



University of Sri Jayewardenepura

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ஸ்ரீ ஜயவர்த்தனபுர பல்கலைக்கழகம்

OTMURS 2025

PROCEEDINGS OF THE OPERATIONS AND TECHNOLOGY MANAGEMENT UNDERGRADUATE RESEARCH SYMPOSIUM

18TH FEBRUARY 2025



**Research Center for Innovation, Operations, and
Quality Management**

Department of Decision Sciences

Faculty of Management Studies and Commerce

University of Sri Jayewardenepura

Gangodawila, Nugegoda, Sri Lanka

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TECHNOLOGY MANAGEMENT UNDERGRADUATE
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EXTENDED ABSTRACTS

**Research Center for Innovations, Operations and Quality
Management**

**Department of Decision Sciences
Faculty of Management Studies and Commerce
University of Sri Jayewardenepura
Nugegoda, Sri Lanka**

18th February 2025

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Message from the Vice Chancellor University of Sri Jayewardenepura



It is with great pleasure that I extend my heartfelt congratulations on the Undergraduate Research Day, held alongside the 21st International Conference on Business Management (ICBM 2025), hosted by the Faculty of Management Studies and Commerce (FMSC).

This event demonstrates the commitment of our university to promoting a culture of research and innovation among its students. Undergraduate research plays a crucial role in shaping the next generation of scholars, business leaders, and change-makers. This platform not only allows students to showcase their dedication to academic inquiry but also highlights their potential as future innovators in the field of business management. The exchange of ideas, critical discussions, and knowledge-sharing that take place here will undoubtedly contribute to the advancement of business education and practice.

I take this opportunity to express my sincere appreciation to the Dean of the Faculty of Management Studies and Commerce, the Conference Co-Chairs, and the entire Organizing Committee for their tireless efforts in bringing this event to life. Their dedication has provided students with a valuable opportunity to present their research findings, engage with faculty members, and refine their academic and professional skills.

May this event inspire many more research contributions that will shape the future of business and management. I wish all participants a successful and enriching experience at the Undergraduate Research Day of ICBM 2025.

Senior Professor M. M. Pathmalal
Vice Chancellor
University of Sri Jayewardenepura

Message from the Dean
Faculty of Management Studies and Commerce



I am delighted to extend my best wishes for the Undergraduate Research Day, held in conjunction with the 21st International Conference on Business Management (ICBM) 2025. As part of our ongoing efforts to foster a vibrant research culture within our faculty, we take pride in providing undergraduate students with the opportunity to engage in scholarly pursuits and share their research findings.

The Undergraduate Research Day holds significant importance as the main undergraduate research event of our faculty this year, running alongside the prestigious ICBM 2025. We are pleased that, as a faculty, we have extended this invaluable opportunity to our undergraduate students.

For the students selected to present their papers at the Undergraduate Research Day, this marks a remarkable milestone in your academic journey. Congratulations on being chosen to represent our faculty in this capacity.

I extend my heartfelt gratitude to all research supervisors, research coordinators, and academic staff from various departments who have worked tirelessly to support these students in their research endeavors.

To the participating students, I encourage you to make the most of this experience and aspire toward further academic pursuits, such as journal publications. May this event serve as a steppingstone toward developing an inquisitive and scholarly mindset as you advance in your academic journey.

Once again, congratulations to all selected participants, and my best wishes for your continued success.

Prof. Dushan Jayawickrama
Dean, Faculty of Management Studies and Commerce
University of Sri Jayewardenepura

Message from the Co-Chairs of the International Conference on Business Management (ICBM) - 2025



Dear Undergraduate Researchers,

We extend our warmest greetings to all the undergraduate researchers from the twelve academic departments of the Faculty of Management Studies and Commerce who are presenting their work at the Undergraduate Research Day in 2025. This event provides a valuable opportunity for our undergraduates to share their research ideas and findings with a broader audience, helping to foster a vibrant research culture within our university.

We would like to express our sincere gratitude to Dr. Mangala Fonseka, Retired Senior Professor and KPMG Endowed Professor in the Department of Accounting, for his insightful keynote address, as well as for his continuous support and guidance. Special gratitude is also extended to the Dean of the Faculty of Management Studies and Commerce for his direction and assistance in making this event a success.

We look forward to seeing the continued growth of research and innovation within our academic community and wish all the participants the very best in their academic endeavours.

Dr. Neelangie Nanayakkara and Dr. Gayani Samarakoon
Co-Chairs, International Conference on Business Management (ICBM) 2025
Faculty of Management Studies and Commerce
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Message from the Keynote Speaker



Undergraduate Research: What's next?

I am privileged to be amid an audience consisting of first, those who have completed their undergraduate research and are ready to share their experiences and findings; second, who are in the middle of their research projects; and still others who expect to commence their research shortly. It seems that the entire audience is set to sing songs of praise for Undergraduate Research via the presentations that will be made throughout the day. In this set up, in concurrence with the organizing committee of the Undergraduate Research Day of the ICBM 2025, the question that I wish to pose in this keynote address is whether Undergraduate Research is an end by itself or a means to an end; a medium to achieve greater things in life? Let us now spend some time enquiring into this, which I believe will be of immense relevance to all of us.

Now that you have completed or are about to complete an excellent university education, your focus at present will be to enter the world of work and lead fruitful lives as responsible citizens. Or, as Lord Bertrand Russell claims, to lead good lives that are inspired by love and guided by knowledge. This necessarily implies that your days hereafter will be replete with excellence in work and private lives, i.e., professional development and personal advancement.

The purpose of this address is to enquire how undergraduate research that you have been exposed to will impact on your future life. Said differently, to assess how undergraduate research would contribute towards your professional development and personal advancement. Thereby, the address proposes to establish that Undergraduate Research is not an end but a means to achieve greater things in life.

This address consists mainly of two segments. The first deals with how attributes of research inculcated in you impact on your professional development and personal advancement. The second offers words of advice to undergraduates who expect to commence their research shortly.

Research

Research is ‘a detailed study of a subject specially in order to discover (new) facts or reach a new understanding’ (Cambridge English Dictionary) or ‘a careful or diligent search’ (Merriam Webster). Conducted through either a scientific study or critical examination, research can be seen as a systematic enquiry to describe, explain, predict, and control observed phenomena. Research can also be seen as an attempt to extend, modify, or replete the existing knowledge base. Research develops new knowledge of theoretical and practical significance for academia and industry and is the cornerstone of all developments in societies.

Onwards alone like a unicorn

The researcher travels onwards alone like a unicorn. Research is a voyage that is complex, but exhilarating, and enterprising. Self-reliant, the researcher spends several months in seclusion engaging his intellectual and physical faculties, giving life to a tangible product of value. Those who present their research findings today will testify that none of the other components of the degree programme, including internship, have enriched their learning and added value as much as the research project did. It was blood, toil, tears and sweat, so to speak, involving many a sleepless night. The process transforms the serious researcher into a different human being endowed with a host of attributes, other than the knowledge enhancement associated with the subject matter dealt with in the study.

Research attributes

Research attributes are characteristic qualities that the research process instills in researchers. There are two types of attributes, skill and latent, that transform the thought, behavior, and action of researchers. If engaged in the research intensely, deeply, and passionately, the attributes are likely to be embedded in the researcher for good, a way of life.

Skill and latent attributes and their implications

As stated, attributes can be considered under two categories, skill and latent. The former is associated with professional development while the latter is personal advancement. It is pertinent to consider several examples under each category organized in an easy to understand and logical order.

Skill attributes leading to Professional development

Objective study to establish facts

Researchers are guided by facts based on verifiable evidence. Emotions and sentiments, gossip, mere hearsay, and value laden statements have no place in research. Having been trained in the discipline of establishing facts, the natural tendency of researchers shall be to continue this practice into their professional lives. Thus, they will not accept what is presented at face value but call for an objective study.

Focus on achieving goals

A research study focuses on achieving goals. This is accomplished through a carefully designed plan of work. It involves identification of research questions, setting study objectives, formulating a method of study, data collection, analysis, and arriving at conclusions. The researcher will make every effort to ensure that the plan is executed with precision and realize the set goals, a training which will be continued into their professional lives.

Exposure to project management

The conduct of research is akin to managing a project. It involves application of specific knowledge, skills, methods and techniques aimed at achieving specific and measurable project goals, as well as timely project completion. Since project management is a regular feature of organizational life, competencies gained through managing research projects will stand in good stead in discharging their responsibilities as project managers in workplaces.

Conceptualization, analytical, and communication skills

Male and female employees of contemporary organizations are in need of strong conceptualization, analytical and communication (both written and oral) skills. The complexities and uncertainties surrounding today's organizations demand a fair quantum of such skills in their employees. In this regard, those with proficiency in research certainly possess an edge as they have been exposed to these aspects in no small measure in their research endeavors.

Recognize others' contributions

Research involves extending the extant knowledge base via working on the contributions of others. A researcher is given thorough training in recognizing the work of others through an elaborate process of referencing. This amounts to giving recognition where it is due. Having internalized this practice, the researcher will carry it through to his place of work, garbed differently, to recognize the good work of fellow workers with impartiality.

Lay the foundation for higher studies

Higher studies, at master's level and beyond, largely involves research. It is undergraduate research that provides the foundation for research at higher levels. As a result, those who complete their bachelor's degree exclusively through course work (largely considering convenience factor) will find it difficult to pursue research at higher levels. Thus, their chances of success at advanced studies will be severally constrained.

