

Exploring Consumer Acceptance of Refurbished Smart Phones in Sri Lankan Market: Circular Economy Adoption

Bandara W.M.H.P¹*and Ariyaratne. P.R.C.N²

¹Department of Management Sciences, Faculty of Management,
Uva Wellassa University, Badulla

²Department of Business Management, Faculty of Management Studies,
Sabaragamuwa University, Belihuloya

*Corresponding author: hasithapriyamal012@gmail.com

ABSTRACT

The circular economy is an emerging paradigm that promotes resource efficiency through sharing, leasing, reusing, repairing, refurbishing, and recycling. As environmental concerns intensify, economies worldwide are shifting from linear to circular models. Refurbishment, a key component of this transition, involves professional firms collecting, repairing, and reselling used products. However, the adoption of the circular economy remains underexplored in Sri Lanka. This qualitative study examines the factors influencing consumer acceptance of refurbished smartphones in Sri Lanka. Using ten semi-structured interviews with mobile phone consumers, the study employs thematic analysis to uncover key determinants, categorized into personal factors, perceived benefits, barriers, and risks. While Sri Lankan consumers generally prefer brand-new smartphones, they exhibit a stronger inclination toward refurbished devices over second-hand ones. These findings enhance the understanding of circular economy adoption in emerging markets and offer valuable insights for businesses and policymakers seeking to promote sustainable consumption.

Keywords: Circular Economy, Refurbishment, Smartphones

1. Introduction

The safe disposal of electronic waste (E-waste) has become a growing concern for many countries. E-waste contains hazardous materials that pose significant risks to both human health and the environment (Peluoala, 2016). Traditionally, the global economy has followed a linear model, characterized by continuous expansion and resource consumption (Kirchherr et al., 2023). This model prioritizes resource extraction and production, ultimately leading to waste generation rather than focusing on sustainable practices such as recycling and reuse. In contrast, the Circular Economy (CE) presents a paradigm shift aimed at reducing, reusing, recycling, and recovering materials to slow down, close, and narrow resource and energy loops (Graces Ayerbe et al., 2019). The CE model offers a sustainable alternative to the linear model by fostering environmental benefits while maintaining a positive relationship with economic systems (Ghisellini et al., 2016). As a result, the concept of CE has gained increasing traction among academics, businesses, and government institutions worldwide.

A key principle of CE is extending the lifespan of products and materials through regeneration and restoration, thereby minimizing waste (Vidal-Ayuso et al., 2023). However, in industries driven by rapid technological advancements, such as the mobile phone market, consumer behavior often leads to shortened product lifecycles. The constant emergence of new mobile phone models influences consumer preferences, reducing the perceived utility of existing devices (Thavalingam & Karunasena, 2016). Consequently, mobile phone E-waste has become a significant global challenge. According to the WEEE Forum, there are approximately 16 billion mobile phones in use globally, with over 5 billion expected to become E-waste in a single year (World Economic Forum, 2022). Within the CE framework, extending product lifespan through refurbishment is a viable strategy for addressing this issue. Mobile phone refurbishment involves restoring used devices to a specified working condition in both form and function, thereby reducing E-waste generation (Hazelwood & Pecht, 2021).

In Sri Lanka, an estimated 45–50% of the population owns a smartphone (GSMA Intelligence, 2023). The country's smartphone market is highly dynamic, experiencing frequent fluctuations in demand and pricing. However, due to the ongoing economic downturn, many Sri Lankans are unable to afford the latest high-end smartphone models (Ikman.lk, 2023). As a result, the demand for second-hand and refurbished smartphones has surged, creating a growing market for these devices. Consumers in developing nations, including Sri Lanka, increasingly view refurbished smartphones as an affordable alternative that offers access to newer models at competitive prices (Hazelwood & Pecht, 2021). Understanding consumer purchasing behavior toward refurbished smartphones in Sri Lanka is, therefore, crucial for businesses and policymakers.

Digital literacy is another important factor influencing consumer behavior. According to the Census and Statistics Department, Sri Lanka's digital literacy rate increased to 42.4% in 2018, with the Western Province leading in adoption while other regions lag behind (Daily FT, 2019). Given the relatively high digital literacy in the Colombo district, this study focuses on consumers in this region. When selecting a sample to generalize findings, cultural, geographic, market, and demographic factors must be considered (Singhal & Tripathy, 2018). Additionally, consumer acceptance of refurbished products varies across cultural contexts, making it difficult to extrapolate findings from other nations to Sri Lanka (Van Weelden et al., 2016).

Research on consumer attitudes toward refurbished products remains in its early stages (Van Weelden et al., 2016). Further investigation is needed to understand real-world consumer responses toward refurbished products, particularly in emerging markets. This study contributes to the existing literature by examining the key factors influencing Sri Lankan consumers' acceptance of refurbished smartphones. These factors are categorized into three broad themes: advantages, obstacles, and risks. Accordingly, this research addresses the following problem statement: "What factors influence consumer acceptance of refurbished smartphones in the Colombo district of Sri Lanka?"

