

Contextualized Conceptual Framework for Exploring the Impacts of E-retailing on Urban Environments in Sri Lanka

Mahima, Sanjeevaraj*

Department of Town & Country Planning, Faculty of Architecture, University of Moratuwa, Moratuwa, Sri Lanka

Chathura Kovida De Silva*

Department of Town & Country Planning, Faculty of Architecture, University of Moratuwa, Moratuwa, Sri Lanka

Abstract

Online retailing, commonly referred to as e-commerce or e-tailing, has experienced substantial growth and expansion in recent years. The nature of how land uses, and urban environments contribute to and are impacted by this rapid growth is significantly underexplored area in current research. This is largely due to the lack of methodological frameworks to capture the changes unavailability of reliable information and the. In that context, this research proposes a conceptual framework to elucidate the multifaceted dimensions of e-retailing adoption and adaptation mainly focusing on small and medium cities in Sri Lanka. The framework incorporates a range of methodological tools ranging from the use of big data, and traditional surveys with mixed research methodology. Further research presents a comprehensive situation analysis of the expansion of online retailing across different cities in the country. As e-retailing continues to reshape urban environments globally, understanding its multifaceted impacts is essential for guiding future urban development strategies in small and medium cities in Sri Lanka.

Keywords: E-Retailing, Urban environment, Conceptual framework, Sri Lankan small and medium Cities.

Introduction

Historically, the term 'teleshopping' was used to describe the use of Information and Communication Technology (ICT) for consumer decision-making. One of the most significant transformations observed in recent decades is the substantial growth of online shopping, commonly referred to as e-commerce or online retailing. Initially emerging as a novel marketplace, this sector has garnered considerable attention and investment. Internet-based commerce, commonly referred to as 'e-commerce,' has experienced significant growth in recent

* Corresponding Author: Mahima Sanjeevaraj; E-mail- mahimasanjeevaraj@gmail.com

* Corresponding Author: Chathura Kovida De Silva; E-mail- chathurads@uom.lk

years. Concurrently, consumer behavior—particularly 'e-shopping'—is driving a demand for greater dynamism and advancements within the e-commerce sector. E-commerce can be classified in various ways, including by the type of offerings (goods or services), the nature of stakeholder interactions (businesses and consumers), and the business model (pure e-commerce versus Omni channel). Nature of stakeholder interaction this is further classified as Business-to-Consumer (B2C), Business-to-Business (B2B), and Consumer-to-Consumer (C2C).

Recent trends indicate that B2C e-commerce is experiencing rapid growth and expansion across both developed and emerging economies. The rise of ICT-driven e-commerce operations is reshaping spatial and temporal relationships in commerce. As documented, the environmental impacts of e-commerce are complex and can be analyzed in both short-term and long-term contexts. The transition to e-retailing has the potential to significantly influence consumer and retailer preferences, reshape retail dynamics, and affect job creation and economic diversification within local economies. Understandably this leads to changing land use patterns. However, the precise nature of these changes, particularly in relation to commercial spaces in Sri Lanka, remains unclear.

This study first provides a comprehensive overview of the growth and expansion of e-commerce in Sri Lanka. It then proposes a contextualized conceptual framework to assess the impact of e-retailing on urban areas in Sri Lanka. This framework aims to analyse land use changes in small and medium-sized towns associated with the rise of online retailing. The framework will specifically answer a set of fundamental questions, including: What data to be used? What are reliable data sources? how to extract those data? What variables to be used? How to measure and evaluate? And how to make the methodology a robust and sustainable, so that it can be employed to explore the dynamics of different locations? A contextualized conceptual framework is a systematic approach designed to understand and analyze specific phenomena within their unique context. It integrates theoretical perspectives with practical observations to offer a comprehensive view that reflects the particular circumstances and factors of the context under examination. By incorporating specific contextual factors, these frameworks enhance understanding, guide decision-making, and improve the relevance and effectiveness of interventions.

While the trend of e-retailing has attracted considerable global attention, studies from various cities in countries with established e-retail industries highlight the significance of contextual differences and the need for specialized conceptual frameworks. Given the developmental disparities, the applicability of these frameworks to the Sri Lankan context remains uncertain. Therefore, it is crucial to develop a comprehensive conceptual framework that provides a structured approach to analyze and assess the emerging trends and dynamics of e-retailing in Sri Lankan urban areas. Such a framework would offer valuable insights into the impact of e-retailing on commercial spaces in this context, benefiting policymakers, businesses, and researchers alike.

The study aims to contribute to the knowledge on Impacts of E-retailing on Urban Environments. The next section of the paper presents a summary from global literature on the impact of e-commerce on various city functions. The third section feature the growth and geographical expansion of e-commerce in Sri Lanka. The proposed conceptual framework for assessing the impact of e-retailing on small and medium-sized towns in Sri Lanka is discussed in the fourth section of the paper before the concluding remarks presented in the final section of the paper.

Literature review: Impact of e-retailing on cities

Although e-commerce is widely used, the holistic effect of e-commerce on environment is yet to be fully experienced. (Salomon, 1983), highlighted the possible effects of Information communication technologies on travel choices. Though it does not include all aspects, conceptually proposed the short- and medium-term effects, and this serve as the basis of preceding work that focused on effects of online retailing with empirical studies.

