes external barriers to academic performance and thereby ensures a hassle-free academic life to students (Estelami, 2012; Jung, 2012). Use of modern information and communication technology is seen as essential in creating and stimulating learning environments which are characterized by blended learning, remote access to live lectures, access to digital libraries, and networking of students, academic staff, research assistants and learning resources (Willging and Johnson, 2004). Further, opportunities for extra-curricular activities make the academic life of the student more interesting and entertaining (Jung, 2012).

Accordingly, these peripheral services create emotional feelings outside the main functional solution which subsequently result in better perception regarding their student experience (Gronroos, 2008). Therefore, based on the above empirical findings this study proposes the following proposition.

Proposition 4: Peripheral services offered by the DE institutes have a positive impact on student experience quality.

Impact of Student Experience Quality on Student Involvement

Previous studies have identified that customer experience quality is related to customer behaviour (Wang & Liu, 2003). Similarly, students are the customers of the DE institutes and their behaviour could be affected by the perception on their learning experience. Entwistle and Tait (1990) have specifically identified a direct relationship between student perception and actions. When they have positive perceptions regarding their learning experience in terms of teachers, teaching style, interactions, pedagogy, curriculum and study environment, it influences desirable study behaviours and thereby encourage student involvement (Sidelinger and Booth-Butterfield, 2010; Entwistle and Tait, 1990). On the other hand, student approach to learning indicates correspondence between student learning motives, intentions, and strategies which are significantly influenced by their perception on educational experience. Different approaches indicate the investment of student time and effort in various degrees which in turn demonstrates varying levels of student involvement. Previous studies have

established a positive impact of student learning approach and student effort on academic activities (Diseth, 2007; Lawless and Richardson, 2002).

Accordingly, when meaningful learning experiences are missing, students often become disengaged and dissatisfied because they see no relevance in what they are learning (Diseth, 2007). Students with few chances to participate in meaningful learning experiences are denied the opportunity to integrate and apply the knowledge they have obtained in their classes. Therefore, contemporary research in student learning has also suggested a relationship between learning experience and study behaviour (Lawless and Richardson, 2002; Trigwell et al., 1999). Better the student experience, i.e. when student perceive their learning experience as of high quality, it will eventually increase their involvement in academic activities and (Diseth, 2007; Trigwell et al., 1999).

Therefore, based on these empirical findings this paper proposes the following proposition.

Proposition 5: Student experience quality has a positive impact on student involvement.

Mediating Impact of Student Experience Quality

As per Baron and Kenny (1986), a variable is considered as a mediator to the extent that it accounts for the relations between the independent and dependent variables. Three conditions need to be met for a variable to function as a mediator. They are variations in levels of the independent variable significantly accounts for variations in the presumed mediator, variations in the mediator significantly accounts for variation in the dependent variable, and when the paths from independent variable to mediator and mediator to dependent variable are controlled a previously significant relation between the independent and dependent variable is no longer significant (Baron & Kenny, 1986). Accordingly, the Proposition 1, 2, 3, 4 and 5 fulfil two of the three conditions to consider the student experience quality as a mediating variable. Hence, following propositions are proposed as fulfilment of the third condition in order to establish the mediating impact.

Proposition 6: Student experience quality mediates the positive impact of core services on student involvement.

Proposition 7: Student experience quality mediates the positive impact of peripheral services on student involvement.

Conceptual Framework

Primarily based on Theory of Student Involvement, Mehrabian and Russel Model, and empirical findings, this paper proposes the conceptual framework presented in the Figure 1.

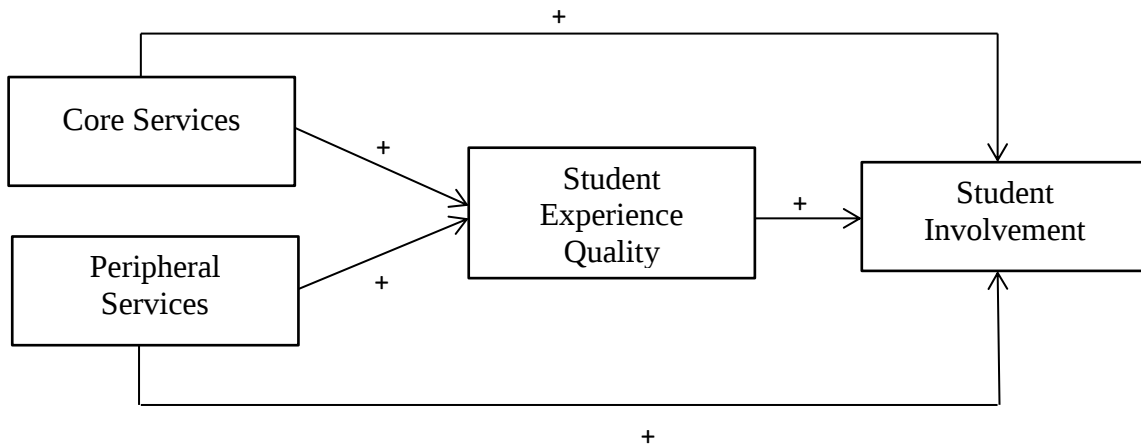


Figure 1: Conceptual Framework

Implications of the Framework

The proposed framework is enriched with theoretical, managerial, and societal implications. Student involvement has been empirically proven as a significant predictor of student retention and success. However, it has not received considerable attention among scholars as a dependent variable, particularly, the impact of service package. Therefore, the proposed framework can be identified as a novel contribution to the knowledge base. Similarly, suggested mediating impact is an extension to the underlying theory of the study, Theory of Student Involvement.

Most importantly, upon the empirical validation, the framework provides valuable input for decision makers of the DE institutes. Since the framework proposes a positive impact on core and peripheral services, the composition of these services should be designed in a way that deliver a superior experience while encouraging students to utilise more time and effort on academic matters. Therefore, upon the empirical validation, decision makers can incorporate the voice of students into service designing and redesigning process. Once the relevant data is collected and analysed based on the framework, as per the student point of view, either core services or peripheral services may require priority over the other. Such that findings will provide a direction and guidance on resource allocation among competing priorities as every organisation is struggling with scarce resources. Notably, student success and retention can be

identified as external performance indicators of the DE institutes. Poor performance in such indicators may hinder the industry recognition towards the institute. Therefore, the proposed framework facilitates in uplifting these indicators through organisational efforts, i.e. proper designing of services it offers, which in turn results in improved goodwill. Importantly, the DE system is renowned as an effective mode of education for those who have an inner quest for education. Identifying and implementing solutions considering the loopholes in this system is paramount important in educating existing and potential students. Benefits of such efforts could be reaped not only by the DE institutes but also by the wider society since an educated citizen is recognised as an asset to any nation.

Future Research Directions

The proposed conceptual framework is subject to empirical validation. However, there is enough room for further expansion of the framework as it only focuses on the contextual elements in enhancing student involvement. The DE system removes the barriers to education. Hence, there is a high level of diversity among students in terms of their socio-cultural and demographic characteristics. This diversity can be considered in future studies. Even though every student receives the same service, their perception on quality of their learning experience is likely to be modified by person specific factors. Therefore, student diversity in demographic characteristics in terms of age, gender, family commitments, and employment can be introduced to the framework as moderating variables. Further, student related factors as motivation, aspirations, and intentions can be introduced as independent variables or control variables which can provide an overall understanding of the scenario on the perspective of the institution as well as the student. Particularly, in the Sri Lankan context there are public and private institutes that offer distance-based study programmes. When empirically validating the framework, data can be collected from number of such institutions rather than limiting to one. This enables to obtain a reliable measure on student perception regarding the service package they receive. A comparative analysis can be performed among private and public institutions as well as among student studying for different levels of study programmes as bachelor's degrees, master's degrees, certificate programmes or diplomas.

Conclusion

It has been empirically validated that student involvement has a direct impact on student success and retention in the DE system. This paper proposed a conceptual framework to identify the impact of service package which consists of core and peripheral services, on

student involvement as it has not received a due attention in the existing knowledge base. The novel framework is developed mainly upon the Theory of Student Involvement and the Mehrabian and Russell Model along with empirical findings. It addresses the existing theoretical gap and, upon the validation it will provide valuable input for decision makers in the DE system with respect to service designing.

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Hedonistic MIS: An Imperative Consideration for Software Services

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Executive Summary

A key factor contributing to efficiency of a service is the timely availability and accuracy of information. For example, in the banking industry, paramount is the bank's management information system (MIS) that maintains customer's information and makes it available timely and accurately to the customer and bank operations.

Studies show that management information systems (MIS) in organizations have several challenges. First, the organization's ability to design and implement good MIS. Next, the lack of customer willingness to use new technology such as on-line banking and mobile banking.

Researchers have attempted to explain these aspects by models. The absorptive capacity theory (ACAP) tries to explain how organizations identify, assimilate and exploit business world to design efficient business processes and management information systems. The Technology Acceptance Model (TAM) tries to explain how customers adopt new technology. Both these theories, highly important for good service management, are explained in this paper.

The paper also brings in a concept called Hedonic Information Systems (HIS). Hedonic information systems aim to provide self-fulfilling rather than instrumental value to the user, are strongly connected to home and leisure activities, focus on the fun-aspect of using information systems, and encourage prolonged rather than productive use.

The authors argue that hedonistic quality of a management information system will influence the customer's intention to use the new technology-based information systems and influence the customer's satisfaction of the system. Managers are advised to incorporate hedonistic features into their management information systems to achieve greater customer acceptance of the system and greater customer satisfaction.

Abstract

This paper focusses on MIS success. Investment on MIS is considerably high, and return has been identified as low. It was established that intended benefits from MIS are not reaped, causing waste of investment. Inquiries into this phenomenon has been done in many facets. Two major categories of research in such research were at firm level and individual level. A notable lacuna in these two categories were identified as not giving prominence to social aspect of firms. On one hand, social computing identified as Hedonic IS, has shown a huge success, while MIS is failing. This paper argues that MIS should learn from HIS success. Thus, this paper proposes availability of hedonistic features in a MIS will enhance the usage and satisfaction towards MIS. On the other hand, the knowledge aspect of MIS introduction as well was not incorporated into existing theories. Absorptive Capacity Theory effectively explain the selection and making commercial use of MIS into a firm, which the MIS researcher have neglected. This paper recognized the DeLone and McLean model as a strong model, yet scholar's demands further improvements. Thus, this paper conceptualizes to extend the DeLone & McLean model by incorporating the construct hedonistic quality of IS and moderating effect of Absorptive Capacity.

Keywords: IS Success, Hedonic MIS, Absorptive Capacity, Social Computing, Hedonistic Quality. Socio Technical Systems Theory

Introduction

Information Systems (IS) projects has been identified as having a lower success rate (Standing, Guilfoyle, Lin, & Love, 2006; King & Burgess, 2008; Hulme, 1997; Heek, 2002; Kappelman, McKeenman, & Zhang, 2008). Success of IS projects were extensively researched (Taylor & Todd, 1995; Agarwal & Prasad, 1998; Suriyaningrum, 2012; Szajna, 1994; Davis, 1989; Pavlou & Fygenson, 2006; Mushtonen-Ollila & Lyytinen, 2003) (DeLone & McLean, 1992; DeLone & McLean, 2002). On one hand a prominent lacuna exists in explaining the impact of social factors on MIS success, despite the fact that Bostrom and Hofnen (1977) establishing the impact of social subsystem in a Socio Technical System (STS) on the success of MIS projects. On the other hand despite the fact Absorptive Capacity theory (ACAP) (Cohen & Levinthal, 1989) and Elaborative Likelihood Model (ELM) related MIS research (Lee, 2012) explaining the role of knowledge in technology adoption, firm level and individual theories have neglected same.

Bostrom and Hofnen (1977) has established that managing the social factors in the firm will enhance the MIS success. Thus, Bostrom and Hofnen's (1977) Socio Technical System (STS) classification of the elements of Levitts' (1965) Dimensional Contingency model can be treated as a guideline for technical and social classification of contingencies. Classification of contingency factors established by Well and Olson (1989) shows that there are only two social factors and majority of factors are technical and there is no sufficient focus on social aspects. Moreover, hard and soft models (Heek, 2002) shows that soft factors which are identified as "political actuality" are social behaviors. Thus, brings an argument that focus on social factors should be enhanced.

Organizational readiness-based MIS success research (Eze, Awa, Okoye, Emecheta, & Anazodo, 2013) establishes that most of the organizations are not ready for ICT adaptation. Adoption of innovations are critically looked at in the work of Kamal (2006). Kamal (2006) proposes a collection of critical success factors for innovation adaptation. Categorization of such factors using the Socio Technical System (STS) classifications of Bostrom and Hofnen (1977) too shows an over reliance on technical factors. Thus, further establishes the requirement of enhancing the social factor considerations in research.

Absorptive Capacity (ACAP) (Cohen & Levinthal, 1989) theory explains firm's ability to exploit new knowledge (Cohen & Levinthal, 1990; Ko, 2005; Huigang, Saraf, & Hu, 2007). Boynton, Jacobs and Zmud (1994) as well illustrate that IS managers' knowledge, under the context of IS as the ability of internal knowledge structure to absorb information pertaining to innovations and apply same to support operational or strategic activities. Further qualifies,

ACAP regarding IT as a conjunction of IT-related and Business-related knowledge possessed by and exchanged among IT managers and business managers (Boynton, Jacobs, & Zmud, 1994). Potential Absorptive Capacity (PACAP) and Realized Absorptive Capacity (RACAP) are noted as impacting adaptation and making commercial use respectively (Vega-Jurado, Gutierrez, & Fernandez-de-Lucio, 2008). Inquiring into the phenomenon on introducing MIS into a firm as an introducing an external innovation, PACAP may impact at the level that firm is considering and identifying the MIS to be introduced and RACAP may impact on obtaining net benefit to the firm from the MIS. It may be argued that PACAP and RACAP both contribute towards MIS success. Thus, the effect of ACAP on the MIS success should not be ignored.

Largest portion of research on MIS success has focused on individual and specifically the usage of MIS by individuals (Suriyaningrum, 2012; Taylor & Todd, 1995; Kamal, 2006; Agarwal & Prasad, 1998; Suriyaningrum, 2012; Szajna, 1994; Davis, 1989; Wang & Scheepers, 2012) (Lee, 2012; Paviou & Fygenson, 2006; Ollila & Lyytinen, 2003; Marindiana, Tjakraatmadja, & Aprianingsih, 2015; Li, 1997; Venkatesh, Thong, & Xu, 2012; Venjatesh, Davis, & Davis, 2003; Standing, Guilfoyle, Lin, & Love, 2006). Among them, the theory of Planned Behavior (TPB) (Suryaningram, 2012; Paviou & Fygenson, 2006; Taylor & Todd, 1995; Agarwal & Prasad, 1998) was built on Theory of Reasoned Actions (TRA) (Suryaningram, 2012; Taylor & Todd, 1995; Kamal, 2006) which has the capacity to explain any human behavior (Suriyaningrum, 2012). However, criticism do exist on the clarity of variables used in TPB (Suriyaningrum, 2012). Further Decomposed theory of planned behavior (DTPB), Technology acceptance model (TAM) have shown an over reliance on the construct Attitude.

When the saliences of the construct attitude is considered, researchers do postulates that the attitude is originated in the minds of the customer/user as a response towards the product or system (Hunton & Jesse, 1997; Smith, Johnston, & Howard, 2011; Chau & Hu, 2002; Parki, Henri, & Hartwick, 1994). Elaboration Likelihood Model (ELM) for MIS adoption (Lee, 2012) mainly focusses on the change of attitude of people (Lee, 2012). Attitude is a major focus in individual level theories. Attitude being a behavioral response of people, will be a social factor according to Bostrom and Hofnen (1977). Major portion of research has focused on perception of individuals and argues that Perceived usefulness (PU) (Szajna, 1994; Taylor & Todd, 1995; Agarwal & Prasad, 1998; Davis, 1989; Wang & Scheepers, 2012) and perceived ease of use (PEU) (Szajna, 1994; Taylor & Todd, 1995; Agarwal & Prasad, 1998; Davis, 1989; Wang & Scheepers, 2012) as antecedents for attitude for accepting MIS by individuals. However, ELM researchers suggest that Perceived Use (PU) and Intention should not be treated as components of attitude (Lee, 2012), which becomes a challenge for theories based on TRA. Lee (2012)

further points out that attitude under MIS is not sufficiently explored. An important observation at individual level theories is over-reliance on attitude of individuals. Decomposition of the construct attitude was achieved under the Decomposed Theory of Planned Behavior (DTPB) (Taylor & Todd, 1995). Such decomposition as well has not addressed the social factors beyond “peer influence” and “superior influence”, which may be too narrow. Thus, further establishes the argument, that social factors are not sufficiently incorporated to MIS success theories.

PU and PEU used in TAM (Marindiana, Tjakraatmadja, & Aprianingsih, 2015; Szajna, 1994; Schwarz & Chin, 2007; Agarwal & Prasad, 1998), poises specifically that attitude of user towards the innovation (Agarwal & Prasad, 1998) has been considered for the behavioral intention for actual usage. In the contemporary IT, Social Computing (SC) has become a breakthrough success (Aichner & Jacob, 2015; Campbell, Anitsal, & Anitsal, 2013; Sadaf, Newby, & Ertmer, 2012; Lica & Tuta, 2011; Hordemann, Chao, & Green, 2012; Wang & Scheepers, 2012), in terms of usage and acceptance while business community is worrying about the individual’s usage. Thus, time may be appropriate for MIS success researchers to learn from SC success.

Observing the usage of PBC in different contexts shows that individuals will perceive as they have the control over the IT application, when they possess skills, resource, and opportunities when using the system (Peyman & Oakley, 2009; Cosaue, Christophe, Pallud, & Kalika, 2011; Dholakia, 2006; Ajzen, 1991; Conner, Sandberg, & Norman, 2010). Under this development, even though TPB was identified as a strong model comparable to TRA (Taylor & Todd, Understanding Information Technology usage : A test of competing models, 1995) in the context of MIS success, comparing PBC under the perspective of Absorptive Capacity Theory (ACAP), PBC may be contingent upon prior knowledge (Cohen & Levinthal, 1990). It was pointed out that ACAP of a firm depends on the ACAP of its individual members (Cohen & Levinthal, 1990). Thus, builds a strong argument that ACAP, ideally should have been included into individual level theories as well as firm level theories. This was not given any consideration under TPB, DTPB, TRA, or TAM, or any of the firm level theories. This paper takes the stand that ACAP will have implications on the MIS success and should be incorporated at the individual level and firm level theories.

Focus of studies on IT usage has been to inquire into what IT applications has planned to achieve and why same was not achieved and quality of the system impacting individuals. The ACAP of a firm may determine what firms planned as required to achieve. Even a firm achieve the planned results, weather firm obtained the potential benefit will still be a question. Moreover, there has not being a study if the innovations of SC arena can contribute towards

increasing the usage/acceptance among individuals with respect to MIS. Can there be drawbacks of the IT system itself causing low usage. Such was not highlighted since existing researches have been more Technological Deterministic, by putting the blame of MIS failure on the users.