Latent attributes leading to Personal advancement

Realize how little we know

Researchers are exposed to large databases of which one would pick a few, study fewer, and understand even fewer. Thereby, we realize how little we know compared with the extensiveness of extant knowledge. Listen to Sir Isaac Newton, natural philosopher cum physicist par excellence, 'To myself I am only a child playing on the beach when vast oceans of truth (knowledge) lie undiscovered before me'. A deep realization of this as a fact invariably makes us modest and humble.

Respect others' views

Different research approaches (e.g. positivistic, post positivistic) are based on diverse philosophical orientations. When convinced that these are merely mental constructs, a researcher, while taking a particular approach, will treat others' contributions with respect. Under such training, he will be led by the dictum, 'I may disapprove of what you say, but I will defend to the death of your right to say it' (Voltaire- French philosopher).

Infinitesimal contributions

A single research study would make an infinitesimal contribution to the extant body of knowledge. Even the contribution of a researcher over a lifetime will be little and nothing to fuss about. Notwithstanding, geniuses do appear, but far between, who revolutionize the world through their significant discoveries. But unfortunately, most of us do not fall into that category. This awareness of littleness, truly and deeply, makes us feel evermore unassuming and considerate.

Flimsiness of findings

Findings of research are subject to many self-imposed assumptions. It is common knowledge that we restrict the number of variables to a few and thereby inter-relationships to a minimal to enhance manageability of the study. Furthermore, inaccuracies may enter in the data collection process while hypothesis testing by its very nature carries an in-built error term. All these bring a flavour of flimsiness to the research findings.

Tentative nature of findings

Research findings are of a tentative nature. They hold true within a given context and time frame. Not written on stone, they will be extended, modified, or replaced over time with newer findings. The awareness that what has been found out is neither certain nor fixed and in fact is of a transitory nature takes the researcher to a totally different elevation which brings a sense of serenity away from ownership and arrogance.

Ever-present room for improvement

A conscientious researcher will always be discontented with his work. He will brood over the lapses that have crept in and think of ways they could be avoided in future work. His response to the enquiry, 'Do you think you will come out with a better output if the work is repeated?' would be a vehement 'yes'. Thus, the researcher is driven by the realization that quality enhancement is more a journey than a destination, with ever-present room for improvement.

Such are some of the attributes that would transform the professional and personal lives of individuals engaged in serious research.

Implications

Undergraduate research brings two types of benefits. First, the findings of the research will be of benefit to organizations, industry, and society. Second, attributes of research that emerge in the process will continue to benefit the professional and personal lives of researchers. However, such benefits will only accrue to those who embark on their research endeavors with a true sense of devotion as knowledge seekers.

In contrast, pseudo researchers, driven by an egoistic craving shall be largely paper chasers/qualification hunters. Bent on completing the work with minimal effort employing perhaps devious means, they would neither understand nor experience a transformation in them. Furthermore, their contributions towards knowledge enhancement will be negligible.

A word for future researchers

It is now opportune to say a few words of encouragement to future researchers who form a substantial segment of the audience.

I know that you are required to undertake a research study shortly as a component of your degree programme. Please be advised that conducting research is a long and arduous journey. It's a complex but joyful experience that puts your perseverance and project and time management skills to test. Furthermore, it's a capstone exercise which integrates the knowledge and skills gained in numerous course units through the degree programme. However, though the path is winding, uphill, and difficult, the benefits given above and more will be yours!

Undergraduate research culminates with a research report, dissertation or a thesis. A tangible product which embodies your hard-earned learning elevates the researcher to the status of an author. Wouldn't you be interested in beginning life as an author, while being a graduate? I suppose it would certainly be an emphatic 'yes'.

A word of caution. Growing by leaps and bounds Artificial Intelligence (AI) is reshaping the lives of all citizens, including researchers. Akin to a plague, overdependence on AI does more harm than good. Though use of AI is inevitable in today's context, it is imperative that its use is kept at the level of your servant more than master.

Flying high

As stated at the outset, the purpose of this address was to affirm that Undergraduate Research is not an end but a means to achieve greater things in life in the future. Beginning with a notion of research and the research journey as akin to the travel of a unicorn, an attempt was made to illustrate how attributes of research, viz., skill and latent, impact on the professional development and personal advancement of researchers. Can we safely assume that our purpose has been met sufficiently?

Undergraduate research develops men and women who are transformed in several ways. In addition to being knowledgeable on the subject researched, they turn out to be competent at work as well as rich in human qualities. Devoid of being backward, arrogant, bias, and definitive in their approach to men and matters, they bring new hope to our society that is presently on a path of decline and degradation. Endowed with knowledge, competencies and virtues, everything they think, say, and do will be laced with a divine touch. In fact, it is they, and they alone, who could bring promise and open new vistas to the development of our societies. And thereby transform the world to be a better habitat to live in.

Dr. Mangala Fonseka
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Operations and Technology Management Undergraduate Research Symposium 2025

Research Center for Innovation, Operations and Quality Management

Department of Decision Sciences

Faculty of Management Studies and Commerce

University of Sri Jayewardenepura

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ONLINE RETAIL EXPERIENCE AND CUSTOMER SATISFACTION: THE MEDIATING ROLE OF LAST-MILE DELIVERY QUALITY

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INTRODUCTION

E-commerce enables customers to make online purchasing decisions without needing physical stores or catalogs (Hooda, 2011). Sri Lanka's e-commerce sector has rapidly expanded, achieving a penetration rate of 66.7% (Aththanayaka, 2023). E-retail, a subset of e-commerce, involves selling goods and services over the Internet (Hooda, 2011). However, this growth has revealed significant gaps in understanding the mediating role of last-mile delivery in shaping e-retail experiences and customer satisfaction within developing economies. Although research in Western contexts, such as Vakulenko et al. (2019), highlights the influence of last-mile delivery on customer satisfaction, the distinctive infrastructure challenges and urban consumer behaviors in Sri Lanka remain underexplored. This study addresses this gap by investigating the most frequently used e-commerce websites for online purchases among consumers in Colombo District, Sri Lanka, and examining the impact of last-mile delivery quality on the relationship between customer satisfaction and e-retail experience. By doing this research, it will indicate whether both e-retail experience and last-mile delivery quality are essential to increase customer satisfaction, offering valuable insights for e-commerce growth in emerging markets. This understanding is crucial for e-retailers to enhance their strategies in developing countries, specifically in the Colombo District.

RESEARCH QUESTIONS

1. What is the impact of last-mile delivery quality on the relationship between customer satisfaction and e-retail experience in Colombo District, Sri Lanka?
2. What is the mediating impact of last-mile delivery quality on the relationship between e-retail experience and customer satisfaction in Colombo District, Sri Lanka?

OBJECTIVES

Based on the research questions mentioned above, two main objectives are expected to be achieved by doing this research study.

1. To examine the impact of e-retail experience on customer satisfaction among Colombo District, Sri Lanka.

2. To examine the mediating impact of last-mile delivery on the relationship between e-retail experience and customer satisfaction in Colombo District, Sri Lanka.

METHODOLOGY

The methodology of this study examines the impact of last-mile delivery on the relationship between e-retail experience and customer satisfaction, using a quantitative, and cross-sectional research design. The conceptual framework examines how e-retail experience influences customer satisfaction, with last-mile delivery serving as a mediating variable.

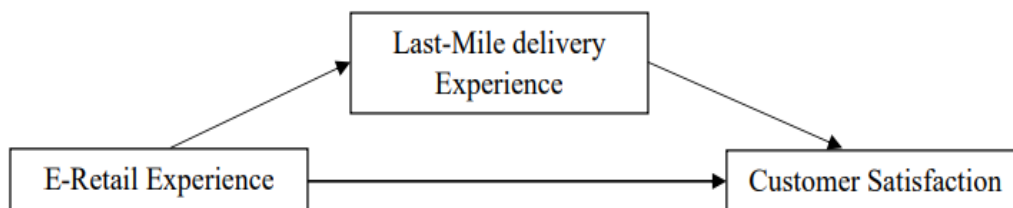


Figure 1: Conceptual Framework

Source: Author Compilation

The study targeted individuals in the Colombo District who have made at least one e-retail purchase. A convenience sampling method was used, with a minimum sample size of 66, according to the rule of thumb (Van Voorhis and Morgan, 2007). Data were collected through a structured, self-administered questionnaire with a 7-point Likert scale, and the survey was distributed online. A total of 79 responses were collected, of which 3 were excluded due to their lack of relevance to the research.

The validity of the questionnaire was confirmed through the KMO Measure of Sampling Adequacy, with all dimensions and variables exceeding a KMO value of 0.5, and Bartlett's Test of Sphericity, which produced values less than 0.05, ensuring the adequacy and validity of the data for analysis. The reliability of the questionnaire was assessed using Cronbach's Alpha, with all values exceeding 0.7, indicating high internal consistency and confirming the instrument's reliability for data collection. Normality was evaluated using the Shapiro-Wilk and Kolmogorov-Smirnov tests, with three outliers excluded to fulfill the normality requirement, supporting the use of parametric tests.

Descriptive analysis was employed to examine the frequency of online purchases, time spent on the internet, and the most frequently used e-retail websites. Regression was used to examine the relationships mentioned in the hypotheses. All analyses were conducted using SPSS, and for the mediation analysis, the Process macro add-on for SPSS was utilized.

FINDINGS

Descriptive Analysis

According to the descriptive analysis, females use the internet for an average of 4.54 hours per day, which is slightly more than the 4.12 hours recorded for males. Additionally, females make online purchases more frequently, averaging 8.49 times per year compared to 7.26 times per year for males, suggesting a higher level of engagement in online activities among females.

The results revealed that Daraz was identified as the most frequently used website by both males and females, with a penetration rate of 40% based on multiple responses. It was found that 86% of female respondents and 90% of male respondents in Colombo District use Daraz.