2. Literature Review

2.1 Circular Economy in Sri Lanka

The circular economy is becoming more and more popular worldwide because of environmental pollution. In Sri Lanka, there has been a discernible rise in e-waste over the last 20 years, and future growth is anticipated (Ranasinghe et al., 2019). It is evident, then, that Sri Lanka is having issues as a result of the large amount of e-waste that is building up in the country's economy. However, emerging countries such as India, Brazil, Bangladesh, Sri Lanka, Bhutan, and China are struggling to successfully implement remanufacturing and refurbishment processes (Govindan et al., 2016). The majority of Asian nations including Sri Lanka are having difficulties in implementing circular economy principles like refurbishment and remanufacturing practices within the economy.

2.2. Advantages of adopting the Circular Economy

Adopting a circular economy gives several benefits to the economy as well as to the environment. A lot of nations and organizations are currently concentrating on CE strategies to make efficient use of resources to get rid of unsustainable ways of production and consumption (De Los Rios & Charnley, 2017). Reduction in carbon and greenhouse gas emissions is one of the main advantages of adopting circular consumption (Chaudhary et al, 2015). In addition, recycling-focused supply chains are more expensive but also have greater environmental advantages. Improvement of human health due to less pollution in the circular economy is another advantage of circular consumption (Sagarbossa & Russo, 2017). One method for implementing the circular economy concept is extending the product's life cycle. Regaining value from old products and encouraging a change to a more sustainable consumption model that reuses valuable resources and produces less trash are two major benefits of the circular economy (Ellen MacArthur Foundation, 2012). Thus, it can be stated that the circular economy provides several advantages for both the national economy and the environment.

2.3. Barriers to the circular economy's adoption

Many obstacles exist when it comes to integrating circular consumption into an economy. The biggest obstacles to the circular economy include the need for increased financial support from the government, difficulties establishing an efficient circular supply chain, financial difficulties brought on by consumer behavior, and difficulties in redesigning products (Holly et al., 2023). Government support is essential to implement circular economic practices within a country. High investment related to circular economy practices is another barrier. The majority of Asian nations including Sri Lanka are having difficulties in implementing circular economy practices within the economy because of the above barriers.

2.4. Consumer purchase Intention of Buying Smartphones.

Since smartphones first became widely available in the 1990s, the industry has experienced some of the greatest growth rates, with over three billion users globally (Aytekin, Ayaz, & Tüminçin, 2019). Purchase intention is the deliberate decision made by customers to select goods or services, and it can be triggered when they feel that a company is meeting their expectations in terms of appearance or attitude (Spears and Singh, 2004). Wang et al. (2013)

found that purchasing attitude, perceived behavioral control, subjective norm, and product knowledge all have a direct impact on purchase intention. Customers prefer a reputable brand when purchasing a new phone to minimize the risks associated with the purchase and remove the instability brought on by the variety of phones available on the market (Surucu et al., 2020). This study is based on a theoretical model of consumer decision-making developed by E. Van Weelden et al. (2015). This model uses multiple steps to illustrate the decision-making process of consumers. In the initial response stage, it shows the factors that influence to show the interest of consumers towards a certain product. In the orientation phase, consumers decide on alternatives to satisfy their unfulfilled needs. In the orientation phase, consumers identify the barriers to their purchasing decisions. Finally, in the evaluation phase, customers evaluate the risks and benefits of purchase decisions before purchasing the product. Following an assessment of the risks and rewards, they will consider purchasing the product.

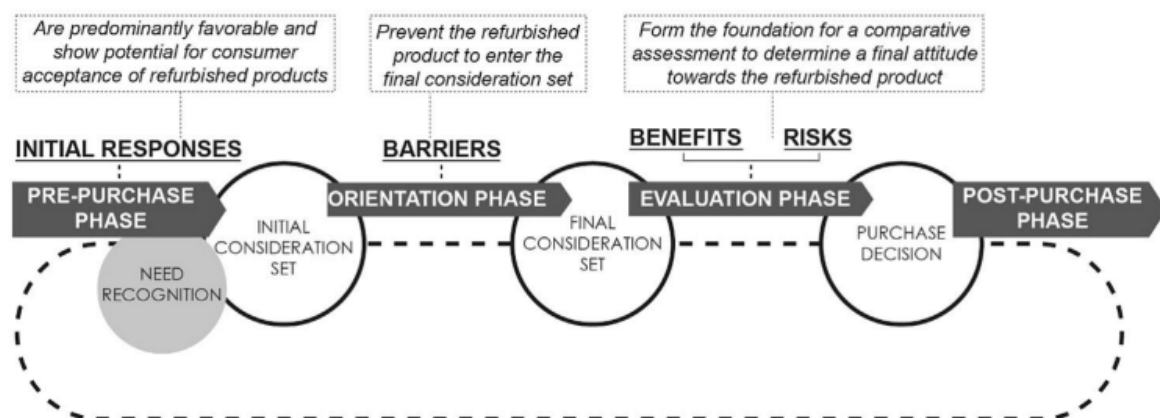


Fig .01. Model of the consumer decision-making process of refurbished mobile phones (Based on E.Van Weelden et al., 2015)