While the businesses are focusing on low acceptance of MIS, SC has shown a high acceptance by the users (Aichner & Jacob, 2015; Campbell, Anitsal, & Anitsal, 2013; Sadaf, Newby, & Ertmer, 2012; Lica & Tuta, 2011; Hordemann, Chao, & Green, 2012; Wang & Scheepers, 2012). Even corporates are visibly adopting SC into their businesses. What causes higher acceptance of SC will be of significance to MIS usage/success research. On the other hand such systems are accepted by users without any intervention of the nature of user training or providing user manuals or any attempt to build the user perception on the utility value of such applications, they seem to adopt a strategy of social learning (SL) (Nick, Bain, & Douge, 2005), while the individual level researchers attempting to persuade the individuals (Lee, 2012) to use MIS. SL was identified as happening in IT environment under organizational context (Gray, Lewis, & Snyder, 2002) as well. Thus, this phenomenon brings out another aspect that learning abilities of SC tend to show high level of success in MIS.

A visible shift in consideration of MIS success was seen in DeLone and McLean (1992; 2002) (D&M) model. Role of IT solution was studied in the context of being able to influence the use and user satisfaction (DeLone & McLean, 2002; DeLone & McLean, 1992) under the variable systems quality. An important difference in DeLone & McLean (2002; 1992) is that the focus has shifted from the individual to the system and consolidates the considerations of individual level and firm level. Even in D&M model, maturity of an IS system will be an important factor. Variables of DeLone and McLean (2002; 1992) model; the system quality and information quality may not completely fulfil the characteristics of contemporary SC applications. However, lacuna pointed out in this paper are valid for this model as well. Moreover, the contemporary success and acceptance of SC (Parameswaran & Whinston, 2007) suggest that IS which cater for social aspect of individuals tend to succeed in the contemporary society and as it was established, impact of knowledge in terms of ACAP as well should ideally be established.

Thus, this paper will attempt to find answers to two questions as below;

1. How HIS features could influence MIS success
2. How Absorptive Capacity will influence the MIS success of a firm.

Rest of the paper is organized as follows; in the subsequent section, the theoretical background drawn from the existing body of knowledge is presented. This section discussed the MIS failure

in detail, Socio Technical Theory and its relevance to MIS, and Absorptive Capacity theory. Next section delineates the proposed theory and the concept indicator model which is used as the starting point of the consequent research. This paper is concluded with a brief description on the theoretical and managerial implications of this paper while outlining the consequent research.

Literature review

MIS Success

MIS success research were conducted in multiple facets and has ascertained that there is a high level of failure. Main problem ascertained with respect to project failure was that projects fails to achieve its intended objective (Standing, Guilfoyle, Lin, & Love, 2006). Researchers have focused on IT project failure as most pressing problem within IT profession (Standing, Guilfoyle, Lin, & Love, 2006). Early research in this area establishes that only 16.2% of project were completed on time and within budgets (Hulme, 1997), 50% of CRM project has been a failure (King & Burgess, 2008), CRM projects were identified as being under budgeted in the range of 40\$ to 75% (King & Burgess, 2008). Recent statistics shows that 20% of IT projects are cancelled before completion (Kappelman, McKeenman, & Zhang, 2008), further it was noted that bigger project has double the cancellation rate (Kappelman, McKeenman, & Zhang, 2008). Only one third of the project finishes on time (Kappelman, McKeenman, & Zhang, 2008). Considering the investment on IT, impact on business from IT failure was noted as an important.

Theory of Reasoned Action (TRA) was identified as capable explaining any human behavior (Suriyaningrum, 2012) was used as the underline theory for explaining the user behavior of adapting MIS. Technology usage was noted as caused by the behavioral intention for same which was caused by the attitude of the individual and subjective norms (Suriyaningrum, 2012). Attitude and subjective norms were notes as being caused by attitudinal belief and normative belief (Suriyaningrum, 2012). Taylor and Todd (1995), however complains that TRA does not explain the usage behavior. They further explain their reasons for disagreements on the grounds that beliefs are based on the idiosyncrasies based on the context (Taylor & Todd, 1995), thus is less than ideal, thus challenges the validity of TAM, TPB, and DTPB.

Theory of Planed Behavior (TPB) was derived by adding the Perceived Behavioral Control (PBC) into the constructs used in TRA (Suriyaningrum, 2012). Taylor and Todd (1995), however notes that TPB is a better predictor when compared to TRA to predict usage behavior. TPB was identified as a model that was well researched and has the capability to explain usage

behavior (Paviou & Fygenson, 2006). Strength of the model was tested in different settings and data-fit (Taylor & Todd, 1995; Paviou & Fygenson, 2006). Contribution of Taylor and Todd (Taylor & Todd, 1995) strengthened the TPB model, by decomposing the constructs attitudinal belief, normative beliefs, and perceived behavioral control caused the TPB to be elaborated. Attitude as decomposed to Perceived Usefulness (PU), Perceived Ease of Use (PEU), and Compatibility (Suriyaningrum, 2012). Subjective norm was decomposed to Peer Influence (PI) and Superior Influence (SI) (Suriyaningrum, 2012). Perceived Behavioral Control was decomposed to Self-Efficacy (SE), Resources, and Technology. Decomposed Theory of Planned Behavior (DTPB) was positioned as a better theory for explaining the usage behavior (Taylor & Todd, 1995).

Technology Acceptance Model (TAM) may be the most extensively researched model in MIS Failure and is identified as a most influential theory in IS (Marindiana, Tjakraatmadja, & Aprianingsih, 2015; Schwarz & Chin, 2007). TAM establishes that the individual's intention to use technology is driven by individual's affective response towards the use of innovation (Agarwal & Prasad, 1998). TAM proposes that PU and PEU which are influencing the attitude of users towards the system (Szajna, 1994). TAM establishes that Perceived Usefulness (PU) has a strong correlation to User Acceptance (Schwarz & Chin, 2007; Szajna, 1994) thus should be a concern for the developers. However, TAM does not escape criticism. One such is that researchers has not explicitly addressed the connection of the general concept of IT acceptance and IT usage (Schwarz & Chin, 2007). TAM based researchers however has relied mostly on the self-reported usage (Szajna, 1994) which is noted as a potential weakness in the research. PU has been studied extensively, in the context of TAM. PU was identified as having direct impact on the Attitude (Agarwal & Prasad, 1998) and is a subjective assessment (Agarwal & Prasad, 1998). PU was defined as the belief of an individual that usage of the IT system would enhance their job performance (Szajna, 1994; Davis, 1989) with free of effort (Devis, 1989) or not (Davis, 1989). PU was defined specifically in the virtue of being "easy" (Devis, 1989), thus IT facility will be a resource that a person could allocate the activities one is responsible (Davis, 1989). Davis (1989) elaborate further on PU being a positive user-performance relationship, and notes using same advantageously within an organization. It was noted that the measurement of PU should be based on the perceived characteristics of an innovation (Taylor & Todd, 1995) .

PEU on the other hand, was defined as the belief of IT application is easier than another (Davis, 1989). Users' perception of even the system is difficult to use, the benefits gained from the usage should be out-weights by the effort of using the application (Devis, 1989). PEU similar

to PU measurement should be based on the perceived characteristics of the innovation (Taylor & Todd, 1995). However, PEU will not have a significant influence on the users who have experience (Wang & Scheepers, 2012).

While the individual level theories overly focusing on the individual usage of IS systems, arguments were raised as the system that are not used is having an interactional failure (Marindiana, Tjakraatmadja, & Aprianingshih, 2015), prolonged usage of systems does not guarantee the system success (Marindiana, Tjakraatmadja, & Aprianingshih, 2015), further unused systems does not guarantee failure (Marindiana, Tjakraatmadja, & Aprianingshih, 2015). However DeLone and McLean's (1992)(D&M) model was built using the communication model based on the assumption that process in IS has a resemblance to communication (Marindiana, Tjakraatmadja, & Aprianingshih, 2015). D&M model took the failures of communication into consideration namely technical, semantic, and effectiveness (Marindiana, Tjakraatmadja, & Aprianingshih, 2015). If the communication system fails to deliver the information accurately and efficiently, there occurs a technical failure (Marindiana, Tjakraatmadja, & Aprianingshih, 2015). If the recipient fails to understand the information transmitted in the true sense, a semantic failure occurs (Marindiana, Tjakraatmadja, & Aprianingshih, 2015). If the information fails to make the intended effect towards the users' behavior, a failure of effectiveness will arise (Marindiana, Tjakraatmadja, & Aprianingshih, 2015). As solutions to these failures of communication of IS system, D&M model proposed three constructs, "system quality" to cater for the technical failure, "information quality" for the semantic success, effectiveness aspect was represented by "use, user satisfaction, individual impact" and "organizational impact" (Marindiana, Tjakraatmadja, & Aprianingshih, 2015).

Socio Technical Systems Theory

Socio Technical Systems (STS) emerged from the Travistock study on the work systems of Coal mines back in 1949. Initially the studies were focusing on the Social System (Trist, 1980), then focusing on two sub systems namely Social and Technical (Trist, 1980). Trist (1980) himself conceptualized the idea of combined Socio-Technical system (Trist, 1980) than considering two sub systems separately. However, Emry (1959) noted as proposing that all systems does not become Socio-Technical systems (Trist, 1980). Argument was variations of institutions established as Operative and Regulative, where Operative institutions are treated as STS, and Regulative institutions were treated as non-STS (Trist, 1980). Thus, STS consideration will be applicable to Operative (may be the private sector) entities, where public entities may have to be excluded. Steaming from the Original work on STS, technical characteristics were noted as level of automation, unit operations, scale of the production

process, characteristics of material, centrality of production operation, character of maintenance and supply operations and immediate physical work settings (Trist, 1980). Similarly, the original social characteristics were noted as occupational role and structure, method of payment, supervisory relationship, and the work culture (Trist, 1980). However, constituents of a STS in an IT supported system were noted as computers, networks, software, people, procedures, policies, laws and many other aspects (Fischer & Herrmann, 2010), and suggests that as the elements of Work System changes, elements consider for STS studies as well tend to change, thus STS elements are subjectively defined within the context. Thus, a basis for identifying STS elements in any context should be gathered for the proposed study. Socio technical System Theory (STST) provides a framework to understand how organizations undertake work (Eason, Socio Technial System Theory in 21st Century : another half filled glass, 2008) and can be used as a process when introducing new work systems (Eason, 2008; Coiera, 2006) as well. STST takes a systemic approach to organization (Eason, 2008; Sajeve S. , 2010) and it considers the interdependencies of people (Eason, 2008; Human Factor Intigration Defence Technology Center, 2007; Fischer & Herrmann, 2010) and technical aspect of how they get their work done (Eason, 2008; Human Factor Intigration Defence Technology Center, 2007). In work systems, Social and Technical sub systems help them to constitute each other through integration (Fischer & Herrmann, 2010; Human Factor Intigration Defence Technology Center, 2007). Such interaction will either leads to successful or unsuccessful system performance (Human Factor Intigration Defence Technology Center, 2007; Eason, 2009), at organizational level. Thus STS approach suggests that there should be an effective combination of technology with humanistic view (Sajeve S. , 2010), and further noted that two systems have partially contradicting characteristics (Fischer & Herrmann, 2010; Human Factor Intigration Defence Technology Center, 2007) and further suggests that integration should be achieved systematically (Fischer & Herrmann, 2010). Thus, deems that STST could effectively be used to inquire in to the area under study.

Apart from the fact that STST was used to inquire in to the work systems, it was evident that STST was used for wide spectrum of purposes and areas. Some of such research varies form modeling Organizational Commitment (Perera, 2007) and modeling and assessing the learning effectiveness of Computer Supported Corporative Work environments (Herrmann, Hoffmann, Kunau, & Loser, 2004). A prominent section was evident, related to Computer Systems and ERP implementations such as modeling and analyzing composition and interaction of hardware and software components with Human and Organizational Actors (Bryl, Giorgini, & Mylopouls, 2009), configuring ERP systems to support team working (Benders & Hoeken,

2006), Trust in the computer mediated Social environments (Whitworth & De Moor, 2003), users response to financial module of ERP systems (Faisal, Faridi, Javed, & Shahid, 2012) and Study of STS factors affect information sharing (Mehra, 2009). Further, study of psycho-social dynamics of successful organizational performance (Ulhoi & Jorgensen, 2010) and modeling human contribution to the overall reliability of complex cooperative work systems (Rognin, 1999) was noted while a prominent section focusing on organizational change. Few noted studies of such were understanding and influencing change in complex socio-technical systems (Rouse & Serban, 2011), exploring how IT has caused organizational change (Kling & Lamb, 1999) and issues on Innovation studies (Geels F. W., 2004). Integration of Social system with IT was noted as occurring with relevant to the methods and procedures introduced with the artifacts of IT such as Hardware (Fischer & Herrmann, 2010). Thus, influence of introducing IT to Social system will be stemming from the procedures and methods introduced to communicate through IT (Fischer & Herrmann, 2010). Such procedures and practices act as a bridge between people within the Social System (Fischer & Herrmann, 2010). Thus, important aspect relevant to the proposed study would be the new or altered procedures and practices introduced to the Social System by IS, rather than the artifacts like hardware. Such procedures and practices introduced should encompass the way of understanding the complex nature of how people cooperate, communicate, and use the tools & technology to get their collective work accomplished (Eason, 2008). Introduction of IS to the Social System will thus definitely be an alternation of the procedures and practices that agents in Social system has been using to communicate, cooperate, and the tools & technology used in order to get the collective work accomplished, which encircles an important effect on Social system. Ultimately an important part of the proposed study will be the assessment of possible implications of new work practices as introduced (Eason, 2008).

MIS and STST

Impact of MIS (Strohameier, 2009), was researched through STS by Robert, Bostrom and Heinen (1977). They conceptualized the impact of MIS on an existing STS, by positioning Levittes' Diamond (1965) in the framework of STST. It was noted that MIS will have a direct impact on Technical components of Technology and Tasks (Robert, Bostrom, & Heinen, 1977). MIS impact on the social components (Structure & People) were identified as indirect (Robert, Bostrom, & Heinen, 1977). Social system will be indirectly impacted by the social implications (Coiera, 2006) caused by alternation of the technical system (Coiera, 2006). Empirical work of Robert, Bostrom, & Heinen (1977), established that identification of social system, required change, and rectifying the problems persistent in the social system will avoid

failures in MIS implementation. Bostrom, & Heinen (1977) did not alter the MIS direct impact model on STS, rather they offered a STS approach to avoid MIS failure within the same model.

Absorptive capacity theory

A Firm's ability to identify, assimilate, and exploit knowledge from the external environment was identified as the Absorptive Capacity (ACAP) (Cohen and Levinthal, 1990). ACAP was developed based on the co-evolution of the firm with the environment (Van Den Bosch, Volberda, & De Boer, 1999). Cohen and Levinthal (1990) have used the individual learning theories and translated to organizational context, in building the ACAP (Easterby-smith, Graca, Antonacopiulou, & Ferdinand, 2008). ACAP addresses the role of organizational characteristics in technology transfer (Volberda, Foss, & Lyles, 2010). Summarization of research by Volberda, Foss, and Lyles (2010) establishes that, broad areas of Learning, Innovation and Managerial Cognition, Knowledge-based view of the firm, Dynamic Capabilities, and coevolution were inquired through ACAP. This heterogeneity of ACAP research establishes the richness of the theory (Volberda, Foss, & Lyles, 2010). ACAP was identified as having a significant impact in the areas of strategic management, technology management, international business, and organizational economics (Zahara & George, 2002). ACAP was noted as the ability to locate new ideas and adapt them into business processes (Easterby-smith, Graca, Antonacopiulou, & Ferdinand, 2008). Such were identified as a major contributor for organizational performance (Easterby-smith, Graca, Antonacopiulou, & Ferdinand, 2008; Tsai, 2001) and innovation (Tsai, 2001). ACAP was used to investigate the adaptation of technological opportunities to firms from the industry sectors (Nieto & Quevedo, 2005). Level at which firms make use of such opportunities were noted as dependent on the knowledge and capacities the business is processing (Nieto & Quevedo, 2005). Further it was pointed out that firms which possess a certain capacity of absorption will be able to take advantage of pool of technological opportunities (Nieto & Quevedo, 2005). Furthermore, it was pointed out that existence of industry structure-based conditions will influence the level in which effort are made to adapt innovations. (Nieto & Quevedo, 2005).

ACAP was identified as a multidimensional construct (Vega-Jurado, Gutierrez, & Ferdandez-de-Lucio, 2008), Initial dimensions were noted as (a) recognition of its values, (b) its assimilation, and (c) its application for commercial ends (Vega-Jurado, Gutierrez, & Ferdandez-de-Lucio, 2008).

Further research on ACAP has established that firms cannot exploit external knowledge unless they have previously acquired and integrated same to the organizational processes (Vega-Jurado, Gutierrez, & Ferdandez-de-Lucio, 2008). Thus, ACAP become operational in two

states, (1) acquiring the knowledge from the environment (2) successfully using same into organizational processes (Vega-Jurado, Gutierrez, & Ferdandez-de-Lucio, 2008; Zahara & George , 2002). Former was established as PACAP and later was established as RACAP (Vega-Jurado, Gutierrez, & Ferdandez-de-Lucio, 2008). PACAP and RACAP were identified as separate and complementary roles (Zahara & George , 2002; Vega-Jurado, Gutierrez, & Ferdandez-de-Lucio, 2008) of ACAP. This was built on the premise that organizations will not be capable of exploiting the external knowledge, if they had not acquired the same prior (Vega-Jurado, Gutierrez, & Ferdandez-de-Lucio, 2008). An important characteristic of ACAP is that acquisition of knowledge does not assure that firm can use same (Vega-Jurado, Gutierrez, & Ferdandez-de-Lucio, 2008). Further it was noted that some organizational characteristic may be enhancing PACAP and same may become constraints for RACAP or may not complement RACAP (Vega-Jurado, Gutierrez, & Ferdandez-de-Lucio, 2008). ACAP being a dynamic capability, make it contingent upon managerial actions related to knowledge-based assets (Zahara & George , 2002), at the same time dynamic capabilities are identified as defining the firms path of evolution and development (Zahara & George , 2002).

ACAP is identified as a dynamic capacity (Zahara & George , 2002; Lenox & King, 2004; Volberda, Foss, & Lyles, 2010; Vega-Jurado, Gutierrez, & Ferdandez-de-Lucio, 2008). Thus, ACAP will provide the firm with a foundation to achieve competitive advantage leading to superior performance (Zahara & George , 2002). ACAP was noted as central to firms' dynamic capabilities to absorb (PACAP) and implement (RACAP) (Lenox & King, 2004). A specific differentiator of capabilities and dynamic capabilities is that dynamic capabilities are geared towards organizational change and are considered as strategic in nature (Zahara & George , 2002). In this context ACAP was further refined as distinct organizational processes and routines that through which firm acquire, assimilate, transform, and exploit knowledge to produce dynamic organizational capabilities (Zahara & George , 2002).