Amazon is the second most popular e-retail website among consumers in this area, with a penetration rate of 36%.

Regression Analysis

Table 1: Regression Analysis test results

Hypothesis	Beta	Sig.	R Square	Anova Sig.
H1: There is an impact of E-Retail Experience on Customer Satisfaction.	0.240	<0.001	25.9%	<0.001
H2: There is an impact of E-Retail Experience and Last-Mile delivery service quality.	0.792	<0.001	40.3%	<0.001

At a 5% level of significance, it can be concluded that there is a significant positive impact of e-retail experience on customer satisfaction. At the same significance level, it can be concluded that e-retail experience has a significant positive impact on last-mile delivery service quality.

Mediation Analysis

Total effect of X on Y						
Effect	se	t	p	LLCI	ULCI	c_cs
0.24	0.048	4.987	0	0.144	0.336	0.509
Direct effect of X on Y						
Effect	se	t	p	LLCI	ULCI	c'_cs
0.148	0.06	2.458	0.016	0.028	0.268	0.315
Indirect effect(s) of X on Y:						
	Effect	BootSE	BootLLCI	BootULCI		
LMD Total	0.092	0.037	0.029	0.176		

Figure 2: Mediation Analysis Results

The bootstrap confidence interval ranges exclude zero. Therefore, it can be concluded that last-mile delivery significantly mediates the relationship between e-retail experience and customer

satisfaction, supporting this research's second hypothesis. Since the direct effect is also significant, this indicates a partial mediation effect from last-mile delivery quality.

DISCUSSION

The results indicate a significant positive impact of e-retail experience on customer satisfaction, consistent with the research of Pandey and Chawla (2018). Additionally, the study found that e-retail experience was significantly positively related to the quality of last-mile delivery, reinforcing the work of Vakulenko et al. (2019), who highlighted the link between e-retail experience and last-mile delivery quality. The mediation analysis further shows that last-mile delivery quality significantly mediates the relationship between e-retail experience and customer satisfaction, supporting Vakulenko et al. (2019), who emphasize the crucial role of last-mile delivery quality as a mediating factor. The findings show that Daraz is the most frequently used e-retail website among customers in the Colombo District, accounting for 40% of all multiple responses. This aligns with the literature, which recognizes Daraz as the market leader in Sri Lankan e-retailing, with a 46.4% market share (Jayathilaka and Udara, 2024).

In conclusion, the discussion confirms that a higher e-retail experience significantly enhances customer satisfaction, with last-mile delivery quality playing a crucial mediating role in this relationship. The findings align well with existing literature, notably highlighting Daraz's dominant position in the Sri Lankan e-retailing market.

IMPLICATIONS ON RESEARCH

The study enhances existing literature by validating and extending the importance of e-retail environments and logistical performance, emphasizing the crucial role of last-mile delivery quality as a mediator influencing customer satisfaction. These findings indicate that effective e-retailing should integrate engaging online platforms with efficient, reliable delivery services to meet evolving consumer expectations. For e-commerce practitioners, emphasis is placed on improving website features such as e-enjoyment, informativeness, ease of navigation, interactivity, and visual appearance to create a superior shopping experience. Additionally, optimizing last-mile delivery through secure, convenient pickup options, smooth communication, precise order fulfillment, and transparent return policies is vital. Recognizing demographic variations, including gender differences in online behavior, can further refine marketing strategies. Daraz can strengthen its market position by delivering a superior e-retail experience to its customers and enhancing the quality of its last-mile delivery. Altogether, these combined approaches enable retailers to build customer satisfaction, drive repeat purchases, and stay competitive in today's dynamic e-commerce landscape.

Keywords: *Customer experience, e-commerce, online retail, last-mile delivery, customer satisfaction*

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IDENTIFYING THE EFFECT OF E-SERVICE QUALITY ON CONSUMER'S E-SATISFACTION: INSIGHTS FROM BEAUTY PRODUCTS ONLINE SHOPPERS IN SRI LANKA

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INTRODUCTION

Technology is developing rapidly worldwide. Companies are able to market and even sell their products online with rapid change of e-commerce (Olasanmi, 2019). When it comes to e-commerce, e-customer satisfaction is affected by e-service quality (Ladhari, 2010). This is particularly relevant in high growth sector like beauty and personal care where online presence is vital as exemplified by the Sri Lankan market.

Although much research has been carried out in developed countries on the effect of e-service quality on consumer's e-satisfaction regarding several sectors (Zavareh et al., 2012; Sharma & Lijuan, 2015). Research done on the beauty products website area is limited. Therefore, the purpose of this research is to identify the effect of e-service quality on e-customer satisfaction of beauty products online shoppers in Sri Lanka.

RESEARCH QUESTIONS

How does e-service quality affect e-satisfaction among online beauty product shoppers in Sri Lanka?

OBJECTIVES

This research aims to identify how does the e-service quality affect e-customer satisfaction among people who purchase beauty products through online websites in Sri Lanka. This study will discover how the e-service quality dimensions affect the e-satisfaction of the customers. By understanding this effect, beauty products online shopping sellers can identify areas for improvement in their e-service offerings to enhance customer satisfaction.

METHODOLOGY

Research Approach

Deductive approach was used as this research was based on hypotheses testing. 5-point Likert scale questionnaire was used in this research to collect data. Conceptual framework shown in figure 1 was developed based on contemporary literature.

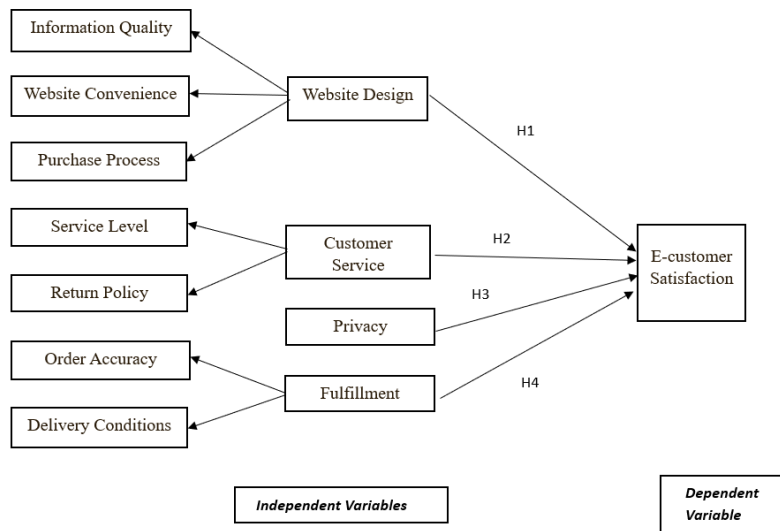


Figure 1: Conceptual framework

Source: Author Compilation

Hypotheses

The following hypotheses were tested by using the collected data.

H1: Website design (WD) of E-service has a positive relationship with E-customer satisfaction (ES)

H2: Customer Service (CS) of E-service has a positive relationship with E-customer satisfaction (ES)

H3: Privacy (PV) of E-service has a positive relationship with E-customer satisfaction (ES)

H4: Fulfillment (FM) of E-service has a positive relationship with E-customer satisfaction (ES)

Data Analysis

Correlation analysis and multiple linear regression analysis were used in hypotheses testing. Results of these analysis are given in the following tables.

Table 1: Correlation Analysis

		ES	WD	CS	PV	FM
ES	Pearson Correlation	1				
	Sig. (1-tailed)					
	N	130				
WD	Pearson Correlation	.624**	1			
	Sig. (1-tailed)	.000				
	N	130	130			
CS	Pearson Correlation	.577**	.727**	1		
	Sig. (1-tailed)	.000	.000			
	N	130	130	130		
PV	Pearson Correlation	.510**	.477**	.480**	1	
	Sig. (1-tailed)	.000	.000	.000		
	N	130	130	130	130	
FM	Pearson Correlation	.701**	.507**	.503**	.644**	1
	Sig. (1-tailed)	.000	.000	.000	.000	
	N	130	130	130	130	130

Correlation is significant at the 0.01 level (1-tailed).

Multiple Linear Regression Analysis

Table 2: Model Summary and ANOVA Test

Model	R	R Squared	Adjusted R Squared	Std. Error of the Estimate
1	.771 ^a	.595	.582	.43375

Predictors: (Constant), FM, CS, PV, WD

59.5% of ES can be influenced by website design, customer service, privacy and fulfillment and the remaining 40.5% is influenced by the other variables outside of research.

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	34.483	4	8.621	45.821	.000 ^b
Residual	23.517	125	.188		
Total	58.001	129			

Results indicate that the significance value $(0.000) < 0.05$. Therefore, the four predictor measurements such as website design, customer service, privacy and fulfillment have a statistically significant relationship with e-customer satisfaction.

FINDINGS

Cronbach Alpha and KMO values of the variables revealed that all the variables are reliable and valid. Then, from the correlation analysis, it was found that the overall model of the current study was significance at 0.01 level. As well, from the multiple linear regression analysis it was found that the fulfillment factor was the most significant factor from the other factors of website design, customer service and privacy. By looking at the adjusted R squared value, it was found that 58.2% can be influenced by website design variable, customer service variable, privacy variable and fulfillment variable and the remaining 40.5% is influenced by the other variables outside of researched. Hypothesis was tested using the p-values. When the p-value is less than 0.05 hypothesis will be accepted and if the p-value is greater than 0.05, the hypothesis will reject. By looking at the values, H1 & H4 values are less than 0.05 and H2 & H3 values are greater than 0.05. Then, the H1 & H4 hypothesis can be accepted and H3 and H4 hypothesis were rejected. It means website design of e-service and fulfillment of the e-service has a positive relationship with e-customer satisfaction & customer service of the e-service and privacy of the e-service do not have a positive relationship with e-customer satisfaction.