2.5. Theoretical Background

The Theory of Planned Behavior can be applied to understand the factors influencing the purchase intention for any product. According to the Theory of Planned Behavior, behavioral intention is influenced by attitude, social norms, and perceived control (Singh et al., 2017). Attitude is defined as a psychological emotion with a positive or negative evaluation of individual behavior (Singh et al., 2017). Using the model in the initial response stage, researchers assessed whether consumers accept refurbished smartphones. Through this assessment, the researcher determined whether consumers hold a positive or negative attitude toward refurbished smartphones. Before buying refurbished smartphones, consumers weigh the pros and cons. If the benefits outweigh the drawbacks, they are more likely to purchase because of the positive attitude towards the refurbished smartphones. A subjective norm is defined as the degree of perceived social pressure in the execution of any behavioral action (Azjen,1991).According to Bristol and Mangleburg (2005), peer influence refers to the degree to which peers impact an individual's attitudes, thoughts, and behaviors. Therefore, Consumer purchasing decisions are directly influenced by peer opinions. Thus, in this study, the

researcher is applying the Theory of Planned Behavior to examine the consumer decision-making process for purchasing refurbished smartphones using the model mentioned above.

Product life extension of smartphones

The topic of CE has recently gained popularity among academics and practitioners. Regaining value from old products and encouraging a change to a more sustainable consumption model that reuses valuable resources and produces less trash are two major benefits of the circular economy (Ellen MacArthur Foundation, 2012). In CE, prolonging a product's life is a workable way to cut down on e-waste within an economy. Within the framework of the circular economy, refurbishing is a method that holds great promise for achieving high original value retention rates by extending the life cycle of the product. This leads to a reduction of mobile phone E-waste within an economy.

2.6. Refurbished Smartphone Market

Refurbishment is the procedure by which an expert business gathers discarded goods and fixes them to a satisfactory and functional state before selling them to new customers (Rathore et al., 2011). According to future predictions, consumption of refurbished products will increase by USD 97.2388 Billion in 2023 to USD 262.1891 Billion by 2032 (Market Research Future, 2023). Therefore, it's clear that refurbishment is an emerging consumer behavioral pattern in the whole world. Refurbishment is a more affordable and socially responsible way of creating low-end product versions for customers (Weelden et al., 2016). Purchasing a refurbished smart phone provides more advantages for the customers such as the affordability of high-end products at lower prices. Major Smartphone manufacturers, telecom providers, and numerous more third parties offer refurbished devices (Hazelwood et al., 2021). Consumers who buy reconditioned devices in developing nations have access to comparatively newer smartphones at attractive prices (Hazelwood et al., 2021). Since Sri Lanka is also a developing country, consumers can purchase refurbished branded smartphones for significantly lower price points.

2.7. Smartphone market in Sri Lanka

There are frequent fluctuations and changes in the Sri Lankan smartphone market. However, a significant percentage of the population is unable to afford the newest and most expensive smartphone models available because of the economic downturn in the country (ikman. lk, 2023). As a result, the intriguing trend of the used smartphone market reaching unprecedented heights has emerged lately (ikman. Lk, 2023). The market for used smartphones in Sri Lanka is currently rising. Sri Lanka's smartphone sector is expected to generate \$0.7 billion in revenue by 2024 and it is expected to expand by 4.60% per year (CAGR 2024-2028) (Statista, 2024). Therefore, there is an increasing trend of purchase of smartphones in the Sri Lankan context and the smartphone industry is a highly growing sector in the world.

Furthermore, Sri Lanka has also undergone a rapid increase in the generation of mobile phone waste (Thavalingam & Karunasena, 2016). Therefore, policymakers need to take necessary actions to reduce mobile phone e-waste within the country. According to the CE

principle, the use of refurbished products is a viable way of reducing e-waste in an economy. Also, by adhering to circular economy principles like refurbishment, Sri Lanka can contribute to the global circular economy goals to preserve the environment. In response, (Wastling et al., 2018) claimed that the role of the consumer in CE should be questioned and has yet to be completely investigated. Thus, more research is needed to uncover consumers' responses toward the purchase of refurbished products in an actual market setting (van Weelden et al., 2016).

Therefore, this research intended to explore the factors that affect the consumer acceptance of refurbished smartphones by Sri Lankan consumers in the Colombo district. Under that researcher uncovered the personal factors of mobile phone consumers that contribute to the acceptance of the refurbished mobile phones in the Sri Lankan context. Additionally, the researcher identified obstacles, advantages, and risks linked to Sri Lankan consumers' acceptance of refurbished mobile phones. Refurbishment is a way of prolonging the life cycle of smartphones and its circular economy principle which reducing the E-waste. Mobile phone E-Waste is a huge concern for the whole world as well as for Sri Lanka. The adoption of circular economy principles like refurbishment is a must to reduce environmental pollution. In this study, the researchers uncovered the consumer's attitude toward the acceptance of refurbished smartphones in the Sri Lankan context from the consumer's perspective.