Formalization and social integration were identified as organizational antecedents of ACAP (Vega-Jurado, Gutierrez, & Ferdandez-de-Lucio, 2008). In the model proposed by Vega-Jurado and others formalization and Social Integration were organizational antecedents of absorptive capacity. Formalization is referred associated with systems capabilities (Vega-Jurado, Gutierrez, & Ferdandez-de-Lucio, 2008) and an organizational parameter that influence the knowledge transfer (Vega-Jurado, Gutierrez, & Ferdandez-de-Lucio, 2008). Further explanation was offered for formalization as degree of behavior of people are programed by formal explicit rules which includes procedures, rules, and instructions (Vega-Jurado, Gutierrez, & Ferdandez-de-Lucio, 2008). Formalization expect to reduce the need for inter-

unit communication and coordination when it comes to people's action in routine actions (Vega-Jurado, Gutierrez, & Ferdandez-de-Lucio, 2008). Formalization is noted as creating organizational memory (Vega-Jurado, Gutierrez, & Ferdandez-de-Lucio, 2008). Specific impact from formalization is said to be two faceted. On one hand, it may increase PACAP and on the other hand it may hinder RACAP (Vega-Jurado, Gutierrez, & Ferdandez-de-Lucio, 2008). Basis for this argument was noted as rigid structures are impediments to cognitive activities (Vega-Jurado, Gutierrez, & Ferdandez-de-Lucio, 2008).

Organizational coordination related mechanisms are identified as social integration (SI) (Vega-Jurado, Gutierrez, & Ferdandez-de-Lucio, 2008). SI at organizational unit level was noted as having an impact on innovation activities (Tsai, 2001). Unlike the formalization, SI was noted as reduce the PACAP and RACAP and noted as contributing towards the increase of efficiency factor (Vega-Jurado, Gutierrez, & Ferdandez-de-Lucio, 2008). SI as well is an organizational parameter that influence knowledge transfer among individuals and between different functional areas of the firm (Vega-Jurado, Gutierrez, & Ferdandez-de-Lucio, 2008). Important aspect of SI practices was noted as reducing the barriers to information exchange within organization (Vega-Jurado, Gutierrez, & Ferdandez-de-Lucio, 2008). It was noted that SI mechanisms can facilitate the sharing and eventual exploitation of knowledge (Zahara & George , 2002), and contribute towards knowledge assimilation wither with Social Learning (SI) related informal learning, or by way of using coordination with formal means (Zahara & George , 2002). Comparing the characteristics of formal and informal mechanisms, it was highlighted that informal mechanisms are useful for exchanging ideas and formal mechanisms are noted as having the advantage of being systematic (Zahara & George , 2002). Finally, SI was identified as contributing towards mutual understanding and comprehension of member's knowledge (Zahara & George , 2002).

Conceptualization

Proposition 1: Impact of Hedonic quality of MIS on individual's intention to use and user satisfaction

D&M Model can be treated as a strong model in the field of IS success studies, on the basis that it considers the net benefit from the IS and individual usage. Other models on IS success were focusing on either the usage of the system or firm level impact separately. D&M Model uses Shannons' (1948) communications theory, extension of same theory by Shannon and Weaver (1949) and SERVQUAL (Parasuraman et al., 1988). However, there are weaknesses noted in D&M model as well. Adding the dimension "intention to use" which was identified as requiring a different psychometric philosophy than other dimensions of the model

(Marindiana, Tjakraatmadja, & Aprianingsih, 2015) was one such identification. Difficulty of measuring the relationship between intention to use and actual usage by D&M model as well is a prominent weakness (DeLone & McLean, 2003) pointed by the authors them self. Ultimately requirement of using more theories in order to overcome measurement barriers as well was noted (Marindiana, Tjakraatmadja, & Aprianingsih, 2015), which this paper intent to address.

Social aspects of SC which may have contribute to MIS success, can be incorporated into the D&M model, to strengthen the model, SC as well are considered as IS, and are classified as Hedonic IS (HIS) (Wang & Scheepers, 2012). Even though HIS are not completely entertainment based they are noted as having substantial entertainment dimension (Wang & Scheepers, 2012). Wang and Scheepers (2012) points out the classification of HIS characteristics by Van der Heijden (2004) as (1) providing self-fulfilling value rather than instrumental value, (2) using at home and on leisure time, and (3) encourage prolonged use, rather than productive use. Success of HIS may have been caused due to these characteristics. Thus, fact that HIS having the capability of causing prolonged use may provide a solution to the problem of “individual usage” the individual level MIS success researchers has been researching. Further, characteristic of “providing self-fulfilling value as well can be looked at as a remedy. Solution to the problem of MIS usage may lie at the innovations happening in the HIS arena. Scholars have noted that HIS causes a significant impact towards users’ attitude toward using the system (Wang & Scheepers, 2012), which falls compatible which TRA, TAM, TPB, and DTPB attempt to address. Feature that was commonly appreciated by users was noted as the ability to establish and maintain connections with others (Hordemann, Chao, & Green, 2012), thus HIS are commonly termed as participatory web (Hordemann, Chao, & Green, 2012). Maintaining connection will unmistakably fall under the structure element of STST. Web 2.0 has been the driving force behind the new ways that enabled the building of HIS (Sadaf, Newby, & Ertmer, 2012). Influence of Web 2.0 have caused the students to become active learners than passive learners and become co-creators of knowledge, in the cases where HIS features are used in learning (Rouse & Serban, 2011). It was pointed out that businesses are now incorporating the social media into their business strategies (Campbell, Anitsal, & Anitsal, 2013). STST researchers has identified Web 2.0, which is the underlying technological innovation for SC, as creating social structures or virtual communities (Fischer & Herrmann, 2010), that may have led to the success of SC. Thus, this paper proposes that providing features of HIS within MIS enabling users to make connections through MIS and developing the MIS to have the characteristics of participatory web and building virtual structures and communities

will enhance the individual's "intention to use the system and usage" as illustrated in D&M model. Having such features in a MIS may contribute towards enhancing the user satisfaction and SL to occur, in similar way as HIS cause user satisfaction that has led to the success of SC. This relationship was partly established by the Unified Theory of Using and Accepting Technology 2 (UTAT2) (Venkatesh, Thong, & Xu, 2012).

Proposition 1a

Hedonistic quality of a MIS will influence individual's intention to use the system.

Proposition 1b

Hedonistic quality of a MIS will influence individual's level of user satisfaction of the system.

Proposition 2: Moderating effect of Absorptive capacity on the relationships of Intention to use/use & net benefit, Information quality and Intention to use/use, and Hedonistic Quality and Intention to use/use

ACAP is identified as influencing organizational outcome (Zahara & George, 2002). Thus, ACAP will be a better theory to explain MIS success as well. Considering the phenomenon that, MIS is introduced to a firm as a new way of working in a firm, which was having direct impact on the technical subsystem (Bostrom & Hofnen, 1977), such can be treated as new external knowledge coming to the firm. Assimilation of external knowledge can be explained through ACAP and specifically PACAP. Learning, innovation, and performance are linked to firm's ACAP (Volberda, Foss, & Lyles, 2010). Thus, introducing a MIS to the firm and adapting same to internal processes and using and obtaining benefit from same as well could be explained through the complexities of ACAP, specifically RACAP (Vega-Jurado, Gutierrez, & Ferdandez-de-Lucio, 2008). Even introducing a MIS is considered as a change to the firm, which ACAP has the capacity to explain (Vega-Jurado, Gutierrez, & Ferdandez-de-Lucio, 2008). ACAP was defined as "the ability of a firm to recognize the value of new external information, assimilate it and apply it to commercial usage" (Vega-Jurado, Gutierrez, & Ferdandez-de-Lucio, 2008), thus ACAP may have influence on the relationship between the quality of information of a MIS and intention to use and use and getting net benefit to the firm. ACAP has the capacity to explain "successfully using" external knowledge for commercial ends (Tsai, 2001; Nieto & Quevedo, 2005; Vega-Jurado, Gutierrez, & Ferdandez-de-Lucio, 2008; Lenox & King, 2004). Using the knowledge for "commercial ends" can be mapped to the construct "net benefit" used in D&M model. A success factor in MIS implementation will be the capability to resolve MIS implementation related problems within the firm. A definition of ACAP itself explains ACAP as the ability to solve problems (Zahara & George, 2002), thus has the capacity to explain the capacity of a firm to solve MIS implementation related problems.

It was established that there is a relationship between ACAP and the innovative effort (Nieto & Quevedo, 2005), which may be a requirement for adopting the innovation brought about by the MIS into the firm. However, in the process of assimilating new knowledge ACAP was noted as a moderating factor (Van Den Bosch, Volberda, & De Boer, 1999).

Proposition 2a

Absorptive capacity of a firm will moderate the relationship between use of the system and net benefit to the firm.

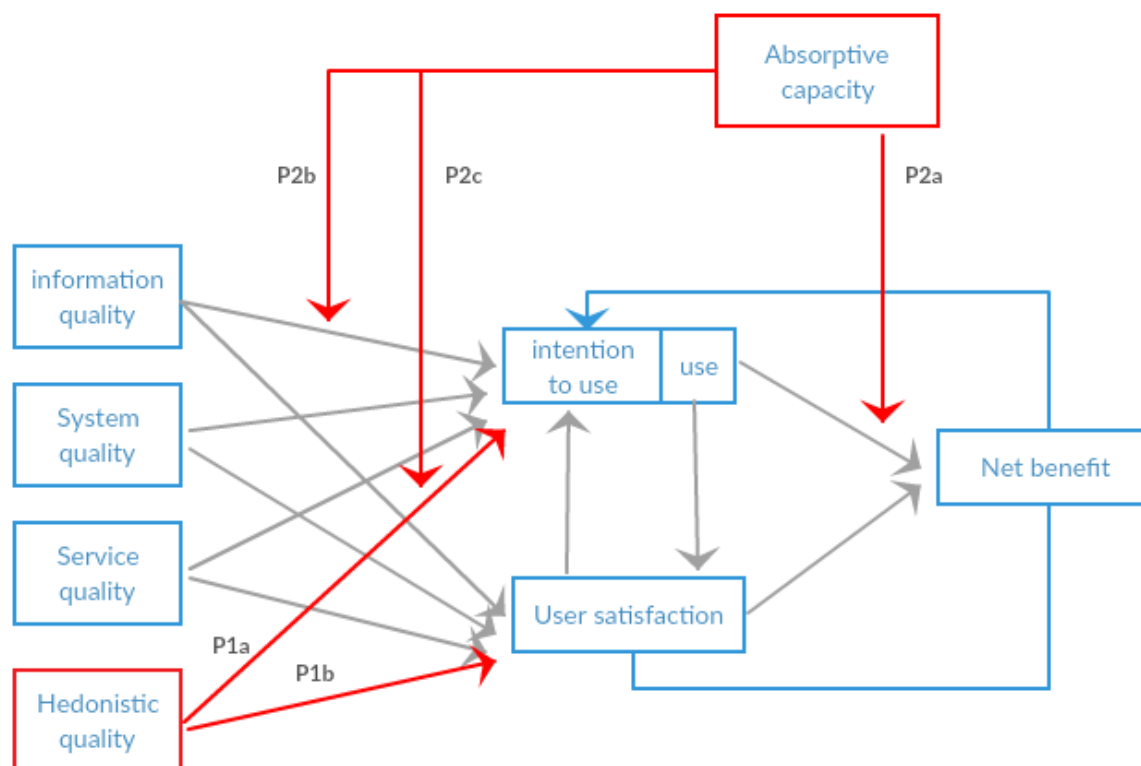
Proposition 2b

Absorptive capacity of a firm will moderate the relationship between information quality of the system and intention to use the system within an individual

Proposition 2c

Absorptive capacity of a firm will moderate the relationship between hedonistic quality of the system and individual's intention to use the system

Concept Indicator Model



Theoretical Contribution

This paper will give rise to a research that will bring a significant contribution to existing theories. Importantly this paper will link the theories from MIS research tradition and

organization science tradition. In doing so, the MIS success theory will be capable of better explaining the issues through organizational science. Consequent research will contribute to the existing theories of MIS success by establishing the impact of Hedonistic Quality on intention to use and user satisfaction. This is a contribution expected by the research community on D&M model. By doing so, D&M model will be expanded by aligning with the contemporary development of SC related success.

ACAP will be integrated to explain the MIS success and extend the D&M model. ACAP will be used to test the moderating effect of ACAP on the impact of individuals' "intention to use & use" and net benefit, impact of information quality on intention to use, and impact of hedonic quality on intention to use of D&M model. Such will contribute towards the much-cited drawback of D&M model (Marindiana, Tjakraatmadja, & Aprianingsih, 2015), which is the requirement of incorporating more theories into D&M model.

Proposed research will be a continuation of MIS success research tradition of Bostrom and Hofnen (1977). STST was not used as a study framework to inquire into MIS success for a long time. This paper reinitiates the STST related MIS success research, which is a requirement under the emergence of Web 2.0 and SC related "virtual structures". This research may provide evidence to alter the model proposed by Bostrom and Hofnen (1977), specifically establishing a direct impact of social sub system of a STS, on MIS.

Managerial implications

Managerial implications of the consequent research will be at considerably high level. With the contribution of the consequent research management will be capable of managing the MIS environment in a manner the individuals as well are enticed to contribute towards the MIS success. In other words, the individual usage of MIS will be explained in a manner that could be effectively resolved. This resolution may lead to firms getting the return on MIS investment to firms.

Further, findings of this research will provide adequate inputs to the firm to manage the ACAP of firms in a manner that MIS success can be enhanced. Firms will be capable of interpreting the contribution of the consequent research and enable business leaders to identify relevant elements of ACAP that will contribute towards the successful incorporation of MIS into firms. In turn, the Business Managers will be capable of use and influence the use of MIS among the users towards the net benefit of the firm. Further, the business managers will gain the capability of driving the usage of information generated from MIS among users.

Managers may gain the ACAP to demand from the IS Managers and developers a MIS that effectively entice the MIS users, by embedding hedonic features to a MIS success. Further,

result of the consequent research will aid the system developers to identify the SC features that may be incorporated to the MIS. By doing so, MIS will be getting factors contributed towards the success of SC and make MIS as well a success within firms.

Direction for future research

Proposed research will entail capturing user experience of HIS and their feeling of a MIS with Hedonic features on one hand. On the other hand, proposed research will inquire into ACAP of firms and moderating effect of ACAP. Thus, a major challenge for the researcher will be to inquire into individual level and firm level constructs to test the concept indicator model proposed. The concept indicator model is expected to evolve during the research. Socio-Technical systems theory should be maintained as the basic framework for inquiry. STST will help the researcher to narrow down the social factors that are valid within a firm. Such will help the hedonic factors to be specific to a STS of a firm, differentiating from open society. Ideal methodology will be a mix-method research. Proposed research will entail on one had inquiring into the living experience of subjects and predicting their level of satisfaction and effect of future intention as the first part. Second part of the research will entail measuring ACAP of a firm and the level of testing the moderating effect on stated relationships. An IT based innovation, that supports operations and strategy will require a technical subsystem to be altered by IT innovation. STST suggests that integration of social and technical factors of a system will increase or decrease the performance of a firm (Sajeva S. , 2010). This phenomenon cannot be different in a firm when it comes to MIS related issues, thus STST becomes an appropriate framework to inquire into the phenomenon under consideration in this paper.

Conclusion

Aim of this paper was to contribute towards strengthening the body of knowledge on MIS success. Specifically, this paper introduced the Hedonic effect on MIS users towards satisfaction and usage of systems. Further this paper attempted to link the Absorptive capacity to the MIS success. Author developed the concept indicator model as an extension of DeLone & McLean (2002; 1992) model of MIS Success. Specifically, the author introduces the Hedonic Quality of MIS, drawing an argument form SC success in the IT domain, and identified the moderating effect of Absorptive capacity, and argued that Absorptive capacity will moderate the brining in a new MIS to a firm and using same to gain commercial benefit to a firm.

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The Role of Supplier Switching Costs and Supply Chain Responsiveness

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Executive Summary

Organizations engaged in manufacturing and services depend heavily on their suppliers. These suppliers supply good such as parts, components and material, and services such as information services, computer systems maintenance, building and equipment maintenance, and financial services. Smooth operations of the organization are disrupted when suppliers have to be changed (called switching suppliers).

Supplier switching has several costs. These are procedural switching costs, financial switching costs and relational switching costs. Procedural switching costs are those needed to search for new suppliers, evaluate new suppliers, and learning costs of new supplier services and delivery. Financial switching costs are those due to price, discounts and benefits changes. Relational switching costs are due to psychological and emotional costs which always accompany changes involving parties the organization has worked with. The management and staff will now have to build new relationships with the new supplier staff and that is not always easy.

What finally matters is how the organization provides goods and services to its customers especially when existing customers want changes in products and services, and new customers come in with their demands. The organization must be able to respond to such changes swiftly. This is called supply chain responsiveness. The question now is how the supply chain responsiveness of the organization is affected when the organization switches its own suppliers.

This study investigated this phenomenon in 162 small and medium size firms registered in the Sri Lanka Board of Investments (BOI) and engaged in agro processing, beverages, high tech industries, machinery and equipment, pharmaceuticals, and apparel and rubber-based products.

The key finding was that supplier switching costs really do not affect the organizations' responsiveness to its customers. This is apparently due to the fact that most firms in Sri Lanka are familiar with the limited number of suppliers of goods and services and, thus, do not incur significant procedural, financial or relational switching costs.

Future research should focus on service suppliers such as banks and communication suppliers, and their own suppliers of services to examine this phenomenon. For example, would the

service by a Sri Lankan bank to its customers be affected if they switch their information services supplier?

Abstract

The present study explores the impact of supplier switching costs on supply chain responsiveness in Sri Lankan Micro, Small and Medium scale (SMEs) manufacturing firms considering the three categories of switching costs namely procedural switching costs, financial switching costs and relational switching costs. Survey data were collected from 188 manufacturing firms and Structural Equation Modeling (SEM) was used to analyze the relationship between variables. The empirical evidence verifies that, procedural switching cost is more positively related to supply chain responsiveness than other two types of switching costs. The relational switching cost is more negatively related to supply chain responsiveness and, the most importance predictor that has an impact on supply chain responsiveness is relational switching cost. The result also reveals that, no significant relationship between financial switching costs and supply chain responsiveness. Further, the results verify that, the direct relationship between supplier switching costs and supply chain responsiveness is not significant. Thus, this relationship might be influenced by a different intervene variables. The findings also expose that, supplier switching costs do not play a significant role on the price and product competition in the context of manufacturing sector in Sri Lanka. Since most firms already have a thoroughly evaluated supplier base with many suppliers for the same raw materials, switching suppliers is not a major dilemma as they can be easily replaced.

Keywords: Supplier switching costs, Supply chain responsiveness, Structural equation modeling (SEM)

Introduction

Today's business environment is more global and competitive than it has been in the past. The modern business is characterized with shorter product life cycles, rapid new product introductions, sophisticated customers who are increasingly knowledgeable and well informed. These changes force supply chains to be more responsive. The modern supply chains are thus, expected to respond rapidly, effectively, and efficiently to changes in the marketplace to sustain, and create competitive advantage. Most studies so far have focused on the supply chain flexibility or agility. It is therefore of interest to study the responsiveness of supply chains as well (Thatte & Ashish 2007). Evaluating supply chain performance can facilitate a greater understanding of the supply chain, optimistically persuade performers' behavior, and enhance its overall performance (Chen & Paulraj 2004). Supply chain performance has been discussed under supply chain efficiency and supply chain responsiveness measures in which the study by Tharaka, Suraweera & Galahitiyawa (2017) argued that these two constructs are interrelated but opposing elements (duality). Thus, for this study, supply chain responsiveness has been considered as a supply chain performance measurement construct.