Hypotheses	Coefficient	P-value	Decision
H1	0.344	0.001	Supported
H2	0.139	0.156	Not Supported
H3	-0.004	0.955	Not Supported
H4	0.496	0.000	Supported

DISCUSSION

H1: Website design of the e-service has a positive relationship with e-customer satisfaction. The results are in line with some of the previous research that have discovered a positive relationship between website design and customer satisfaction (Venkatakrishnan et al., 2023; Ngah et al., 2020; Hansopaheluwakan, 2021).

H2: Customer service of the e-service has a positive relationship with e-customer satisfaction. The result contradicts some of the previous literature (Ngah et al., 2020; Hansopaheluwakan, 2021) that has showed a positive relationship with e-customer satisfaction. This contradiction may be due to the fact that most of the respondents have not received proper after-sales services.

H3: Privacy of the e-service has a positive relationship with e-customer satisfaction. The result contradicts Rita et al., (2019); Ma & Zhao (2012) that have discovered positive relationship with e-customer satisfaction. This may be because, most of the respondents have stated that they had no confidence and trust on the payment methods.

H4: Fulfillment of the e-service has a positive relationship with e-customer satisfaction. The results are in line with Mayasari et al., (2020); Rita et al., (2019) that have discovered a positive relationship with e-customer satisfaction.

IMPLICATIONS ON RESEARCH

According to the findings of the research web design and fulfillment have a positive impact on e-customer satisfaction. Therefore, online beauty products selling companies must pay special attention to design websites. Companies can gain insights from customers about their website design and can take actions accordingly to increase the satisfaction of customers. Investing in user-friendly website design, improving search functionality, and inclusion of clear and concise product information on websites will improve customer satisfaction. In improving the privacy of e-commerce online websites should implement safety protocols to safeguard the customer data.

Keywords: *E-Service Quality, E-Customer Satisfaction, Website Design, Customer Service, Privacy, Fulfillment*

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THE IMPACT OF SUPPLY CHAIN AGILITY ON CUSTOMER LOYALTY IN THE VIRTUAL APPAREL RETAIL MARKET: A STUDY IN THE WESTERN PROVINCE, SRI LANKA

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INTRODUCTION

Advances in digital technology have revolutionized corporate operations, enabling new types of transactions known as electronic commerce. The concept of "online shopping," a form of electronic commerce, involves purchasing goods and services over the internet. In the context of Sri Lankan online shopping platforms, the apparel industry is expected to be the future of e-commerce (Mendis *et al.*, 2023). Customer loyalty is crucial for the success of virtual retail businesses, with supply chain agility being a key influential factor.

While there is a growing body of literature that separately emphasizes supply chain agility and customer loyalty in traditional retail settings, limited studies explore their relationship in virtual retail settings (Christopher *et al.*, 2004; Kandampully & Suhartanto, 2000). Also, most existing studies focus on the broader industry structures, such as the e-commerce industry, overlooking sector-specific challenges (Gligor *et al.*, 2020; Swafford *et al.*, 2006). There is a lack of research on specific virtual retail industries, particularly the virtual apparel retail industry.

This study aimed to address these gaps by investigating the impact of supply chain agility on customer loyalty in the virtual apparel retail market in the Western Province of Sri Lanka, specifically examining the effects of delivery speed, responsiveness, and product availability. By addressing these research gaps, this study not only contributes to academic literature but also provides practical implications for virtual apparel retailers to enhance customer loyalty through agile supply chain practices.

OBJECTIVE

The main purpose of this research is to investigate the impact of supply chain agility on customer loyalty in the virtual apparel retail market in Western Province, Sri Lanka.

METHODOLOGY

Research Design

A research design serves as a plan that outlines the process of collecting, measuring, analyzing, and interpreting data to answer the research questions of the study. This study employed a

quantitative, survey-based method with a cross-sectional research design. It followed a positivism research philosophy and a deductive approach.

Conceptual Framework

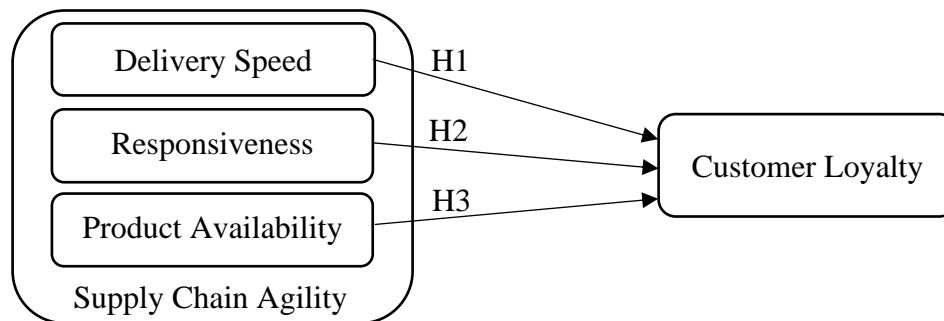


Figure 3: Conceptual Framework

Source: Author Compilation

Supply chain agility, the ability of a firm to meet dynamic customer demands quickly (Gligor *et al.*, 2020), was the independent variable. The key dimensions of agility considered were delivery speed, responsiveness, and product availability, which customers can directly perceive and evaluate. The dependent variable was customer loyalty, defined as the likelihood of customers continuing to purchase from the same retailer (Bhat *et al.*, 2018).

Hypotheses

The study hypothesized that these agility dimensions positively impact customer loyalty.

H1: Delivery speed positively impacts customer loyalty in the virtual apparel retail market in Western Province, Sri Lanka.

H2: Responsiveness positively impacts customer loyalty in the virtual apparel retail market in Western Province, Sri Lanka.

H3: Product availability positively impacts customer loyalty in the virtual apparel retail market in Western Province, Sri Lanka.

Sampling, Data Collection and Analysis Methods

The target population consisted of online apparel consumers in the Western Province, with an estimated 473,000 potential participants. A sample size of 384 customers was selected using Krejcie and Morgan's formula. Non-probability convenience sampling was employed for data collection, which was conducted through a structured online questionnaire. Most questions utilized a 5-point Likert scale to assess the level of agreement of respondents with each statement (Krosnick, 2017). Data analysis was conducted using IBM SPSS version 25, with multiple regression analysis applied to examine the relationships between study variables.

FINDINGS

Validity and reliability were achieved in this study. Reliability was assessed with Cronbach's alpha confirming strong internal consistency. Convergent validity was established based on average factor loadings in the rotated component matrix, while discriminant validity was verified using the heterotrait–monotrait (HTMT) ratio.

A multiple regression analysis was conducted to examine the impact of delivery speed, responsiveness, and product availability on customer loyalty.

Table 1: Regression Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.880	0.774	0.772	0.46945

Source: Author's work based on primary data analysis

The regression analysis revealed a strong positive linear relationship between the supply chain agility and customer loyalty in the virtual apparel retail market, with a correlation coefficient (R) of 0.880. The independent variable explains 77.4% of the variance in customer loyalty.

Table 2: Regression Coefficients and Hypothesis Status

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Hypotheses Status
	B	Std. Error	Beta			
1 (Constant)	0.298	0.098		3.051	0.002	
Delivery Speed	0.364	0.035	0.368	10.396	0.000	Accepted
Responsiveness	0.266	0.032	0.282	8.198	0.000	Accepted
Product Availability	0.332	0.029	0.366	11.320	0.000	Accepted

Source: Author's work based on primary data analysis

Table 2 shows that the beta values for delivery speed, responsiveness, and product availability are 0.364, 0.266, and 0.332, respectively, all of which are statistically significant and positively correlated with customer loyalty. The significance levels for all coefficients were below 0.05, confirming that these independent variables are meaningful predictors of customer loyalty and can be included in the regression model.

The analysis revealed that all three dimensions of supply chain agility positively impact on customer loyalty in the virtual apparel retail market, leading to the acceptance of all three hypotheses. Delivery speed was found to have the strongest positive impact on customer loyalty. Customers who experienced faster delivery times reported higher loyalty to the retailer. Responsiveness also showed a positive impact on customer loyalty, though it was somewhat less significant compared to delivery speed. Customers who noted quick responses to their inquiries or any kind of issues were more likely to remain loyal to the retailer. Product availability was another key factor contributing to customer loyalty.

DISCUSSION

The findings of this study underscored the significance of supply chain agility in shaping customer loyalty in the virtual apparel retail market of Western Province, Sri Lanka. The acceptance of the first hypothesis confirmed that delivery speed positively impacts customer loyalty. This finding aligns with previous studies suggesting that efficient and prompt delivery services improve customer loyalty by meeting customer expectations in a timely manner (Akil & Ungan, 2022). It is evident that when deliveries are fast and reliable, consumers are more likely to form a positive perception of the brand.

Responsiveness was found to be a significant predictor of customer loyalty. It confirmed prompt and effective communication, customer service, and issue resolution increase customer trust and loyalty. This result is supported by Lee and Whang (2004), who concluded that retailers who demonstrate high levels of responsiveness—such as promptly addressing customer inquiries, quickly resolving complaints, and providing real-time order updates—enhance customer satisfaction and loyalty.

Product availability also emerged as a strong factor influencing customer loyalty, confirming the importance of maintaining adequate inventory levels and minimizing stockouts. This finding aligns with previous studies suggesting that consistent product availability increases the likelihood of customer loyalty in virtual apparel retail environments (Aastrup & Kotzab, 2010).