3. Methodology

Qualitative research is mostly used to generate knowledge and comprehend respondents' experiences, expectations, and preferences (Anderson, 2023). Therefore, the primary goal of this study is to investigate the factors that contributed to a rise in the purchase intention of refurbished mobile phones in the Sri Lankan setting. The phenomenology approach is used to find the consumer perceptions regarding the purchase intention of the consumers. This study utilized ten semi-structured in-depth interviews to explore customer intentions for purchasing refurbished products, aligning with the exploratory objective of the research because in-depth interviews yield valuable insights into consumers' thoughts and experiences (Patton, 2002). Lincoln and Guba (1985) suggest that the sample size should be determined based on the principle of informational redundancy, meaning sampling can cease when no new insights are obtained from further participants. The researchers conducted 10 interviews to check whether there were new findings regarding the research objectives. Respondents' profiles are attached below. Therefore, after interviewing eight respondents, researchers reached saturation point.

Table 1: Demographic details of respondents

Respondent No	Gender	Home Town
01	Male	Homagama
02	Male	Borella
03	Female	Kottawa
04	Male	Dehiwala
05	Male	Rajagiriya
06	Male	Nawala

07	Female	Moratuwa
08	Female	Homagama
09	Male	Kelaniya
10	Male	Ratmalana

Source: Authors Own Creation

Furthermore, researchers used interview questions adopted from existing literature to interview the respondents. Finally, Interviews are transcribed into documents and thematic analysis is used to analyze the data. The interviews were conducted in both Sinhala (2 interviews) and English (6 interviews), with the Sinhala interviews being translated into English. The researchers identified 12 codes and created 4 themes, which were then categorized under different stages of the consumer decision-making process for refurbished smartphones.

4. Data Analysis

In this chapter, the researcher is focused on finding answers to the research questions. This study addresses three questions. The first question is focused on identifying the benefits of purchasing refurbished mobile phones, and the second research question addresses the obstacles that consumers experience when purchasing refurbished mobile phones. The final research question concerns the potential risks of purchasing refurbished mobile phones. The study is based on the model developed by E. Van Weelden et al. in 2015.

Table 2: Coding Table

Theme	Open Codes	Consumer Purchase decision stage
Personal Factors	Brand Loyalty	Pre-Purchase Stage (Initial Evaluation)
	Lack of originality of Product	
	Environmental Consideration	
	Peer Reviews and Social Media Reviews	
Obstacles to a purchase decision	Lack of awareness	Final Consideration (Orientation Phase)
	Lack of trust over smartphone retailers	
Advantages	Price	Purchase Decision (Evaluation Phase)
	Warranty	
	Connection to the original Manufacturer	
	Fewer Defects	
Risks	Performance Risk	Purchase Decision (Evaluation Phase)
	Unethical Practices of Smartphone shop owners	

Source: Authors Own Creation

Pre-purchase Phase- Initial Response

During the initial reaction stage, we can determine whether consumers accept refurbished Smartphones or not. The interviewed respondents expressed their ideas as follows:

Acceptance of Refurbished Smartphones

"Since I need the product to be original, I would rather buy a brand-new smartphone than a refurbished one." (Respondent 2)

"Purchasing a refurbished smartphone is very safe as compared to a used one, as refurbished phones come with a significant extended warranty period." (Respondent 01)

"I would go for the refurbished smartphone because I don't have money to buy a brand-new smartphone" (Respondent 06).

Personal Factors

Consumers' initial purchasing decisions are influenced by their personal opinions. Consequently, customers' personal opinions have a direct impact on their purchase decisions. The following are some of the personal factors uncovered by the researchers in this study that influence customer purchase decisions.

1. Brand Loyalty

The perception of the brand determines consumer acceptance of refurbished mobile phones. Some consumers choose to buy refurbished mobile phones from their favored brand rather than those from other brands.

"I will always choose an Apple phone over another mobile phone if I want to purchase a refurbished smartphone". (Respondent 1).

"If I'm going to purchase a refurbished smartphone, I prefer Apple smartphones over Android smartphones because I don't think the Android refurbished smartphones are reliable—there could be issues with the device." (Respondent 02)

Based on the above opinions, the majority of respondents choose to buy refurbished Apple iPhones over Android smartphones due to brand loyalty. Many respondents reject Android refurbished devices due to a lack of trust in them.

2. Lack of originality of the product

The company is replacing some parts of refurbished mobile phones because of defects. Some people opt not to purchase refurbished devices because they wish to use the phone in its original condition.

"Due to the addition of additional components to the mobile phone, the product lacks originality. Because of this, I would rather get a new smartphone than a refurbished one to retain the original features and the experience." (Respondent 2)

Based on the opinions expressed above, it is apparent that some people prefer the product's originality and dislike the transformation process that occurs during refurbishment.

3. Environmental Consideration

E-waste is a massive global concern. Most countries are implementing circular economy principles. The refurbishment process is also tied to the circular economy notion, as it minimizes E-waste and helps to preserve the environment. Some respondents like to contribute to this environmental preservation by buying refurbished smartphones.

"These smartphones help to lessen the world's increasing e-waste. So, I want to do my part to protect the environment and lessen e-waste".(Respondent 02)

"It is beneficial to recycle batteries and other components rather than throwing them into the environment. As a result, the refurbishment procedure helps to preserve the environment by reducing E-waste within the country".(Respondent 04).