Switching cost, which is defined as a contributing factor to supply chain performance, is also perceived as a powerful competitive business tool that leads to lower relationship costs and higher revenues (Matzler et al. 2015). Matzler et al. (2015) claim that only limited research exists which studies the antecedents and consequences of switching costs in business to business (B2B) context. According to McLaren, Head & Yuan (2002) many previous studies attest to the transaction cost saving of these inter organizational systems but ignore the switching costs required to change partners or business process. Even though McLaren, Head & Yuan (2002) identifies switching cost as a contributing factor to performance measurement, the findings do not provide any clear information on the different facets of switching cost and it is evident that it has failed to incorporate the main three types of switching costs (Burnham, Frels & Mahajan 2003) in measuring supply chain performance.

In Sri Lanka, the manufacturing sector is significant contributor to the economy. Micro, small and medium scale enterprisers (SMEs) play a vital role. SMEs focal enterprisers are considered to be primarily based on the relationship between supply chain managers and therefore, supplier switching cost is of paramount importance, on the supply chain performance as the nature of relationship is interpersonal. Hence, the key objective of the study is to investigate how three types of supplier switching costs namely procedural switching costs, financial switching costs and relational switching costs lead to supply chain responsiveness.

This study is significant in many ways as it makes numerous contributions to theory as well as to practice. In particular, the study examines the impact all three dimensions of supplier switching costs (procedural switching costs, financial switching costs and relational switching costs) on supply chain responsiveness which has not been empirically examined in previous studies. Also, the study provides suitable recommendations on the scope for improvement based on current levels of various predominant supply chain management practices by shaping supplier switching costs on supply chain performance criteria that directly impact competitive advantage of a firm, so as to make the organizations more competitive.

The rest of the paper is structured as follows: In the following section, the theoretical background and hypotheses are presented. Then the research method and the results of the statistical analysis are given. Finally, the paper concludes with the discussion, implications of the findings and directions for future research.

Literature review

Transaction cost economies

Transaction Cost Economies (TCE) offers a normative economic approach to determine the firm's boundaries and can be used to present efficiency as a motive for entering inter-

organizational arrangements (Williamson 1981). A company may reduce its total transaction costs (ex ante and ex post costs of contact, contract, and control) by cooperating with external partners. The key question is: why do firms exist? In the context of supply chain management (SCM), this question is addressed as: which activities should be performed within the boundary of each firm, and which activities should be outsourced? SCM relationships are represented by the hybrid mode of governance between markets and hierarchies. Asset specificity (limited value in an alternative application of, for example, physical, site, human, and dedicated assets) is the most influential attribute of the transaction (Rindfleisch & Heide 1997). Behavioral assumptions of bounded rationality and the risk of being subject to opportunistic behavior from a partner also influence the transaction costs. Bounded rationality may result from insufficient information, limits in management perception or limited capacity for information processing. Mechanisms for mitigating the risk of opportunism include safeguards and credible commitments such as long-term contracts, penalty clauses if a partner fails to fulfill the contract, equity sharing, and joint investments. According to Williamson (1996), trust between the parties is based on “calculated risk” and not on personal trust between individuals. TCA has often been used in make-or-buy decisions in supply chains. Examples are outsourcing of logistics activities (Maltz 1993; Andersson 1997; Halldórsson, & Skjøtt-Larsen 2006), buyer supplier relationships (Mikkola 2003; Bensaou 1999; Rindfleisch & Heide 1997) and restructuring of supply chains (Croom 2001). In essence, TCA is a useful instrument to decide whether a transaction should be performed in the marketplace or in-house.

Supplier switching cost

Switching cost, which is identified as a contributing factor to supply chain performance, leads to lower relationship costs and higher revenues (Matzler et al. 2015). McLaren et al, (2002) too, identifies switching cost as a contributing factor to performance measures. According to Matzler et al. (2015), customers increasingly try to reduce costs by changing suppliers;

especially in business-to-business (B2B) markets (Barroso & Picon 2012). Switching costs, defined as “costs perceived, anticipated, and/or experienced by a buyer when changing a relationship from one seller to another” (Pick & Eisend 2014), are seen as powerful defensive marketing tools (Chebat et al. 2011). According to Wu (2006), when switching to a new supplier, the business customer has to face switching costs, i.e. “the onetime costs that customers associate with the process of switching from one provider to another” (Burnham et al. 2003; Jones et al. 2007).

In the literature, many typologies of switching costs have been proposed (Barroso & Picón 2012; Burnham et al. 2003; Jones et al. 2002). In Burnham et al.’s (2003) generic conceptualization of switching costs that was developed based on a broad review of the literature and on interviews with industry managers and consumer focus groups is reliable.

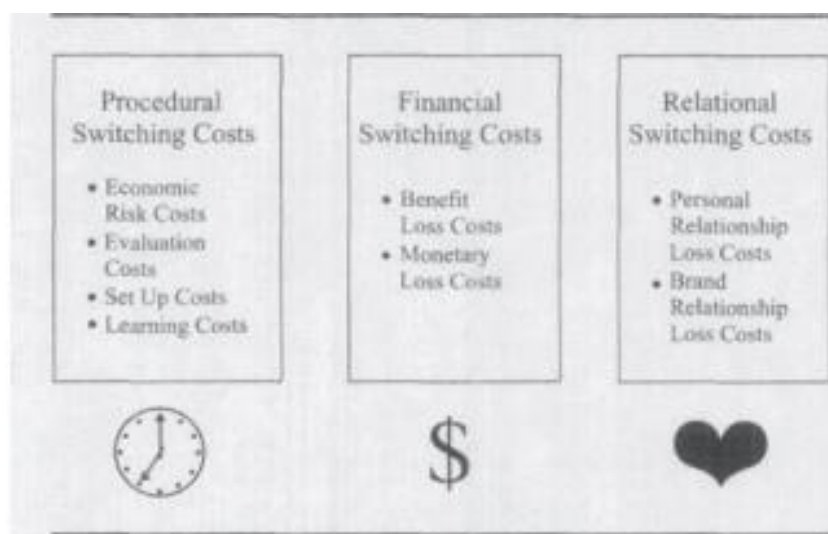


Figure 1: A typology of consumer perceptions of switching costs

For the purpose of this study, as shown in Figure 1, a more inclusive typology of switching costs proposed and Burnham et al. (2003) has been used. He proposed and validated a higher-order three-factor scale of switching costs to encompass eight first-order factors. The eight switching cost facets (economic risk costs, evaluation costs, learning costs, setup costs, benefit loss costs, monetary loss costs, personal relationship loss costs, and brand relationship loss costs) can be grouped into three higher-order switching costs: Procedural switching costs (Primarily time and effort), Relational switching costs (psychological and emotional discomfort), and Financial switching costs (loss of financially quantifiable resources).

Procedural switching costs

These costs are related to the expenditure of time and efforts required to evaluate alternative offerings and to start the relation with the new supplier, these costs include; Economic risk costs: costs due to the uncertainty about the performance of the new provider, Evaluation costs: costs due to the time and effort to search for and analyze alternative offerings and to make the decision, Learning costs: costs due to the time and effort needed to learn how to use the new product or service effectively, and Setup costs: costs due to the time and effort to start the relationship with the new provider.

Financial switching costs

Cost that measure the loss of financially quantifiable resources caused by the switching decision. These costs include; Benefit loss costs: costs due to the loss of discounts or similar benefits that are affordable to the customer by the current provider but will not be guaranteed by the new provider, and Monetary loss cost: costs due to the onetime financial expenses needed to start working with the new supplier, such as the replacement of transaction specific assets.

Relational switching costs

Costs related to the psychological or emotional discomfort related to the breaking of the established bonds with the current provider. These costs include; Personal relationship loss: costs due to the affective losses deriving from breaking the bonds with the people of the supplying firm, and Brand relationship loss: costs due to the affective losses deriving from breaking the bonds with the provider's brand.

Supply chain responsiveness

Supply chain responsiveness is defined as the capability of promptness and the degree to which the supply chain can address changes in customer demand (Holweg 2005; Prater et al. 2001; Lummus et al. 2003; Duclos et al. 2003). In a rapidly changing competitive world, there is a need to develop organizations and supply chains that are significantly more flexible and responsive than the existing ones (Gould 2007; James-Moore 2006). Firms need to aptly respond to changing customer needs to succeed in today's uncertain environment (Gerwin 1997; Huber 1994; Narasimhan & Das 2009; Ward et al. 2008) as well as any disruptions in supply (Germain 1999; Lee 2004; Christopher & Peck 2004). Although it would be interesting to study supply chain responsiveness from supply interference perspective also, the current study focuses mainly on customer demand perspective using three sub-constructs for supply chain responsiveness namely, operations system responsiveness, logistics process responsiveness, and supplier network responsiveness.

Operations system responsiveness

The ability of a firm's manufacturing system to address changes in customer demand. Operations system responsiveness includes both manufacturing and service operations. Duclos et al. (2003) and Lummus et al. (2003) in a conceptual study, emphasize that operations system

responsiveness at each node of the chain is an integral component of supply chain responsiveness. They further argue that in order to meet the end customer's needs, each entity in the supply chain must deliver the product or service in a timely and reliable manner.

The dimensions under this category would measure the responsiveness associated with a specific node (company) in the supply chain (Duclos et al., 2003; Lummus et al., 2003). This could be a supplier, a manufacturer, or a customer (or distributor). Anderson and Lee (2000) identified - the ability to be operationally responsive - as one of the components of successful supply chain strategy that add value to a firm. This includes the ability to rapidly configure or reconfigure assets and operations of the manufacturing system to react to consumer trends (Wu, 2001; Lummus et al., 2003), respond rapidly to changes in product volume and product mix demanded by customers, and effectively expedite emergency customer orders. As the supply chain responds to customer demand, supply chain member companies may be required to move quickly from the production of one product to another, or quickly change production levels for a given product. The responsiveness of the operations system would be the ability of the manufacturing and production to rapidly respond to unexpected events, and ability to rapidly accommodate special or non-routine customer requests. In doing so the vital ingredients needed are flexibility and speed of response (Holweg 2005; Holweg and Pil, 2001; Meehan and Dawson, 2002; Williamson, 2001) of the manufacturing system of each of the organizations operating within a supply chain. Some of the operations system responsiveness measures that have been identified to operationalize the construct include: operations system's ability to - rapidly adjust capacity to address demand changes, rapidly change manufacturing processes to address demand changes, rapidly reallocate people to address demand changes, rapidly reconfigure equipment to address demand changes, effectively expedites emergency customer orders, make rapid changes in product mix demanded by customers, and respond rapidly to changes in product volume demanded by customers.

Logistics process responsiveness

The ability of a firm's outbound transportation, distribution, and warehousing system to address changes in customer demand. The responsiveness in the logistic processes is a vital component in the success of a responsive supply chain strategy (Holweg 2005). Logistics and distribution management includes the activities of transportation of goods from suppliers to manufacturer to distribution centers to final point of consumption (Duclos et al., 2003; Lummus et al., 2003). These activities include warehousing, packing and shipping, transportation planning and management, inventory management, reverse logistics, and order tracking and delivery. This study focuses on the outbound logistics of the focal firm. Duclos et al. (2003) suggest that a firm's logistics system is instrumental in creating value for its customers. This value creation for a firm's customers implies ensuring logistics flexibility (Duclos et al., 2003; Lummus et al., 2003) and speed within the supply chain to serve each distinct customer's needs. A typical response to uncertainty is to build flexibility into the supply chain. However, being flexible needs to be supplemented by being apt in responding too. Responsiveness components in the logistics system include selecting logistics components that accommodate and respond to wide swings in demand over short periods, adjust warehouse capacity to address demand changes, handle a wide range of products, vary transportation carriers, have the ability to pack product-in-transit to suit discreet customers' requirements, and have the ability to customize products close to the customer (i.e. postponement); and do all of these speedily in order to gain a competitive advantage. It is vital that the firm has easy access to and is able to utilize different modes of transportation to be logistically flexible and thus responsive (Prater et al., 2001). Lummus (2005) argues that flexibility is the key component of any logistics system configured to achieve responsiveness. He further states that companies need the capability to adjust logistic systems quickly to respond to changes in market needs and the necessitated product assortment. Prater et al. (2001) in his case study research presents the case study of Hewlett Packard, which

reduced the uncertainty by designing the product appropriately to customize it only when individual orders arrive. Lummus et al. (2003) put forth some of the critical logistics process flexibility aspects of a supply chain, which are vital for supply chain responsiveness. These aspects have been adapted for logistics process responsiveness and are as follows: logistics system's ability to – rapidly respond to unexpected demand change, rapidly adjust warehouse capacity to address demand changes, rapidly vary transportation carriers to address demand changes, accommodate special or non-routine customer requests, and effectively delivers expedited shipments.

Supplier network responsiveness

Supplier network responsiveness is defined as the ability of a firm's major suppliers to address changes in the firm's demand. A key to responsiveness is the presence of responsive and flexible partners upstream and downstream of the focal firm (Christopher and Peck, 2004). The ability of firms to react quickly to customer demand is dependent on the reaction time of suppliers to make volume changes. Slack (2001) argues that supplier networks are the essential building blocks of a flexible system. Some interviews with operations managers conducted at the European vehicle assembly plants of Volvo revealed that the lack of supplier network flexibility hampered the company's responsiveness (Holweg, 2005). Supplier network flexibility (Slack, 2001) and thus supplier network responsiveness is an important part of the supply chain responsiveness. Holweg and Pil (2001) argue that flexibility in the supplier network is an important ingredient of being responsive to changes in customer demand. Thus, supplier network responsiveness is believed to be a dimension of supply chain responsiveness in this study. In order to have a competitive advantage, organizations need to meet the changing needs of customers by being able to rapidly supply products, including any demand changes in terms of product volume, mix, product variations, and new product introductions. Meeting these needs requires responsiveness in the supply chain at various stages from the raw materials

to finished products to distribution and delivery. In order to be responsive, the organizations should be able to select suppliers who can add new products quickly, and have suppliers make desired changes. Selecting suppliers who can introduce new products quickly can add responsiveness to a supply chain. Fisher et al. (2000) found that for short lifecycle products, such as fashion apparel, retailers are most successful if they can work with suppliers who can provide initial shipments of product based on forecasts, but then rapidly increase production to the right style, color, size, etc. based on actual sales. They note that fast supply chains can produce products as they sell rather than worrying about accurate forecasts. These studies suggest that supplier selection based on product development capabilities and rapid deployment capabilities positively impact the delivery time of new products. Slack (2001) found that the capability of suppliers to make product volume changes was a significant factor in supplier selection in the automotive industry. In certain industries, e.g. electronics; demand volatility poses a unique challenge to suppliers to vary output in line with demand. The increases or decreases in demand may come at a short notice and need to be sustained over some time period. Some of the measures of supplier network responsiveness include: major suppliers' ability to - change product volume in a relatively short time, change product mix in a relatively short time, consistently accommodate the firm's requests, provide quick inbound logistics to the firm, have outstanding on-time delivery record, and effectively expedite emergency orders.

Hypotheses and conceptual framework

Supplier switching costs and supply chain responsiveness

With the expectation of a few (McLaren, Head & Yuan 2002), scant attention has been paid to explore how the supplier switching cost affects the supply chain performance. Similarly, McLaren, Head & Yuan (2002) has identified switching cost as a contributing factor to a performance measure even though the findings do not provide any clear information on the

different facets or types of switching cost on a business to business (B2B) context. According to Burnham, Frels & Mahajan (2003), switching costs have also been associated with higher profits (Beggs & Klemperer 2002), with inelastic response to price (Farrell & Shapiro 2008), with increased product preannouncements (Eliashberg & Robertson 1998), and with barriers to market entry and sustainable strategies advantage (Karakaya & Stahl 1999); Kerin, Varadarajan & Peterson 2002). Sometimes, it is observed that despite low level of satisfaction with supplier, the customer does not terminate the relationship immediately. This is mainly due to switching costs. High switching barriers may mean that customers must stay (perceived that they must) with suppliers irrespective of the satisfaction created in the relationship (Hari et al. 2010). Collectively, the supplier switching cost can result in significant disruptions along the supply chain, severely impacting a company's ability to continue operations, accurately fulfill customer orders in a timely manner and provide critical services to end customers. Consequently, this study can hypothesize:

Alternative hypothesis H1: Supplier switching costs have an impact on supply chain responsiveness.

Three types of supplier switching costs and supply chain responsiveness

Although McLaren, Head & Yuan (2002) identifies switching cost as a contributing factor to performance measure, the findings do not provide any clear information on the different facets of switching cost and it is evident that it has failed to incorporate the three types of switching cost, namely, procedural switching cost, financial switching cost and relational switching cost (Burnham, Frels & Mahajan 2003) in measuring supply chain performance. This study aims to cater the untapped theoretical gap, by evaluating the impact of supplier switching cost on supply chain responsiveness considering three categories of switching cost. To fill this theoretical gap this study can hypothesizes:

Alternative hypothesis H2 (a): Procedural switching costs have an impact on supply chain responsiveness.

Alternative hypothesis H2 (b): Financial switching costs have an impact on supply chain responsiveness.

Alternative hypothesis H2 (c): Relational switching costs have an impact on supply chain responsiveness.

Based on above literature and the propositions the following conceptual framework is developed.