IMPLICATIONS ON THE INDUSTRY

This research contributes to the theoretical understanding of supply chain agility by providing empirical evidence on its impact on customer loyalty, particularly in the virtual apparel retail market in Sri Lanka. It highlights delivery speed, responsiveness, and product availability as key dimensions of supply chain agility that directly impact customer loyalty.

Practically, the study provides actionable insights for virtual apparel retailers seeking to increase customer loyalty and maintain a competitive edge. Retailers should invest in logistics and last-mile delivery systems to ensure timely deliveries, improve responsiveness through AI-powered chatbots or dedicated support, and refine inventory management to prevent stockouts and improve product availability. Focusing on these areas emphasizes the strategic importance of supply chain agility in customer retention, helping retailers differentiate themselves, and achieve long-term success in the highly competitive e-commerce landscape.

Keywords: Supply Chain Agility, Customer Loyalty, Virtual Apparel Retail, Western Province, Sri Lanka

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IDENTIFYING THE EFFECT OF SERVICE CONVENIENCE ON CUSTOMER SATISFACTION IN SRI LANKAN E-TAILING INDUSTRY

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INTRODUCTION

E-tailing, a subset of e-commerce, has expanded rapidly due to technological advancements and changing consumer lifestyles. As competition intensifies, ensuring service convenience has become crucial for e-tailers to attract and retain customers (Addae et al., 2024). But customer satisfaction remains a key challenge.

While global research explores service convenience in online retail, limited studies focus on its impact in Sri Lanka. Therefore, this study investigates the effect of service convenience on customer satisfaction in Sri Lanka's e-tailing industry.

The novelty of this study lies in addressing this gap by analyzing how service convenience affects customer satisfaction in Sri Lanka's e-tailing industry. The findings will provide valuable insights for e-tailers to enhance service strategies, improve customer experience, and build long-term customer loyalty.

Hence this study aims to address the existing gap in the literature by enhancing the understanding of the effect of service convenience on customer satisfaction in the Sri Lankan e-tailing industry.

OBJECTIVES

Hence this research has centered around one main research objective. Which is;

- To identify the effect of service convenience on customer satisfaction in the Sri Lankan e-tailing industry.

By achieving this objective, the study will provide valuable insights for e-tailers to optimize their service strategies and improve overall customer experience and thereby turn general site visitors to brand apostles (Shamsi et al., 2023).

METHODOLOGY

Research Design

This study belongs to quantitative research which followed the deductive reasoning approach under the time horizon of cross-sectional study due to the proven suitability of previous literature.

Conceptual Framework

Fig. 1 presents the conceptual framework of the study, developed by the researcher, based on a review of past literature.

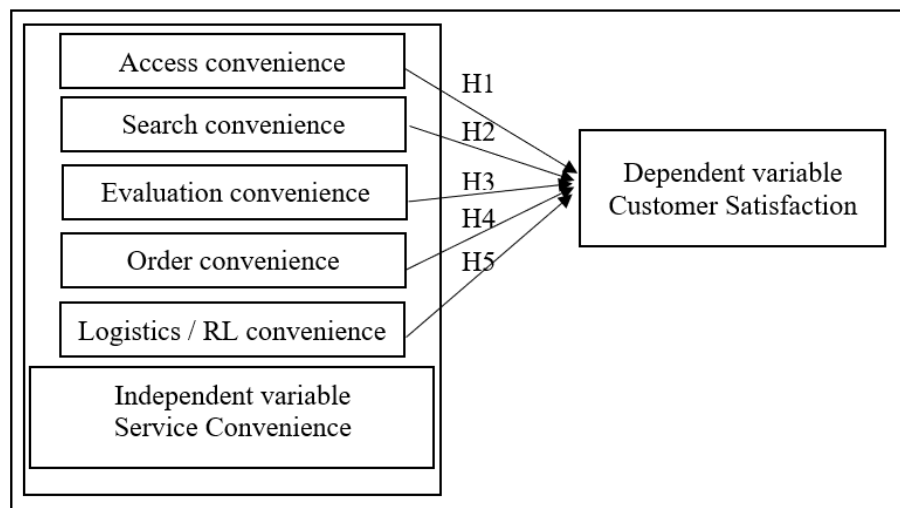


Figure 4: Conceptual Framework

Source: Author Compilation

Service convenience comes under the independent variable and customer satisfaction is the dependent variable. Moreover, key dimensions have been adopted from previously validated scales (Jiang et al., 2013; Shamsi et al., 2023).

Also, there are five non directional hypotheses that were formulated as the tentative answer for research questions based on conceptual framework.

Sample and Population

The population of interest consists of e-buyers from e-retail stores in Sri Lanka, with a sample size of 280 e-buyers. The sample size was determined based on the principle that it should be at least 10 times the number of items for multivariate research (Hair et al., 2010; Shamsi et al., 2023), and with 19 items in this study, the sample size is deemed appropriate based on previous literature. A convenience sampling method was employed to select participants, because of its efficiency, speed, ease of access, and cost-effectiveness.

Data Collection and Methods for Data Analysis

Data were collected through an online questionnaire distributed in 2024 via email and WhatsApp. The questionnaire was designed to capture a wide array of demographic information and customer satisfaction metrics. It included multiple-choice and 5-point Likert scale questions. The survey was sent to participants from diverse regions in Sri Lanka to ensure a representative sample.

Both descriptive and inferential statistical techniques were used to analyze the data. SPSS package were first used to analyze the data and then tested and confirmed validity and reliability by conducting a factor analysis and Cronbach's alpha tests respectively. Thereafter descriptive analysis conducted to assess demographic characteristics of the respondents, providing an overview of the sample's composition. Finally, multiple regression was utilized to test the research hypotheses due to its suitability (Cavazani & Bonat, 2022).

FINDINGS

Multiple regression model applied to identify the effect of service convenience on customer satisfaction.

Table 1: Results of hypotheses testing

Hypothesis	P-value (for general sample)
H1	.008
H2	.000
H3	.237
H4	.007
H5	.066

Source: Author's work based on primary data analysis

Table 1 indicates the results of hypotheses testing. Accordingly, access convenience, search convenience and order convenience have significant effect on customer satisfaction and logistics convenience and reverse logistics convenience became insignificant.

Subsequently researchers identified the necessity of inspecting whether there will be any perceived difference based on gender for these elements. Hence conducted an independent sample t-test to identify whether the results will be similar or different based on gender due to the significant unequal gender composition of the sample. Moreover, independent sample t- test was selected because of the proven suitability in previous literature (Shamsi et al., 2023).

Table 2: Results and decisions based on independent sample t-test

Dimension	t- value	Sig	Decision
Access convenience	-.095	.924	Reject (There is no statistically significant difference between the means of the two gender groups)
Search convenience	.593	.554	Reject (There is no statistically significant difference between the means of the two gender groups)
Evaluation convenience	-2.358	.019	Accept (There is a statistically significant difference between the means of the two gender groups.)
Order convenience	.681	.497	Reject (There is no statistically significant difference between the means of the two gender groups)
Logistics and Reverse logistics convenience	-1.378	.170	Reject (There is no statistically significant difference between the means of the two gender groups)

Source: Prepared by Researchers

Accordingly, all the dimensions except for evaluation convenience, have not recorded any difference based on gender based on the results generated on independent sample t-test. Hence the effect of evaluation convenience differs when testing results separately for two gender groups.

DISCUSSIONS AND CONCLUSION

Discussion

This research identifies that access, search, and order convenience have significant effect on customer satisfaction in online retailing, while evaluation and logistics/reverse logistics convenience do not. However, the significance of evaluation convenience changes based on the gender of the respondent, indicating gender-based variations in consumer perceptions.

These findings contradict prior research, which suggests gender does not influence online shopping intentions (Jen-Hung & Yi-Chun, 2010; Shamsi et al., 2023). However, one explanation is that evaluation convenience in e-retailing lacks the tactile experience of physical stores, which may impact consumer satisfaction differently by gender. Gender Schema Theory suggests males favor utilitarian motivators (e.g., convenience, cost-saving), while females respond more towards hedonic motivators (e.g., value, fashion, sociality) (Elmer et al., 2020).

Implications of research

The findings of this study provide valuable insights into possible implications. Such as, e-tailers seeking to enhance service convenience in alignment with customer expectations to drive satisfaction. Notably, logistics and reverse logistics practices should be improved, with particular emphasis on product handling and return policies (Adesoga et al., 2024). Furthermore, evaluation convenience can be strengthened by enriching e-commerce platforms with insightful content and real-time feedback mechanisms, such as AI-driven chatbots (Ren et al., 2022). Additionally, gender-based differences should be considered, and e-tailers should integrate more hedonic motivators (Kanwal et al., 2021).

This study also opens avenues for future research, encouraging scholars to examine the role of income levels in shaping service convenience perceptions and to compare customer satisfaction between online and traditional retailing models (Gao et al., 2021; Shamsi et al., 2023)

Keywords: *Service convenience, Customer satisfaction, E-tailers, Sri Lanka*

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A STUDY OF THE IMPACT OF SUSTAINABLE SUPPLY CHAIN MANAGEMENT ON THE BUSINESS PERFORMANCE; SPECIAL REFERENCE TO SRI LANKAN LISTED MANUFACTURING COMPANIES

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INTRODUCTION

Sustainable Supply Chain Management (SSCM) is an evolving and current trending business practice in the field of operations management. SSCM or Green SCM, links sustainability across supply chain operations to reduce adverse economic, environmental, and social impacts an organization makes in the short and long run. The concept of SSCM is a relatively new trend of practice in operations management but previous research shows that sustainable practices (for manufacturing, procurement, and distribution) significantly influence the firm's sustainability performance. However, its impact on business performance as a whole and the relationship between these two variables have remained largely unexplored.