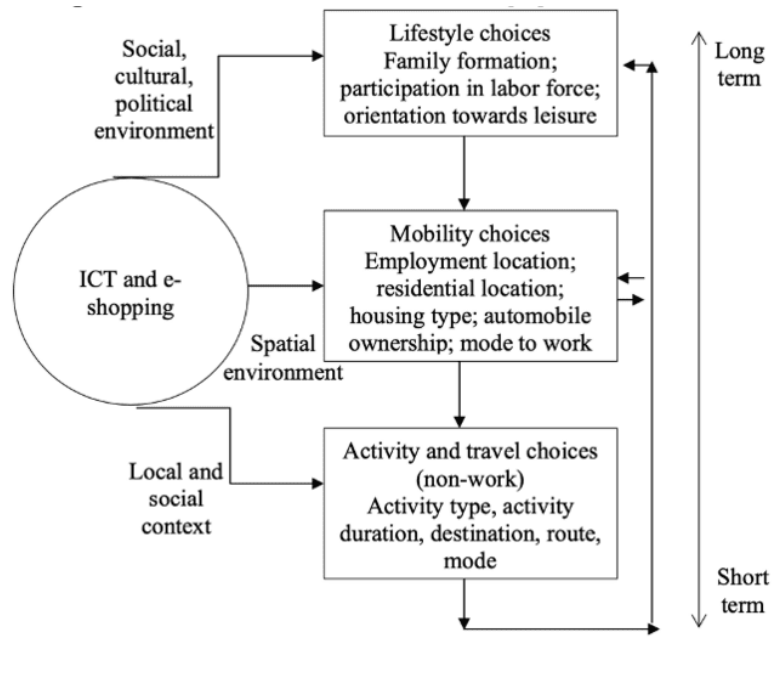


Fig. 1: Possible Impacts of ICT on e-shopping
Source: (Salomon, 1986)

Prominently, B2C channels of e-commerce channels continued to alter conventional theories of land use and evolution of cities. The effects of e commerce on consumer behavior at human scale to city scale are a popular topic discussed in contemporary literature. It is also important to distinguish the multiple functions associated with shopping in general to realize on subsequent effects. Visser and Lanzendorf classified the effects of e commerce as mobility and accessibility effects, where mobility effects refer to more direct impacts driven with the behavior of individuals (Visser & Lanzendorf, 2004). Primarily two research stems can be derived from the contemporary research on this category (Xiao, 2017). Firstly, on effect on conventional shopping locations by online shopping and the adoption process of consumers. Secondly on the effects of online retailing on shopping travel.

Indirect accessibility effects in long run are seen more as consequences of direct mobility effects include; changes in activity systems of people, configuration of supply chain and logistics (Hesse, 2004), location choices and land use patterns. However, the net effects of these changes are yet to be realized.

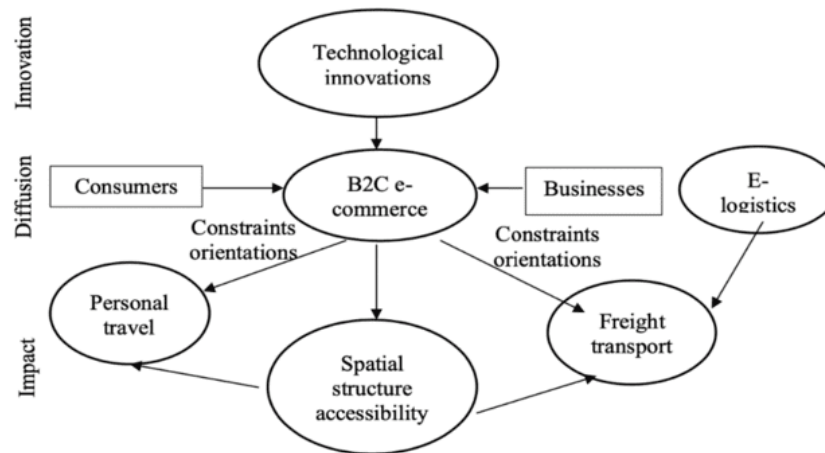


Fig. 2: Impact of e-commerce on mobility and accessibility
Source: (Pettersson, Winslott Hiselius, & Koglin, 2018)

The concept of e-retailing, often referred to as e-tailing or online retailing, has been defined by various authors across disciplines. According to (Wigand, 1997), e-tailing encompasses the online sale of goods, intangible goods, or services. This definition highlights the broad spectrum of offerings that can be made available through digital platforms. (P. Zhang & Li, 2002) provide a perspective emphasizing the application of digital technologies in retailing activities to create customer value. This viewpoint underscores the transformative role of technology in enhancing the overall retail experience. (Mokhtarian, 2004) focuses on the consumer aspect, defining e-shopping as the process of searching for and purchasing consumer goods and services via the Internet, which captures the user-centric nature of online retail transactions, where he has mentioned that E-retailing offers advantages such as unlimited selection, lower prices, and convenience for its retailers and customers. (Philip Kotler & Gary Armstrong, 2017) offer a concise definition, characterizing e-retailing or online retailing as the utilization of the internet by retailers to present their products and services to consumers. This definition emphasizes the role of the Internet as a key channel for connecting retailers with their target audience.

Online shopping emerged in the 1990s, with the advent of the World Wide Web, significantly impacting consumer behaviour, expanding rapidly, and culminating in the dot-com boom of the 2000s. (Graham & Marvin, 1999) investigated the link between the need for physical retail places and the rise of e-retailing, yielding results that were regarded insignificant. Building on this, (Borsuk, 1998) investigated the subtle differences in the virtual and physical sales channel mix, addressing issues such as lease requirements and giving insight into the behavioural shifts and adaption processes related to e-retailing. Furthermore, (Salomon, 1986) and (Mokhtarian, 1990) provided insights into the world of e-retailing by stressing the favourable influence on city centre shopping experiences and operational efficiency. It is important to note that the procedures used in these investigations were largely qualitative.

More conventional brick-and-mortar shops began to build an online presence. With the new business models emerging, many of the developed countries like the UK, the United States of America, and China started in-depth analysis of e-retailing and its impact on socio-economic conditions, regulatory frameworks, logistical challenges, and so on, wherein the latter 2000s, with the introduction and rise of e-retailing, Sri Lankan researchers focused on the impacts regarding behavioural changes, market dynamics, and logistics.

