



Toxics Link
for a toxics-free world

Stitch in Time

Evaluating Consumer Behaviour & Electronics Repair Accessibility



About Toxics Link

Toxics Link is an Indian environmental research and advocacy organisation set up in 1996, engaged in disseminating information to help strengthen the campaign against toxics pollution, provide cleaner alternatives and bring together groups and people affected by this problem. Toxics Link has a unique expertise in areas of hazardous, plastic, medical and municipal wastes, international waste trade, and the emerging issues of pesticides, Persistent Organic Pollutants (POPs), hazardous heavy metal contamination etc. from the environment and public health point of view. We have successfully implemented various best practices and have brought in policy changes in the aforementioned areas apart from creating awareness among several stakeholder groups.

Toxics Link's Mission Statement - "Working together for environmental justice and freedom from toxics, we have taken upon ourselves to collect and share both information about the sources and the dangers of poisons in our environment and bodies, and information about clean and sustainable alternatives for India and the rest of the world."

Acknowledgement

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LIST Of **ABBREVIATIONS**

EEE	Electrical and Electronic Equipment
DIY	Do it yourself
SMEs	Small and Medium Enterprises
NBM&CW	New Building Material and Construction World
ERSO	Electronics Repair Services Outsourcing
CMR	Cyber Media Research
SDGs	Sustainable Development Goals
FGDs	Focus Group Discussions

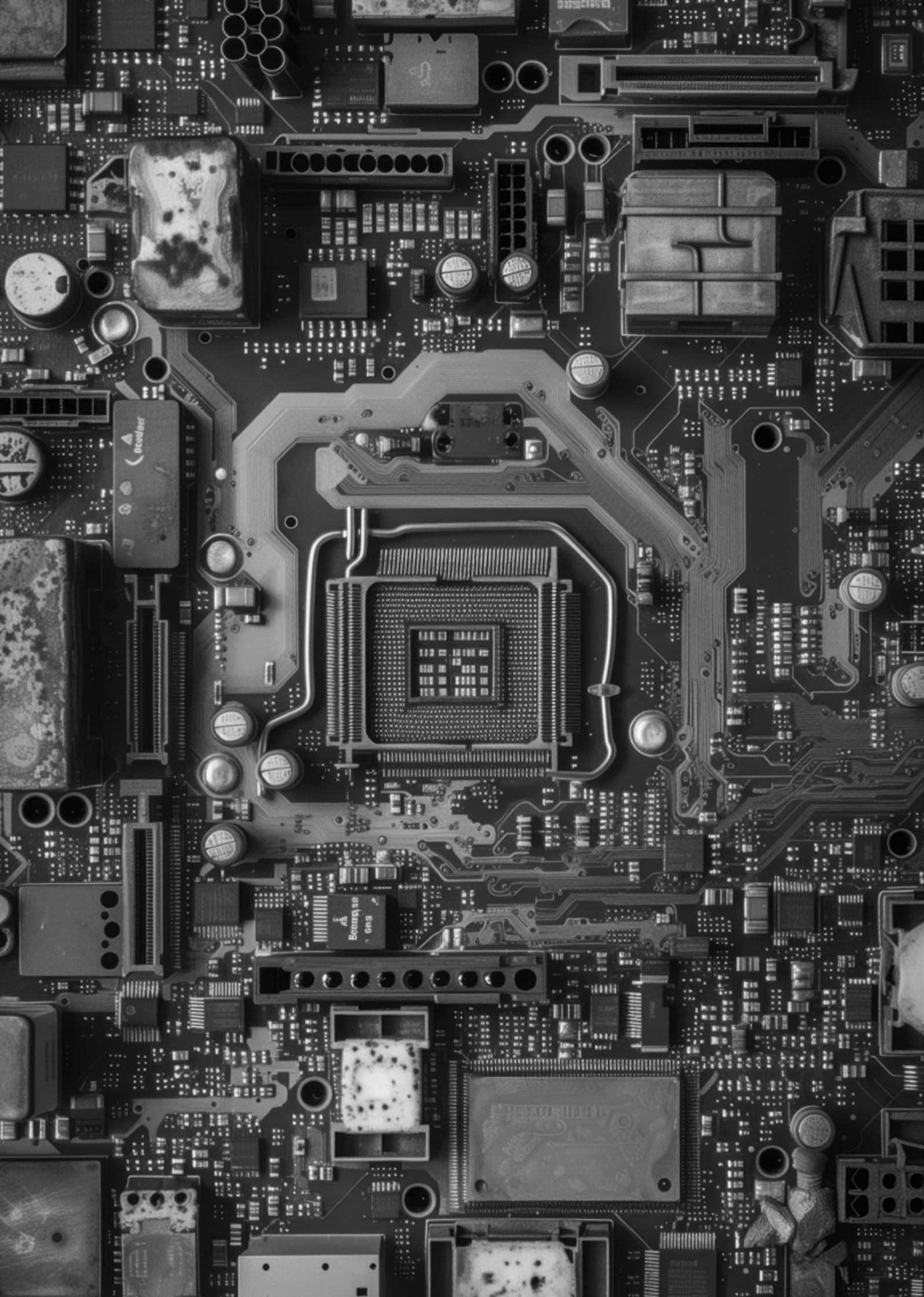


Executive Summary

The study explores the repair ecosystem for Electrical and Electronic Equipment (EEE) in India, emphasising its critical role in promoting sustainability and circular economy practices. Based on field research in five Indian cities—Delhi, Hyderabad, Nagpur, Ranchi, and Kolkata—the study combines focus group discussions with repair professionals and a consumer survey to assess current repair practices, challenges, and consumer behaviour.

Key findings highlight a widespread decline in repair culture due to factors like high costs and unavailability of spare parts, lack of formal training, and preference for replacement over repair—especially in higher income groups. Despite this, repair remains an essential option for many consumers, particularly in lower-income segments, due to cost-effectiveness and environmental concerns.

The report calls for structured training, improved access to genuine spare parts, supportive policies like Right to Repair, and public awareness to revive India's repair culture and reduce e-waste. Strengthening the repair sector aligns directly with several UN Sustainable Development Goals (SDGs), including responsible consumption, economic growth, and climate action.



BACKGROUND



1.1 The Growing Demand for Electronics: Balancing Convenience with Consequences

With the rapid growth of electronics industry, Electrical and Electronic Equipment (EEE) have become indispensable in various sectors, including healthcare, education, commerce, and entertainment. But advancements in technology and increasing consumerism have fuelled their frequent replacements, exacerbating environmental concerns. Consumers are increasingly drawn to new models and upgrades, with the “use-and-dispose” mindset weakening “repair culture” and increasing resource consumption.

This pursuit of convenience comes at a significant cost. The production of EEE relies heavily on valuable metals such as gold, copper, and rare earth elements. Their extraction is energy-intensive, contributing to environmental degradation, including soil erosion, habitat destruction, and water contamination. Additionally, excessive resource use accelerates depletion, threatening the long-term sustainability of the industry.

Improper e-waste disposal further compounds the problem by releasing toxic substances that pollute the environment, harm wildlife, and endanger human health. According to the United Nations Institute for Training and Research (2024), global e-waste is projected to reach a staggering 82 million tonnes by 2030.¹ This statistic underscores the urgency of addressing the e-waste crisis, which demands significant energy consumption during both production and disposal phases.

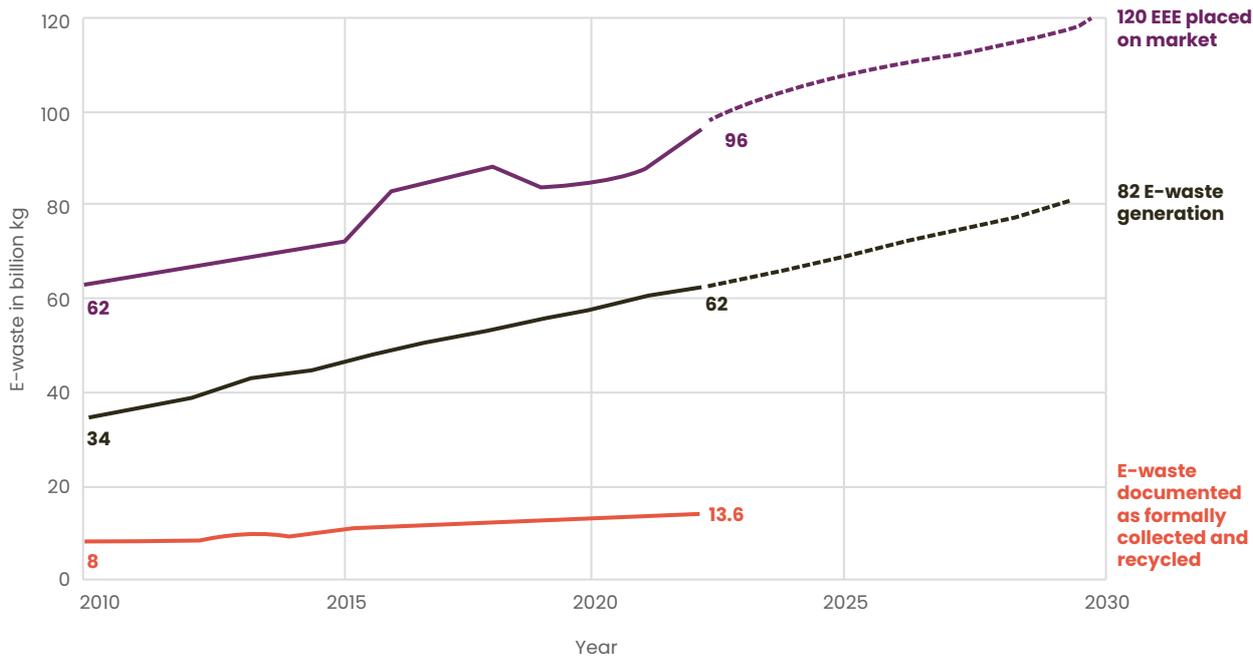
The rising global e-waste trend underscores the urgent need for strategies that mitigate environmental harm and promote resource conservation. As shown in Fig. 1, the widening gap between e-waste generation and low formal recycling rates poses a major sustainability challenge. Leading producers like the USA, China, and India must adopt tailored strategies to tackle this issue.²

India, the world’s third-largest e-waste generator in 2022 after China and the USA, produced 3.2 million tonnes.³ This surge is driven by rapid technological advancements that have shifted consumer habits. Economic growth has expanded digital access, but it has also encouraged frequent upgrades over repair, further exposing the gap between consumption patterns and sustainable waste management.

According to the United Nations Institute for Training and Research (2024), global e-waste is projected to reach a staggering **82 million** tonnes by 2030



Fig. 1: Overview of Market Trends in EEE from 2010 to 2030: E-Waste Generation and Recycling Efforts



Source: Goel, A., Masurkar, S. and Pathade, G.R., 2024. An Overview of Digital Transformation and Environmental Sustainability: Threats, Opportunities, and Solutions. Sustainability, 16(24), p.11079.

1.2 Repair as key strategy for Circular Economy

From resource depletion to an overwhelming increase in waste, the world is grappling with escalating environmental challenges. Among the emerging solutions, the circular economy stands out as a transformative approach. Unlike the traditional linear model of production and consumption, where goods are produced, used, and discarded, a circular economy emphasises the continuous use of resources through strategies such as reuse, remanufacturing and repair. Repair plays a crucial role in achieving circularity, particularly in the EEE sector.

Repair of EEE can be defined as the process of identifying and addressing faults in devices to restore their functionality.

Repairing EEE can range from fixing a broken part, such as a cracked phone screen, to resolving software glitches or even addressing cosmetic damage like scratches on a laptop. At its core, repair is a practical solution for extending the life of electronic products, reducing waste, and conserving resources. By choosing to repair rather than replace, we can mitigate the growing problem of e-waste while saving energy and raw materials used in manufacturing new products.⁴

In the EEE domain, repair helps delay devices from entering the waste stream. Prolonging the life of these products reduces the demand for new devices and, consequently, the consumption of raw materials. It also lowers the environmental impact of resource extraction and manufacturing while fostering a culture of sustainability that shifts mindsets from disposable consumption to responsible ownership. Beyond environmental benefits, repair also offers economic and societal advantages. It is often more cost-effective than replacement, making it a financially viable option for consumers. Additionally, the repair sector generates employment for skilled professionals who work with a wide range of devices, from household appliances to smartphones. A thriving repair industry supports local economies, promotes small businesses, and reduces reliance on imported goods.