Accordingly, this research is aimed to bridge this gap by examining the extent to which SSCM affects business performance indicators and identifying key SSCM practices that generally influence business performance while investigating the relationship between SSCM and business performance simultaneously addressing knowledge gaps in previous research. This was done by applying these concepts in the context of Sri Lankan listed manufacturing companies. Also, this research provides insights into SSCM techniques that listed manufacturing companies in Sri Lanka use and empirical evidence on how these practices affect business performance.

OBJECTIVES

With the prominence of SSCM in organizations, this research has identified two main research questions which are, what is the impact of SSCM on the business performance of Sri Lankan listed manufacturing companies and what are the current SSCM trends adopted by Sri Lankan listed manufacturing companies. Accordingly, the main two objectives of this study are to identify the impact of SSCM variables on business performance while also elaborating on the current SSCM trends adopted by Sri Lankan-listed manufacturing companies that also impact business performance.

METHODOLOGY

When considering SSCM, which is an evolving and currently trending topic as the research area, the research approach involved a Mixed-method approach integrating positivist analysis of Business data with an interpretive acknowledging the contextual insights provided by SSCM practices along with a review of existing literature, followed by quantitative analysis of financial and performance data and qualitative examination of trends of SSCM practices. Also, to develop the essence of this research below is the conceptual framework.

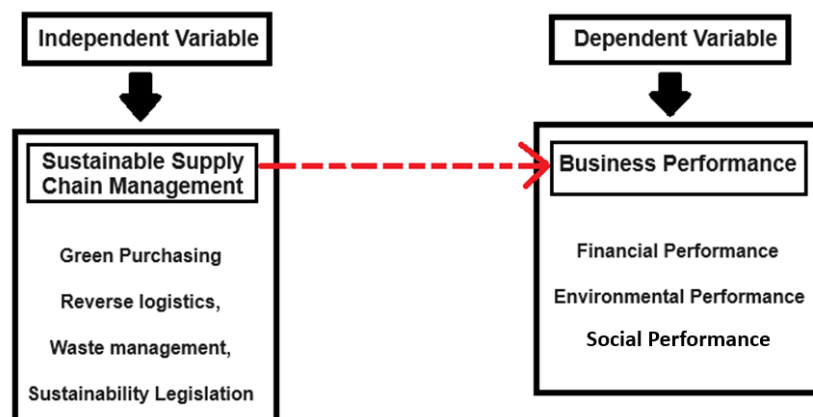


Figure 5: Conceptual Framework

Source: Author

As per the conceptual framework, the independent variable SSCM has sub-factors such as green purchasing, reverse logistics, waste management, and sustainability legislation while the dependent variable is business performance which has sub-factors as financial performance, environmental performance, and social performance. Based on this, 12 hypotheses were developed to be examined in this research. The analysis of data involves considering a listed manufacturing company in Sri Lanka as a unit of analysis. Accordingly, the population of listed manufacturing companies with a market capitalization over Rs. One billion, which is 215 firms and a sample of 40 from those companies, are selected to gather data for a period of 5 years from 2019 to 2023. Data is collected from the annual reports of listed manufacturing companies. The collected data was analyzed for correlation, regression, residual analysis, and other descriptive statistical methods using SPSS Software to test the 12 hypotheses and achieve the relevant research objectives.

FINDINGS

Based on the data, the average expenditure on waste management was the highest with reverse logistics being the lowest. On average the financial performance of 40 listed manufacturing companies was Rs.26bn while environmental and social performance averaged Rs.15.4bn and Rs.15.7bn respectively. The data exhibited highly positive skewness indicating a right-skewed distribution among the 40 listed manufacturing companies over the 5 years.

Further, the findings suggest that reverse logistics as an independent SSCM practice has a weak positive correlation on all performance measures along with the least impact on business performance. Further, in terms of the other 3 independent variables, strong positive correlations were shown and a meaningful impact on business performance with all these three variables significantly impacting environmental performance the most while financial and social performance follow in the respective order. Hence, from 12 hypotheses only 2 relating to reverse logistics have been rejected while others have been accepted. Also, based on current SSCM trends adopted by Sri Lankan listed manufacturing companies, voluntary to mandatory adoption impacts most on adoptions for SSCM to impact business performance while Artificial intelligence has the least adoptions for SSCM to impact business performance.

DISCUSSION

Based on the analysis, it was noted that green purchasing and waste management had a strong positive correlation as well as an impact on all three dependent variables and this aligns with the literature of (Priyashani & Gunarathne, 2021) while sustainability legislation too has a strong positive relationship and an impact on financial and environmental performance while it has a moderate positive relationship with social performance. However, reverse logistics showed a weak positive correlation with financial, environmental, and social performance and also had the least impactful influence on business performance. Hence it can be proven that reverse logistics is a variable of SSCM that does not have a relationship and an influential impact on the business performance which doesn't confirm with (Stefan Seuring, 2008) due to country-specific reasons. Overall SSCM impacts environmental performance the most as in line with (Wickramasinghe, 2019). Further in terms of trends, voluntary to mandatory adoption of SSCM practices is the highest adopted trend of these forty listed companies that impacts on the business performance which aligns to (Karunarathna, Siriwardhane, & Jayarathne, 2024) while AI is the lowest adopted trend by companies due to it being a new topic for the research period.

IMPLICATIONS ON RESEARCH

Based on research and its findings which identify the impact of SSCM on business performance, it is beneficial for organizations to improve SSCM, particularly focusing on waste management and green purchasing. Moreover, based on the analysis it is recommended that reverse logistics does not impact financial performance but organizations that intend to develop their CSR or social impact can adopt this element as a variable for their SSCM Practices. Further, based on the trend analysis it is evident that voluntary to mandatory adoptions of SSCM practices following legislative pressure and pressure from local authorities is a key trend that each manufacturing listed company deals with. Also with AI developing, it is recommended that organizations adopt AI for their SCM practices to form sustainable activities. Due to vast growth in technology, it is recommended that AI and technology be formed as a key integral part of SSCM practices.

Keywords: *Business Performance, Green Purchasing, Listed Manufacturing Companies, Sustainable Supply Chain Management, Waste management*

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IMPACT OF E-SERVICESCAPE OF MOBILE BANKING ON PATRONAGE IN MOBILE BANKING USAGE: A STUDY OF SME ENTREPRENEURS IN NORTH WESTERN PROVINCE IN SRI LANKA

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INTRODUCTION

Mobile banking is a rising need for small and medium scale (SME) entrepreneurs with its advantages (Kirui & Onyuma, 2015). Meanwhile, e-servicescape enhances electronic service experiences (Teng et al., 2018). Entrepreneurs choose banks based on mobile banking capabilities and its failure may lead to bank switching (Kamboj et al., 2021), impacting to banks profits (Durkin et al., 2013). Therefore, SME entrepreneurs' patronage of mobile banking is important to banks. Accordingly, this study aimed to study the impact of e-servicescape of mobile banking on their patronage in mobile banking usage. Since, the past studies examined the factors influencing continued mobile banking usage through various Information Technology theories (Shaikh et al., 2018) and general customer perspectives (Sahoo & Pillai, 2017). Similarly, limited research on mobile banking in North Western Province, unlike the Western Province in Sri Lanka (Ganethanne & Gunasekare, 2024) and the SME entrepreneurs' distribution as per the economic census underscore the necessity of conducting a study in the North Western Province in Sri Lanka.

Research questions could be stated as; is there an impact of aesthetic appeal aspect of mobile banking e-servicescape on SME entrepreneurs' mobile banking patronage, is there an impact of layout and functionality aspect of mobile banking e-servicescape on SME entrepreneurs' mobile banking patronage and is there an impact of financial security aspect of mobile banking e-servicescape on SME entrepreneurs' mobile banking patronage.

Through this study new value is added to the mobile banking literature by emphasizing e-servicescape dimensions' impact on entrepreneurs' patronage. Valuable insights are offered for banks to manage e-servicescape and improve entrepreneurs' patronage.

OBJECTIVES

Research objectives could be stated as; to measure whether there is an impact of aesthetic appeal aspect of mobile banking e-servicescape on SME entrepreneurs' mobile banking patronage, to measure whether there is an impact of layout and functionality aspect of mobile banking e-servicescape on SME entrepreneurs' mobile banking patronage and to measure whether there is

an impact of financial security aspect of mobile banking e-servicescape on SME entrepreneurs' mobile banking patronage.

METHODOLOGY

Conceptual Framework and Hypotheses

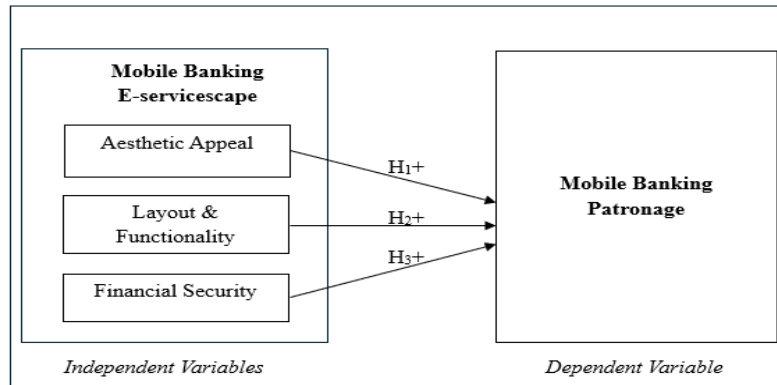


Figure 6: Conceptual Framework

Source: Author constructed

To answer the research questions, as depicted in Figure 1 the following hypotheses were proposed.