This was the period when conflicting views arose. Meaning, that many researchers derived different outputs conflicting with one another. (Baen, 2000) and, (Winograd et al., 2000) discovered with the rise of e-retailing, the need for physical retail spaces and the space for a retail space reduced, whereas (Worzala et al., 2002), (Muhanna & Wolf, 2002), (Weltevreden & Rietbergen, 2009), (Dixon & Marston, 2002) and, (McClatchey et al., 2007) have derived a conclusion from their findings that the rise of e-retailing doesn't impact the demand of physical commercial or retail spaces, even if there's an impact the significance is slim. But (Dixon & Marston, 2002) mentioned UK shop owners are not concerned about online shopping but fear it could impact their stores' worth in the future, where rent prices might expect to decrease. And (Weltevreden & Rietbergen, 2009) mentioned that city and village centres are most likely to adopt e-shopping over in-store shopping, while neighbourhood and convenience centres experience minimal adverse effects.

Meanwhile (Winograd et al., 2000) has mentioned in their research that the demand and space requirement for commercial spaces has increased with the e-retailing adoption. Furthermore, (Muhanna & Wolf, 2002) have concluded that different types of commercial spaces are affected differently due to e-retailing. (Sindy Farag, 2003) has concluded that E-shopping in the Netherlands is expected to save shopping time, increase travel distances, and reduce car travel in urbanized areas and walking and cycling in less urbanized areas geographically. This proves that the impacts could differ according to the distance from CBD. Additionally, BCSC (2001), Technology Foresight (Program) (2000), (Farag et al., 2006) and (Weltevreden & Rietbergen, 2009) have mentioned that e-commerce is just an ingredient in the mix in terms of impact on the city. And have emphasized that the marginal effect is purely location-based. Not to mention, these studies listed were done in various regions of the world where e-retailing usage was large and growing at the time.

Growth and geographical expansion of E commerce in Sri Lanka

As a producer and consumer of products and services related to the digital economy, such as digital applications, electronic commerce, and information and communications technology (ICT) commodities, Asia is at the forefront of the global digital economy (De Zylva & Wignaraja, 2018). In considering Sri Lanka, there are 6.71 million internet users in the nation out of 20.91 million total people, or 32% of the population has access to the internet and uses related services. By 2018, Sri Lanka has maintained an annual growth rate of 7% for internet penetration. In 2022, Sri Lanka underwent a remarkable digital transformation, with its Digital Economy accounting for 4.37 percent of the GDP, as reported by the Information and Communication Technology Agency (ICTA) and the United Nations Conference on Trade and Development. The increased adoption of e-payments, e-banking, online medical consultations, and e-sports fueled this growth. Furthermore, International Trade Administration U.S Department of commerce has recently published that a notable 43 percent of the country's 11 million internet users engaged in online purchases, indicating a significant digital presence.

As the joint report based on a national level survey of 4670 participants by Daraz and SLASCO outlined, 50 out of 100 survey participants use e commerce to buy various goods and services (Kaymu Lanka (PVT) Ltd. et al., 2023b). This demonstrates the geographical expansion and penetration of ecommerce in Sri Lanka. The figure 01 shows Incidence Rate of E-commerce Users and of Non-users by each province in Sri Lanka based on the sample study.

The diverse distribution of e-commerce users across Sri Lanka, including significant adoption in rural districts like Puttalam and Monaragala, underscores the need for a comprehensive and adaptable contextual framework for analysing e-commerce trends.

As understood, the current urbanization trends, population distribution trends and predictions stated in the National Physical Planning Policy & The Plan (2017-2050), and the provincial share of GDP in 2022, stated by the Central Bank and the Department of census and Statistics, doesn't seem to be overlapping with the e commerce penetration in Sri Lanka (figure 3, 4 & 5).

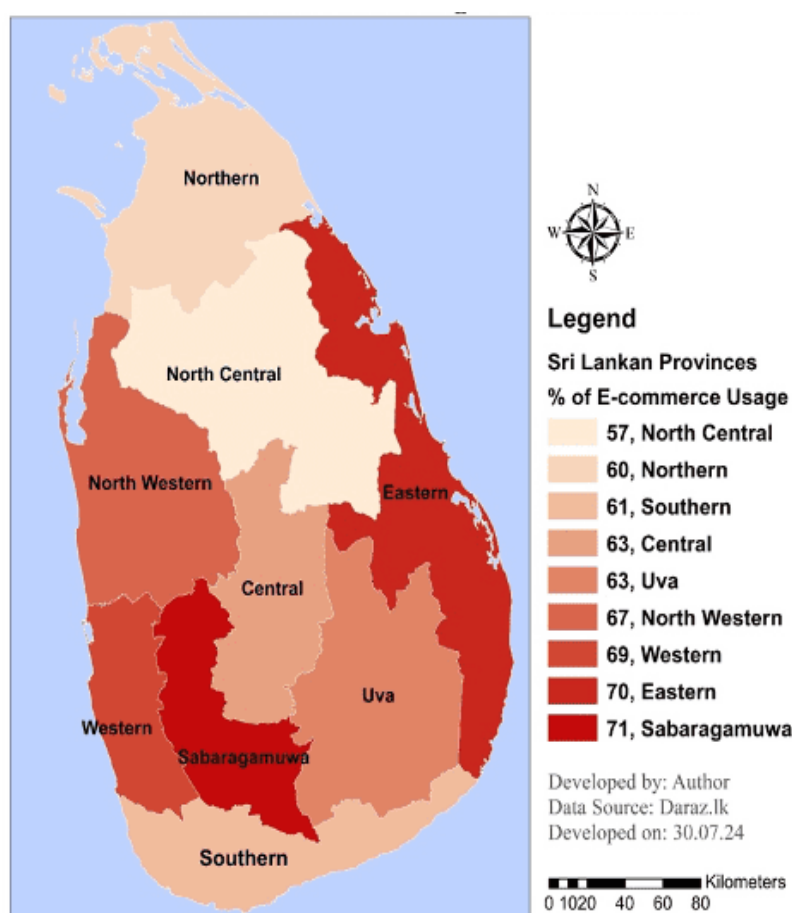


Fig. 3: Percentage of E-commerce
Source: Author
Data Source: (Kaymu Lanka (PVT) Ltd. et al., 2023b)