Long before modern appliances were used extensively, India had a strong repair culture. Communities were self-reliant, relying on local expertise to fix items rather than replace them. This approach was not only a practical necessity but also embodied the Indian concept of *jugaad* (fixing things with limited resources) and innovative problem-solving. However, the 1990s brought profound changes as economic liberalisation and globalisation brought multinational brands into the market. With growing accessibility to electronic devices, consumer behaviour shifted, making replacement easier and more common than repair. This transition has contributed to the decline of repair culture and growing e-waste crisis.⁵

1.3 Classification of Repair Methods

Different types of repair methods play a crucial role in maintaining device functionality, extending product lifespan, and minimising waste. By addressing repair needs across various categories—corrective, preventive, or cosmetic—we can reduce the frequency of new purchases and lower resource consumption. Additionally, repairs can be classified based on the type of equipment, repair setting, and skills required. Understanding these repair approaches helps promote sustainability by making repairs more accessible, cost-effective, and efficient. Table 1 below categorises different repair methods and their role in fostering a more sustainable future.⁶

Table 1: Categories of repair methods and approaches

Category	Sub-Category	Description
Types of Repair Interventions (Based on purpose)	Corrective Repair	Fixes specific problems after a device malfunctions, like replacing a faulty power supply in a computer or heating element in a kettle. The aim is to restore functionality.
	Preventive Repair	Proactive repair to avoid potential issues, such as cleaning air conditioner filters or replacing worn-out parts before failure. Extends device lifespan and maintains efficiency.
	Cosmetic Repair	Addresses a device's appearance, like fixing dents or scratches. Improves aesthetics without affecting functionality, often increasing the product's resale value.
Equipment-Based Categories (based on type of device repaired)	Small Household Appliances	Includes devices like toasters, blenders and kettles, typically repaired for problems like motor failures or heating element malfunctions.
	Consumer Electronics	Includes gadgets like smartphones, laptops, and televisions. Common repairs involve screen damage, battery failures, or software issues.
	White Goods	Large household appliances like refrigerators and washing machines. Repairs usually involve mechanical or electrical problems such as motor malfunctions or coolant leaks.
	Industrial Equipment	Complex machinery used in manufacturing. Repairs require advanced expertise and specialised tools for intricate repairs to avoid operational disruption.
Repair Settings Based Categories (based on where repair occurs)	Formal Sector Repairs	Authorised repairs by service centres or manufacturers, using genuine parts and warranties. Ensures high quality and consumer trust, particularly for high-value items.
	Informal Sector Repairs	Independent technicians or small workshops offering affordable, accessible repairs. May face challenges like inconsistent quality and lack of genuine parts.
Skill-Level Based, Repair Based Categories (based on the skill required)	Do-It-Yourself (DIY) Repairs	Individuals perform basic repairs with online tutorials. Fosters self-reliance, reduces costs, and allows hands-on involvement.
	Professional Repairs	Requires specialised tools and expertise for complex issues. Ensures precision and reliability for high-value or technologically-advanced devices.

The escalating demand for electronics underscores the need for a balanced approach that integrates technological advancement with environmental responsibility. While innovation drives economic growth and digital accessibility, it also accelerates resource depletion and e-waste generation. To counter these challenges, sustainable strategies must extend beyond recycling to include proactive measures like repair, which can significantly reduce waste and resource consumption.



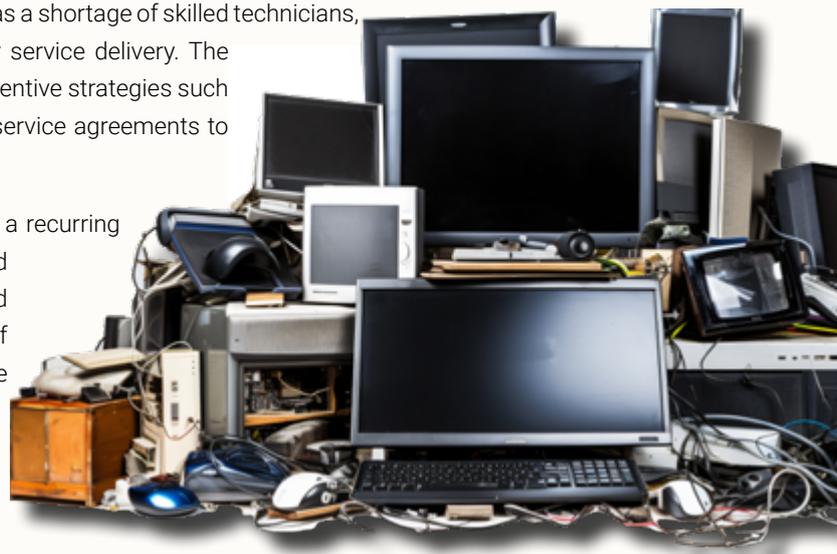
Reviving Repair: Insights from Research and Its Link to Sustainable Development Goals

2.1 Past studies

The repair industry in India has been explored through various studies, with a significant focus on its role in sustainability, economic development, and waste reduction. Among these, Toxics Link has been at the forefront of researching and advocating for the revival of India's repair culture. The 2023 report, *Circular Economy in Electrical and Electronics Sector*, critiques the prevalent emphasis on recycling as a solution to escalating e-waste volumes and argues for a more balanced approach that prioritises repair and reduction strategies.⁷ The study highlights how excessive reliance on recycling fails to address the root causes of e-waste and that integrating repair into waste management policies can significantly enhance environmental sustainability. Furthermore, an article in *Toxics Dispatch* (Toxics Link's newsletter), *Reviving India's Vanishing Repair Culture*, underscores the steady decline of repair practices in the country due to factors such as planned obsolescence, lack of access to spare parts, and shifting consumer preferences towards replacements.⁸ This publication calls for policy interventions and consumer awareness campaigns to re-establish repair as a mainstream practice, linking it directly to India's sustainability goals.

Beyond Toxics Link's contributions, a comprehensive literature review on maintenance practices in Indian Small and Medium Enterprises (SMEs), emphasised the critical role of repair in enhancing operational efficiency and product longevity.⁹ The study found that structured repair and maintenance strategies improve SME competitiveness in a globalised market. Similarly, a study examined service quality in India's retail repair and maintenance industry, which is estimated to be worth over \$10 billion and growing at a compound annual growth rate of 10%. Despite this growth, challenges such as a shortage of skilled technicians, lack of standardisation, and fraudulent practices hinder service delivery. The study suggests businesses and consumers to adopt preventive strategies such as verifying vendor credibility and establishing detailed service agreements to mitigate these issues.¹⁰

The unorganised nature of the repair industry in India is a recurring theme in literature. A report by New Building Material and Construction World (NBM&CW) discusses the fragmented structure of the construction sector, where a lack of standardised practices makes it difficult to estimate





\$20 billion
Government
plans to
generate from
the electronics
repair sector
over the next
five years,
aligning
with broader
environmental
sustainability
initiatives under
the “Lifestyle for
Environment”
policy.

the costs associated with repair, protection, and strengthening of structures.¹¹ The study underscores the urgent need to organise the repair market and implement regulatory oversight to address the growing demand for infrastructure maintenance. Similarly, a study on the Right to Repair (R2R) movement in India highlights the absence of strong legislative backing to ensure consumer rights in repair services. The study proposes a framework for R2R legislation, arguing that empowering consumers with access to repair manuals, spare parts, and independent service providers could significantly counteract planned obsolescence, reduce electronic waste, and promote sustainability.¹²

India’s electronics repair sector has been identified as a high-potential industry, particularly with the government’s Electronics Repair Services Outsourcing (ERSO) initiative, which aims to position India as a global hub for electronics repair. A report by CMR India (2023) highlights that the government plans to generate over \$20 billion in revenue from the electronics repair sector over the next five years, aligning with broader environmental sustainability initiatives under the “Lifestyle for Environment” policy.¹³ However, concerns remain regarding the accessibility of original spare parts and the dominance of manufacturers in the sector. In the automotive industry, a study analysing automobile service garages in India highlights similar challenges, including the unorganised nature of the sector, lack of standardisation, and inconsistent service quality. The study emphasises the need for training programmes and improved service standards to strengthen the automobile repair industry.¹⁴

The health risks associated with the repair sector have also been studied. A report published in the *Journal of Occupational Medicine* examined morbidity among automobile service and repair workers in India and found that workers are frequently exposed to hazardous chemicals, noise pollution, and ergonomic risks, leading to long-term health complications.¹⁵ The study highlights the urgent need for improved working conditions, proper health monitoring, and the implementation of occupational safety regulations to protect repair workers. These findings align with previous research highlighting the lack of awareness and enforcement of occupational health standards in India’s informal repair sector.



2.2 Repair and Sustainable Development Goals

The focus on strengthening the repair ecosystem in India aligns with multiple **United Nations Sustainable Development Goals (UN-SDGs)** by promoting resource efficiency, waste reduction, and economic sustainability. Specifically, this study supports the following SDGs:



SDG 8: Decent Work and Economic Growth – A well-supported repair sector can generate employment opportunities, particularly in the informal economy, where independent repair technicians play a crucial role. By formalising the sector and providing structured training under initiatives like Skill India Mission, India can create sustainable livelihoods while improving service quality.



SDG 9: Industry, Innovation, and Infrastructure – Encouraging manufacturers to design repair-friendly products and ensuring access to spare parts supports sustainable industrial practices. Policies like Right to Repair (R2R) can drive innovation in circular economy models, promoting a shift towards eco-friendly product design.



SDG 11: Sustainable Cities and Communities – E-waste poses a significant environmental threat in urban centres due to improper disposal methods, such as open dumping and informal recycling. A strengthened repair culture can help cities reduce landfill waste and promote sustainable urban resource management.

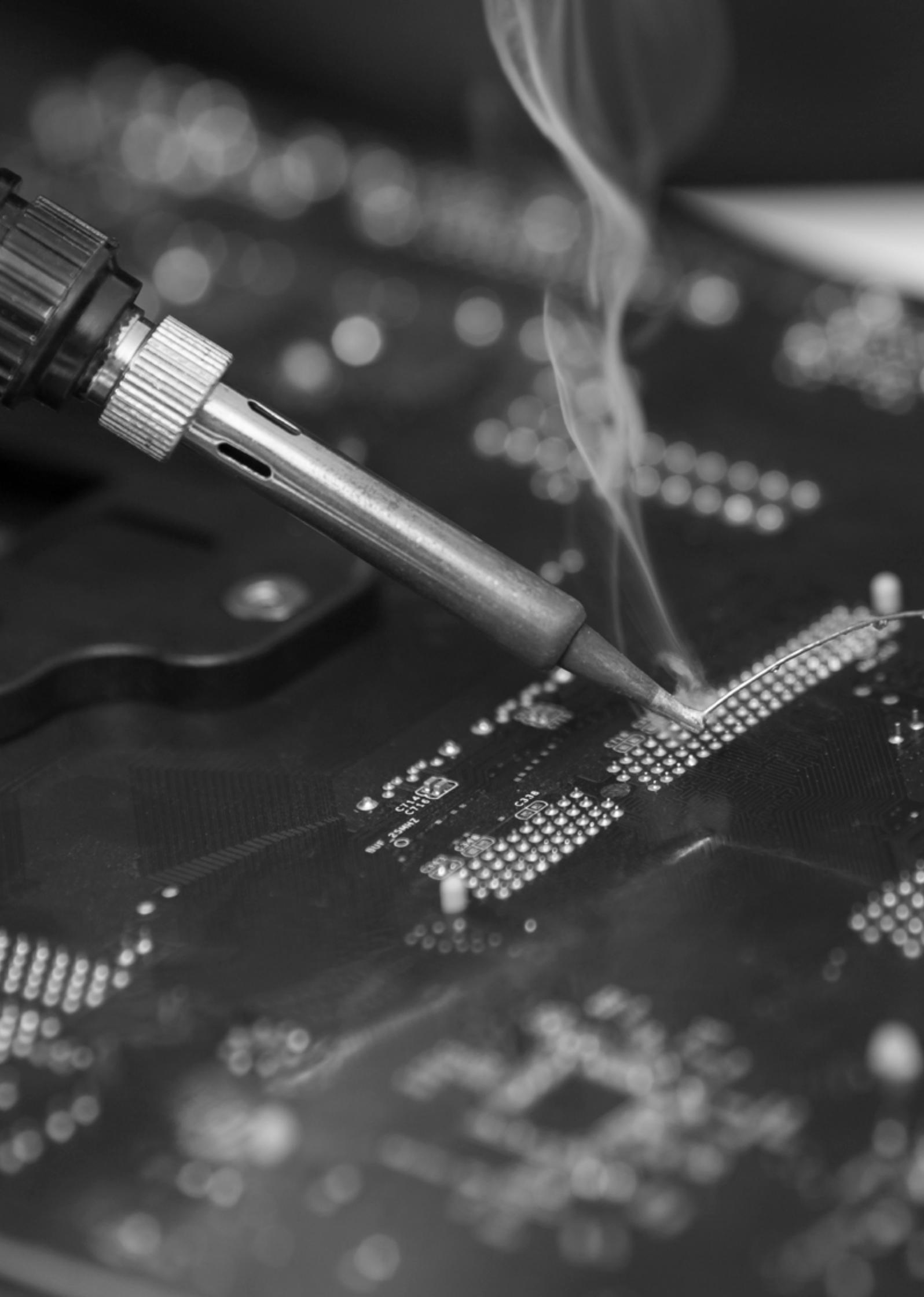


SDG 12: Responsible Consumption and Production – Repairability directly contributes to sustainable consumption patterns by extending the lifespan of electronic products, reducing material extraction, and minimising e-waste. Studies suggest that more than 80% of a smartphone's total carbon footprint comes from its production, highlighting the need for repair over replacement.^{16,17} Encouraging repair can significantly lower raw material consumption and energy use.