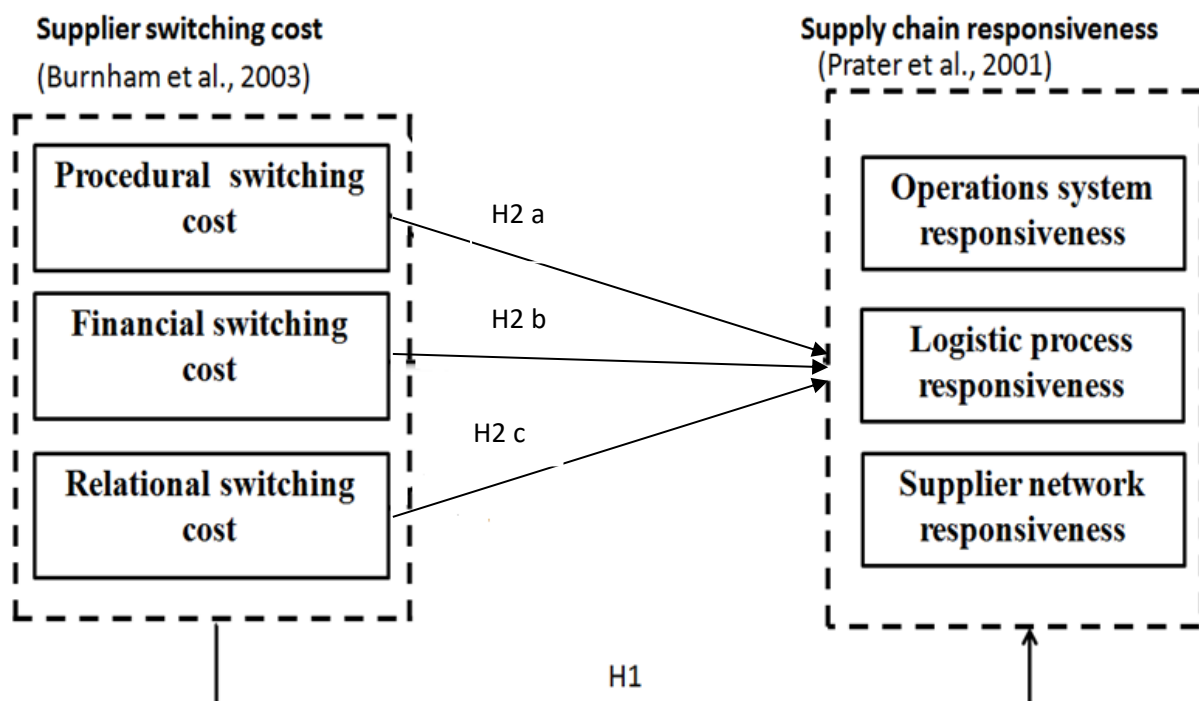


Figure 2: Conceptual framework

Methodology

Participants and procedure

As per the nature of the objectives, this study falls under the positivist paradigm. This is because, the researcher is working with observable social realities and the end result can be generalized to similar circumstances (Remenyi, D 2002). In this study, the population of the study comprises of the total number of the board of investment (BOI) registered SMEs scale manufactures in operations, which is 360. From this, simple random sampling technique was employed to draw the sample from the population. The unit of analysis was the BOI registered SMEs companies (business customers) in manufacturing sector, where the sample unit covers the industries of agro processing and beverages, high tech industries, machinery and equipment, pharmaceuticals, apparel and rubber-based products. Based on the previous literature, (Srinivasan, Mukherjee & Gaur 2011; Trkman et al. 2010; Wagner, & Bode 2008; Bruce, Daly & Towers 2004), it was evident that for supply chain performance and supplier information, the most suitable respondents were senior managers, supply chain managers, executives working in the field of supply management and the owners. Therefore, the point of contact or the respondent in this study was either the supply chain manager, operations manager, general manager or its owners. In the firm where these managerial positions were not available, the designated personnel appointed to handle the individual suppliers were directly contacted.

Both personal and online methods were used in administrating the survey. Accordingly, 40 questionnaires personally distributed by the researcher among the sample. More than 300 online questionnaires were sent to randomly selected respondents via e- mails. The response rate for the personal method was 80%, which is a good response rate, while the response rate for the online method was significantly lower, as only 162 responses out of 300 were received. Then, the questionnaires were screened, and incomplete questionnaires rejected. Accordingly, 188 questionnaires were forwarded for the data analysis. The data was analyzed using

Structural Equation Modeling (SEM) with the aid of AMOS (Analysis of Moment Structures)

23.0.

Measures

The questionnaire comprises of 48 questions to measure the 6 constructs (procedural switching costs, financial switching costs, relational switching costs, operations system responsiveness, logistic process responsiveness and supplier network responsiveness). The survey designed; questionnaire is divided into two parts. The part (A) includes questions formulated in order to obtain a general understanding of the participants, such as their designation, name of the working place, nature of the product of the company, suppliers' name and previous switching experience. The part (B) includes switching cost related information such as, procedural switching costs (18 items), financial switching costs (5 items) and, relational switching costs (7 items). A seven-point Likert scale was used to measure all three types of switching costs. Following part consists of information related to supply chain responsiveness, namely, operations system responsiveness (7 items), logistic process responsiveness (5 items) and supplier network responsiveness (6 items). All three constructs under supply chain responsiveness were measured with five-point Likert scale. Every question used in the study were from pretested questions used by other researchers for example, (Prater, Biehl, & Smith 2001; Burnham, Frels & Mahajan 2003; Matzler et al. 2015, A. El-Manstrly, D 2014). A combination of seven-point Likert scales and five-point Likert scales were used in order to retain the original scales of the authors as well as to avoid the common method variance (CMV), scales anchors were strongly agreeing in both seven point and five-point Likert scales. (1= Strongly Disagree, 5 or 7= Strongly Agree). All constructs were measured using multiple items whereas, all respondents were asked to answer the questions based on their last switching cost experience.

Data analysis and results

A pilot survey was conducted using 30 respondents to identify and eliminate potential problems in the questionnaire design (Malhotra & Peterson 2006) and to examine the validity and reliability of the measures used in the questionnaire (Sekaran & Bougie 2009). The Cronbach's alpha coefficient of the pilot survey was greater than 0.7 for all constructs which is an acceptable value for a pilot test (Hair, Black, Babin, & Anderson, 2010).

After the pilot survey, the data collected for this study were first entered in to the IBM Statistical Package for Social Science (SPSS) software version 23.0. All data were winsorized at 95% level to remove outliers and the 188 cases were forwarded for missing value analysis. In this study, there were no missing values in the 188 questionnaires. After missing value data analysis and outlier detection, the data was tested for multivariate assumptions such as normality, linearity, homoscedasticity and multicollinearity. Normality was tested by skewness and kurtosis where the values were within ± 2.0 (Garson 2009). To measure linearity and homoscedasticity normal probability plots (p-plots) and scatter plots were drawn respectively (Hair et al., 2010) and no deviations were identified. Finally, multicollinearity was assessed using a correlation matrix and all inter-correlation values were less than 0.9. Summarizing the results of multivariate assumptions, all variables were assured of normality, linearity, homoscedasticity and multicollinearity. The Kaiser-Meyer-Olkin (KMO) was used to measure the adequacy of the sample of the study. KMO results showed that the sample adequacy of all constructs is greater than 0.5 which indicates that the sample is adequate (Malhotra 2011). The unidimensionality of all constructs was ensured using Exploratory Factor Analysis (EFA). Cronbach's alpha was used to measure the reliability of all constructs and its value is greater than 0.7, and thus, it can be concluded that the reliability is established for all constructs. Thereafter, data was forwarded for multivariate analysis.

The measurement model

The measurement model “specifies the indicators for each construct and enables an assessment of construct validity” (Hair et al., 2010). Based on the conceptual model, there are 6 latent variables, namely, procedural switching costs (PSC), financial switching costs (FSC), relational switching costs (RSC), operations system responsiveness (OSR), logistics process responsiveness (LPR), and supplier network responsiveness (SNR). As the initial measurement model portrayed a poor fit, the model was improving using modification indices. Stepwise deletion of items below 0.5 factors loading was applied to further refine the initial model. During the modification process, 6 items were removed due to low standardized regression weights. Further, covariances were drawn between the error terms of several items for improvement purpose. The final measurement model showed as acceptable fit.

Table 1: Model-fit statistics of measurement model

	Absolute			Incremental			Parsimony
CIMIN/DF	GFI	AGFI	RMSEA	IFI	TLI	CFI	PRATIO
1.167	.911	.875	.046	.977	.973	.926	.922

According to Hair et al., (2010), CMIN/DF (X^2/df) value close to one and not exceeding 3, Comparative Fit Index (CFI) value close to 1, Tucker- Lewis Index (TLI) value close to 1 and Root Mean Square Error of Approximation (RMSEA) value of about 0.08 or less indicates a good model fit. As further recommended by Hair et al., (2010), the stated GOF (goodness of fit) indicates must include at least one absolute measure (X^2/df / p value/GFI/RMSR/RMSEA), one incremental measure (NFI/CFI/TLI/RNI) and one parsimony (PRATIO/PCFI/PNFI) fit measure. As shown in Table 1, the CIMIN/DF of the measurement model is close to 1 and

below 3, the RMSEA is 0.046, thus providing absolute model fit. Also, all incremental and parsimony indices depicted in the Table 1 are close to 1, assuring satisfactory model fit.

Table 2: Convergent and discriminant validity

	AVE	CR	MSV	ASV	PSC	FSC	RSC	OSR	LPR	SNR
PSC	.808	.987	.623	.332	.899					
FSC	.692	.918	.546	.279	.212	.832				
RSC	.755	.955	.589	.296	.236	.641	.868			
OSR	.623	.918	.518	.263	.044	.026	.687	.789		
LPR	.622	.888	.518	.252	.343	.407	.456	.354	.788	
SNR	.748	.918	.588	.293	.562	.035	.357	.235	.437	.865

Note: Diagonal entries (in bold) are the square root of AVE for all constructs; sub-diagonal entries are the correlation coefficients estimates between for each construct

The Confirmatory Factor Analysis (CFA) was used to further test convergent and discriminant validity of the constructs. As explained by Malhotra & Dash (2011), 0.5 or higher factor loading and 0.5 or greater Average Variance Extracted (AVE) assures satisfactory convergent validity. In addition, Composite Reliability (CR) must be 0.7 or higher. Generally, discriminant validity can be ensured if the square root of the VAE is larger than the correlation coefficients (Malhotra, 2008). Further, in ensuring discriminant validity, Maximum Shared Variance (MSV) and Average Shared Variance (ASV) must be less than AVE (Hair.et al., 2010). Moreover, the correlation coefficients among the study constructs do not exceed 0.85 (Kline 2011). Thus, all the constructs in the study represent different concepts. As all above

requirements are fulfilled, the convergent and discriminant validities are satisfactory, as shown in Table 2.

The structural model

The structural model examines the direct relationships among the constructs. Structural model 1 was developed to test the direct relationship between supplier switching costs (SSC) and supply chain responsiveness (SCR). The output path diagram of the structural model 1 is shown in Figure 3. Structural model 2 was developed to test the direct relationship between three types of supplier switching costs (procedural switching costs (PSC), financial switching cost (FSC) and, relational switching cost (RSC)) and supply chain responsiveness (SCR). Figure 4 shows the output path diagram of the structural model 2. All hypotheses were tested at the 95% confidence level.

Table 3: Model-fit statistics of structural model 1

CIMIN/DF	Absolute			Incremental		Parsimony	
	GFI	AGFI	RMSEA	IFI	TLI	CFI	PRATIO
1.148	.903	.862	.031	.988	.985	.988	.931

Model fit statistics for the structural model 1 are summarize in Table 3. Accordingly, model fit statistics values of structural model 1 shows a good model fit. (CIMIN/DF 1.148, GFI .903, RMSEA .031, IFI .988, TLI.985, CFI .988). CIMIN/DF is less than 3. GFI is greater than 0.9 and RMSEA shows a good absolute model fit. Further, incremental measures (IFI, TLI, CFI) also shows a good model fit. In addition, parsimony indices confirm the satisfactory level of model fit. Hypothesis testing (H1) result of direct path is depicted in Figure 3.

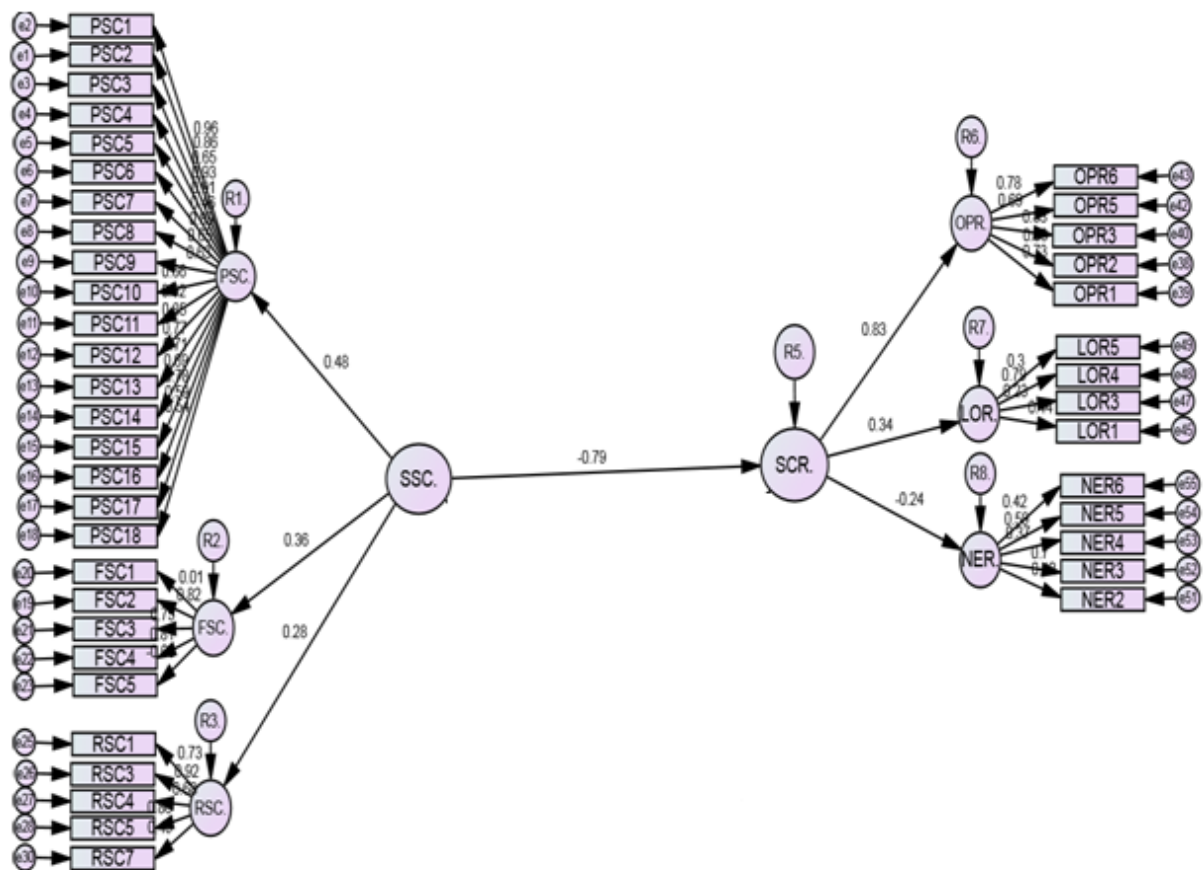


Figure 3 - The structural model1

As shown in Figure 3, it was hypothesized that supplier switching costs (SSC) has an impact on supply chain responsiveness (SCR). The result of hypothesis 1 shows that SSC has an insignificant negative impact on SCR. ($\beta = -0.79, p = 0.121$) at the 95% confidence level.

Table 4: Model-fit statistics of structural model 2

	Absolute			Incremental			Parsimony
CIMIN/DF	GFI	AGFI	RMSEA	IFI	TLI	CFI	PRATIO
2.440	.868	.807	.063	.931	.907	.938	.904

Model fit statistics for the structural model 2 are summarized in Table 4. Only GFI and other absolute indices show moderate model fit, but CIMIN/DF and other fit indices (i.e. RMSEA, RMR) indicated that the incremental model fit is high. Additionally, parsimony indices confirm a satisfactory level of model fit. Hypothesis testing (H2a, H2b, and H2c) result of direct paths are depicted in Figure 4.

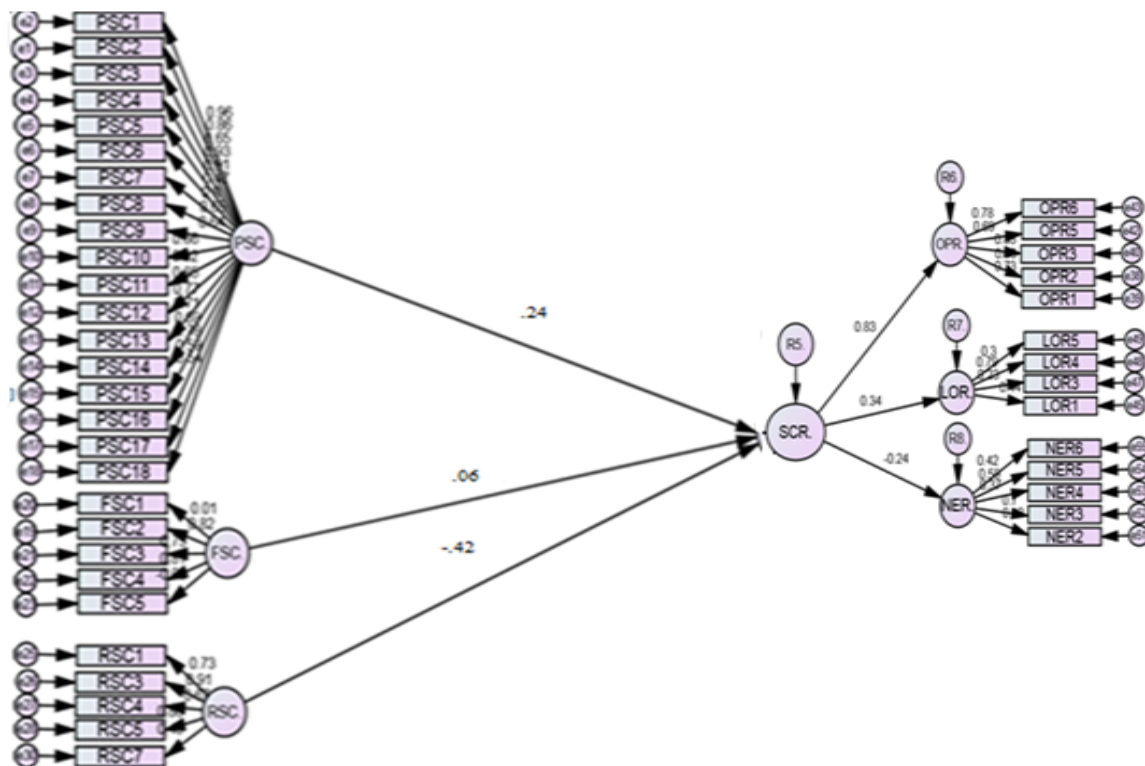


Figure 4 - The structural model 2

As depicted in Figure 4, hypothesis 2a investigates the relationship between procedural switching cost (PSC) and supply chain responsiveness (SCR). It was hypothesized that there

would be a relationship between PSC and SCR. The result demonstrates positive and significant paths from PSC and SCR ($\beta = 0.24, p = 0.002$). Thus, hypotheses 2a is supported. . Hypothesis 2b tested the relationship between financial switching cost (FSC) and supply chain responsiveness (SCR). It was hypothesized that there would be a relationship between FSC and SCR. The result suggests that the relationship between FSC and SCR is positive and statistically insignificant ($\beta = 0.61, p = 0.113$). Thus, hypothesis 2b is not supported. Hypothesis 2c investigated the relationship between relational switching cost (RSC) and supply chain responsiveness (SCR). It was hypothesized that there would be a relationship between RSC and SCR. The results revealed that the relationship between RSC and SCR is positive and statistically significant ($\beta = -0.42, p = 0.000$). Hence, a hypothesis 2c is supported.