4. Peer Reviews and Reviews in social media

The majority of respondents prefer to consider another person's prior experience when acquiring a refurbished smartphone. They consider social media remarks on the smartphone as well as the shop, which have a significant impact on the respondents' purchasing decisions.

"If I decide to acquire a refurbished smartphone, I will look into my friends' previous experiences with refurbished cellphones. I'd like to take them with me to the store if I'm going to buy a reconditioned smartphone."(Respondent 05)

"I would like to do my own research regarding the product which is intended model of smartphone and shop by using social media like YouTube, Facebook, and Instagram "(Respondent 06)

Final Consideration – Orientation Phase

If the customer chooses to proceed with the refurbishment product after completing the first stage, they will evaluate the obstacles to implementing the purchasing decision.

Obstacles

1. Lack of awareness

Most individuals are unaware of the availability of refurbished mobile phones and do not know where to get one in Sri Lanka. The story of smartphone refurbishing is not well-known among smartphone buyers. Respondents shared the following opinions on the above factors.

"Until now I didn't have the awareness related to the refurbished smartphones in the market."

"I'm not sure if Sri Lanka has stores that sell refurbished smartphones."(Respondent 02).

"I don't know a specific shop to buy a refurbished smartphone in Sri Lanka. People don't know the real story behind the refurbished smartphones in the market." (Respondent 01).

2. Lack of trust over smartphone retailers

Smartphone purchasers don't trust smartphone sellers because of their unethical practices. Some participants expressed the view that smartphone retailers sell refurbished phones at brand-new prices without revealing about the refurbishment.

"I don't trust Sri Lankan smartphone shop vendors because they might offer refurbished phones for sale at brand new prices." (Respondent 02).

"Some smartphone members sell the repaired products as brand-new products at a brand-new price and it's an illegal thing". "By using the IMEI number, we can track refurbished smartphones." (Respondent 08).

While some respondents are aware that the smartphone's IMEI number can be used to determine whether it has been refurbished, some smartphone purchasers are unaware of this technique.

Purchase Decision-Evaluation Phase

During this phase, buyers assess the advantages and risks of their purchasing decision. Here, smartphone buyers evaluate the benefits and risks of purchasing refurbished models in comparison to new and used models. If the benefits exceed the risks, they make the final purchase choice.

Advantages

1. Price

When compared to a brand-new smartphone, refurbished smartphones are substantially less expensive. Electronic product prices increased as a result of Sri Lanka's economic recession prevailing in the country. Therefore, smartphone buyers can save money by buying a refurbished smartphone rather than a brand-new one. Respondents expressed their opinions on the above factor as follows:

"The cost of mobile phones is high due to Sri Lanka's economic recession, but purchasing a refurbished smartphone can save you 10% to 15% on costs." (Respondent 01).

"Buying refurbished mobile phones allows me to purchase a phone at a lower price point." (Respondent 02).

"Advantages of purchasing a refurbished mobile phone include cost savings...." (Respondent 03)

2. Warranty

The refurbished mobile phones are attached to the manufacturer and come with a manufacturer warranty, which is an advantage of purchasing a refurbished smartphone over a used smartphone. The below opinions are expressed by the respondents.

"The refurbished devices are still linked to the manufacturer and come with a warranty. Consequently, I believe that purchasing refurbished smartphones is preferable to purchasing secondhand smartphones without a warranty".(Respondent 01).

"One benefit of buying a refurbished smartphone is that we can have a warranty period for them. Most used devices do not come with a warranty period like this".(Respondent 03).

3. Connection to the original manufacturer

The original manufacturer is in charge of the smartphone's refurbishing process. Therefore, the trust in the smartphone is high due to the original manufacturer's involvement. Respondents expressed their opinion over the above factor as follows.

"For example, if I purchase a refurbished Apple smartphone, there is still a high level of trust in the product because it is still tied to the original manufacturer".(Respondent 05)

4. Fewer defects in refurbished smartphones

Refurbished smartphones may have fewer problems than used mobile devices because the original manufacturer is involved in the repair process. The respondents expressed their opinions as follows:

"When we buy used mobile phones from someone, we are unaware of defects in them. Some people hide their mobile phones' defects to sell them. Refurbished phones are company-certified phones, so we can obtain a considerable time as a warranty for the phone, but the warranty for used phones is only valid for a short period".(Respondent 01).

"We will receive a device that is thoroughly tested and a device in brand new condition."(Respondent 07)

Some people prefer to buy a refurbished smartphone since the phone is in better condition than a used smartphone.

Risks

1. Performance risk

There is a greater chance of having defects with refurbished smartphones compared to buying a brand-new smartphone. These are the opinions presented by the respondents.

“There is a significant risk when buying a refurbished smartphone because I'm not sure what kind of defects and problems caused the refurbishment. “Except for Apple iPhones, I don't ‘trust other brands refurbished devices” (Respondent 06)

Therefore, some respondents prefer to buy brand-new smartphones rather than refurbished devices. Consumers perceived refurbished products as being of lower quality products. So, they are refraining from buying those products.

2. Unethical practices of smartphone shop owners

The majority of respondents do not trust the opinions of smartphone shop dealers due to their fraudulent actions.