SDG 13: Climate Action – By reducing the demand for new electronic devices, repair helps cut greenhouse gas emissions associated with mining, manufacturing, and transportation. The European Environmental Bureau (2019) estimates that prolonging product life through repair can reduce carbon emissions by up to 50% per device.¹⁸





RATIONALE AND OBJECTIVES OF THE STUDY

3.1 Rationale of the study

India faces significant challenges in fostering a robust repair ecosystem, with affordability, accessibility, and regulatory support playing crucial roles. While repair is increasingly recognised as a key strategy for reducing electronic and appliance waste, systemic barriers limit its widespread adoption. Strengthening the repair sector can significantly contribute to resource efficiency, waste reduction, and India's transition towards a circular economy.

Despite the growing global emphasis on repairability and Right to Repair (R2R) policies, research on the economic, infrastructural, and behavioural dimensions of repair in India remains limited. A comprehensive understanding of the repair ecosystem—spanning industry practices, consumer attitudes, and policy frameworks—is essential for developing effective interventions.

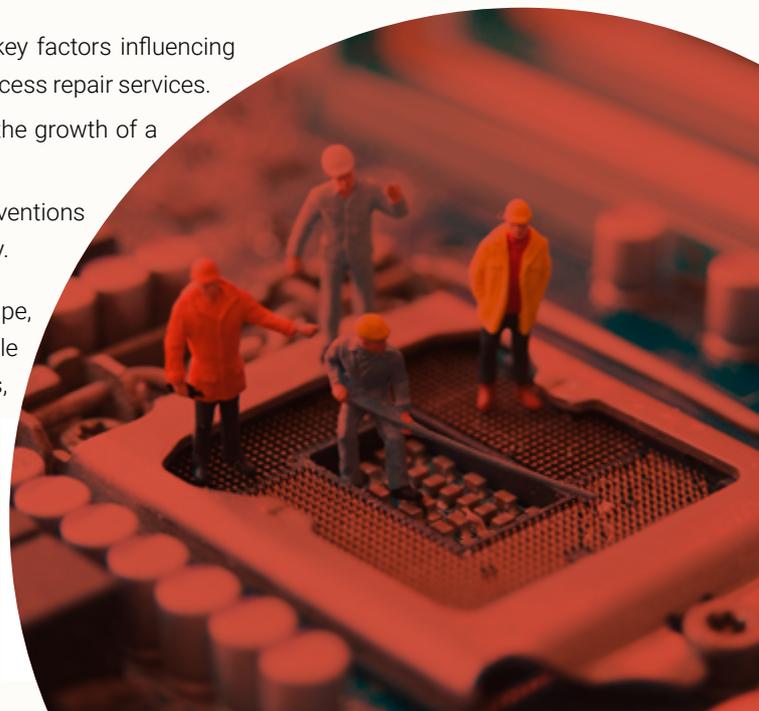
This study, a part of **Toxics Link's** initiative, aims to analyse and assess the repair landscape, focusing on the IT and household appliance sectors. By identifying the key challenges, highlighting policy gaps, and advocating for regulatory and industry reforms, the study seeks to strengthen both formal and informal repair networks, and position repair as a crucial pillar of India's circular economy transition.

3.2 Objectives of the study

- ➔ **Assess** the condition of repair facilities, workforce skill levels, and spare parts sourcing in the IT and household appliance sectors.
- ➔ **Understand** consumer attitudes towards repair, including key factors influencing repair decisions, affordability, accessibility and barriers to access repair services.
- ➔ **Identify** regulatory challenges and policy gaps that hinder the growth of a repair-friendly ecosystem.
- ➔ **Explore** policy frameworks and recommend strategic interventions needed to mainstream repair within India's circular economy.

This study provides a comprehensive analysis of India's landscape, identifying both barriers and opportunities to foster a sustainable repair culture. By reducing e-waste, extending product lifespans, and promoting environmental and economic benefits, the research underscores the critical role of repair in sustainable development.

Strengthening the **repair sector** can significantly contribute to resource efficiency, **waste reduction**, and India's transition towards a circular economy





STUDY AREA

The study focuses on five major cities in India: **Delhi, Hyderabad, Nagpur, Ranchi, and Kolkata**. These cities were chosen strategically to represent a diverse cross-section of urban centres, ensuring that the findings capture variations in repair practices, economic conditions, and consumer behaviour. The selection of these cities also reflects a mix of metropolitan and mid-sized cities, allowing for a comprehensive understanding of India's repair ecosystem. Figure 2 highlights different areas of study.

Figure 2: Map showing study areas (Delhi, Hyderabad, Nagpur, Kolkata and Ranchi)



These five cities were selected to ensure a balanced **representation of different urban economies and repair landscapes in India**



4.1 Study areas



Delhi (North India)

A Leading Hub for Electronics and E-Waste Management

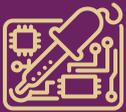
Delhi is one of India's largest markets for consumer electronics and serves as a key centre for both formal and informal repair sectors. The city has some of the busiest electronics markets in the country, with areas like Karol Bagh and Mohan Singh Market known for their repair businesses. Delhi's status as a leading e-waste contributor in India makes it a crucial location for studying how repair can help mitigate environmental impacts and reduce electronic waste. The presence of numerous independent repair businesses also allows for an in-depth analysis of repair accessibility and industry challenges.



Hyderabad (South India)

A Growing IT and Technology-Driven Economic Centre

Hyderabad, a major IT and technology hub in India, was selected due to its growing demand for electronic repairs, particularly in IT and household appliances. The city has a strong consumer electronics market, with well-established repair clusters such as in RP Road, where both formal and informal repair businesses operate. As a centre of technological innovation, Hyderabad provides valuable insights into how digital advancements influence consumer behaviour towards repair and replacement. Its rapidly expanding tech ecosystem makes it a prime location for assessing how repair can be integrated into a more sustainable, circular economy.



Nagpur (Central India)

A Representation of Tier-2 City Repair Markets

Nagpur was chosen to represent India's mid-sized, Tier-2 cities, where repair culture is evolving alongside rising electronic consumption. Unlike major metropolitan cities, Nagpur provides insights into how repair industries function in cities that are still developing their e-waste management and repair infrastructure. The city has an emerging market for electronic repairs, making it a relevant location for studying the growth potential of the repair sector in smaller urban centres. Its inclusion helps in understanding how repair practices vary outside of larger, more commercially dominant cities.



Ranchi (East-Central India)

A City with a Strong Repair Dependency

Ranchi represents smaller urban centres where repair is a crucial aspect of consumer behaviour. Many consumers in the city prefer repairing products over replacing them due to economic considerations. Ranchi's selection allows the study to explore how repair networks operate in cities with fewer brand-authorised service centres. The city also provides a valuable perspective on how informal repair sectors play a key role in ensuring access to affordable repair services, making it a crucial component of the study.



Kolkata (East India)

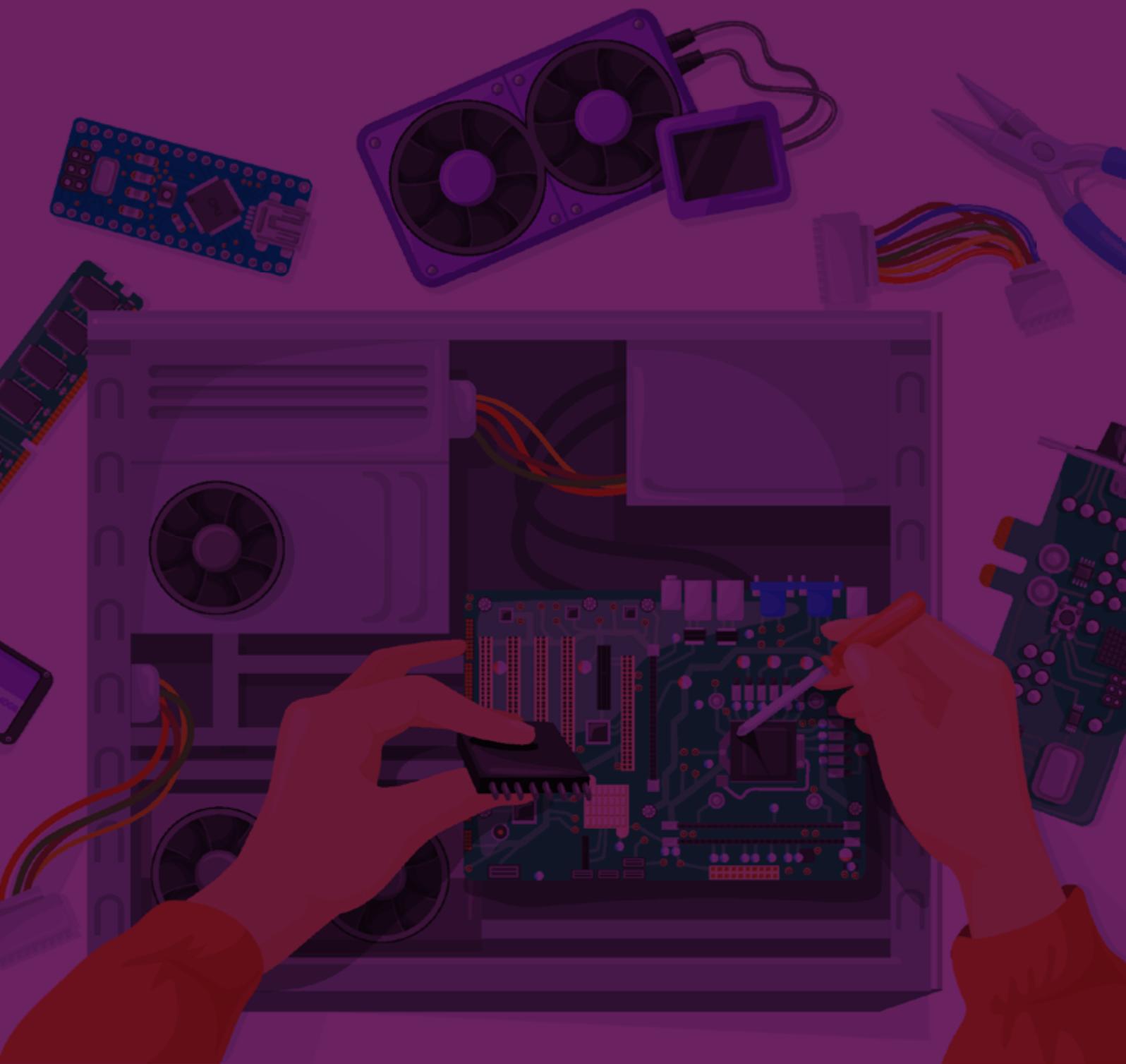
A City with a Well-Established Repair Culture

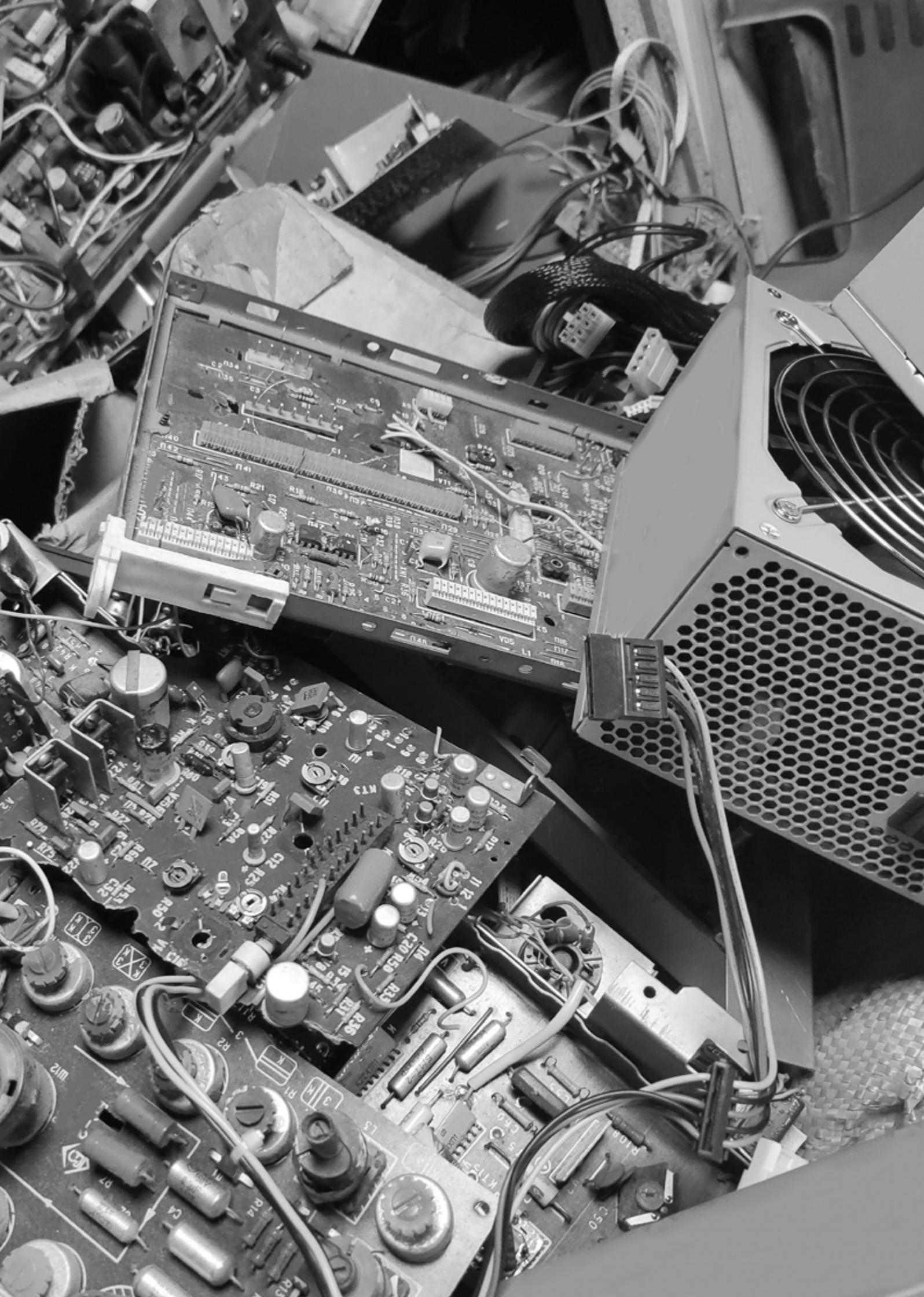
Kolkata has a historically strong repair culture, making it a vital case for examining how traditional repair markets continue to function in a rapidly modernising economy. The city has some of India's most well-known repair hubs, with a mix of both household and IT repair services. Kolkata's inclusion in the study allows for an analysis of how well-established repair industries can be modernised to fit into a more sustainable, circular economy.