Discussion

First research objective identifies the impact of supplier switching costs on supply chain responsiveness. The empirical evidence indicates that supplier switching costs are associated with decreased supply chain responsiveness. Specifically, supplier switching costs that insignificantly reduce the ability of a firm's manufacturing system to address changes in customer demand, the ability of a firm's outbound transportation, distribution, and warehousing system to address changes in customer demand and the ability of a firm's major suppliers to address changes in the firm's demand. Thus, supplier switching costs have negative insignificant effects on supply chain responsiveness at 95% confidence level when applied in Sri Lankan micro, small and medium scaled manufacturing firms. Accordingly, this relationship might be influenced by a different intervene variables. These findings are consistent with the findings of previous research in Western contexts, and research undertaken in public and private sector organizations. According to McLaren, Head & Yuan (2002), scant attention has been paid to explore how supplier switching cost affects the supply chain

performance. Further, only limited research present which studies consequences of switching cost in B2B context in particular (Barroso & Picón 2012).

Second research objective explore the impact of three types of supplier switching costs on supply chain responsiveness. Three types of supplier switching costs are procedural switching costs, financial switching costs and relational switching costs. Although McLaren, Head & Yuan (2002) identifies switching cost as a contributing factor to performance measure, the findings do not provide any clear information on the different facets of switching cost and it is evident that it has failed to incorporate the three types of switching costs, namely, procedural switching costs, financial switching costs and relational switching costs (Burnham, Frels & Mahajan 2003) in measuring supply chain performance. For the purpose of this study, a more inclusive typology consisting of the three main types of switching costs proposed by Burnham, Frels & Mahajan (2003) has been used. The findings of the current study reveal that, procedural switching cost has a significant positive impact on supply chain responsiveness at 95% confidence level. As a result, due to the costs those are related to the expenditure of time and efforts required to evaluate alternative offerings and to start the relation with the new supplier, increase the ability to adjust to changes in uncertainty in customer demand with least penalties in time. The findings of this study further reveal that, financial switching cost has insignificant positive impact on supply chain responsiveness at 95% confidence level. Thus, the costs that measure the loss of financially quantifiable resources caused by the switching decision are ignored by the micro, small, and medium scaled manufacturing firms. The results of this study also show that, relational switching costs are associated with decrease supply chain responsiveness. Specially, Relational switching costs are the costs related to the psychological or emotional discomfort related to the breaking of the established bonds with the current suppliers. It includes personal relationship loss costs and brand relationship loss costs (Burnham, Frels & Mahajan 2003). As a result, when this type of switching cost is high, the

focal firm tends to stay with their current long-term suppliers. But sometimes by having high relational switching costs, a firm might face risks of being tied to one particular supplier, which would reduce their competitive edge. Therefore, the negative relationship between relational switching cost and supply chain responsiveness could be explained logically.

Theoretical contributions

The study provides inferences made from an instrument that is valid and reliable for the current study's context for evaluating the impact of supplier switching cost and supply chain responsiveness. Further, the study provides a research framework that identifies significant relationships between supplier switching costs, and supply chain responsiveness. This framework (Figure 2) provides a foundation and insight for future researchers in the area of supply chain performance. Although several previous studies discussed the impact of supplier switching costs on supply chain performance, they have not evaluated the impact of supplier switching cost on supply chain performance, considering three categories of switching costs, namely procedural switching costs, financial switching costs, and relational switching costs. Therefore, the instrument developed in this study captures three important aspects of supplier switching costs. The new instrument shall provide better guideline for researchers in the supply chain performance area, and thus, can be considered as a strategic management tool.

The study also looks at the supply chain responsiveness at the firm level, by measuring the extent of a firm's ability on various dimensions to address changes in customer demand. The concept of supply chain responsiveness is difficult to measure; however, the degree to which demand changes are addressed at various nodes of a firm (upstream, within the firm, and downstream) can be used as an indirect measure of this concept. This measure is useful to researchers who are interested in measuring supply chain responsiveness.

Managerial implications

It is evident from the findings of this study that performance measurement in the supply chains using supplier switching costs is indispensable as it drives supply chain excellence and helps the firm to achieve its business goals. The impact of procedural, financial, and relational switching costs on the intention to stay with the current supplier will be different depending on the firms' specific ability of manufacturing system and logistic systems to address the changes in customer demand. The firm's anticipation of high switching costs give rise to the firm's interest in maintaining a high capacity to adjust changers in the market. These anticipated high switching cost lead to an ongoing capacity preserving being viewed as important, thus generating commitment to the changers.

Most of the firms have a good association with their existing suppliers, based on mutual trust, joint problem solving, and fulfillment of pre-specified promises and are better equipped to adapt to unforeseen changers, identify and produce will be crafted solutions to organizational problems, and reduce monitoring costs, all of which help improve the performance of the supply chain.

The study provides organizations a set of valid and reliable measurements for evaluating, benchmarking, and comparing supply chain responsiveness at the point from raw material supplier within the supply chain. The measurements developed in this research can capture the different aspects of supply chain responsiveness, thus not only enabling use by practitioners to identify the immediate outcomes of it, but also to understand its impacts on organizational performance.

In today's fast paced global competition, organizations are in need of greater responsiveness, so as to rapidly meet customer needs. Moreover, responsiveness on all dimensions, namely, supply side, within the organization, and downstream is needed for total responsiveness of the firm. Supply chain responsiveness has been poorly defined and there is a high degree of

variability in people's mind about its meaning. The findings demonstrate to the practitioners the vital components of responsiveness, and ways of achieving them.

The knowledge gathered from the visiting the micro, small and medium scaled firms revealed that manufacturing firms organized in networks had a higher chance of survival than those with and arm's length market contacts but to avoid the risks associated be being tied to particular suppliers the firms maintain a well evaluated supplier base with a significant number of suppliers for each of the raw materials. The findings also exposed that unlike switching costs, the ability to adjust to changes in uncertainty in customer demand do not always play the frequently mention role of a buffer against price and product competition in the context of manufacturing sector in Sri Lanka. Since most firms already have a thoroughly evaluated supplier base with many suppliers for the same raw material, switching suppliers is not a major dilemma as they can be easily replaced.

This study empirically verifies that in this era of globalization, the competition lies in the supply chains and the micro, small and medium scaled manufacturing firms with more responsiveness supply chains enjoy substantial competitive advantage.

Limitations

Although this research has significant contributions from both theoretical and practical point of views, it also has some limitations. The examination of those limitations will assist future researchers to work around them.

Due to the limited number of observations collected data may be limited to the area tested through survey questionnaire. New mailing lists and research methods can be used to improve the response rate. The impact of supplier switching cost in the long run is not captured since this cross-sectional study has been done only for a short period of time.

In this research, individual respondents (high level executives from purchasing, operations, materials, and logistics functions) in an organization were asked to respond to supply chain responsiveness practices. However, no person in an organization oversees the entire supply chain: for example, purchasing managers are mainly responsible for purchasing and supply side, and may be not in an appropriate position to answer the supply chain responsiveness related questions. Therefore, the use of single respondent may generate some measurement inaccuracy.

Directions for future researches

The use of single respondent to represent what are supposed to be intra/inter-organization wide variables may generate some inaccuracy, more than the usual amount of random error (Koufteros 1995). Future research should seek to utilize multiple respondents from each participating organization in an effort to enhance reliability of research findings. Future research should also consider other relevant factors not considered in this research. In the same regard additional dimensions of supply chain responsiveness such assembly responsiveness and inbound logistics responsiveness can be examined. Adding more performance measures for the supply chain responsiveness would further enhance the future outcomes. Also include more comprehensive conceptualizations of switching costs to develop more detail understandings of possible connections and to increase the diagnostic value of the mechanisms that create supplier retention. Future research should also examine the impact of other variables that can mediate the relationship between supplier switching cost and supply chain responsiveness in this model.

Conclusion

The findings reveal that the direct relationship between supplier switching costs and supply chain responsiveness is not significant. Thus, this relationship might be influenced by a

different intervene variables. Further, the impact of procedural, financial, and relational switching costs on intention to stay with the current supplier will be different depending on the specific relation linking the focal firm to the supplier. The findings also exposed that supplier switching costs do not play a significant role on the price and product competition in the context of apparel industry in Sri Lanka. Since most firms already have a thoroughly evaluated supplier base with many suppliers for the same raw materials, switching suppliers is not a major dilemma as they can be easily replaced.

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Innovation in Service Organizations - Role of Open Innovation and Knowledge Integration Mechanisms

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Executive Summary

This research focuses on the service sector in Sri Lanka. Open innovation will be tested based on the service sector in Sri Lanka and the study will focus on investigating the impact of open innovation determinates enhancing service innovation capability through knowledge integration mechanism

The main areas to concern in this research is open innovation, service innovation capability and knowledge integration mechanism. Open innovation is determined based on three main factors. Employee involvement focuses on how employee involves or influences to developing service innovation capability with in the organizations. Customer involvement and supplier involvement are the external parties to organizations that engages with the organizations develop service innovation capability with in the organizations.

The research identified that customer, employee and supplier involvement have significant influence towards service innovation capability. The use of knowledge integration mechanisms within an organization helps the organization positively influence the relationship between open innovation determinants and service innovation capability.

Based on the above finding s it is recommended that organizations should have formal process to harness the knowledge created when involved with the employees, customers and suppliers. For examples when new services are introduced use of customer feedbacks revise the service based on the customer needs and use of supplier knowledge and expertise to get recommendations can be implemented by the organizations. This will help to gain the truest of the other parties and build better relations with customers and suppliers.

Abstract

Organizations can gain competitive advantage through innovations. Traditionally, innovations were developed in a closed system. The present trend is to involve external as well as internal parties in the process. Organizations collaborate with employees, customers, suppliers and other stakeholders to create Innovations, this approach is called open innovation. However, excess information can decrease the productivity and impede innovation capability and Service organizations tend to have lack of innovation due to less capability. Knowledge integration mechanisms help to filter-out relevant information. There is a considerable lack of scholarly research on service innovation capability. Hence this research focuses on identifying the relationship between open innovation determinants and service innovation capability and how knowledge integration mechanism mediates this relationship.

Data was collected from hundred and sixty-five respondents of managerial level in Sri Lankan service organizations in the year 2016. These service organizations belonged to the categories of hotel, financial, telecommunication and software. Data collected through validated self-administered questionnaires and analyzed Smart PLS testing the hypothetical relationships.

The results indicated that a higher level of open innovation attempts leads to higher service innovation capability. The impact further increases when the firm is having knowledge integration mechanism. This research recommends conducting information sharing meetings, and face to face discussions to gain higher level of service innovation capability through open innovation.

Key words: Innovation, Knowledge integration mechanism, Open innovation, Service innovation, Service innovation capability

Introduction

The long-term survival of service organizations depends on the organization's ability to develop competitive advantage. Providing innovative services to their customers is a competitive factor for organizations. Developing competitive advantage enables organizations to be in superior positions in relation to competitors. This enables organizations to develop sustainability in the dynamic market conditions (Nonaka, I., Toyama, R., & Konno, N. ,2000). Innovation has been essential to create sustainability in an ever-changing business environment. Innovation in service sector enables the organization to exercise various methods and tactics in revolutionizing the services process and developing unique services to the consumers (den Hertog et al, 2010). Without developing new additions to services or changing approaches, an organization cannot survive in the business environment. As the competition in the service sector grows, organization must develop innovative services to create competitive advantage. Thus, organizations are willing to innovate and provide competitive services to their consumers. For this purpose, organizations require knowledge and resources to create innovative products and services.

Traditionally, organizations have focused on developing innovation within the organization by employing experts. Negative consequences of this traditional method were that organizations had to depend on the knowledge of the expertise and the innovations lacked the ability to be commercialized. This is because experts who design the product or service are not often immersed in the market in a capacity that enables them to understand the customer needs or market trends. The traditional method was defined by Henry Chesbrough as a closed innovation paradigm (Chesbrough, H.W, 2006). Open innovation expands beyond the boundaries of organizational setting and reaches for new knowledge outside the organization with the argument that an organization is not able to recruit all the expertise or the knowledge it needs. The more modern outlook on open innovation, encourages to gain internal as well as external knowledge in the innovation development process (Chesbrough, H.W, 2006).

According to contingency theory to make the optimal decisions organization should depend on the internal as well as the external situational factors. The open innovation approach is derived from the contingency theory where an open innovation process requires integration with internal and external parties in product and service creation (Torkkeli, M., Kock, C., & Salmi, P. 2009). These parties provide the necessary information to develop innovation within the organization. But due to the lack of research studies on knowledge integration mechanism, it is not empirically verified

how the service innovation capability is impacted by knowledge integration mechanism through the knowledge acquired by open innovation.

The research focus is on service innovation because Innovations in service organizations can provide the most suitable way to gain a competitive advantage (Reinartz & Ulaga, 2008). Service organizations can develop innovations in service offering, use of technology, cost structure (Grönroos, 2007). Moreover, scholars are more interested in the service innovations because they have identified that service innovation have grown in many economies and forecasted to have positive impact on the entire economy (Miles, 2005; Tipu, 2011). Empirical evidence on service innovation impact from the open innovation is minimal (Mina, Bascavusoglu-Moreau, and Hughes, 2014). Thus, there is a need to investigate the impact of open innovation on service industries.

This study focuses on the service sector in Sri Lanka. Open innovation will be tested based on the service sector in Sri Lanka and the study will focus on investigating the impact of open innovation determinates enhancing service innovation capability through knowledge integration mechanism. Therefore, the main research questions to be answered in this study are 1) What are the major determinants of open innovation in service organizations? 2) How does the knowledge integration mechanism play a role in open innovation and service innovation? 3)How knowledge integration mechanism effect on the relationship between open innovation and service innovation?

The main purpose was how knowledge integration mechanism impact on service innovation capability and how it will enhance the ability of improving innovation within the service organizations in Sri Lanka.

Literature Review

Open innovation and open innovation determinants

Open Innovation (OI) was introduced by Henry Chesbrough in 2003 as a new method of developing innovation within organizations (Chesbrough, Vanhaverbeke, & West, 2006). The approach uses internal as well as the external knowledge in developing new products and services that have the ability to be commercialized to create a higher level of consumer satisfaction (Reed, Storrud Barnes, & Jessup, 2012).

Traditional methods of innovation have focused on the internal factors or the resources within the organization. Open innovation models focus beyond the traditional methods. Mina et al, (2014)

explain that innovation has largely been studied from the viewpoint of manufacturing businesses while services have received much less attention despite the predominant role they play in advanced economies.

Chesbrough defines open innovation as “the use of purposive inflows and outflows of knowledge to accelerate internal innovation, and expand the markets for external use of innovation, respectively” (Chesbrough et al., 2006). The products or services that are developed this way are expected to capture the consumers better as they are developed based on the knowledge gained from all parties involved. The major weakness of closed innovation was the lack of commercialization. Open innovation improves the product or service commercialization. Open innovation is expected to accelerate the innovation process and have an overall positive impact on the organization (Chesbrough et al., 2006).

According to Chesbrough (2003) open innovations will generate innovations that will be able to commercialize without difficulty in the market as the organizations develop products according to the gaps identified in the markets. This knowledge about the external market will only come to the organization if the organization is open to the external paths (Chesbrough, 2003). But all the knowledge created within the internal as well as the external pathways will not be able to generate innovations as the information will be vast and will not always be able to use regularly (De Luca, L. & Atuahene-Gima, K. (2007). Therefore, a knowledge integration mechanism is needed to preserve and share information in the long-term.

The customer involvement is a major dimension in the open innovations process. Consumers are the party who will have experience of the product or service and the knowledge. The ideas provided by the consumer will be useful for the organization in developing products that satisfy the consumers. Insights provided by the consumer will help the organization generate pool of knowledge that can be used in the future for forecasting the next product and services that the market needs (García-Murillo & Annabi, 2002).

Supplier involvement is another critical dimension of open innovation. It includes activities to acquire and maintain the connection between the external suppliers of the organizations. The external suppliers may be expert individuals or organizations. the supplier's different capabilities that will provide critical information to the organization to develop innovations.

Employees provide the internal knowledge to the organizations. Internal knowledge can be the experience of the employees. Employees are the parties of the organization what produce the

product or provide the service to the organization. Employees who engage and equipped with skills and knowledge will have strong impact on the service innovations (Ordanini and Parasuraman, 2010). Use of employee in the service innovation process will help the organization updated with the organizational process and at the same time provide customer-oriented services (Skålén, 2009; de Jong & Vermeulen, 2003).

Service innovation and service innovation capability

Research on service innovation has gained much attention in the recent years. This is because scholars as well as practitioners are increasingly noticing that services make up an important part of global economic growth. A considerable proportion of employment opportunities globally comes from the service sector. Therefore, services need to be developed to capture more economic growth and profit. Organizations are increasingly starting to understand that through developing innovative services, they can develop competitive advantage in their industries (Nonaka et al.,1996). Service organizations require service innovations to experience sustained growth, raise the quality and productivity levels of services, respond to changing customer needs and expectations, or stand up to superior competitive service offerings (Pöppelbuß et al.,2011). It is clear that service innovation is a much-needed part of service organizations.

The theories that are used to explain service innovations are borrowed from product innovation (Gremyr et al.,2014). They explain that service innovation must be considered as a new case of innovation, hence requires a new set of. However, they claim that broadening the service innovation concept may result in turning the concept into an unfocused and less relevant field (Gremyr et al., 2014).

Knowledge Integration Mechanisms

Integration with the suppliers, consumers, competitors and research institutes and other organizations helps an organization gain external knowledge. However, all knowledge gained in this process is not appropriate for the organization innovation process. Due to this reason, mechanisms should be used to capture and store the knowledge as they can be used later. Knowledge integration mechanism is a structure focused on retrieving and maintaining knowledge from different parties (Enberg.,2012). “Based on the knowledge-based theory, knowledge integration was viewed as the critical factor affecting firms’ competitive advantage” (Hsu, Tsai, &

Liao, 2013). Hsu, Tsai and Liao (2013) define knowledge integration mechanisms (KIMs), as the “formal processes and structures that ensure the access and integration of knowledge among different functional units within a firm.”

The issue with knowledge is that some of it is tacit or implicit, which makes it difficult to use. Therefore, structures in organizations are needed to integrate knowledge into the workings of an organization. When there are structures and processes that are formally in place, different individuals from across departments can access the knowledge that is available to them. Without these structures and processes, knowledge can be lost with the changes in staff or simply due to changes of time. “Past literature suggests that the use of KIMs enables a firm to internalize and reorganize what it has learned and to decide on how to use the new knowledge (De Luca & Atuahene-Gima, 2007; Prahalad & Hamel, 1990, cited in Hsu et al., 2013). The issue with firms that do not understand the importance of knowledge integration mechanisms is that they will eventually fail to achieve product and service innovations (De Luca and Atuahene-Gima, 2007, cited in Hsu et al., 2013). Therefore, knowledge integration mechanisms are essential for an organization.

Hypotheses and the Conceptual Framework

Open Innovation Determinants and Service Innovation capability

Service firms are facing significant competition and challenge due to service innovations. Service innovations include organizational innovations, transferring the knowledge to innovations, and the engagement of multiple factors in the process on innovations. Empirical studies are limited about the use of open innovation in the service sector. However, it concedes that the involvement of various factors in service innovation process. The research studies on open innovation may be limited but they have identified that the use of open innovations within the service organization will have positive impact on the organization. This is one of the key factors in the success of service organizations (de Jong et al., 2003; Du et al., 2014). The use of open innovation provides the opportunity not to rely on the internal resource but to employ external resources in increasing the innovations within firms (de Jong et al., 2003).