“Some smartphone members sell the repaired products as brand-new products at a brand-new price and it's an illegal thing”. “By using the IMEI number, we can track refurbished smartphones.”(Respondent 08).

"Before acquiring a refurbished smartphone, I would like to do my own research on the model I'm going to buy because I don't want to be fooled by the smartphone store owner.”(Respondent 06).

Some respondents are aware of tracking the refurbished smartphone by using the IMEI number. Because of unethical actions by smartphone shop owners, the majority of respondents increased their knowledge of the smartphone they intend to purchase.

Most of the respondents are unaware of the circular economy concepts. However, some of them have a fundamental understanding of the circular economy concept and principles.

“I don't know about circular economy and principles related to the circular economy.”(Respondent 01).

“According to my opinion circular economy means a system where resources are used efficiently, products are reused or recycled, and waste is minimized”. (Respondent 03)

“Yes, I'm familiar with the circular economy principles, which include designing out waste and pollution, keeping products and materials in use, and regenerating natural systems” (Respondent 03)

Therefore, it is obvious that smartphone buyers have little awareness of Circular Economy principles.

5. Results and Discussion

In this study, the researcher revealed the smartphone steps of purchasing decision using the model of E. Van Weelden et al., (2015) and discovered that in this process, the refurbished smartphone purchaser evaluates the purchasing decision in several stages before making the final purchasing decision. In the pre-purchasing stage, consumers consider personal factors before going for a final purchasing decision. Personal aspects include brand loyalty, product originality, environmental considerations, peer reviews, and social media remarks. In the second stage Final Consideration- Orientation phase, smartphone buyers consider the barriers influencing the purchasing decision. In this research researcher found the following factors as barriers. The factors are a lack of awareness about refurbished smartphones and trust in smartphone retailers. The study of E Van Weelden et al, 2015, shows that the majority of consumers do not purchase refurbished equipment due to a lack of information and misunderstanding of what refurbishing entails. During the purchasing decision-evaluation phase, the refurbished smartphone buyer will conduct a risk-benefit analysis. The researcher identified price advantage, warranty, connection to the original manufacturer, and fewer defects as benefits of purchasing a refurbished smartphone. According to Xu et al. (2017), remanufactured products are 30% to 40% less expensive in China. In this research also researcher found the above two factors as advantages of purchasing refurbished smartphones. Researchers identified the performance risk and unethical practices of smartphone shop owners as the potential risks of purchasing refurbished smartphones. According to Wang et al., 2013, performance risk is identified as a risk of purchasing refurbished products. Consumers make a purchasing decision if the advantages outweigh the risks. Another important result of this study is a lack of consumer awareness of the circular economy and related concepts.

6. Theoretical and Practical Implications

The circular economy has not been widely recognized in Sri Lanka. As a result, this study aims to investigate the factors influencing customer acceptance of refurbished smartphones in the Colombo district in Sri Lanka. People in South Asian countries are not aware of the circular economy principles. Refurbishment is one of the main Circular economy concepts that reduces the E-Waste within a country. Research in consumer response related to the acceptance of refurbished smartphones in the early stages specifically in South Asian countries including Sri Lanka. The findings of the other contexts do not apply to the Sri Lankan context due to cultural differences, geographical differences, and consumer preferences. Hence, the purpose of this study was to contribute completely to new knowledge regarding the circular economy to the current literature from the perspective of smartphone consumers in Sri Lanka. Therefore, this research uncovered the advantages, obstacles, and risks of accepting refurbished smartphones by Sri Lankan consumers. The study emphasizes the importance of consumer approval in promoting reuse and extending product lifecycles, which aligns with circular economy ideas to promote sustainable consumption within the country.

Every year, millions of electronic items are discarded as a result of manufacturing defects or obsolescence. Therefore, E-waste is a global issue in today's context. Circular Economy concepts are gaining traction in today's economy as a result of global warming and

pollution. Most countries throughout the world are transitioning to a circular economy. The people of Sri Lanka are unaware of the circular economy concept. Refurbishment is a circular economy idea that extends the product life cycle while reducing environmental pollution through the reuse of existing resources and reducing the demand for natural resources. This will reduce environmental pollution by slowing down the replacement cycle. Sri Lankan consumers are unaware of the refurbished smartphones available in the Sri Lankan market. The findings of the study provide some understanding regarding the circular economy concepts and advantages, barriers, and potential risks of acceptance of refurbished smartphones. Mobile phone E-waste is a major concern for Sri Lanka as well. Policymakers in Sri Lanka also need to adopt circular economy principles like refurbishment to reduce Mobile phone E-waste in the country by promoting refurbished products. The Sri Lankan government can have contracts with smartphone vendors to establish refurbished facilities in Sri Lanka to promote refurbishment as well to earn income for the economy. However, to prevent unethical practices by smartphone retailers, the government must implement suitable legislation to manage this industry. Policymakers can encourage refurbishment and reuse by implementing supportive rules such as quality requirements and incentives. Furthermore, Refurbished mobile phones in Sri Lanka offer practical benefits, especially in affordability, sustainability, and digital access. With high import costs and economic challenges, they provide a budget-friendly option for those who need modern technology at a lower price. This is particularly helpful for students, low-income groups, and small business owners who rely on smartphones for learning, communication, and work.