4.2 Why these cities?

These five cities were selected to ensure a balanced representation of different urban economies and repair landscapes in India. Delhi and Hyderabad represent large metropolitan markets with strong consumer demand and e-waste generation, while Nagpur, Ranchi, and Kolkata provide perspectives on emerging and traditional repair ecosystems.

This geographic diversity allows the study to capture regional variations in repair culture, consumer attitudes, and market structures laying the foundation for policy recommendations applicable at both national and local levels.





Methodology

This study employs a **qualitative research approach** using **purposive sampling** to examine the repair ecosystem in India, with a focus on the IT and household appliance sectors.

The research incorporates **Focus Group Discussions (FGDs)** and a **consumer survey** to assess repair practices, infrastructure, workforce skill levels, spare parts availability, and economic barriers.

5.1. Data collection methods

5.1.1 Focus Group Discussions (FGDs)

FGDs were conducted with repair professionals in two major regions:

- **Delhi NCR** and **Hyderabad**—chosen for their significance as repair hubs in northern and southern India.

Key parameters assessed during FGDs:

- **Facility conditions** – Availability and quality of repair infrastructure.
- **Workforce skill levels** – Technical expertise and training opportunities.
- **Spare parts sourcing** – Accessibility and supply chain challenges.
- **Economic barriers** – Affordability of repairs, market viability, and financial constraints.

5.1.2 Consumer survey

A structured consumer survey was conducted across these five major cities:

- Delhi, Hyderabad, Nagpur, Ranchi and Kolkata.

Objective

- Understanding consumer attitudes towards repairability.
- Identifying factors influencing repair decisions (cost, convenience, availability of spare parts, etc.).
- Assessing common repair practices and consumer willingness to opt for repairs over replacement.

5.1.3 Analytical approach

- Thematic analysis was applied to FGD transcripts and survey responses to identify recurring trends and challenges.

Comparative analysis between different **cities and sectors** helped highlight regional variations in **repair accessibility and constraints**



- 
- ➔ Comparative analysis between different cities and sectors helped highlight regional variations in repair accessibility and constraints.
 - ➔ Policy evaluation was conducted through secondary research, reviewing government reports, industry white papers, and relevant regulatory frameworks.

5.1.4 Tool

The tool used to collect the data in all study areas was Kobo Toolbox. It is an online integrated set of tools for building forms and collecting interview responses.

This multi-pronged approach ensures a comprehensive understanding of India's repair landscape, addressing both supply-side and demand-side perspectives while offering policy-driven recommendations.

FINDINGS

FGD and CONSUMER SURVEY

6.1. FGD

To gain an in-depth understanding of the IT and household appliances repair sectors, FGDs were conducted in Delhi-NCR and Hyderabad between June and August 2024. These discussions, guided by a structured framework (Appendix 1), engaged a diverse set of stakeholders, including repair professionals specialising in large household appliances, IT electronic and electrical equipment (EEE), and small household appliances.

The FGDs took place in key repair hubs—areas with a high concentration of repair shops and technicians specialising in EEE repairs—across both cities. These discussions provided valuable insights into regional repair practices, infrastructure, and sector-specific challenges.

The participants included repair professionals with experience ranging from a few months to over 16 years. The discussions explored critical aspects of the repair industry, including:

- ➔ **Resources** – Availability of tools, spare parts, and infrastructure necessary for repairs.
- ➔ **Training Opportunities** – Access to skill development programmes and on-the-job learning experiences.
- ➔ **Challenges** – Difficulties faced by repair technicians, such as lack of access to original spare parts, financial constraints, and regulatory barriers.
- ➔ **Economic Viability and Sustainability** – Long-term prospects of the repair sector, including income stability, demand fluctuations, and environmental implications.

6.1.1 Repair practices in Delhi-NCR and Hyderabad region

The FGDs took place in prominent repair hubs: Karol Bagh in Delhi and Abids in Hyderabad.

The FGDs provided valuable insights into **regional repair practices, infrastructure, and sector-specific challenges.**



→ IT Repair Facilities

a. Repair Facilities, availability and sourcing of spare parts: The focus was to see whether repair centres are adequately equipped to handle repairs

Repair facilities: IT repair centres in Karol Bagh (New Delhi) and Abids (Hyderabad) are only partially equipped to handle repairs. While they have access to some of the servicing materials, like Apple components—mostly non-original copies—the availability of genuine parts remains limited and expensive. For example, while an original iPhone 12 Pro screen costs around ₹35,000, a first-copy alternative is available for only ₹8,000.

Most repair shops operate as small-scale, informal setups lacking advanced diagnostic tools and specialised equipment for complex repairs. To work around these limitations, technicians frequently salvage spare parts from non-functional devices.

Sourcing of spare parts:

Repair shops primarily source spare parts from local wholesalers and informal markets, relying heavily on third-

party manufacturers instead of original equipment manufacturers (OEMs). This dependency stems from the high cost and limited availability of genuine parts, which are often restricted to authorised dealers.

Manufacturers (big companies) typically prioritise their own service centres and large sellers, leaving smaller repair shops at a disadvantage. As a result, majority of the repair technicians in both cities report significant difficulties in procuring original spare parts, particularly for brands like Samsung, LG, and Apple. Long procurement times and high costs further constrain access, making it challenging for independent repair businesses to compete with authorised service providers.

b. Training Practices

In the IT repair sector, training remains largely informal across both Delhi-NCR and Hyderabad. Majority of IT repair technicians learn on the job through apprenticeships or informal training, with limited access to formal education or certification programmes. In hubs like Karol Bagh, many technicians start as interns, gaining hands-on experience under the supervision of experienced professionals.

In areas like Abids, only a limited percentage of technicians engaged in repair have received formal training in electronics and electrical engineering repairs, and even fewer have attended specialised courses from ITIs or institutions focusing on advanced repair techniques. This results in varying levels of expertise, affecting the overall quality of service. Without structured learning opportunities, many technicians struggle to keep up with advancements in computing, networking, and smart device repairs.

Environmental sustainability is not a focus in IT repair training. Few technicians receive guidance on handling e-waste responsibly or sourcing sustainable repair parts. This contributes to unsustainable practices in IT repair hubs such as Karol Bagh and Abids.

c. Economic viability and sustainability

The economic viability of independent IT repair businesses is significantly affected by their dependence on non-original spare parts and informal repair setups. Since authorised service centres dominate the market, smaller repair shops struggle to compete due to their limited access to high-quality components. The high costs of genuine spare parts force many repair professionals to rely on cheaper, lower-quality alternatives, which, in turn,

Fig. 3 FGD with IT EEE Repair Workers in Karol Bagh, Delhi



Fig. 4 FGD with IT EEE Repair Workers in Abids, Hyderabad



affects customer satisfaction and repeat business.

Stability of income in the IT repair sector is highly uncertain. Many repair professionals have inconsistent earnings, with their income levels fluctuating based on market demand and availability of spare parts. Since the cost of repair is often lower than replacement in only a few cases, customers increasingly opt to buy new devices, further reducing the income potential for independent repair shops.

Wholesale markets in Delhi and Hyderabad source spare parts from both domestic and international suppliers, primarily from China. This widespread reliance on non-original components raises concerns about repair quality, as customers frequently experience issues such as device malfunctioning or reduced lifespan after repairs. The inability to access genuine spare parts not only compromises service quality but also threatens the long-term sustainability of the repair sector. Independent repair businesses struggle to maintain customer trust, as lower-cost alternatives, though affordable, often lead to reduced performance and durability.

Additionally, fluctuating demand for repairs, especially with the increasing affordability of new electronic devices, threatens the sustainability of the repair industry. Many customers prefer to replace devices rather than repair them, reducing opportunities for long-term growth in the sector.

From an environmental perspective, the lack of e-waste management practices exacerbates sustainability concerns. With limited training on sustainable repair techniques and recycling, most repair shops contribute to electronic waste accumulation rather than its mitigation.

➔ Household Electronics Repair

The infrastructure and resources available to repair businesses in Delhi-NCR (Mohan Singh Market and Seemapuri) and Hyderabad (RP Road) are fundamental to their functionality and growth. The effectiveness of the repair industry in these regions is heavily influenced by the condition of repair facilities, the level of technician training, and the availability of necessary resources such as tools and spare parts. Challenges are compounded by limited access to modern technology, specialised training, and reliable sourcing of parts.

➔ Repair Facilities and availability and sourcing of spare parts

a. Repair Facilities: Most small-scale repair shops operate with limited infrastructure, lacking the advanced equipment required for complex electronic repairs, such as those for high-end televisions, microwaves, and air conditioners. Technicians typically rely on basic tools—screwdrivers, pliers, and soldering irons—while advanced diagnostic and calibration equipment remains largely unavailable or underutilised. This limitation forces technicians to use rudimentary troubleshooting methods, often resulting in suboptimal repair quality.

In contrast, authorised service centres are equipped with state-of-the-art diagnostic tools, which are excessively expensive for small repair shops. Additionally, many repair facilities operate in poorly maintained, cramped, and inadequately ventilated spaces that do not meet safety standards. Workers are exposed to harmful fumes and high-voltage equipment without proper protective gear, posing serious health risks and reducing repair efficiency.

Fig. 5 and 6 FGD with Household Appliance Repair Workers in Seemapuri, Delhi



Fig. 7 FGD with Household Appliance Repair Workers in Mohan Singh Market, Delhi



Sourcing Spare Parts: Sourcing original spare parts is a serious challenge for repair shops. More than half of the technicians rely on non-original, third-party components due to the high cost and limited availability of genuine parts. While these alternatives are more affordable, they often lack durability, leading to frequent malfunctions and reduced customer satisfaction.

Original spare parts are typically available only through authorised service centres, creating a supply bottleneck. The high cost and restricted availability of spare parts further complicates procurement, resulting

in delays and inefficiencies in repair services. To circumvent these challenges, many repair shops turn to local wholesalers and scrap markets for components. However, these alternative parts frequently fail to meet the required specifications, compromising repair quality and reliability.

Fig. 8 FGD with Large Household Appliance Repair Workers in Hyderabad (RP Road)



Fig. 9 FGD with Small Household Appliance Repair Workers in Hyderabad (RP Road)



b. Training and Education of Repair Workers

In Delhi-NCR and Hyderabad, most household repair technicians acquire their skills through informal learning. A majority of the workers develop expertise via apprenticeships or on-the-job training under the mentorship of experienced professionals. Though effective in building practical skills, this approach often lacks structure and fails to incorporate contemporary repair techniques for modern home appliances.

Very few household repair technicians have formal education in electronics, electrical engineering, or related fields. Also, the curriculum of available training programmes is often outdated, offering little exposure to smart home devices, advanced appliances, and renewable energy systems.

A major challenge in household repair is the lack of ongoing professional development. Technicians rarely receive updated training on emerging technologies, making it difficult to handle increasingly complex home appliances.

c. Economic viability, Sustainability and Environmental concerns

Household repair businesses face significant economic challenges due to informal setups and reliance on non-original spare parts. Income stability is unpredictable, as demand fluctuates based on affordability and consumer preferences. Because of increasing affordability of new appliances, many customers prefer to replace rather than repair devices, further reducing earnings. Additionally, sustainability concerns persist due to inadequate training in e-waste management, leading to improper disposal practices and environmental harm. This gap affects environmental responsibility and limits the adoption of sustainable repair solutions.