Compared to manufacturing organizations, open innovations implementation on the service innovations and studies related to service firms are lacking. Scholars have identified that the use of open innovation in the manufacturing firms is not be the same in-service organization

(Evangelista & Savona 2010; Trigo & Vence, 2012). Many studies have been conducted regarding open innovation in service organization and its impact on service innovation (Van de Vrande et al., 2006; Gassmann et al., 2010; Vanhaverbeke et al., 2014)

Gremyr and colleagues (2014) explain that “research on innovation in manufacturing firms is based on the introduction of new technology and improvement in product performance”. Instead of co-creating with customers and other stakeholders, “value is viewed through attributes and functions” (Gremyr et al, 2014). Innovation in this context tend to be geared towards improving product and service performance rather than using it to understand the need for the innovation and how it can improve customer relationship. It is not empirically verified how service innovation capability is impacted by the knowledge acquired by open innovation. Therefore, hypothesis 1 focuses on how open innovation influences service innovation capability.

H1: Open innovation influences the service innovation capability

Employees are the main reason for organizational creativity. Due to the contact with the consumers, the organizations can generate new ideas that satisfy the consumers (Melton & Hartline, 2010). Empirical evidence suggests that the employee involvement is the main reason for organizational innovation (Cadwallader et. al., 2013, Kesting & Ulhøj, 2010, Ordanini & Parasuraman, 2010).

Unlike in manufacturing sector, in service delivery employees are equipped with knowledge related to consumer needs. Using two types of organizational activities employees are improving the service innovation of the organization. Firstly, the interaction between the employee and the consumer generates service innovation. This can be categorized as service innovation concurrent with co-creation of employees and consumers. After providing the services based on customer feedback and prior experience of the employee, innovation capability can be developed for future usage.

Based on the finding of the Barcet (2010) there are several factors that needed in providing a service. Where several resources and process are used to provide these services the employee of organization will facilitate all activities in a service organization in developing new service or a service process (Gustafsson et. al. 1999).

H1a: Higher level of employee involvement results in a higher level of service innovation capability

Understanding the needs and wants of the consumer is the main reason for service innovation or the new service development in an organization (Karkainen et al. 2001; Lagrosen, 2001; Zahay et

al. 2004). Due to this reason the organization will be able to reduce the risk not providing new services to the market and be able to identify the consumer expectations and other necessary issues to consider (Carlile, 2001). Main reason for market failures is the lack of prior knowledge about the market and this can be remedied through consumer involvement (Gronroos, 1994; Martin & Horne, 1995).

Organizations rely on consumers to gain market knowledge when testing product or services (Sigala, 2008; Kristensson et al., 2008). Consumers need to be involved in the process of service development but this involvement should not be limited to providing feedbacks. It should be active and provide valuable feedback in the service innovation process. This will enable the organization to enhance their capability to provide more innovative services to the consumers.

Based on the empirical evidence the consumer involvement is more important in the early stages of new service development. The importance of consumer involvement in the service innovation is that consumer play a part in service creation and consumption (Alam, 2006). Involving in the early stages of the new service development will help the organization to reduce time cost and sometimes position of the product in the market. Consumers involvement will enable the organization to identify how the service should be catered and have the opportunity to influence the capability of the organization in developing new type of services that will satisfy the consumers. The involvement of consumers with the organizations have been identified as positive and beneficial to the organizations as it will provide significant information about the consumer needs and wants. This will help the organizations to develop new services based on the consumer needs and help reduce the uncertainties in the environment as well as with in the consumers.

Involving consumers have significant improvement in the consumer in organizations new service development and ability to predict and satisfy the needs of the consumers, this has also helped to develop strong relationship with the consumers. Which have enabled the firms to gain market information, reduction in the inaccuracies in new service development and ability to increase new service acceptance (Dadfar, Brege, & Sarah Ebadzadeh Semnani, 2013).

H1b: Higher level of consumer involvement results in a higher level of service innovation capability

Hillebrand and Biemans (2004) emphasized the significance of linking the studies of external and internal cooperation on supplier involvement in product development. This is because the two have been studied separately for the most part (Takeishi, 2001). Takeishi further explain that “in

research on supplier involvement in the auto industry, only a few empirical studies have paid attention to automakers' internal organization for supplier involvement, and their attention has remained limited" (Takeishi, 2001). According to Takeishi, there are several reasons why supplier collaboration is good for innovation: it is good for problem solving, it offers unexplored perspectives, and it allows accumulation of knowledge from a new source (Takeishi, 2001). Several researchers have argued that product development can benefit from collaborative relations with partners that include customers, research communities, competitors, as well as suppliers (von Hippel, 1988; Allen, 1977; Henderson & Cockburn, 1994; Gomes-Casseres, 1996). Therefore, it is beneficial to study the effect of supplier involvement on service innovation capability in Sri Lankan service industry. Thus, hypothesis 1c focuses on the relationship between supplier involvement and service innovation capability.

H1c: A higher level of supplier involvement will increase the service innovation capability

Knowledge Integration Mechanism and Service Innovation capability

Scholars and practitioners have considered knowledge integration mechanism to be a critical factor affecting firms' competitive advantage" (Hsu, Tsai, & Liao, 2013). Conducting a study on Brazilian Cosmetic industry, Celadon confirms that "the ability to integrate knowledge is related to competitive advantage" (Celadon, 2014). Their main finding is that "different levels of openness in innovation, demand firm-specific mechanism for knowledge integration" (Celadon, 2014). Celadon further claims that "both Open Innovation and Knowledge Integration have complementarities, as well as overlapping dimensions, and have not been compared in previous studies" (Celadon, 2014). This explains the value of studying these concepts further, as these concepts can be also antagonistic.

The use of KIMs enables a firm to internalize and reorganize what it has learned and to decide on how to use the new knowledge (De Luca & Atuahene-Gima, 2007; Prahalad & Hamel, 1990, cited in Hsu et al., 2013). Looking internally as well as externally for knowledge is essential for open innovation. De Luca and Atuahene-Gima, 2007 have explained how firms that do not understand the importance of knowledge integration mechanisms is that they will eventually fail to achieve product and service innovations (De Luca & Atuahene-Gima, 2007 cited in Hsu et al., 2013). Therefore, hypotheses 2 is that knowledge integration mechanism positively impacts service innovation capability.

H2: Increase in knowledge integration mechanism positively impacts service innovations capability

Open innovation determinants and knowledge integration mechanism

Participation is providing the power to the employees to express their feedback and ideas freely and actively get involved in the decision-making processes of the origination. Previous authors have claimed that encouraging employee participation is beneficial to the overall performance of an organization: “employee participation will lead any origination to achieve the desirable results in terms of improving their existing markets, or creating new markets, innovating the existing products or services and developing new products or services” (Aldakhil, 2016). Camison and Villar-Lopez have supported this: “the integration of all knowledge into the business processes used by the different skilled and experienced employees has good potential to improve the new products’ performance” (Camisón, & Villar-López, 2014). The current study seeks to understand how employee participation impacts service innovation.

H3: Increase in employee involvement positively impacts knowledge integration mechanism

Hypothesis 4 is the hypothesis that, an increase in customer involvement positively impacts knowledge integration mechanism. “Successful product development demands profound knowledge of customers and their needs” (Karkainen et al. 2001). Understanding the needs and wants of the consumer is the main reason for service innovation or the new service development in an organization (Karkainen et al. 2001; Lagrosen, 2001; Zahay et al. 2004). When an organization involves as many parties as possible in the process of knowledge integration, it can accumulate valuable information from several different perspectives. Involving customers directly in this process adds a valuable perspective because customers have direct experience with services offered by organizations. Therefore, it can be said that they not only have first-hand knowledge about services, but they also can convey what they look for from a service organization. Main reason for market failures is the lack of prior knowledge about the market and this can be remedied through consumer involvement (Gronroos, 1994; Martin & Horne, 1995). Hypothesis four seeks to understand how customer involvement affects knowledge integration mechanism in the context of service organizations in Sri Lanka.

H4: Increase in customer involvement positively impacts knowledge integration mechanism

Research indicates buyer-supplier collaborations in new service development can have a positive impact on innovation. From a knowledge-based view, it is argued that suppliers add a

complementary knowledge base that is combined with the buyer's knowledge (Rosell, 2013). Different supplier inputs may imply different knowledge integration mechanisms and practices. Rosell further explains that "when integrating supplier knowledge in innovation, management has to consider the possible and preferred outcome of the collaboration; it might be a commercial deal to provide for a temporary access to knowledge, or it might be a long-term alliance, where joint learning is an aim" (Rosell, 2013).

H5: Increase in supplier involvement positively impacts knowledge integration mechanism

Hsu, Tsai, and Liao (2013) have studied the mediating effect of knowledge integration mechanism on product innovation and conclude that there is a positive relationship between the two variables. De Luca and Atuahene-Gima (2007) have also studied the mediating effect of knowledge integration mechanism on the relationship between cross functional collaboration, market knowledge dimension and product innovation performance. In both previous accounts, the mediating effect of knowledge integration mechanisms is confirmed. Empirically its unable to find the relationship between knowledge integration mechanisms and the service innovation capability which the research is focused on finding

In the service sector employees play a critical role as the services are embodied with the service providers or the employees of the organization. Past scholars have identified that main drivers of service innovations are employees in an organization. (Santamaría et al., 2012).

Highly capable employees increase the probability of service innovations and organizations should focus on the capability of developing service innovations and the employees' involvement have direct impact on service innovation capability of the organization (Love and Mansury, 2007). empirically it is identified that capabilities of employees have a significant positive impact on service innovation, especially in the launch phase of a new service (de Brentani, 2001; van der Boor et al., 2014)

Due to no proper structure or systems with in organization in relation to knowledge integration mechanism system the information gathered from the employees and other parties by the KIM system will not lead to proper service innovations within the organizations (Marinova 2004). Early research indicates that knowledge integration mechanism act as a mediator in developing product

innovation but not as a mediator in creating service innovation or service innovation capability. (De Luca and Atuahene-Gima 2007).

Involving customers in the development of service innovation capability has a significant advantage for organizations (Agarwal and Selen, 2009; Salunke et al., 2011). Consumers have first hand experience of services provided by the organization and have significant influence on the services provided by the organizations. organizations tend to involve consumers as sources of knowledge and information. often providing valuable key information on alternative services or competitors. Based on Nicolajsen and Scupola, (2011) customer are involved in every stage of innovation process playing a critical role in developing new services to the organizations.

According to it is identified that in product innovation firms should have proper mechanism in integrating or capturing the knowledge of the consumers but the empirical evidence does not emphasis on service innovation or service innovation capability in relation to knowledge integration mechanism and customer involvement. previous scholars have focused only on product development in relation to customer involvement though knowledge integration mechanism

Significant amount of prior research focused on the relationship with the supplier involvement and the product innovation not with service innovation within an organization. A supplier with specialized capabilities has the competence in integrating the knowledge and collaborating with the new product development process (Schiele, 2006; Oh and Rhee, 2010; Wagner, 2009). Collaborations with suppliers in developing innovations will have positive outcomes (Wynstra et al., 2010). Previous scholars argue that supplies contribute only to incremental innovations which are not significant improvements (Belderbos et al. 2004; Hoegl and Wagner, 2005; Primo and Amundson, 2002). But some have counter argued that supplier have contributed with significant contributions to organizations when organizations collaborated with the suppliers (Schiele 2006; Un et al., 2010). New knowledge possessed by the supplier helps organizations to develop new products to the market (Song and Thieme, 2009). Suppliers collaboration have positive effect on knowledge integration and innovation within the organization based on the expertise and knowledge of the supplier. (Bonaccorsi and Lipparini, 1994).

Based on the above evidence following argument can be developed. The relationship between open innovation and service innovation capability mediates by the knowledge integration mechanisms.

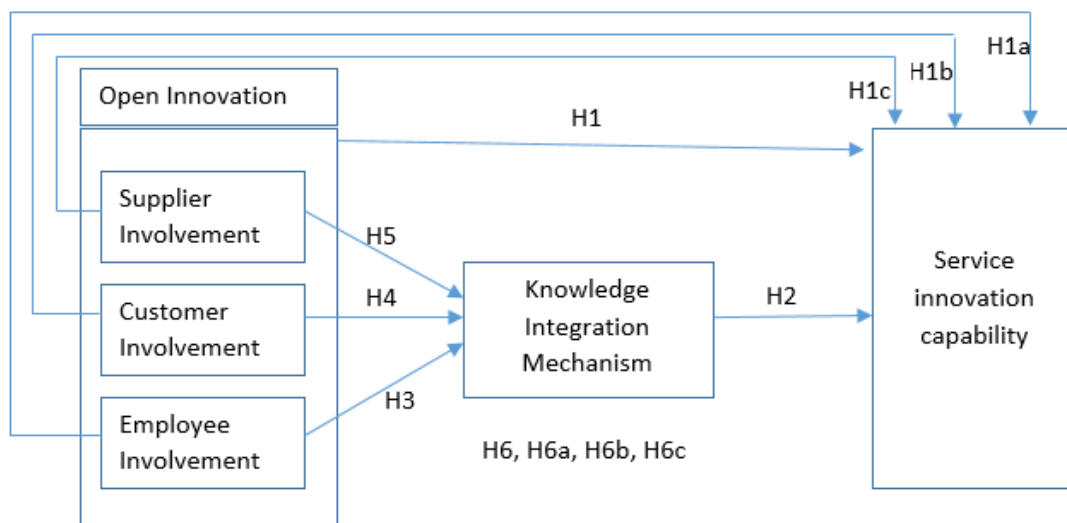
H6: Knowledge integration mechanism mediates the relationship between open innovation and service innovation capability

H6a: Knowledge integration mechanism mediates the relationship between employee involvement and service innovation capability

H6b: Knowledge integration mechanism mediates the relationship between customer involvement and service innovation capability

H6c: Knowledge integration mechanism mediates the relationship between supplier involvement and service innovation capability

Figure 1. Conceptual Framework



Source-Author Construct

Methodology

The purpose of the study is to identify the role of knowledge integration mechanisms between the relationship of open innovation and the service innovation capability of the service organizations in Sri Lanka. a deductive approach was used in identifying the knowledge integration mechanisms, open innovation and the service innovation capability of the service organizations to test the

relationship among the variables. Researcher employed quantitative analysis method for this study in identifying the relationship between each variable and achieving the research objectives.

Measures

The research strategy was survey. A structured questionnaire was developed based on previous research questionnaires used by scholars of service innovation. The questions are based on seven figure Likert scale. The questionnaire was divided into seven sections focusing on the service innovation capability, knowledge integration mechanism, employee involvement, customer involvement, supplier involvement

To examine the impact of open innovation determinants to service innovation capability, each determinant was examined separately. Each variable was measured using a seven-point Likert scale. Employee involvement was measured using a 15-item scale developed by Denison, Inovics, Young, & Cho (2006). A four-item scale developed by Mons Freng Svendsen and colleagues (2011) was used to measure customer involvement. Supplier involvement was measured based on a four-item scale developed by Amelia S. Carr and John N. Pearson (2002). Service innovation capability was measured using a five-item scale developed by Grawe, Chen, and Daugherty (2009). Knowledge integration mechanism was measured based on the seven-item measurement developed by Zahra, Ireland, and Hitt (2000).

Sample and data collection

The unit of analysis of this research study is a service organization in Sri Lanka. our categories were chosen: telecommunication, information technology, hotels, and financial services. These are the most upcoming services in Sri Lanka ("economynext.com", 2016). While there has been significant growth in the service sector in post-war Sri Lanka, a significant growth contribution is made by the financial, communications and hotel sector of Sri Lanka ("Sri Lanka Overview", 2016).

The sample size was calculated using the below Penwarden method (FluidSurveys, 2014):

Sample size= (distribution of 50%)/ ((margin of error%/ confidence level score) squared)

Therefore, the sample size for 645 populations with 7% margin of error and 95% confidence level score is 165.

The collected data was first checked for outliers which was followed by a data cleaning process. The data was analyzed using SPSS, to conduct initial frequency tests, descriptive analysis, and normality checks. To continue with advance analysis, Smart PLS software was used.

To carry out the data analysis of the study, 300 questionnaires were distributed, and 165 usable responses were collected, with a yielding rate of 55 percent (55%). The unit of analysis was service organizations in four main sectors in Sri Lanka. The collected data was scanned for accuracy and was subjected to a cleaning process to identify outliers as well as to treat for missing values.

Data Analysis

The pilot survey was distributed among thirty-five organizations. three of the organizations were financial services organizations while twenty-three were hotels. There was one telecommunication organization and 8 software organizations. Cronbach's alpha was calculated to check the reliability of the pilot survey. Cronbach's alpha value of the six variables ranged from 0.793 to .854 which indicates the survey is reliable and can be distributed among the total sample.

Table-1- Pilot survey-Each variable Cronbach's Alpha

Variable	Cronbach's Alpha	Number of Items
Service Innovation capability	.823	5
Knowledge integration Mechanism	.854	7
Employee Involvement	.830	15
Customer Involvement	.813	4
Supplier Involvement	.793	4

Source: Survey Data

To carry out the data analysis of the study, 300 questionnaires were distributed, and 165 usable responses were collected, with a yielding rate of 55 percent (55%). The unit of analysis was service organizations in four main sectors in Sri Lanka

The data analysis was first done using the IBM Statistical Package for Social Sciences (SPSS) software. Plot diagrams and graphs were used to identify the outliers during the cleaning process. Outliers are detectable through analysis of the residual scatter plot. During the cleaning process 12 outliers were detected. Therefore, 153 questionnaires were considered for the analysis. Since there were no missing values in the data set, the researcher proceeded with the rest of the data analysis

Normality test is used to check how a data set is modeled by a normal distribution. It looks at the shape of the data distribution. Malhotra and Dash (2011) explain that normality is used to describe a curve that is symmetrical and bell-shaped. In a normal distribution, the highest score frequency is depicted in the middle. The two extremes have the lowest frequencies. There are several ways to assess normality of a distribution. Kolmogorov-Smirnov statistic (K-S test) and the Shapiro-Wilk statistic test were used to check normality for this study

Abhayakoon and Balathasan (2013). explain that a significance score of more than 0.05 in K-S and Shapiro-Wilk test show that the assumption of normality can be met According to outcomes of the normality test none of the variables scored a significance value of more than 0.05. Therefore, the assumption of normality for the data set cannot be satisfied. the Pearson correlation is above .85. Due to this reason, SmartPLS software is used for further analysis.