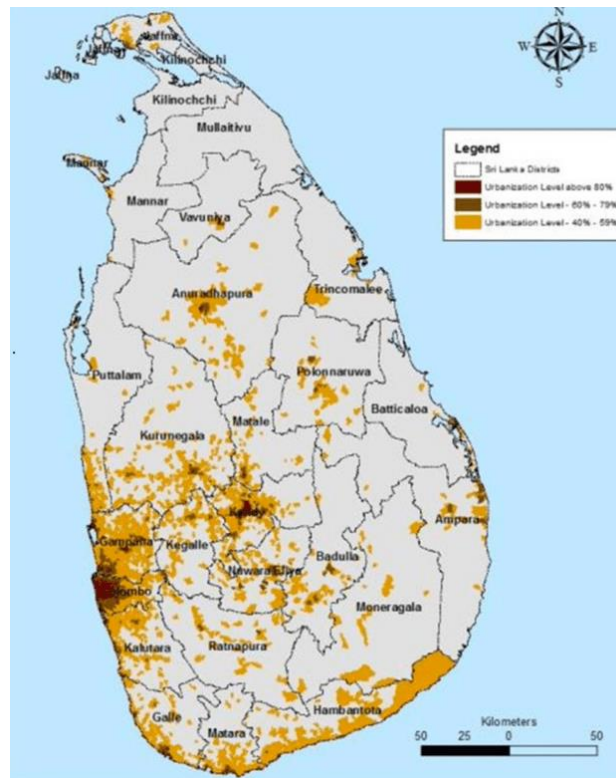


Fig. 4: Urbanization pattern in Sri Lanka
Source: (National Physical Planning Department Sri Lanka, n.d.)

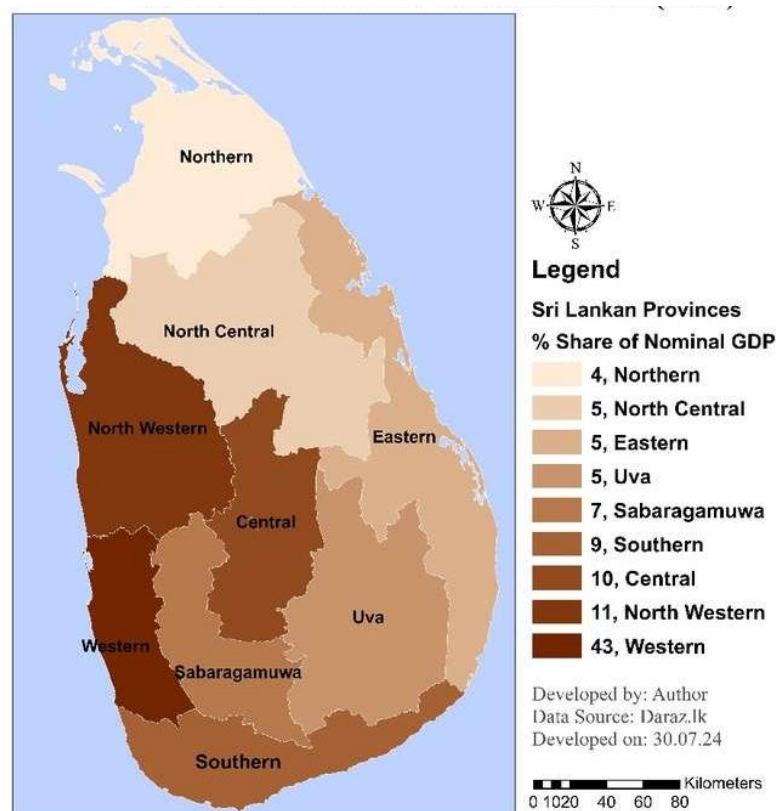


Fig. 5: GDP contribution by Province in Sri Lanka 2022
Source: Author
Data Source: (Central Bank of Sri Lanka, n.d.)

Proposed Conceptual Framework and discussion:

Contextualized Conceptual Framework usually include conceptual elements (theoretical concepts, key variables and relationships), contextual variables (local socio-economic context, legal and institutional set up, other geography specific factors), practical insights (local knowledge and case study demonstrations), and tailored application. Contextualized conceptual frameworks are utilized in various disciplines to adapt theoretical concepts to specific situations, thus boosting the relevance and efficacy of solutions.

The overall contextualized conceptual framework is demonstrated in Figure 06 of the article. Given the literature published on the subject, as indicated in the preceding section, it is important to investigate the conceptual elements already identified in the literature. The contextual conceptual framework is essential when investigating the implications of online shopping for the contextual reasons including the unavailability of City-level data on online retailing operations, including transaction and client details.

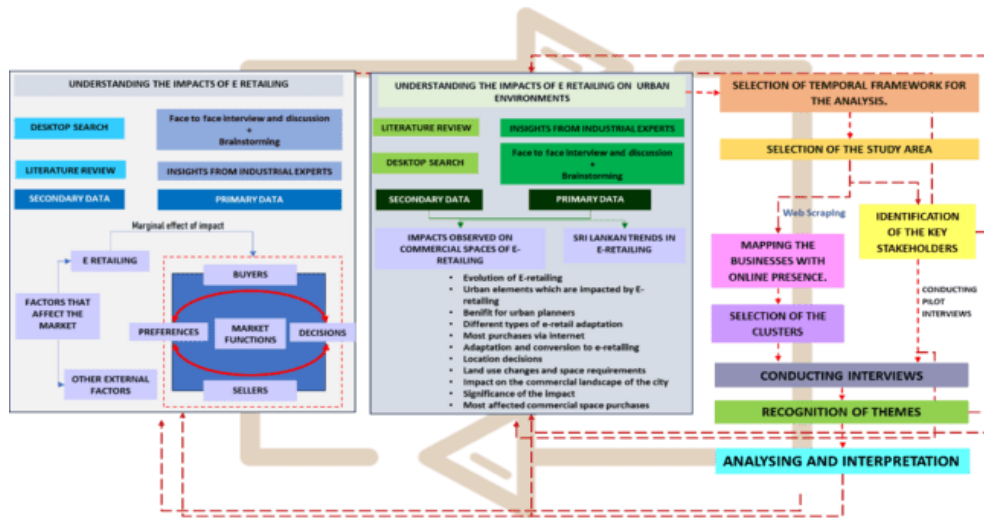


Fig. 6: Conceptual framework to analyse the impacts of E-retailing in Sri Lankan Cities.