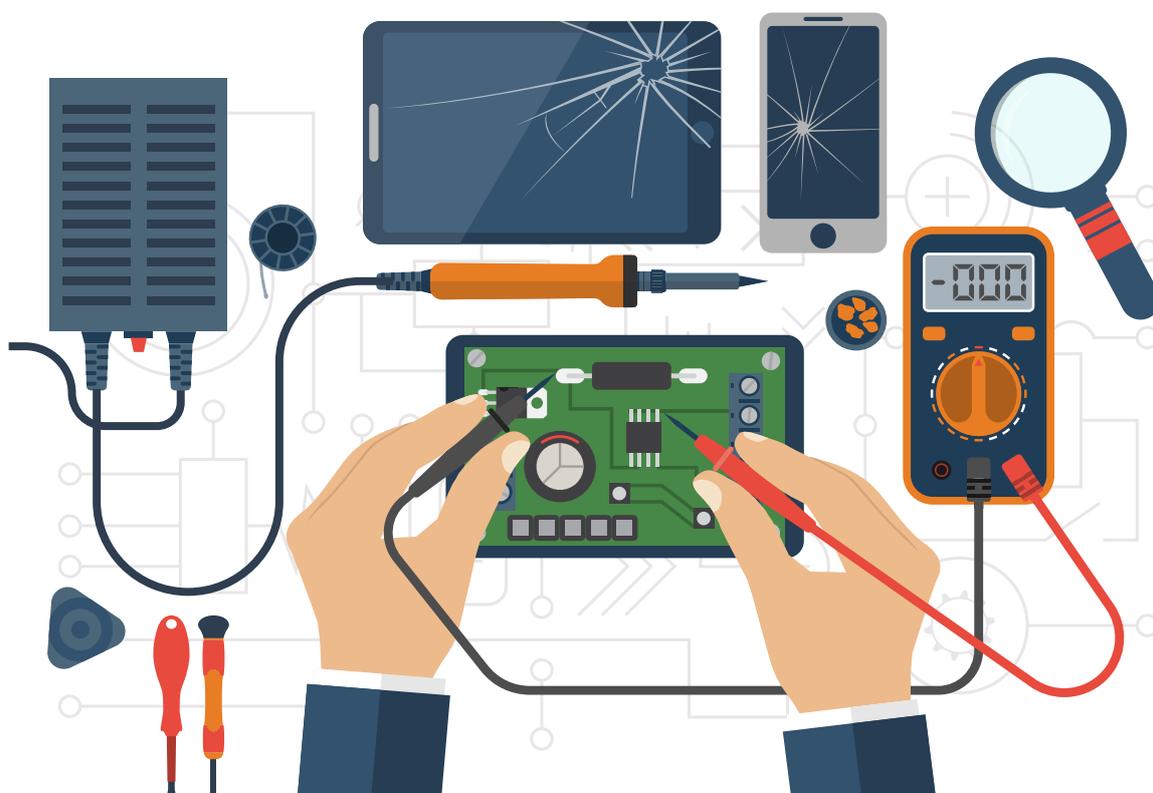
6.1.2 Need for Comprehensive Training Programmes in both IT and household repair sectors

Both the household and IT repair industries would benefit from structured, up-to-date training programmes that integrate modern repair techniques, sustainability practices, and ongoing professional development. Addressing these gaps will enhance the quality of service, equip technicians with relevant skills, and promote environmentally responsible repair practices across Delhi-NCR and Hyderabad.

6.1.3 Common Barriers to Economic Sustainability affecting repair practices in the IT and Household Appliances Repair Sectors

The IT and household appliances repair sectors encounter numerous common challenges that hinder their growth and success. These obstacles impact various aspects, including the quality of services provided, the profitability of repair businesses, and customer trust. Here are the key barriers limiting the potential of these sectors:

- ➔ **High Costs and Limited Availability of Spare Parts:** One of the biggest challenges is the steep cost and scarcity of original spare parts. For IT devices like smartphones and laptops, getting genuine components is often too expensive, forcing technicians to rely on non-original alternatives such as “generic smartphone batteries” made by third-party manufacturers. While these parts are more affordable, they don’t always meet the same quality standards, which can lead to less reliable repairs and decrease consumer confidence. Similarly, in the household appliances sector, finding parts for large appliances like refrigerators and air conditioners can be costly and time-consuming, often pushing customers to opt replacement over repair.
- ➔ **Skilled Labour Shortages:** Both sectors suffer from a lack of skilled technicians. Repairing complex IT devices, such as high-end smartphones or laptops, requires specialised knowledge that many technicians lack due to limited formal training opportunities. In the household appliances sector, repairing advanced appliances like smart refrigerators or energy-efficient air conditioners also demands technical expertise that is often unavailable. Many workers rely on learning through experience, but this can lead to inconsistencies in repair quality. Poor working conditions and low wages only add to the difficulty of retaining skilled labour.
- ➔ **Low Profit Margins and Financial Struggles:** Small repair businesses in both sectors often operate on razor-thin profit margins. In the IT repair sector, competition forces businesses to keep their prices low, leaving little room for investments in better tools or employee training. Similarly, household appliance repair shops struggle to make ends meet, with monthly earnings barely covering operational costs. While skilled workers might earn ₹70,000 and ₹35,000 in IT and household appliances sectors, less experienced technicians make as little as ₹12,000 and ₹8,000, respectively.



- ➔ **Consumer Preferences for Replacement:** With technology advancing rapidly, many consumers now prefer to replace their devices rather than repairing them. In the IT sector, outdated gadgets are often swapped for newer models with the latest features, especially when repair costs seem high. Similarly, in the household appliances sector, the availability of affordable, energy-efficient products encourages customers to upgrade instead of fixing older models. This shift in behaviour lowers the demand for repairs, making it even harder for repair businesses to stay afloat.

Fig. 10 Staircase being used as a storage for EEE in Hyderabad (RP Road)



Fig. 11 Limited space for conducting repair activities



6.2 CONSUMER SURVEY

Consumer Attitudes and Practices in the Repair Sector

This section presents key findings of a consumer survey conducted across five major Indian cities—Delhi, Hyderabad, Kolkata, Nagpur, and Ranchi—with 498 respondents.

The analysis explores consumer perceptions of repair services, including common barriers like cost and convenience, as well as motivations for repair over replacement. It also examines the willingness of consumers to purchase repaired products based on quality, availability of warranty, and trust in service providers.

The survey findings indicate significant variations in consumer attitudes towards repairing versus replacing EEE, influenced by factors such as device type, city, and income class. Respondents were asked to identify the devices they own across three primary categories:

- ➔ **IT and Telecom Devices** – Includes smartphones, laptops, and tablets.
- ➔ **Large Appliances** – Covers household essentials such as refrigerators, washing machines, and air conditioners.
- ➔ **Small Appliances** – Encompasses everyday items like toasters, mixers, and hair straighteners.

This study categorises data by income levels and product types, analysing the percentage of items repaired or replaced and the key factors driving these decisions. Understanding these trends is essential for manufacturers, retailers, and policymakers, as repair choices depend on income, product category, service availability, and technological advancements. These insights support data-driven decision-making to strengthen India's repair industry.

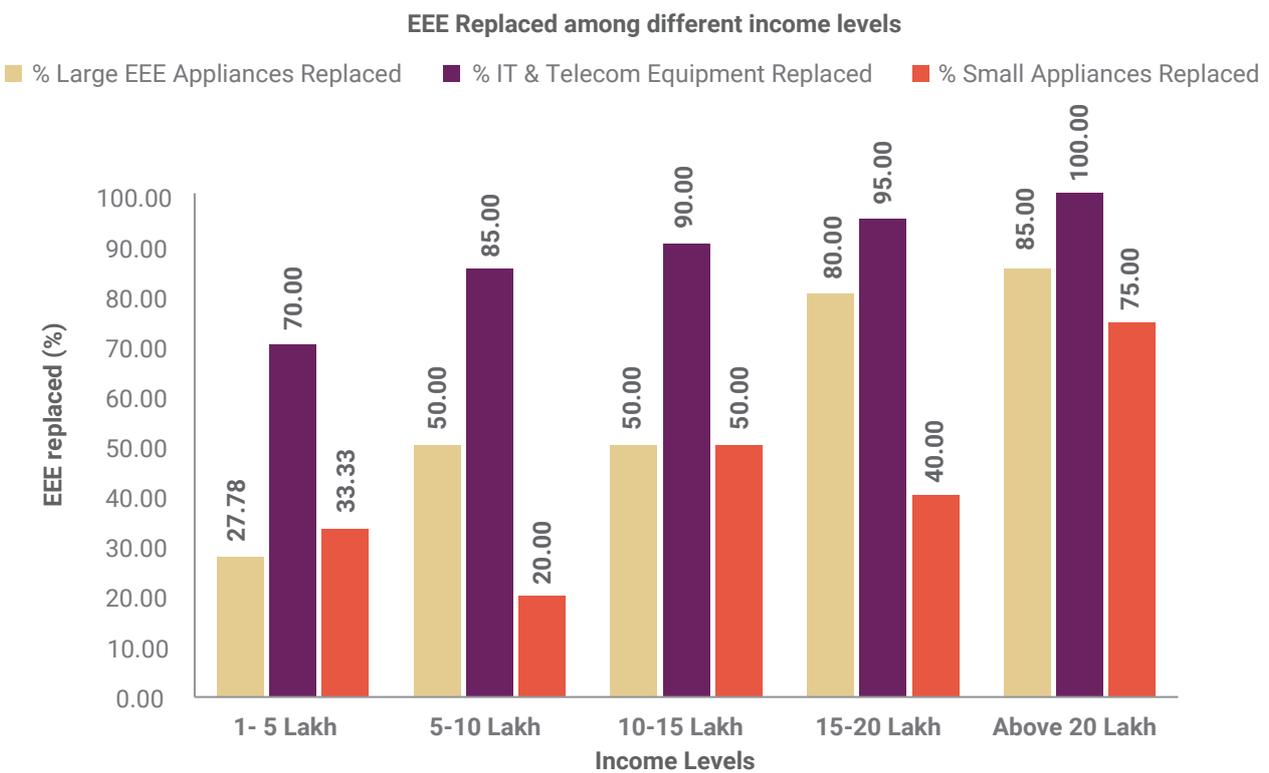
Delhi

Delhi, being a metropolitan city, has a diverse consumer base with varying income levels.

➔ Replacement Trends in Delhi

Consumers with an income level between *Rs 1-5 lakh* exhibit a moderate inclination towards replacement, particularly for IT and Telecom equipment, which has a replacement rate of 70%. Small appliances are replaced 33.33% of the time, as consumers find repair options either expensive or unavailable. Large EEE, however, sees a lower replacement rate of 27.78%, as these items are costly and often repaired to extend their usability. The primary reasons for replacement in this group include outdated technology, unavailability of spare parts, and the affordability of new models.

Figure 12: % of EEE replaced among different income levels



As income levels rise to *Rs 5-10 lakh*, replacement becomes more prevalent. Large EEE is replaced 50% of the time, IT and Telecom equipment 85%, and small appliances 20% of time. Consumers in this group often replace their devices to keep up with technological advancements or due to repair delays. Higher affordability and the availability of newer features influence their decision to replace rather than repair.

The *Rs 10-15 lakh* income group exhibits an even stronger inclination towards replacement, with IT and Telecom devices being replaced 90% of the time and large EEE at 50%. Small appliances show a moderate replacement rate of 50%. The major driving forces include warranty expiration, the desire for newer technology, and better energy efficiency in newer models.

In the *Rs 15-20 lakh* income group, replacement rates surge, particularly in IT and Telecom (95%) and large EEE (80%). Small appliances continue to be replaced at the rate of 40%. Affluent consumers in this category value convenience, efficiency, and new technological advancements, making replacement a preferred option.

For those earning above *Rs 20 lakh*, replacement is the dominant choice. IT and Telecom equipment is replaced 100% of the time, large EEE 85%, and small appliances 75% of time. Consumers in this category prioritise luxury and brand new products, with frequent upgrades driven by brand loyalty and the availability of the latest technology.