7. Conclusion

This study intended to determine the consumer acceptability rates of refurbished mobile phones in the Sri Lankan setting. The refurbishment is a circular economy principle, and it extends the product life cycle. The circular economy is an emerging concept, and many economies are transitioning to circular economies. In this study, the researcher utilized the model of E. Van Weelden et al.'s (2015), consumer decision-making model to investigate the factors influencing the adoption of refurbished smartphones during various decision-making phases. During the initial reaction stage, personal factors impact the decision to buy refurbished smartphones. Brand loyalty, product originality, environmental considerations, peer review, and social media comments are all personal aspects that impact purchasing decisions. In the final consideration-orientation stage, consumers consider the barriers to the purchasing decision of refurbished smartphones. During the final consideration-orientation stage, consumers consider the obstacles to purchasing refurbished smartphones. Lack of awareness, and trust over the smartphone retailer are the obstacles to the purchase decision of refurbished smartphones. In the purchase decision stage, consumers evaluate the risks and advantages of purchasing refurbished smartphones. The advantages of purchasing refurbished mobile phones are price, warranty, connection to the original manufacturer, and fewer defects when compared to second-hand devices. The risks of purchasing refurbished smartphones are performance risks and unethical practices of smartphone owners. Most of the respondents choose brand-new smartphones over refurbished smartphones. However, respondents prefer to purchase refurbished smartphones over second-hand smartphones. The majority of respondents are

unaware of the circular economy and associated concepts, and others have a fundamental understanding of the concept.

References

- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179–211. [https://doi.org/10.1016/0749-5978\(91\)90020-T](https://doi.org/10.1016/0749-5978(91)90020-T)
- Anderson, J. (2023). Head, heart, and hands: A qualitative thematic analysis comparing the learning and transformation of remote vs. in-person experiential service-learning opportunities for teens. *Community Engagement Student Work*. Retrieved from https://scholarworks.merrimack.edu/soe_student_ce/91/
- Aytekin, A., Ayaz, A., & Tumincin, F. (2019). Investigation of smartphone usage of students of university. *International Social Research and Behavioral Sciences Symposium*, 298–305.
- Bristol, T., & Mangleburg, T. F. (2005). Not telling the whole story: Teen deception in purchasing. *Journal of the Academy of Marketing Science*, 33(1), 79–95. <https://doi.org/10.1177/0092070304267990>
- Chaudhary, S., McGregor, A., Houston, D., & Chettri, N. (2015). The evolution of ecosystem services: A time series and discourse-centered analysis. *Environmental Science and Policy*, 54, 25–34. <https://doi.org/10.1016/j.envsci.2015.04.025>
- De los Rios, I. C., & Charnley, F. J. S. (2017). Skills and capabilities for a sustainable and circular economy: The changing role of design. *Journal of Cleaner Production*, 160, 109–122. <https://doi.org/10.1016/j.jclepro.2016.10.130>
- DailyFT. (2023, November 11). *Digital literacy reaches 42.4% in SL*. <https://www.ft.lk/Front-Page/Digital-literacy-reaches-42-4-in-SL/44-692233>
- Ellen MacArthur Foundation. (2012). *Towards the circular economy: Business rationale for an accelerated transition*. Ellen MacArthur Foundation. https://www.ellenmacarthurfoundation.org/assets/downloads/publications/EMF_Towards-the-Circular-Economy_2012.pdf
- Garcés-Ayerbe, C., Rivera-Torres, P., Suárez-Perales, I., & del Mar Izquierdo-Lacruz, D. (2019). Is it possible to change from a linear to a circular economy? An overview of opportunities and barriers for European small and medium-sized enterprise companies. *International Journal of Environmental Research and Public Health*, 16(5), 851. <https://doi.org/10.3390/ijerph16050851>
- Ghisellini, P., Cialani, C., & Ulgiati, S. (2016). A review on circular economy: The expected transition to a balanced interplay of environmental and economic systems. *Journal of Cleaner Production*, 114, 11–32. <https://doi.org/10.1016/j.jclepro.2015.09.007>
- Govindan, K., Madan Shankar, K., & Kannan, D. (2016). Sustainable material selection for construction industry - A hybrid multi-criteria decision-making approach. *Renewable and Sustainable Energy Reviews*, 55, 1274–1288. <https://doi.org/10.1016/j.rser.2015.07.100>
- GSMA Intelligence. (2023). *The mobile economy 2023*. GSMA. <https://www.gsma.com/mobileeconomy/>
- Hazelwood, D. A., & Pecht, M. G. (2021). Life extension of electronic products: A case study of smartphones. *IEEE Access*, 9, 144726–144739. <https://doi.org/10.1109/ACCESS.2021.3121733>
- Holly, F., Kolar, G., Berger, M., Fink, S., Ogonowski, P., & Schlund, S. (2023). Challenges on the way to a circular economy from the perspective of the Austrian manufacturing industry. *Frontiers in Sustainability*, 4. <https://doi.org/10.3389/frsus.2023.1243374>