Source: Author

The framework further incorporates a narrative analysis method incorporated by involving and recognising themes and coding, then a thorough a comprehensive questionnaire surveys and stakeholder interviews. To enable thorough examination, the data is sorted and classified according to the context of the area.

The preceding section will produce a step wise demonstration of proposed framework by considering Batticaloa city as a case study.

Step 01: Understanding the supply and spatial distribution of existing E-Retailing and businesses have an online presence to understand the e-commerce clusters.

Big data collecting methods prove useful in obtaining information about the locations and numbers of enterprises with an online presence. Web scraping techniques are used to collect secondary geolocation data on online businesses to efficiently map and evaluate the geographic dispersion of these organizations. This data-gathering method is critical for understanding how land use and demographic factors influence the spatial distribution of enterprises in Sri Lanka's small and medium-sized cities. The study uses two Chrome extensions, Web Scraper, and Map Scraper, to collect and arrange data on firms with an online presence. Alternative data extraction tools like API also would be of help in extracting data and is more efficient.

The ezGeocode plugin is used to geocode the acquired location data, improving the accuracy of spatial analysis. This extensive dataset serves as the foundation for an analysis and important insights into the subtle impacts of e-retailing on these cities' business areas. Once the individual locations have been mapped, the data set is used to analyse spatial distribution trends (figure 7).

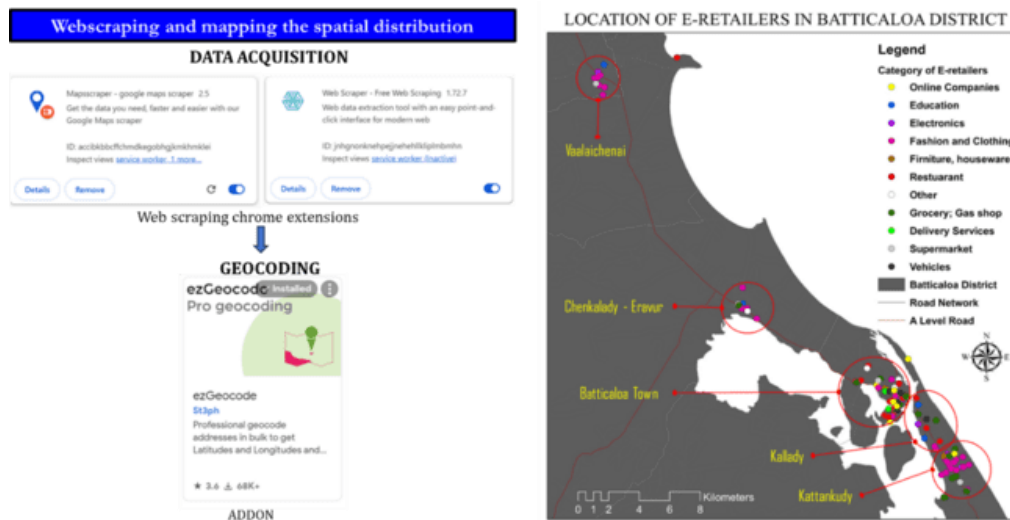


Fig. 7: Usage of plugins and addon to map out the e- retailing clusters (demonstration with Batticaloa city)
Source: Author

Step 2: Identification of key actors (providers and users)

This research centres on the parties that are either directly or indirectly involved in or impacted by the e-market, such as brick-and-mortar stores, Omni channel stores, online retailers, and small- and medium-sized city dwellers in Sri Lanka. These stakeholders were chosen for inclusion in the literature review chapter on the evolution of e-retailing, considering their significance to the research and the evolution of retailers' technological adaptability.

The common stakeholders who are directly affected by E-retailing emergence, are namely brick and mortar retailers, Omni channel retailers, e-retailers, and the customers. The stakeholders in each context may differ from city to city considering each of its significance. It may include logistics influences, real estate developers, and owners of commercial real estate establishments (figure 4).

Step 3: Recognition of Themes and Coding

Following the first round of pilot interviews, themes were derived for the narrative analysis, and key terms were coded. These codes aid in the organization and classification of data, making it easier to analyse and understand study results.

1. Brick-and-mortar retailers: The informal interview series with the brick-and-mortar businesses strives to elucidate the intricate dynamics of their operations in the context of a developing retail market, notably with the rise of e-retailing.
 - Operational Background: The duration of brick-and-mortar shop operations is a primary topic, offering insights about the establishment's longevity in the market, as well as defining the target market and determining the sort of company performed.
 - Foot Traffic and Sales Evolution: Understanding changes in foot traffic and sales across different periods (before 2009, 2009-2019, and 2020- now) is critical for

identifying patterns, and space requirements and responding to external influences.

- Adapting to E-Retailing: Initiatives made to remain competitive in the face of e-retail expansion are discussed, highlighting the proactive actions taken by the brick-and-mortar shop, such as the implementation of digital initiatives, or potential collaborations to supplement the brick-and-mortar presence.
- Location Considerations: The factors that influence physical location selections are examined, giving insight into the decision-making process and how the benefits of online sales are matched with effective physical shop placement.
- Impact on Commercial Spaces: Observations on changes in demand for commercial spaces provide insight into the larger real estate market and impact shop placement and size choices.
- Challenges Faced: The firm's adaptation to changing retail dynamics highlights its challenges and measures taken for sustainability, showcasing its tenacity and adaptability in the face of these challenges.
- Customer Experience and future strategies: Improving the in-store experience to compete with online convenience demonstrates attempts to deliver a compelling customer journey.