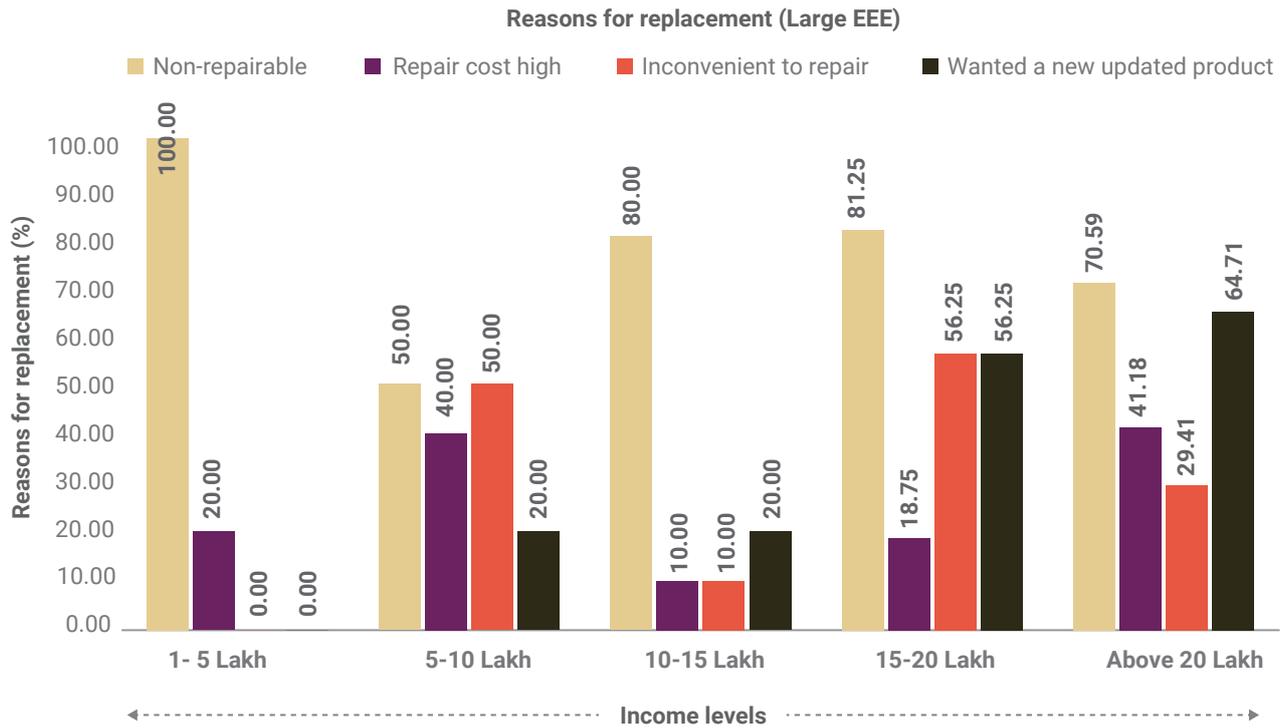
➔ Motivation for replacement in Delhi

In Delhi, the motivation for product replacement varies across different income levels, influenced by factors such as non-repairability, high repair costs, inconvenience, and the desire for an upgraded product.

a. Large EEE

For individuals having an income of *Rs 1-5 lakh*, 100% of products were deemed non-repairable, making repair impossible. Additionally, 20% of consumers cited high repair costs as a barrier. However, none of the respondents in this income group reported inconvenience in repair or a preference for a new updated product, indicating that their replacement decisions were driven solely by repair feasibility and costs.

Figure 13: Reasons for replacement of large EEE (Delhi)



Those in the *Rs 5-10 lakh* income group considered 50% of products non-repairable, while 40% of consumers found repair costs too high. Additionally, 50% of individuals found repair inconvenient, and 20% preferred a new product instead, showing a more diverse range of replacement motivations compared to lower-income groups.

For the *Rs 10-15 lakh* group, 80% of items were classified as non-repairable, with 10% reporting high repair costs. Only 10% found repair inconvenient, while 20% opted for a new product.

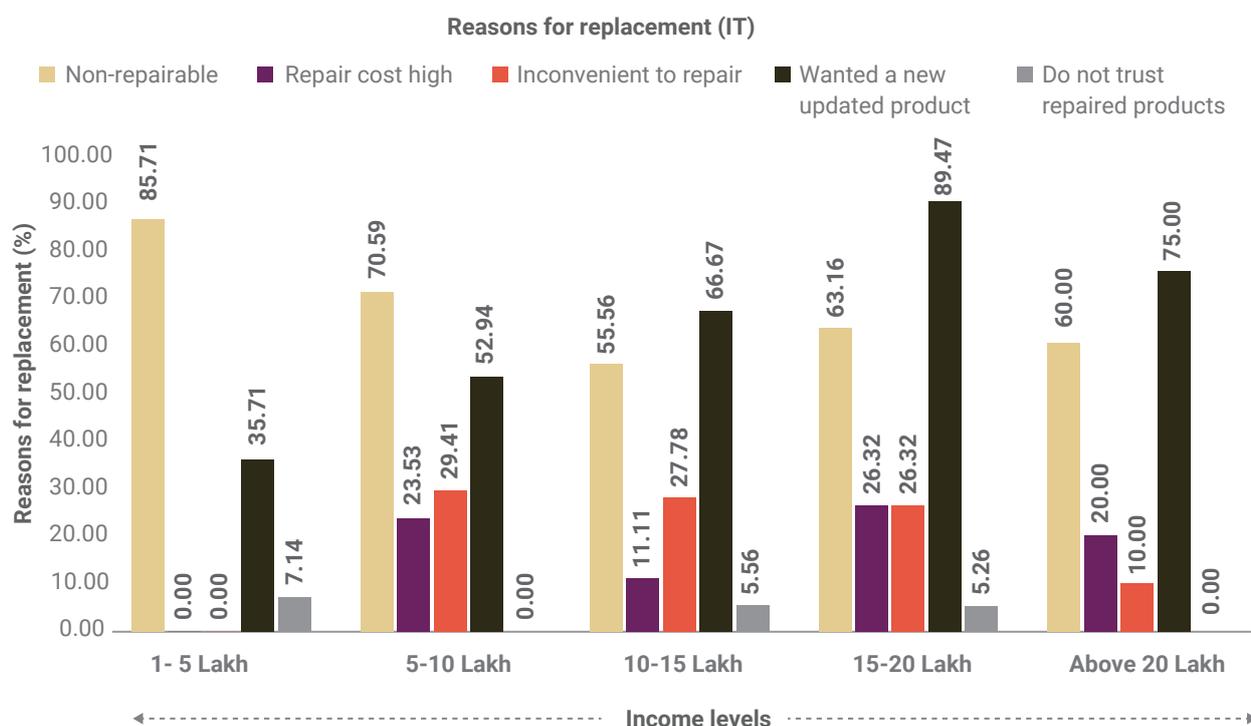
In the *Rs 15-20 lakh* category, 81.25% of products were non-repairable, and 18.75% of consumers found repair costs high. A significant 56.25% reported inconvenience in repair, and the same 56.25% preferred a new product instead, highlighting the growing role of consumer preference and convenience in purchasing decisions.

For those earning *above Rs 20 lakh*, 70.59% of products were non-repairable, while 41.18% cited high repair costs. Additionally, 29.41% found repair inconvenient, and a substantial 64.71% expressed a preference for a new updated product, emphasising the influence of technology upgrades and personal choice in higher income groups.

b. IT and Telecom equipment

In Delhi, non-repairability remains the leading cause for appliance replacement, with the highest impact on lower-income groups. Among those earning *Rs 1-5 lakh* per annum, 85.71% replace their appliances due to non-repairability, followed by 70.59% in the *Rs 5-10 lakh* group and 55.56% in the *Rs 10-15 lakh* range. Even in higher income groups, this remains a major concern, affecting 63.16% of individuals in the *Rs 15-20 lakh* range and 60% in those earning *above Rs 20 lakh*.

Figure 14: Reasons for replacement of IT equipment (Delhi)



High repair costs are a significant deterrent for middle and upper-middle-income groups. While those earning *Rs 1-5 lakh* face no such issue, 23.53% in the *Rs 5-10 lakh* category and 11.11% in the *Rs 10-15 lakh* range find repair costs too expensive. This concern rises further (26.32%) among those earning *Rs 15-20 lakh* and remains a factor at 20% for those earning *above Rs 20 lakh*.

Inconvenience in repairability also influences decisions, especially among mid-income groups. While lower-income consumers (*Rs 1-5 lakh*) do not report this as an issue, 29.41% in the *Rs 5-10 lakh* group and 27.78% in the *Rs 10-15 lakh* range cite it as a reason for replacement. This challenge is equally reported by 26.32% of those earning *Rs 15-20 lakh*, while only 10% of the highest-income group finds it inconvenient.

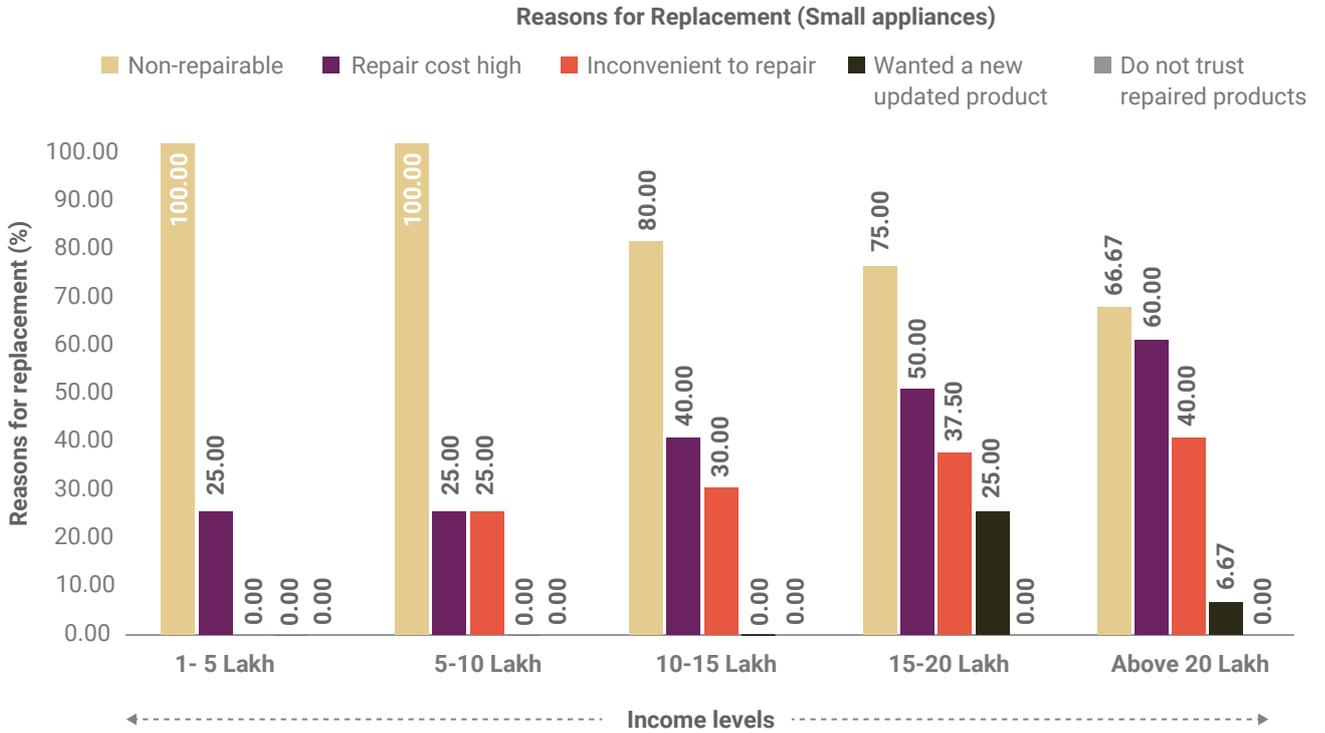
The desire for updated products is a strong motivation across all income levels but peaks among higher earners. While 35.71% of the *Rs 1-5 lakh* group prefer newer technology, this rises to 52.94% in the *Rs 5-10 lakh* category. The trend continues upwards, with 66.67% of the *Rs 10-15 lakh* group and a significant 89.47% of those in the *Rs 15-20 lakh* range choosing to replace their appliances for newer models. Even among those earning *above Rs 20 lakh*, a notable 75% prioritise upgraded technology.

Trust in repaired products plays a minimal role in replacement decisions. While 7.14% of the lowest-income group (*Rs 1-5 lakh*) and 5.56% of the *Rs 10-15 lakh* category avoid repairing products, this factor is negligible or (5.26% in 15-20 lakh group) non-existent for other income groups.

c. Small appliances

Non-repairability is the dominant factor influencing product replacement across all income groups. Among individuals earning *Rs 1-5 lakh*, 100% of products were deemed non-repairable. While 25% of consumers cited high repair costs as a concern, none of the respondents in this group reported inconvenience in repair, the desire for updated products, or a lack of trust in repaired items, suggesting that their replacement decisions were solely driven by the inability to fix broken products.

Figure 15: Reasons for replacement of small appliances (Delhi)



In the *Rs 5-10 lakh* income group, non-repairability continued to be a universal issue, affecting 100% of respondents. Additionally, 25% of consumers found repair costs too high, and another 25% cited inconvenience as a barrier to repairing their items. However, the desire for an updated product did not play a role in replacement decisions within this group, and all respondents expressed confidence in repaired products. For individuals earning *Rs 10-15 lakh*, non-repairability was slightly less prominent but still affected 80% of products. Repair costs were a concern for 40%, while 30% of respondents found repairs inconvenient. Despite these barriers, no one in this income group reported replacing their products due to a preference for newer technology or distrust in repaired items.