H₁ : Aesthetic appeal aspect of mobile banking e-servicescape has a positive impact on SME entrepreneurs' mobile banking patronage.

H₂ : Layout and functionality aspect of mobile banking e-servicescape has a positive impact on SME entrepreneurs' mobile banking patronage.

H₃ : Financial security aspect of mobile banking e-servicescape has a positive impact on SME entrepreneurs' mobile banking patronage.

Research Design

The study adopted a positivist philosophy and a deductive approach, using a quantitative survey design for an explanatory, cross-sectional study (Sekaran & Bougie, 2016). The population was all SME entrepreneurs in North Western province in Sri Lanka. With an approximate population of 132,000, a sample of 384 was determined which is higher the requirement between Morgan's Table (1970) and Smart PLS Analysis, and convenience sampling technique was used (Sekaran & Bougie, 2016).

Data Collection and Analysis

Data was collected using a self-administered questionnaire with a seven-point Likert scale. Structural Equation Modelling (SEM) was used to analyze the data, with descriptive statistics for demographics and variables. Validity and reliability were evaluated via the measurement model of SEM. Convergent validity was established through average variance extracted. Discriminant validity was established using Fornell–Larcker criterion, cross loadings and heterotrait-monotrait ratio. Indicator's reliability was assessed using factor loadings, and construct reliability was assessed using composite reliability value and Cronbach's alpha (Hair et al., 2011). Under inferential statistics hypotheses were assessed via the structural model of SEM with the support of bootstrapping method in Smart PLS software (Hair et al., 2011).

FINDINGS AND DISCUSSION

The study revealed that majority of SME entrepreneurs were male (62.2%), while 37.7% were female. Age distribution showed 44.1% in the 28–43 category and 37.1% in the 12–27 category. Most (59.8%) earned below Rs.100,000, while 31.5% earned Rs.100,000–Rs.250,000. Mobile banking was the most preferred (95.1%) and most frequently used (92.3%) transaction mode. SME entrepreneurs have been engaged with private banks (42.3%), public banks (24.8%), or both (32.8%).

Table 2: Analysis of Hypotheses

Hypotheses	Path	Path Coefficients (β)	T Statistics	P values	Decision
H₁	AA -> MBP	0.381	5.301	0.000	Supported
H₂	LF -> MBP	0.122	1.384	0.083	Not Supported
H₃	FS -> MBP	0.166	2.345	0.010	Supported

Source: Analyzed Data

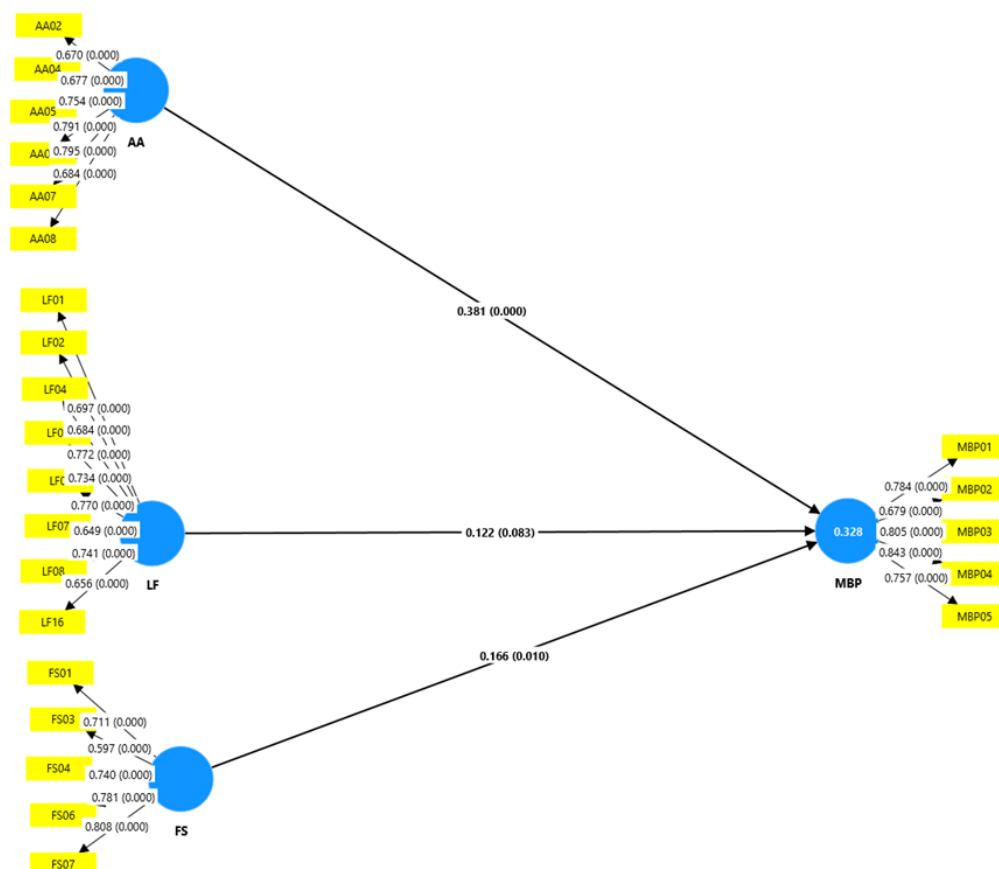


Figure 7: Structural Model Testing for H1, H2, and H3

Source: Analyzed Data

As per the results depicted in Table 1 and Figure 2, this study found that the aesthetic appeal aspect of mobile banking e-servicescape has a positive impact on SME entrepreneurs' mobile banking patronage. This finding aligned with the previous research findings. Teng et al. (2018) revealed that aesthetic appeal significantly and positively influenced consumers' purchase intention and remain loyal. According to Arcand et al. (2017) stakeholders must not underestimate the importance of a pleasurable interface of mobile banking on customers' mobile banking behaviour.

Furthermore, the results indicated that the layout and functionality aspect of mobile banking e-servicescape do not positively impact SME entrepreneurs' mobile banking patronage. This aligns with Teng et al. (2018) but contradicts studies highlighting their importance (Sahoo & Pillai, 2017; Harris & Goode, 2010). In this study, the mean values for the items related to layout and functionality ranged from 3.69 to 6.02, indicating that while some respondents expressed a positive perception of layout and functionality, others did not. The discrepancy in responses may be attributed to differences in the layout and functionality aspects of public and private banks in the context of mobile banking, as 24% of the sample engaged with public banks, whereas 42% interacted with private banks. Even though limited past literature made substantiating this

observation challenging, Jayarathna and Gunasekare (2024) found that public banks' layout and functionality issues hinder mobile banking satisfaction.

Moreover, the results confirmed that the financial security aspect of mobile banking e-servicescape positively impacts SME entrepreneurs' mobile banking patronage. Prior studies emphasize that perceived security influences users continued mobile banking adoption (Kim et al., 2009). Additionally, financial security significantly enhances customer loyalty (Tankovic & Benazic, 2018). Accordingly, this finding aligns with past empirical research conclusions.

IMPLICATIONS OF RESEARCH

This study highlights key managerial implications for banks aiming to boost mobile banking patronage among SME entrepreneurs. Emphasizing aesthetic appeal and financial security in mobile banking e-servicescape is crucial. Banks should prioritize the development of more innovative, creative, attractive, and visually appealing mobile banking interfaces by incorporating meaningful graphics. Additionally, they should ensure that the enthusiasm of the applications effectively catches entrepreneurs. Furthermore, banks should enhance the efficiency of payment procedures by simplifying mobile banking activities. Moreover, it is imperative that they strengthen security systems and procedures to ensure the safety of transactions conducted through mobile banking applications.

Keywords: *Mobile Banking, Patronage, SME entrepreneurs, E-servicescape*

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TECHNOLOGY AVOIDANCE ON ATTITUDE AND INTENTION TOWARDS USING ARTIFICIAL INTELLIGENCE: A CASE IN MANAGERS IN SOFTWARE INDUSTRY IN SRI LANKA

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INTRODUCTION

Software industry in Sri Lanka has experienced a significant growth in recent years resulting massive competition in the industry. Despite the significant growth of the software industry in Sri Lanka, software companies often struggle to meet customer expectations within the given time frame. One potential solution to this problem is the transformative impact of AI in software development. Artificial Intelligence presents a potential solution by streamlining coding, automating testing, project planning etc. While using AI, could improve software industry's effectiveness it also creates challenges associated with the dark side of AI. Although AI is presented as a solution, the adoption of AI technologies remains relatively low. Uncertainty about the benefits and perceived risks influenced the low adaption rate of AI in software development. However, there is a lack of research on managers' attitudes and intentions towards using AI. To address this gap, this study integrates UTAUT with TTAT and develop AI acceptance-avoidance model to consider the factors influencing managers' attitudes and behavioral intentions towards using AI in the Sri Lankan software industry. The novelty of this study lies with its unique combination of TTAT with UTAUT to understand the adaption behavior.

OBJECTIVES

The present study aims to;

- (1) Investigate the relationship between perceive severity and perceived threat.
- (2) Investigate the Relationship between perceived susceptibility and perceived threat.
- (3) Investigate the Relationship between perceived threat and intention to use.
- (4) Investigate the Relationship between Perceived threat and attitude.
- (5) Investigate the Relationship between attitude and intention to use.
- (6) Assess the Mediating role of Attitude in the relationship between perceived threat and intention to use.