2. Omni-channel retailers: Interviews with Omni channel retailers are intended to identify the convergence of online and physical strategy, investigating how organizations reconcile the physical and digital worlds, where how efficiently spaces are being managed, and their required built structures and strategies to make a smooth business-to-customer transition.

- Business Overview: Acquisition of information regarding information on the time of operation as well as the total size of the firm type of the business, and target population.
- Challenges and opportunities: Discuss the problems of transitioning to an omni-channel approach in the context of e-retailing. Identifying possibilities and benefits from implementing an Omni channel approach.
- Location Considerations: Exploring the aspects to consider while selecting a site for physical presence, if any. Balancing the benefits of Internet sales with strategically placed physical businesses.
- Covid's Impact: Sharing tips on starting an online presence and exploring the influence of COVID-19 on both online and offline businesses.
- Impact on commercial spaces: Examining variations in commercial space demand as e-retailing grows in the city. Discussing any physical presence expansions or shrinking in response to e-retail developments and required other infrastructures and complementing land uses.
- Future trends: Providing insights on how future e-retailing trends may affect the need for commercial space in the city. Anticipating new developments or changes in the merging of online and physical retail experiences.
- Customer Preferences: Providing insight into customers' preferences for online versus in-store buying.

2. Online retailers: This segment delves into the intricacies of online businesses, examining growth patterns, customer interactions, space requirements, infrastructure, and the role of digital platforms in commercial spaces.

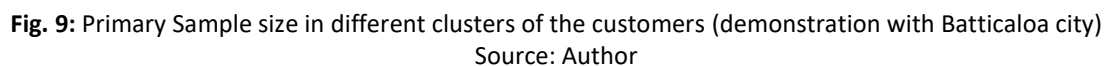
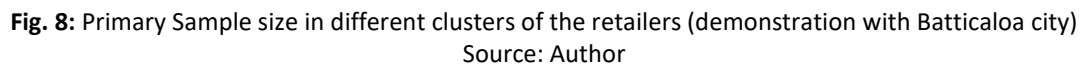
The primary data is acquired by an online questionnaire survey where the survey was shared with multiple people who are from the locality. The following aspects were the focal points of this survey.

- Business review: A quick review of the e-retailing business, including its nature, length, and online presence. Identifying the business's target group.
 - Time Series Talk: Online presence, business development, and COVID-19's influence on order volume.
 - Impact on commercial spaces: Exploring the demand for physical commercial spaces in the business and how they vary over time. Evaluating the perceived usefulness of having a physical store and reflecting on the decision to focus on online commerce.
 - Future development Trends: Exploring how e-commerce development will impact commercial space demand. Identifying key geographical locations to anticipate rising demand for commercial premises.
 - Customer Preferences: Insights of customers' preferences for online vs in-store buying.
 - E-presence inside their supply chain: Inquiring about the presence of e-retailers among their suppliers and knowing the company's position on this matter.
3. Customers: The study utilizes interviews with consumers to understand their preferences, habits, and motives in e-retailing, providing valuable insights for examining the influence of e-retailing on traditional commercial venues and forecasting future trends. The interview is focused on the below segments to derive insights.
- Shopping habits: The preference for online shopping over traditional shopping, as well as variables influencing choice and product categories.
 - Importance of physical stores: The importance of physical storefronts in decision-making, as well as preferences for in-store purchasing over online choices for certain items or services.
 - Covid Impact: The impact of the COVID-19 pandemic on shopping patterns, notably in malls, as well as post-pandemic purchasing preferences.
 - Impact on the Local Economy: Beliefs about how the rise of e-commerce has influenced the availability and accessibility of business premises in the city.
 - Preferences for Integration: Consumer preferences and expectations for the integration of online and physical retail experiences, as well as strategies for merchants to improve the entire shopping experience.
 - Feedback on Retail scene: Appreciation or areas missing in the existing retail scene.
 - Satisfaction level or preference of purchase: Focuses on the preferred goods and services to be obtained online.

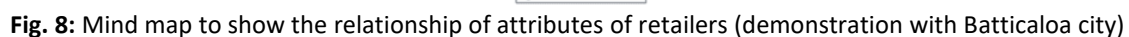
These interviews were conducted by using both face to face surveys and online questionnaire surveys (using google form).

Step 4: Selecting and sampling and sample sizes.

The suggested sample sizes should strike a balance between obtaining required and enough data for analysis and meeting practical constraints like time duration. By modifying sample sizes based on city size, resources, and research objectives, the study can effectively capture the dynamics of e-commerce and its impact on commercial spaces in Sri Lanka's small and medium cities.



After the interview series was finished, the data analysis by determining the emphasized attributes throughout the interview series. The mind map is a useful tool that helps with interpretation and highlights patterns in the data during analysis. This methodical technique makes it easier to comprehend the interview results in their entirety. Every mind map functioned as a graphic depiction of the connections between the attributes and their matching codes.