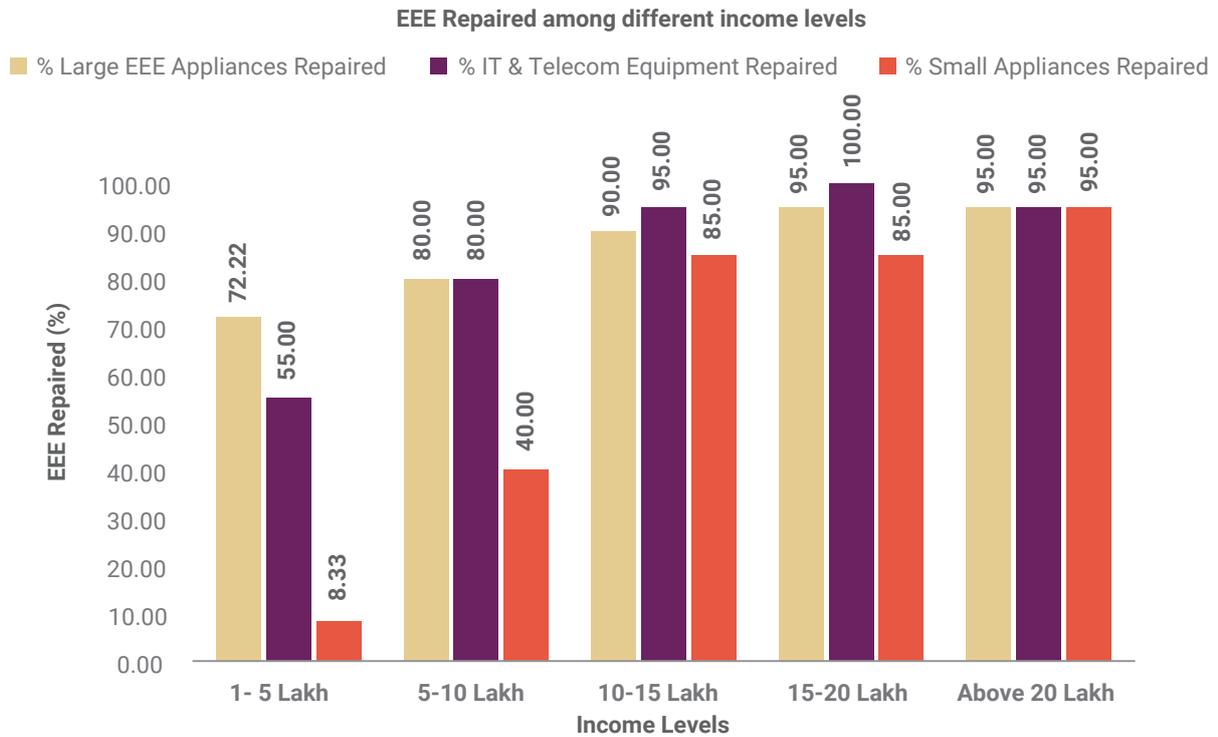
In the *Rs 15-20 lakh* category, 75% of products were considered non-repairable. Repair costs was a bigger concern, with 50% of respondents stating that repairs were too expensive. Additionally, 37.5% cited inconvenience as a reason for replacement, and 25% expressed a preference for a newer product. This group marks the first instance where upgrading to a new product influenced consumer decisions. However, all respondents remained open to the idea of repaired products.

For those earning *above Rs 20 lakh*, non-repairability remained a key issue, affecting 66.67% of products. However, this group experienced the highest concern over repair costs, with 60% of consumers citing expensive repairs as a replacement motivator. While 40% found repairs inconvenient, 6.67% preferred an updated product. Despite their financial capacity, none of the respondents in this category reported a lack of trust in repaired items.

Repair Trends in Delhi

Repair remains a significant factor in consumer decision-making, particularly in the lower-income groups. Among those earning *Rs 1-5 lakh*, Large EEE has a high repair rate of 72.22%, as consumers prefer extending product life over purchasing new ones. Small appliances are rarely repaired (only 8.33%) due to the high cost of repair relative to replacement. IT and Telecom equipment, despite a high replacement rate, still sees 55% repair cases, primarily due to budget constraints.

Figure 16: % of EEE repaired among different income levels



In the *Rs 5-10 lakh* income group, repairs are still highly considered, with 80% of Large EEE along with 80% of IT and Telecom and 40% of small appliances being repaired. Consumers in this category are more willing to repair expensive appliances under warranty but replace items when repair costs are high.

The *Rs 10-15 lakh* income group maintains a high repair rate, with 90% of Large EEE and 95% of IT and Telecom equipment being repaired. Small appliances have an 85% repair rate, reflecting consumers' preference for keeping products functional for a longer time when affordable repairs are available.

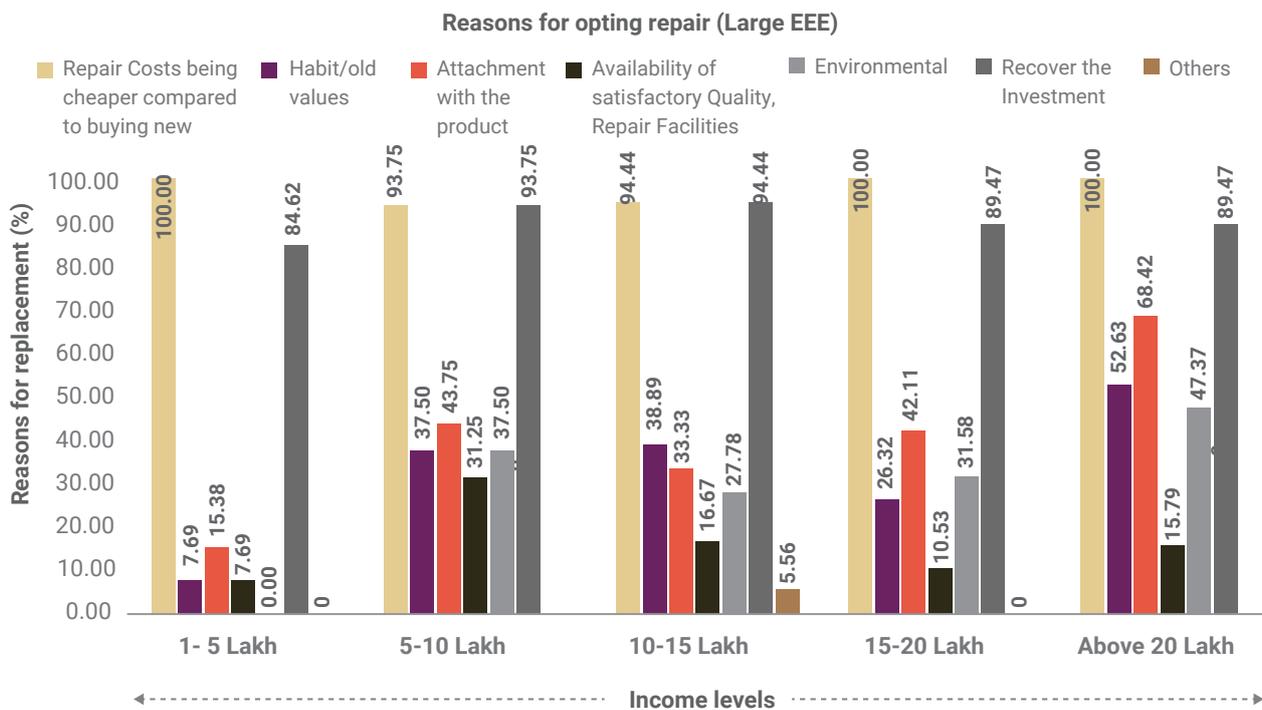
For those earning *Rs 15-20 lakh*, the inclination to repair is strong for Large EEE (95%) and IT and Telecom (100%), though small appliances are repaired at a slightly lower rate of 85%. Availability of premium repair services and extended warranties make repair a convenient choice. In the highest income category of *above Rs 20 lakh*, repair remains relevant despite high replacement rates. Large EEE, IT and Telecom products as well as small appliances see repair rates of 95%. Consumers in this group may repair high-end appliances when feasible, particularly if under warranty or for sustainability concerns.

➔ Motivation for repair

a. Large EEE

In Delhi, repair motivation is significantly high across all income levels, primarily due to cost-effectiveness and investment recovery. In the *Rs 1-5 lakh* earning category, 100% respondents consider repair cheaper than buying new, with 84.62% choosing repair to recover what they've already spent. Other factors such as habit/old values (7.69%), attachment to the product (15.83%), and availability of satisfactory quality repair facilities (7.69%) were minimally influential, while environmental and other considerations had no impact.

Figure 17: Reasons for repair of large EEE (Delhi)



In the *Rs 5-10 lakh* group, while repair remains a financially driven decision (93.75%), 43.75% repair due to emotional attachment, and 37.50% due to habit, old values and environmental concerns, and 31.25% for and availability of satisfactory repair facilities.

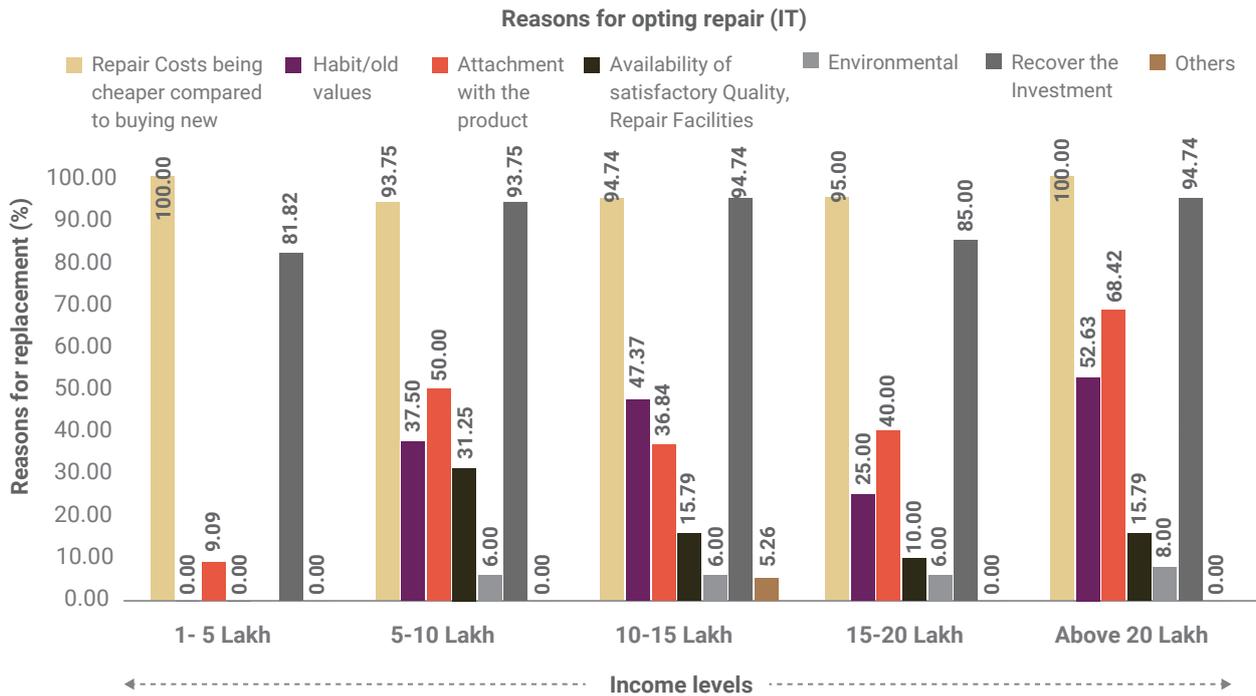
The trend continues in the *Rs 10-15 lakh* group, where cost (94.44%) and investment recovery (94.44%) dominate, but environmental concerns (27.78%) gain significance. For the *Rs 15-20 lakh* group, repair motivation remains at 100%, with habit (26.32%) and emotional attachment (42.11%) playing notable roles.

Among those earning *above Rs 20 lakh*, despite their higher purchasing power, repair motivation is still at 100%, indicating that expensive items are worth repairing. Here, emotional attachment (68.42%) and environmental concerns (47.37%) emerge as strong factors alongside financial considerations.

b. IT and Telecom Equipment

For individuals in Delhi earning between *Rs 1-5 lakh*, the motivation for repair is primarily due to the significantly lower repair costs compared to purchasing new products (100%). Additionally, 81.82% consider repair a means to recover their investment. However, attachment to the product (9.09%) and habit (0.00%) play a minimal role, while the availability of satisfactory quality repair facilities is entirely absent.

Figure 18: Reasons for repair of IT and Telecom equipment (Delhi)



Among those in the *Rs 5-10 lakh* income group, 93.75% find repair costs to be cheaper than buying new, and an equally high percentage (93.75%) are motivated by the ability to recover their investment. Habit (37.50%) and attachment to the product (50%) contribute to the decision, whereas the availability of quality repair facilities (31.25%) is still moderate. Environmental concerns influence 6% of individuals.

The *Rs 10-15 lakh* group in Delhi has a strong preference for repair, with 94.74% believing it is more cost-effective. Financial recovery (94.74%) remains a dominant factor, while habit (47.37%) and attachment (36.84%) contribute to repair decisions. The availability of quality repair services (15.79%) is quite limited, and 6% consider the environmental benefits.