Measurement model

There has not been much research done on Sri Lankan service innovation. Thus it's in the early stages of theory testing on open innovation in the service industry in Sri Lanka, in which scenario many researchers have recommended to use the PLS analysis (Hair, Sarstedt, Ringle, & Mena, 2011; Vinzi, Chin, Henseler & Wang, 2010)

Table 2: Descriptive statistics for variables

Variable	Mean Value	Standard Deviation	AVE	Composite Reliability	Cronbach's Alpha
Open Innovation	5.27	1.1170	.869	.904	.902
Dimensions					
Employee Involvement	4.8639	1.28217	0.946	.989	.986
Customer Involvement	5.51	1.10130	0.820	.932	.895
Supplier Involvement	5.52	1.15662	0.842	.941	.917
Knowledge integration mechanism	5.26	.66732	0.619	0.756	0.746
Service innovation capability	5.90	.61004	0.625	.832	.714

Source: Survey Data

As per table the composite reliability and the Cronbach's alpha is well above .7 which suggests the construct reliability of the measurement model indicators. Furthermore, all the indicators have

achieved an AVE value of well above .5 which ensures the convergent validity. it can be said that the results show reliability and validity of the model

Structural model and the hypothesis testing

The theoretical model proposed to test six hypotheses. The bootstrapping procedure was performed using 500 samples, (Hair et al., 2011; Vinzi et al., 2010; Jung et al., 2008a).

The path coefficients or the beta values for the above relationships are positive. The path coefficient for hypothesis 1 was 0.251. The path coefficients for hypothesis 1a, hypothesis 1b and hypothesis 1c were respectively 0.408, 0.316, 0.257. These path coefficients are significant as the T-value is greater than the significant critical values (> 1.96 , for significance at 95% level and > 2.65 , for significance at 99% level). Therefore, hypothesis 1, hypothesis 1a, hypothesis 1b and hypothesis 1c are significant at 99% level. Hence, hypotheses H1, H1a, H1b, H1c are accepted.

Table 3: Path analysis

	Path	Path coefficient	T Statistics ($ O/STDEV $)	P Values
H1	OI→SIC	.251	3.190	.002
H1a	EI→SIC	.408	2.823	.005
H1b	CI→SIC	.316	4.313	.000
H1c	SUPI→SIC	.257	3.092	.002
H2	KIM→SIC	.886	94.775	.000
H3	EI→KIM	.497	10.483	.000
H4	CI→KIM	.258	4.735	.000
H5	SUPI→KIM	.337	4.893	.000

Source: Survey Data

the relationship between knowledge integration mechanism and service innovation capability is highly significant at 0.001 (99%) level. Further, the relationship between knowledge integration mechanism and service innovation capability is positive with a path coefficient of .886. Thus, it can be concluded that there is a significant impact of knowledge integration mechanism on service innovation capability.

Hypothesis three focuses on the relationship between employee involvement and knowledge integration mechanism. Path coefficient for hypothesis 3 is 0.497 at the significance score 0.001. Therefore, it can be concluded that there is a positive correlation between employee involvement

and knowledge integration. Hypothesis 4 is about the relationship between customer involvement and knowledge integration mechanism. As seen in table 3, the path coefficient is 0.258 and it is statistically significant at the 0.01 level. Hypothesis 5 focuses on supplier involvement and knowledge integration mechanism the correlation is statistically significant at 0.01 level with a path coefficient of 0.337. Therefore, hypothesis 3, hypothesis 4 and hypothesis 5 are accepted.

Testing for mediation

The researcher used Preacher and Hayes, (2008) MacKinnon and Dwyer (1993) and MacKinnon, Warsi, and Dwyer (1995) statistically based methods by which mediation may be formally assessed. The impact of the mediation of knowledge integration mechanisms on the involvement of customers, employees and suppliers on service innovation capability (Baron & Kenny, 1986).

Table 4: Results of the structural model Hypothesis 6

	Regression1		Regression 2		Regression 3				Mediat
	OP	OP	OP	OP	OP		KIM		or
	Path co	T-vale	Path. co	T-vale	Path. co	T-vale	Path. co	T-vale	Yes
KIM	.566	15.298							
SIC			.379	2.390	.019	2.232	.196	1.899	

Source: Survey Data

As shown in the table 4, open innovation has a positive impact on knowledge integration mechanisms. In the first regression equation, it is statistically significant as the t-value is greater than the critical value at the significance level of 0.01. The results of the second regression equation, open innovation has a positive impact on service innovation capability. This relationship is statistically significant since the t-value is more than its critical value of 1.96, for 0.05 level of significance. In the third regression equation, the mediator, knowledge integration mechanism and independent variable open innovation positively influence service innovation capability. The relationship between open innovation and service innovation capability is positive and statistically significant at 0.05 level. However, it is lower than the same in the second regression equation. Therefore, according to Baron and Kenny (1986), the three-regression analysis carried out and reported in table 3 indicates that knowledge integration mechanism mediates the dependent variable.

Table 5: Results of the structural model Hypothesis 6a

	Reg 1	Reg1	Reg2	Reg2	Reg3		REg3		Mediator
	EI	EI	EI	EI	EI	EI	KIM	KIM	
	Path. co	T-vale	Path. co	T-vale	Path. co	T-vale	Path. co	T-vale	Yes
KIM	.561	12.882							
SIC			.448	3.082	.149	2.232	.206	2.186	

Source: Survey Data

As per the table 5, the first regression equation reveals that employee involvement has a positive impact on knowledge integration mechanisms. Also, the t-value of 12.882 suggests it is statistically significant at 0.01 significant level. The second regression equation results indicate that the employee involvement has a positive impact of service innovation capability, the relationship is statistically significant as the t-value 3.082 is more than the critical value 2.65, therefore the relationship is significant at 0.01 level. Third regression equation, the mediator, knowledge integration mechanism, and employee involvement have a positive impact on service innovation capability. Both the relationships are statistically significant as the t values of the said relationships exceed the critical value of 1.96 and therefore significant at the level of 0.05. Even though the relationship between employee involvement and service innovation capability is positive in the third regression equation, it is lower than the same in the second regression equation. Therefore, according to Baron and Kenny (1986), three regression analysis performed and reported in the table 4 suggests that employee involvement mediated by knowledge integration mechanism has a positive impact on service innovation capability.

Table 6: Results of the structural model Hypothesis 6b

	Regression 1		Regression 2		Regression 3				Mediator
	CI	CI	CI	CI	CI	CI	KIM	KIM	
	Path. co	T-vale	Path. co	T-vale	Path. co	T-vale	Path. co	T-vale	Yes
KIM	.264	3.029							
SIC			.418	4.165	.408	4.087	.206	2.187	

Source: Survey Data

As per table 6, the first regression equation shows positive and statistically significant relationship between customer involvement and knowledge integration mechanism at a significance level of 0.01. The second regression equation reveals the relationship between customer involvement and

service innovation capability which has a positive statistically significant relationship at a significance level of 0.01. In the third regression equation, the mediator which is knowledge integration mechanism and service innovation capability are positively and statistically significant at the significance level of 0.01. Though the relationship between customer involvement and service innovation capability is positively related in the third regression, it is lower to the positive value reported in the second regression equation. Thus, as per Baron and Kenny (1986), three regression analysis performed and reported in the table 6, suggests that customer involvement mediated by knowledge integration mechanism has a positive impact on service innovation capability.

Table 7: Results of the structural model Hypothesis 6c

	Regression 1		Regression 2		Regression3			
	SUPI	SUPI	SUPI	SUPI	SUPI	SUPI	KIM	KIM
	Path. co	T-vale	Path. co	T-vale	Path. co	T-vale	Path. co	T-vale
KIM	.495	4.670						
SIC			.470	5.380	.408	4.087	.287	2.876

Source: Survey Data

As per table 7, the first regression equation shows positive and statistically significant relationship between supplier involvement and knowledge integration mechanism at a significance level of 0.01. The second regression equation reveals the relationship between supplier involvement and service innovation capability which has a positive statistically significant relationship at a significance level of 0.01. In the third regression equation, the mediator which is knowledge integration mechanism and service innovation capability are positively and statistically significant at the significance level of 0.01. Though the relationship between supplier involvement and service innovation capability is positively related in the third regression, it is lower to the positive value reported in the second regression equation. Thus, as per Baron and Kenny (1986), three regression analysis performed and reported in the table 7 suggests that supplier involvement mediated by knowledge integration mechanism has a positive impact on service innovation capability. Thus, it can be concluded that the variables, knowledge integration mechanism creates mediation effect in service innovation capability.

Discussion

Open innovation that enhance service innovation capability in service organizations.

The first objective was to identify the relative importance of determinants of open innovation that enhance service innovation capability in service organizations. Consequently, it was hypothesized that open innovation influences the service innovation capability. The results show that there is a positive relationship between open innovation and service innovation capability. Therefore, open innovation influences the service innovation capability is confirmed by the results.

It was hypothesized that higher level of employee involvement results in a higher level of service innovation capability (H1a). The results have confirmed hypothesis 1a. Melton and Hartline (2010) said that due to the contact with the employees, they can generate new ideas that satisfy the consumers (Melton & Hartline, 2010). Empirical evidence suggests that the employee involvement is the main reason for organizational innovation (Cadwallader et. al., 2013, Kesting & Ulhøj, 2010, Ordanini & Parasuraman, 2010). Employees who are engaged and equipped with skills and knowledge have strong impact on the service innovations (Ordanini & Parasuraman, 2010). In service industry, it can be expected that employees are even more familiar with the expectations of the consumers as well as challenges they face during service delivery than in the manufacturing industries.

The higher level of customer involvement increases the service innovation capability has been discussed by previous authors that understanding the needs and wants of the consumer is the main reason for service innovation or the new service development in an organization (Karkainen et al. 2001; Lagrosen, 2001; Zahay et al. 2004). When organizations involve customers in their open innovation, they have several advantages. Firstly, they identify consumer expectations and other issues (Gruner & Homburg, 2000). It helps build relationships with consumers which also helps with customer equity. Alam explained that consumer involvement is most recommended in the early stages of innovation because it helps reduce risk by understanding the market and enable the organization to make the right predictions (Alam, 2006). Main reason for market failures is the lack of prior knowledge about the market and this can be remedied through consumer involvement (Gronroos, 1994; Martin & Horne, 1995). While the previous have been said about product innovation, the findings of the current study confirm that they are just as relevant to service innovation.

Previously, authors have argued that “it is suggested that firms need to build long-term relationships with key suppliers and ensure that each firm’s capabilities are aligned to gain long-term collaborative benefits” (van Echtelt et al., 2008). The findings of the study are consistent with previous findings of Scholars and practitioners who have stressed the importance of involving suppliers in innovation (Takeishi, 2001; Petersen, Handfield, & Ragatz, 2005; Tevelson et al., 2013).

Higher level of consumer involvement results in a higher level of service innovation capability, Therefore, it can be said that customer involvement has the highest effect on service innovation capability in a service organization among the three open innovation determinants.

While open innovation is known to positively impact organizations with the acceleration of innovations, some scholars have found that open innovation leads to lowered productivity. Laursen and Salter have argued that the higher the openness in innovation, the lower the productivity, with findings from the manufacturing industry in the UK (Laursen & Salter, 2005). This was because open innovation prompted the organizations to welcome several other parties to engage within the organization’s innovation process. Even though the current study does not explore the effect of open innovation on productivity, it is clear that open innovation has a substantial positive impact on service innovation capability.

Knowledge integration mechanism on service innovation capability

Scholars and practitioners have considered knowledge integration mechanism to be a critical factor affecting firms’ competitive advantage” (Hsu, Tsai, & Liao, 2013). Conducting a study on Brazilian Cosmetic industry, Celadon confirms that “the ability to integrate knowledge is related to competitive advantage” (Celadon, 2014). Their main finding is that “different levels of openness in innovation, demand firm-specific mechanism for knowledge integration” (Celadon, 2014). Celadon further claims that “both Open Innovation and Knowledge Integration have complementarities, as well as overlapping dimensions, and have not been compared in previous studies” (Celadon, 2014). This explains the value of studying these concepts further, as these concepts can be also antagonistic. However, the current study confirms that the relationship between knowledge integration mechanism and open innovation has a positive relationship in the context of Sri Lankan service industry.

The use of KIMs enables a firm to internalize and reorganize what it has learned and to decide on how to use the new knowledge (De Luca & Atuahene-Gima, 2007; Prahalad & Hamel, 1990, cited

in Hsu et al., 2013). Looking internally as well as externally for knowledge is essential for open innovation. De Luca and Atuahene-Gima have explained how firms that do not understand the importance of knowledge integration mechanisms is that they will eventually fail to achieve product and service innovations (De Luca & Atuahene-Gima, 2007 cited in Hsu et al., 2013). Therefore, as confirmed by the findings, knowledge integration mechanisms are essential for an organization that seeks to improve service innovation capability.

Knowledge integration mechanisms on determinants of open innovation and the service innovation capability

Participation is providing the power to the employees to express their feedback and ideas freely and actively get involved in the decision-making processes of the origination. Previous authors have claimed that encouraging employee participation is beneficial to the overall performance of an organization: “employee participation will lead any origination to achieve the desirable results in terms of improving their existing markets, or creating new markets, innovating the existing products or services and developing new products or services” (Aldakhil, 2016). Camison and Villar-Lopez have supported this: “the integration of all knowledge into the business processes used by the different skilled and experienced employees has good potential to improve the new products’ performance” (Camisón, & Villar-López, 2014). The findings of the current study show that this positive relationship between employee participation and product improvement can be extended to service innovation as well.

According to the results, both supplier and customer involvement have a positive relationship with knowledge integration mechanisms. Research indicates buyer-supplier collaborations in new product development can have a positive impact on innovation. From a knowledge-based view, it is argued that suppliers add a complementary knowledge base that is combined with the buyer’s knowledge (Rosell, 2013). Different supplier and customer inputs may imply different knowledge integration mechanisms and practices. The findings of the current study confirm Rosell (2013) view.

Rosell further explains that “when integrating supplier knowledge in innovation, management has to consider the possible and preferred outcome of the collaboration; it might be a commercial deal

to provide for a temporary access to knowledge, or it might be a long-term alliance, where joint learning is an aim” (Rosell, 2013). This shows that while customer and supplier involvement is beneficial, the long-term collaborations and strategies are important.

Hsu, Tsai, and Liao (2013) have studied the mediating effect of knowledge integration mechanism on product innovation and conclude that there is a positive relationship between the two variables. De Luca and Atuahene-Gima (2007) have also studied the mediating effect of knowledge integration mechanism on the relationship between cross functional collaboration, market knowledge dimension and product innovation performance. In both previous accounts, the mediating effect of knowledge integration mechanisms is confirmed. This shows that knowledge integration mechanism should be considered when an organization implements open innovation.

The findings of the current study show that knowledge integration mechanism not only mediates the overall relationship between open innovation and service innovation capability but also mediates the relationships of each all open innovation determinants which are employee involvement, customer involvement and supplier involvement, with service innovation capability. The findings have confirmed the notion that knowledge integration mechanisms connect knowledge to performance. “Because KIMs are mandated processes for learning, they provide milestones that ensure a sense of order in cross-functional knowledge sharing, use, and learning” (De Luca & Atuahene-Gima, 2007). The involvement of stakeholders in the organization is essential to the service innovation process and is mediated by knowledge integration mechanisms.

Theoretical contribution

Knowledge integration mechanism has previously been used in traditional organizations where the structure was static. In a such planned environment, knowledge integration mechanism was used for decision making.

On the other hand, open innovation is based on contingency theory which values the use of all entities in the organization for building and managing the organization (Steiner, Morel, & Camargo, 2014). Contingency theory claims that for optimal decision-making, an organization should consider internal and external constraints (Torkkeli, Kock, & Salmi, 2009). Torkkeli, Kock and Salmi (2009) categorize determinants of open innovation into two groups: internal and external determinants. Here, internal determinants are the characteristics of the firm including size and assets while external determinants are networks. Whereas previously knowledge integration

mechanism was used internally with the use of internal information, open innovation presented with a new option to look for knowledge internally as well as externally and use this knowledge for decision-making in the organization.

Managerial implications

The results suggest that any service organization in Sri Lanka that is interested in furthering service innovation capability must practice open innovation and implement a functional knowledge integration mechanism. The knowledge integration mechanism can be launched by using experts and consultants to synthesize knowledge. The organization can develop a formal process or a system where it will help to collect, store and share the information generated within a formal meeting or any another activity that will generate information that is relevant for organizations' present or future activities. The information can be stored. Discussions and information sharing activities are happening within an organization but this information storing and keeping it for the latter activities are not being practiced in organizations due to this reason a formal process is needed to be implemented where the information generated in past activities needs to be collected for future use.

According to the factor analysis, customer involvement had the highest effect on open innovation capability. Therefore, the results suggest that management would benefit from focusing especially on the involvement of customers in their innovation practices. Creating opportunities for the customers to present ideas and suggestions for new services, using customers' ideas in new service development and informing the employees the importance of customer communication is most important. These types of involvement only will happen if the organizations provide opportunity for customers to get involved and share their ideas and organizations appreciate their ideas.

Knowledge integration involves gathering knowledge from different individuals and sectors in an organization and sharing it as necessary. Employee involvement is important in this process. Because of this study, management should be able to see the importance of implementing systems to increase knowledge sharing. Factor analysis indicated that one method of improving knowledge integration mechanism is to hold regular meetings and encourage sharing.

Capabilities cannot be developed only with the knowledge from the inside of the organizations. The organization should have a precise path to extract information from the outside of the organization which will help the organization build the capabilities it needs. Therefore, managers

of the organization should be able to identify how to link with the external parties of the organizations and to interact with them in gaining the tacit knowledge that are with the external and the internal parties. Key suppliers must be involved in the designing of services. They should be given opportunities to come up with innovative strategies to support new service development. As indicated by factor loadings, supplier involvement in new service development process has a high effect on service development.

It is suggested that management of knowledge intensive work of service innovation development is done effectively when a company is established. Routines and practices must be purposefully built to coordinate the knowledge integration.

Limitations of the study

One of the limitations of this study is that it looked at a small sample size from only four sectors in the service industry. A study that could extend to other sectors of the service industries could come up with more relevant results to other sectors. Another limitation was that it was difficult to find substantial sample size because there are only a few firms that practice open innovation in Sri Lanka

Reflections on further research

Broadening the scope with broader samples to study open innovation and service innovation is recommended. This study does not differentiate between large businesses from small and medium enterprises. As small and medium enterprises and large businesses face different issues in open innovation it is worthy to test this model in small and medium as well as large organizations. This will provide interesting findings that will further the literature on service innovation capability. Thus, future research should focus on different cultures and structures in service organizations of varying sizes in different sectors.

Finally, more scholars should be encouraged to conduct quantitative studies on the topic. Open innovation has been studied mostly in qualitative method (de Vrande, de Jong, Vanhaverbbeke, & Rochermont, 2009).

Conclusion

This study indicated that in the context of Sri Lankan service industry, open innovation enhances service innovation capability in service organizations. Customer involvement has the highest positive relationship with service innovation capability. While there is a positive impact of knowledge integration mechanism on service innovation capability, it can be concluded that employee motivation moderates the relationship between employee involvement and knowledge integration mechanism. The study also concludes that there is a positive relationship between open innovation determinants of employee involvement, customer involvement and supplier involvement. Finally, the findings confirm that knowledge integration mechanism mediate the relationship between the above determinants on open innovation capability.

One of the limitations of the study is that it focuses on only four sectors in the service industry in Sri Lanka. In addition, the sample was limited because there are a limited number of organizations that engage in open innovation practices. Furthering the study with more sectors and more organizations will provide future researchers necessary insights to make policy changes that support the growth and expansion of Sri Lankan service industry and progress of the overall economy of the country.

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