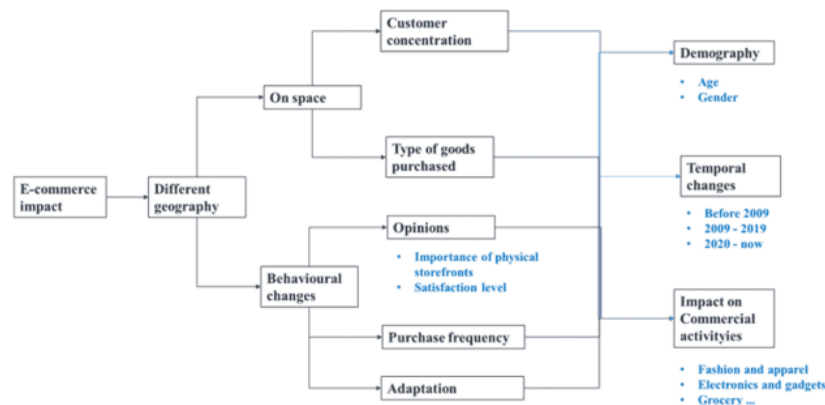


Fig. 9: Mind map to show the relationship of attributes of customers (demonstration with Batticaloa city)
Source: Author

Some of different analysis methods opted for this research are,

Thematic Analysis:

Thematic analysis is the process of detecting, analysing, and reporting patterns (themes) within data sets. This strategy is especially beneficial for qualitative data gathered through interviews and open-ended survey responses. The procedure begins with familiarization with the data, then moves on to generate initial codes, search for themes, review themes, define and name themes, and create the final report. Thematic analysis is adaptable and can be used with numerous types of qualitative data to provide a complete, nuanced representation of the data. It may find complicated patterns and insights and is relatively simple to understand and use, making it accessible to researchers of all levels of skill. However, this method might be subjective and reliant on the researcher's interpretation, and it is time-consuming and labour intensive.

Content Analysis

Content analysis systematically categorizes and quantifies qualitative data, making it applicable to a variety of data sources such as textual, visual, and audio content. The steps are to define the coding frame, segment the data, code the data, analyse the coded data, and interpret the results. This approach can handle enormous amounts of data efficiently and supports both qualitative and quantitative analysis. It can detect the frequency of themes and patterns across time, resulting in a clear, systematic approach to data analysis. However, content analysis can be reductive, ignoring underlying meanings and complexities. To achieve reliability, well-defined coding frames are required, and there is a risk of researcher bias in coding and interpretation.

For example, in a case study narrative analysis of retailers in Batticaloa, several key themes and codes were identified through the pilot interviews to organize and interpret the data. Themes such as mobility, spatial setting, geographic differences, and Adapting to E-Retailing emerged as central to understanding how these businesses have navigated the evolving retail landscape. For instance, codes under the Adapting to E-Retailing theme, like Digital Initiatives and Collaboration with Online Platforms, reveal how traditional retailers are integrating digital strategies to remain competitive. These codes help structure the data, allowing for a more nuanced analysis.

Narrative Analysis

Through an examination of the narratives' structure, substance, and context, participants' stories and accounts are examined in narrative analysis. The procedures entail finding narratives in the data, examining the content and structure of narratives, deciphering their importance, and meaning, and contrasting narratives from various individuals. Rich, intricate personal experiences and viewpoints are captured via this technique, offering insights into the dynamics and background of individuals' lives. It draws attention to how intricate and related all experiences are. Nevertheless, narrative analysis is subjective and depends largely on the interpretive abilities of the researcher, making it difficult to compare across different narratives. The choice of the method of analysis influenced by several factors, including the objectives of the study and the nature and the type of the data collected.

Conclusion

This study offers a thorough conceptual framework for analysing how e-retailing affects urban environments, particularly in Sri Lanka's small and medium-sized cities. The framework offers an organized method for comprehending the complex ramifications of e-retailing, with the goal of bridging the significant gaps of study. Through the integration of several methodological tools, such as mixed research methodologies and big data analysis, the study seeks to bridge the gap in localized research and offer insights into the urban changes resulting from e-retailing. The contextualized conceptual framework is centred on the distinctive qualities of Sri Lankan cities and how their digital environments are changing. It includes actions like e-retailing cluster mapping, key stakeholder identification, theme recognition and coding, and in-depth data analysis using thematic, content, and narrative approaches.

The framework designed here is replicable and adaptable to various contexts, particularly in small and medium sized towns in Sri Lanka. By examining the key criteria affected by e-retailing through diverse analytical tools and methods, the framework can be effectively applied and adjusted to different contexts, enhancing its applicability and relevance. Future research may apply the proposed framework in unravelling the impacts of e-commerce on Small and medium sized settlements in Sri Lanka, where conventional data is unavailable or inaccessible.

References

- Kinsey, E. W., Hecht, A. A., Dunn, C. G., Levi, R., Read, M. A., Smith, C., Niesen, P., Seligman, H. K., & Hager, E. R. (2020). School closures during COVID-19: Opportunities for innovation in meal service. In *American Journal of Public Health* (Vol. 110, Issue 11, pp. 1635–1643). American Public Health Association Inc. <https://doi.org/10.2105/AJPH.2020.305875>
- Sarkis, J., Cohen, M. J., Dewick, P., & Schröder, P. (2020). A brave new world: Lessons from the COVID-19 pandemic for transitioning to sustainable supply and production. In *Resources, Conservation and Recycling* (Vol. 159). Elsevier B.V. <https://doi.org/10.1016/j.resconrec.2020.104894>
- Beckers, J., Weekx, S., Beutels, P., & Verhetsel, A. (2021). COVID-19 and retail: The catalyst for e-commerce in Belgium? *Journal of Retailing and Consumer Services*, 62. <https://doi.org/10.1016/j.jretconser.2021.102645>
- Korala, S. K. D. M. D., & Fernando, P. I. N. (n.d.). *BUSINESS TO BUSINESS (B2B) E-COMMERCE ADOPTION AND ORGANIZATIONAL GROWTH FOOD AND BEVERAGE SECTOR, SRI LANKA*. <https://ssrn.com/abstract=3907875>
- Wigand, R. T. (1997). Electronic commerce: Definition, theory, and context. *Information Society*, 13(1), 1–16. <https://doi.org/10.1080/019722497129241>
- Zhang, D., Zhu, P., & Ye, Y. (2016). The effects of E-commerce on the demand for commercial real estate. *Cities*, 51, 106–120. <https://doi.org/10.1016/j.cities.2015.11.012>