- Ikman.lk. (2023, January 18). *Sri Lanka mobile phone market 2023: Facts & figures*. <https://blog.ikman.lk/en/sri-lanka-mobile-phone-market-2023-facts-figures>
- Kirchherr, J., Yang, N. H. N., Schulze-Spüntrup, F., Heerink, M. J., & Hartley, K. (2023). Conceptualizing the circular economy (revisited): An analysis of 221 definitions. *Resources, Conservation and Recycling*, 194, 107001. <https://doi.org/10.1016/j.resconrec.2023.107001>
- Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry*. Sage Publications.
- Market Research Future. (2023). *Global refurbished electronic market overview*. Market Research Future. <https://www.marketresearchfuture.com/reports/refurbished-electronics-market-12333>
- Patton, M. Q. (2002). *Qualitative research & evaluation methods* (3rd ed.). Sage.
- Peluola, A. (2016). Investigation of the implementation and effectiveness of electronic waste management in Nigeria. *Modeling Earth Systems and Environment*, 2(2). <https://doi.org/10.1007/s40808-016-0155-1>
- Ranasinghe, W. W., & Athapattu, B. C. L. (2019). Challenges in E-waste management in Sri Lanka. In *Handbook of Electronic Waste Management: International Best Practices and Case Studies* (pp. 283–322). <https://doi.org/10.1016/B978-0-12-817030-4.00011-5>
- Rathore, P., Kota, S., & Chakrabarti, A. (2011). Sustainability through remanufacturing in India: A case study on mobile handsets. *Journal of Cleaner Production*, 19(15), 1709–1722. <https://doi.org/10.1016/j.jclepro.2011.06.016>
- Sgarbossa, F., & Russo, I. (2017). A proactive model in sustainable food supply chain: Insight from case study. *International Journal of Production Economics*, 183(1), 596–606. <https://doi.org/10.1016/j.ijpe.2016.11.010>
- Singhal, D., Tripathy, S., Jena, S. K., Nayak, K. K., & Dash, A. (2018). Interpretive structural modelling (ISM) of obstacles hindering the remanufacturing practices in India. *Procedia Manufacturing*, 20, 452–457. <https://doi.org/10.1016/j.promfg.2018.02.066>
- Singh, M. P., Chakraborty, A., & Roy, M. (2018). Developing an extended theory of planned behavior model to explore circular economy readiness in manufacturing MSMEs, India. *Resources, Conservation and Recycling*, 135, 313–322. <https://doi.org/10.1016/j.resconrec.2018.03.022>
- Spears, N., & Singh, S. N. (2004). Measuring attitude toward the brand and purchase intentions. *Journal of Current Issues & Research in Advertising*, 26(2), 53–66. <https://doi.org/10.1080/10641734.2004.10505164>
- Sürücü, L., & Maslakçı, A. (2020). Validity and reliability in quantitative research. *Business & Management Studies: An International Journal*, 8(3), 2694–2726. <https://doi.org/10.15295/bmij.v8i3.1540>
- Statista. (2024). *Smartphone market revenue in Sri Lanka from 2020 to 2024, with a forecast until 2028* [Statista report]. <https://www.statista.com/statistics/1105274/sri-lanka-smartphone-market-revenue/>
- Thavalingam, V., & Karunasena, G. (2016). Mobile phone waste management in developing countries: A case of Sri Lanka. *Resources, Conservation and Recycling*, 109, 34–43. <https://doi.org/10.1016/j.resconrec.2016.01.017>
- Thierry, M., Salomon, M., Van Nunen, J., & Van Wassenhove, L. (1995). Strategic Issues in Product Recovery Management. *California Management Review*, 37(2), 114–136. <https://doi.org/10.2307/41165792>
- Van Weelden, E. (2016). Paving the way towards circular consumption: Exploring the consumer acceptance of refurbished mobile phones in the Dutch market. *Journal of Cleaner Production*, 135, 61–70. <https://doi.org/10.1016/j.jclepro.2016.06.124>

- Vidal-Ayuso, F., Akhmedova, A., & Jaca, C. (2023). The circular economy and consumer behaviour: Literature review and research directions. *Journal of Cleaner Production*, 418, 137824. <https://doi.org/10.1016/j.jclepro.2023.137824>
- Wang, Y., Wiegerinck, V., Krikke, H., & Zhang, H. (2013). Understanding the purchase intention towards remanufactured product in closed-loop supply chains: An empirical study in China. *International Journal of Physical Distribution & Logistics Management*, 43(10), 866–888. <https://doi.org/10.1108/IJPDLM-04-2013-0131>
- Wastling, T., Charnley, F., & Moreno, M. (2018). Design for circular behaviour: Considering users in a circular economy. *Sustainability (Switzerland)*, 10(6). <https://doi.org/10.3390/su10061743>
- World Economic Forum. (2022, October). 5 billion cell phones will become e-waste this year. *World Economic Forum*. <https://www.weforum.org/agenda/2022/10/global-phone-technology-waste/>
- Xu, X., Zeng, S., & He, Y. (2017). The influence of e-services on customer online purchasing behavior toward remanufactured products. *International Journal of Production Economics*, 187, 113–125. <https://doi.org/10.1016/j.ijpe.2017.02.019>