METHODOLOGY

To achieve the research aim, this study test AI acceptance-avoidance model by combining UTAUT with TTAT. As shown in figure 1 this study develops 6 hypotheses by integrating UTAUT with TTAT.

H1: Perceived severity will have a significant positive effect on perceived threat.

H2: Perceived susceptibility will have a significant positive effect on perceived threat.

H3: Perceived threat will have a significant negative influence on attitude towards using AI.

H4: Perceived threat will have a significant negative influence on intention to use AI.

H5: Attitude will have a significant positive effect on intention to use AI.

H6: Attitude mediates the relationship between perceived Threat and Intention to Use.

The target population was individual managers, executives who are working in software industry. A sample of 200 managers was selected based on prior studies (Hair et al., 2021). Convenience sampling was used. Measurement model and Structural model was used in data analysis and the analysis was done using SmartPLS.

FINDINGS AND DISCUSSION

With respect to the five direct hypotheses, H1 and H2 suggests Perceived Severity and Perceived Susceptibility each positively affect perceived threat. Both H1 and H2 are supported, the path coefficients being 0.434 ($p < 0.05$) and 0.194 ($p < 0.05$) respectively. Managers who perceive severe consequences related to AI are more likely to view it as a threat (H1). This aligns with the findings of Davis et al. (1989) who declare that high awareness of potential risks ultimately leads to avoid using technology. This finding goes in line with TTAT, which suggests that individuals assess threats based on perceived severity and susceptibility (Liang & Xue, 2009). This also aligns with Protection motivation theory (PMT), which suggest that perceived severity increases threat appraisal leading to high protective behaviors (Grindley et al., 2008, Prentice-Dunn & Rogers, 1986). (H2) also aligns with prior studies. Prentice-Dunn & Rogers (1986) supports this by indicating that perceived susceptibility is a significant factor affecting risk perception. Liang & Xue (2009) highlighted that in TTAT perceived susceptibility is a major factor shaping threat

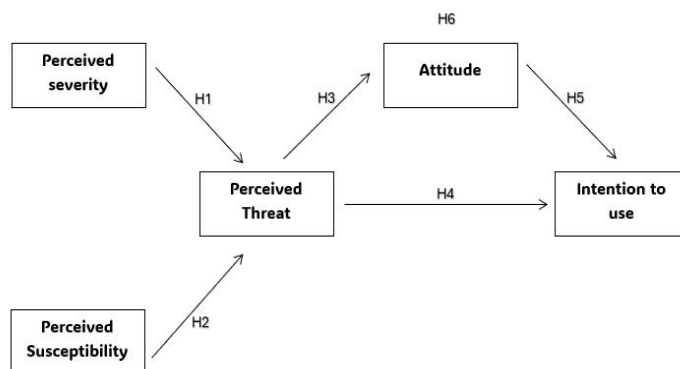


Figure 8: Conceptual Framework

perceptions. PMT literature supports this emphasizing perceived susceptibility is a major factor shaping threat appraisals (Grindley et al., 2008, Prentice-Dunn & Rogers, 1986).

H3 suggests that Perceived threat has a negative influence on attitude towards using AI, which is supported by path coefficient of -0.225 ($p < 0.05$). Acceptance of H3 hypothesis indicates that perceived threat leads to negative attitudes towards AI adaption. Venkatesh & Bala (2008) found that perceived risks adversely impact user acceptance of new technologies. This is consistence with TTAT, which suggests that higher perceived threat can result in avoidance behavior when individuals don't know to cope with those threats (Liang & Xue, 2009). This also aligns with studies which reflect negative perceptions can lead to avoid adapting new technologies (Venkatesh & Bala, 2008). In Sri Lanka these negative attitudes hinder adaption of technology since in Sr Lanka the digital literacy is relatively low and with the infrastructure challenges.

H4 posits that perceived threat has a negative influence on intention to use which is rejected, although perceived threat on intention to use was significant, the relationship was positive indicating a path coefficient of 0.245 ($p < 0.05$). The unexpected positive relationship between perceived threat and intention to use AI can be validated by these findings and arguments. Prakash (2023) argues that although perceived threat exists with technology, organizational culture and competitive pressures can drive technology adaption intention. This finding contrasts with TTAT, which indicates perceived threat negatively influence intention to use of technology. Individuals may still intend to use technology although perceived threat exists if they believe in the effectiveness of coping strategies (Liang & Xue, 2009). Companies often adapt new technologies despite perceived threats of using it, in highly competitive industries like software development (Hashemi-Pour, 2024). Therefore, in rapid technological advancement industries like software industry, managers view adapting AI as a necessity despite potential risks.

H5 suggests that attitude has a positive effect on intention to use, which is supported by the path coefficient of 0.742 ($p < 0.05$). The acceptance of H5 consistent with Theory of Planned Behavior and UTAUT, which posits that favorable attitudes are key predictors of behavioral intention (Ajzen, 1991). Chakraborty & Rashdi, 2018 further highlight the role of perceived usefulness in fostering positive attitudes toward technology adaption. The results of direct hypotheses are summarized in table 1.

Table 3: Summary Results of Direct Hypothesis testing

Hypothesis	Hypothesized path	Path Coefficient	P value	Empirical evidence
H1	Perceived Severity -> Perceived Threat	0.43	0	Supported
H2	Perceived Susceptibility -> Perceived Threat	0.19	0.05	Supported
H3	Perceived Threat -> Attitude	-0.23	0	Supported
H4	Perceived Threat -> Intention to Use	0.25	0	Rejected

H5	Attitude -> Intention to Use	0.74	0	Supported
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H8 suggests Attitude mediates the relationship between perceived Threat and Intention to Use, which is supported with path coefficient of indirect relationship -0.174 which is significant ($p < 0.05$) and direct effect which is not significant. Hence indirect is significant

and direct is insignificant Attitude is a complete mediator in relationship between perceived threat and intention to use. Table 2 and 3 shows special indirect effects and direct effects respectively. Protection motivation theory (PMT) supports this by highlighting low attitudes can mitigate negative effects of threat perception on behavioral intention (Grindley et al., 2008, Prentice-Dunn & Rogers, 1986). TTAT supports this by highlighting how positive attitudes can mitigate the negative effects of threat perception on behavioral intentions (Liang & Xue, 2009).

Importantly, I confirm that managers' behavioral intentions towards using AI can be explained and predicted by their attitudes. The given model explains as much as 52.9% of the variance in intention to use. Figure 2 shows the path coefficients and significant levels which are used to test hypotheses.

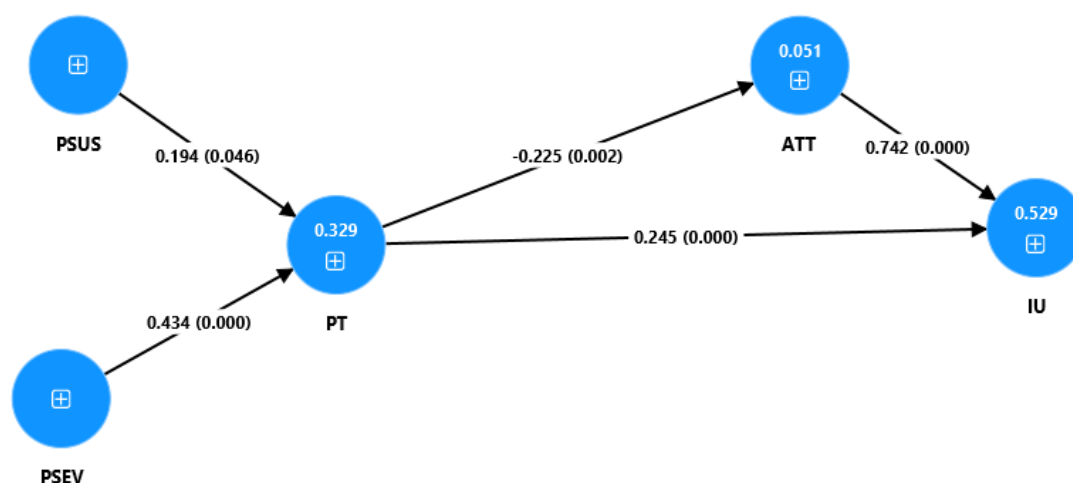


Figure 9: Hypothesis test results

Table 4: Special Indirect Effect of Mediation Analysis

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (O/STDEV)	P values	Comment
PT -> ATT -> IU	-0.174	-0.174	0.072	2.421	0.016	Significant

Table 5: Direct Effects of Mediation Analysis

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (O/STDEV)	P values	Comment
ATT -> IU	0.744	0.746	0.04	18.665	0	
PT -> ATT	-0.233	-0.231	0.091	2.575	0.01	
PT -> IU	0.07	0.069	0.115	0.614	0.539	Not Significant

IMPLICATIONS ON RESEARCH

Sri Lankan software companies need to address the perceived AI threats, and this should be addressed within the industry, as failing to do so may lead to unpredictable and ineffective AI systems (Johnson and Verdicchio, 2017). To enhance adaption, firms should develop organizational-level mechanisms to detect, assess and mitigate AI related threats, ensuring AI remains under control (Johnson and Verdicchio, 2017). Leadership support and organizational culture are essential in promoting AI acceptance. Also, addressing ethical and security concerns can build trust in AI systems. Policymakers and industry leaders must collaborate to create AI friendly regulations and training programs to ensure smooth adaption of AI. These insights can widen AI adaption and lead to successful adaptation of AI to improve problems Sri Lankan software industry are currently facing and enhance Sri Lanka's competitive edge in global software industry.

Key Words - *Artificial Intelligence (AI), Technology Threat Avoidance Theory (TTAT), UTAUT model, Managers' Attitudes, Intention to Use.*

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