Zhang, P., & Li, N. (2002). *CONSUMER ONLINE SHOPPING ATTITUDES AND BEHAVIOR: AN ASSESSMENT OF RESEARCH*. <https://www.researchgate.net/publication/2557074>

Mokhtarian, P. L. (2004). A conceptual analysis of the transportation impacts of B2C e-commerce. *Transportation*, 31(3), 257–284. <https://doi.org/10.1023/B:PORT.0000025428.64128.d3>

Philip Kotler, & Gary Armstrong. (2017). *Principles of Marketing*. https://opac.atmaluhur.ac.id/uploaded_files/temporary/DigitalCollection/ODljY2E4ODIyODViZjFkODgzNDUxYWZINWFhZmY2MGE5MDc0ZDVmYWw=.pdf

Graham, S., & Marvin, S. (1999). Planning Cybercities? Integrating Telecommunications into Urban Planning. In *Source: The Town Planning Review* (Vol. 70, Issue 1). <http://www.jstor.orgURL:http://www.jstor.org/stable/40113530>

Borsuk, M. (1998). Retailer leasing strategy for a wired world. *The Space Place Paper*.

Salomon, I. (1986). Telecommunications and travel relationships: a review. *Transportation Research Part A: General*, 20(3), 223-238.

Baen, J. S. (2000). The effects of technology on retail sales, commercial property values and percentage rents. *Journal of Real Estate Portfolio Management*, 6(2), 185-201.

Winograd, B., Conner, P., Liang, Y., & Whitaker, W. (2000). Conjectures on the impact of technology on real estate. *Real Estate Finance*, 17(2), 11-20.

Worzala, E. M., McCarthy, A. M., Dixon, T., & Marston, A. (2002). E-commerce and retail property in the UK and USA. *Journal of Property Investment & Finance*, 20(2), 142-158.

Muhanna, W. A., & Wolf, J. R. (2002). The impact of e-commerce on the real estate industry: Baen and Guttery revisited. *Journal of Real Estate Portfolio Management*, 8(2), 141-152.

Weltevreden, J. W., & RIETBERGEN, T. V. (2007). E-SHOPPING VERSUS CITY CENTRE SHOPPING: THE ROLE OF PERCEIVED CITY CENTRE ATTRACTIVENESS. *Tijdschrift voor economische en sociale geografie*, 98(1), 68-85.

Dixon, T., & Marston, A. (2002). UK retail real estate and the effects of online shopping. *Journal of Urban Technology*, 9(3), 19-47.

McClatchey, J., Cattell, K., & Michell, K. (2007). The impact of online retail grocery shopping on retail space: a Cape Town case study. *Facilities*, 25(3/4), 115-126.

Weltevreden, J. W. J., & Rietbergen, T. Van. (2009). The implications of e-shopping for in-store shopping at various shopping locations in the Netherlands. *Environment and Planning B: Planning and Design*, 36(2), 279–299. <https://doi.org/10.1068/b34011t>

Sendy Farag. (2003). *E-shopping and its interactions with in-store shopping*.

Farag, S., Weltevreden, J., van Rietbergen, T., Dijst, M., & van Oort, F. (2006). E-shopping in the Netherlands: Does geography matter? *Environment and Planning B: Planning and Design*, 33(1), 59–74. <https://doi.org/10.1068/b31083>

De Zylva, A., & Wignaraja, G. (2018). *Is Sri Lanka Sitting on the Bench of Asia's Booming Digital Economy? POLICY BRIEFS*. www.lki.lk

Gangewatta, I. I., Kuruppu, I. V., & Wijeratne, & D. U. S. (n.d.). *Factors Affecting Urban Consumer Intention towards Online Purchasing of Agricultural Commodities in Sri Lanka*.

Kaymu Lanka (PVT) Ltd. et al. (2023) *E-commerce: a driver of inclusive growth in Sri Lanka?* Kaymu Lanka (PVT) Ltd. https://slasscom.lk/wp-content/uploads/2023/12/Daraz-SLASSCOM-Ecommerce-Report-2023_Download.pdf.

Sri Lanka - eCommerce (2024). <https://www.trade.gov/country-commercial-guides/sri-lanka-ecommerce>.

Statistics Department (2023) *Provincial Gross Domestic Product (PGDP) - 2022*. https://www.cbsl.gov.lk/sites/default/files/cbslweb_documents/press/pr/press_pgdp_2022_e.pdf.

Visser, E., & Lanzendorf, M. (2004). Mobility and accessibility effects of B2C e-commerce: A literature review. *Transport Reviews*, 24(2), 189–205.

Xiao, Z. (2017). *Remaking urban logistics space: E-tailing and supply chain revolution in the case city of Shenzhen, China* (Master's thesis). The University of Hong Kong.

Hesse, M. (2004). Land for logistics: Locational dynamics, real estate markets and political regulation of regional distribution complexes. *Tijdschrift voor Economische en Sociale Geografie*, 95(2), 162–173. <https://doi.org/10.1111/j.0040-747X.2004.t01-1-00298.x>

National Physical Planning Department Sri Lanka. (n.d.). Retrieved September 3, 2024, from https://nppd.gov.lk/images/National_Physical_Plans/NPPP2050/National_Physical_Planning_Policy_and_Plan_-_2050.pdf#:~:text=The%20main%20objective

Central Bank of Sri Lanka. (n.d.). <https://www.cbsl.gov.lk/>

Salomon, I. (1986). Telecommunications and travel relationships: A review. *Transportation Research Part A: General*, 20(3), 223–238. [https://doi.org/10.1016/0191-2607\(86\)90096-8](https://doi.org/10.1016/0191-2607(86)90096-8)

Pettersson, F., Winslott Hiselius, L., & Koglin, T. (2018). E-commerce and urban planning: Comparing knowledge claims in research and planning practice. *Urban, Planning and Transport Research*, 6(1), 1–21. <https://doi.org/10.1080/21650020.2018.1428114>