Among those earning *Rs 15-20 lakh*, 95% consider repair as a cost-effective solution, and 85% aim to recover their investment. Attachment to products (40%) and habit (25%) also play some roles. However, only 10% find satisfactory repair services available and 6% opt repair as a part of environmental concern.

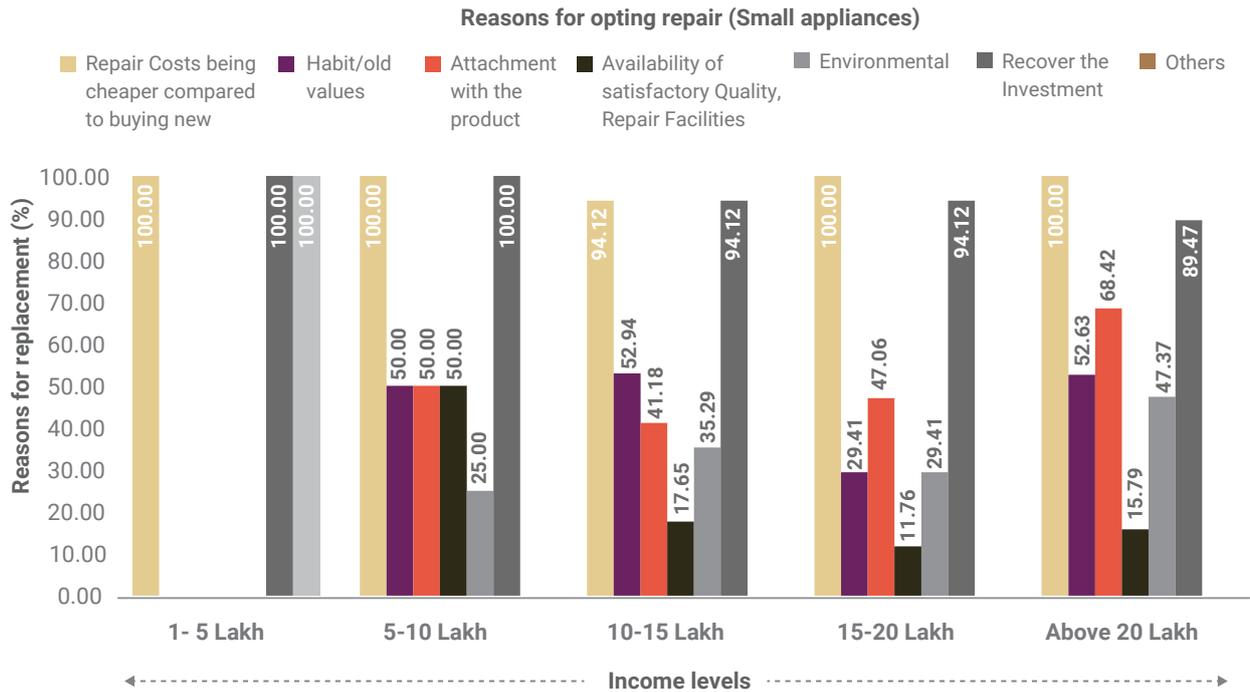
The highest income group (*above Rs 20 lakh*) in Delhi is still inclined towards repair, with 100% citing cost-effectiveness as the primary reason. Recovering investment (94.74%) and strong emotional attachment (68.42%) also drive repair decisions. Habit (52.63%) plays a notable role, while the availability of satisfactory quality repair facilities (15.79%) remains an issue. Environmental concerns influence 8% of individuals.

c. Small appliances

In Delhi, cost saving is the primary reason for repair across all income groups, with 90% of respondents from every income level agreeing that repair is cheaper than buying new. However, other motivations vary. Among those earning *Rs 1-5 lakh*, there is no influence from habit, attachment, repair facility availability, or environmental concerns (0% for all), while 100% repair to recover their investment.

In the *Rs 5-10 lakh* group, 50% cite habit and attachment, while 50% also believe in the availability of satisfactory repair facilities. Environmental concerns grow slightly with income, with 25% of the *Rs 5-10 lakh* group and 35.29% of the *Rs 10-15 lakh* group citing sustainability as a factor.

Figure 19: Reasons for repair of small appliances (Delhi)



Attachment to products is stronger in higher-income groups, increasing from 41.18% in the *Rs 10-15 lakh* category to 68.42% in the *above Rs 20 lakh* group. Investment recovery is a major factor, with 100% of the *Rs 1-5* and *Rs 5-10 lakh* groups and 89.47% of the *above Rs 20 lakh* group repairing for financial reasons.



HYDERABAD

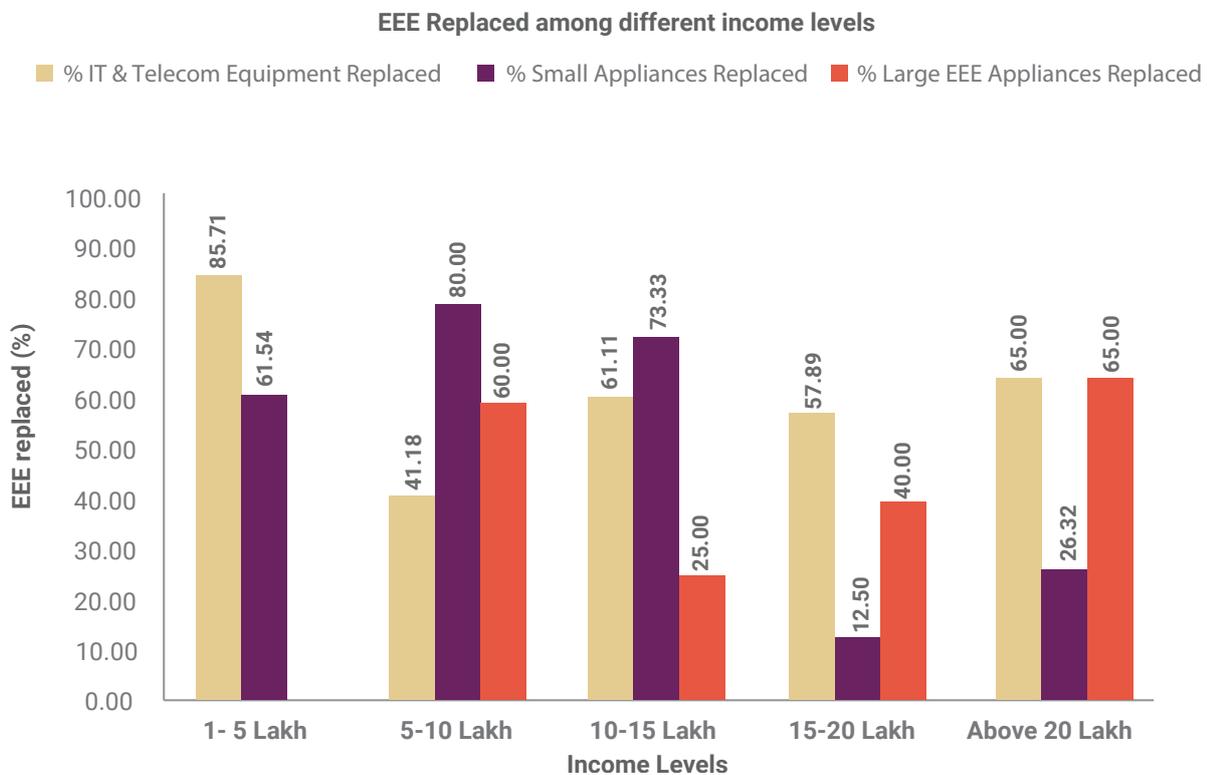
Hyderabad, a rapidly growing metropolitan city, exhibits distinct trends in consumer behaviour regarding the replacement and repair of electronic and electrical equipment across different income levels.

➔ Replacement Trends in Hyderabad

In the *Rs 1-5 lakh* income range in Hyderabad, consumers exhibit a high replacement trend for IT and Telecom equipment, with 85.71% of those being replaced, while small appliances are replaced 61.54% of the time. Large EEE appliances have a non-existent replacement rate (0.00%), likely due to their high cost, making repair a more viable option. The primary factors driving replacements in this group include outdated technology, repair costs, and the unavailability of spare parts.

As income levels rise to *Rs 5-10 lakh*, small appliances witness the highest replacement rate at 80%, followed by large EEE appliances at 60%, while IT and Telecom devices are replaced 41.18% of the time. This group likely replaces appliances when repair becomes inconvenient or when newer models offer better features and energy efficiency.

Figure 20: % of EEE replaced among different income levels



In the *Rs 10-15 lakh* group, small appliances continue to have a high replacement rate at 73.33%, followed by IT and Telecom equipment at 61.11%. Large EEE appliances are replaced only 25% of the time, indicating that while affordability increases, consumers still weigh the cost-benefit ratio before replacing expensive items. Better technology and enhanced efficiency are key drivers of replacements in this segment.

For the *Rs 15-20 lakh* income group, large EEE appliances are replaced 40% of the time, while IT and Telecom equipment follows at 57.89%. Small appliances, however, see a significant drop in replacement rates to 12.50%, possibly due to longer-lasting high-end purchases or decreased necessity for frequent replacements. Consumers in this group likely prioritise quality and durability over frequent upgrades.

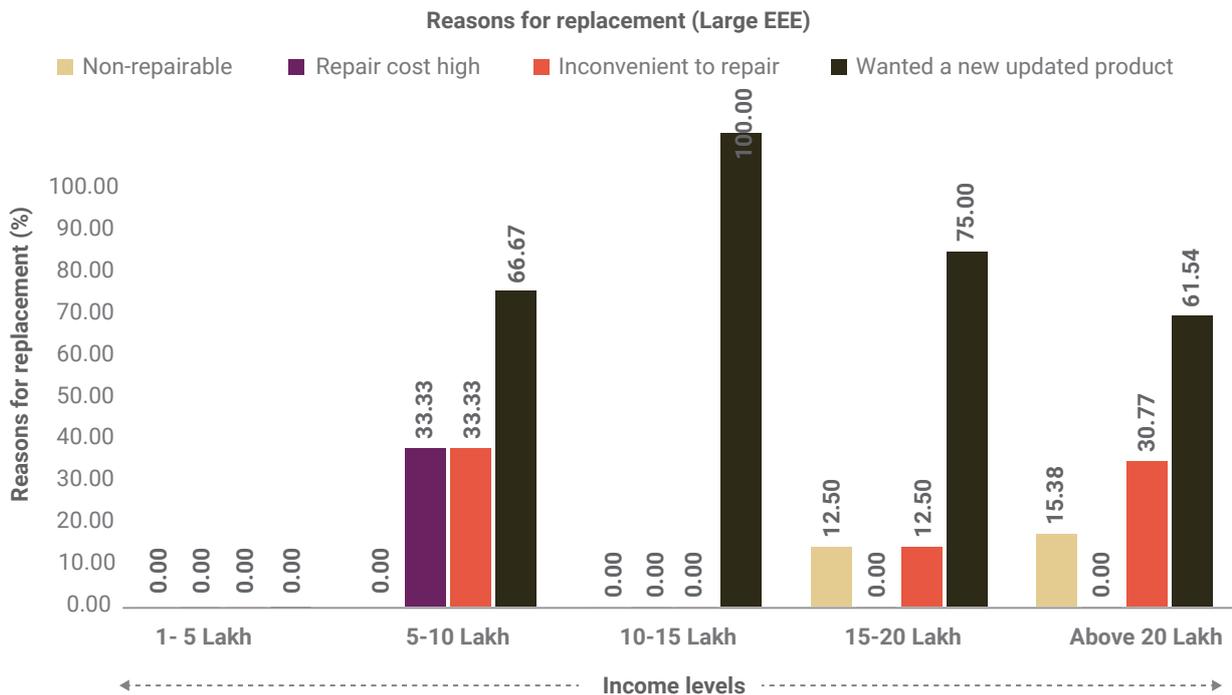
In the *above Rs 20 lakh* category, large EEE appliances show the highest replacement rate at 65%, followed by IT and Telecom equipment at 65% and small appliances at 26.32%. With higher purchasing power, this group is more inclined towards upgrading to premium products with advanced features, leading to a higher rate of replacement for expensive appliances.

➔ Motivation for replacement in Hyderabad

a. Large EEE

In Hyderabad, the lowest income group (*Rs 1-5 lakh*) had no reported motivation for replacing products, none found them non-repairable, costly to repair, inconvenient, or desired an upgrade. In the *Rs 5-10 lakh* group, no one found products non-repairable, but 33.33% cited high repair costs and inconvenience, while 66.67% preferred a new product. In the *Rs 10-15 lakh* category, no one found products non-repairable, costly to repair, or inconvenient, but 100% opted for a new product, indicating a strong preference for upgrades over repairs. In the *Rs 15-20 lakh* group, 12.5% found products non-repairable, and an equal percentage cited inconvenience, while 75% preferred a new product. Among the highest earners (*above Rs 20 lakh*), non-repairability was 15.38%, with no one citing repair costs as an issue, but 30.77% found repairs inconvenient. A large majority (61.54%) preferred a new product.

Figure 21: Reasons for replacement of large EEE (Hyderabad)

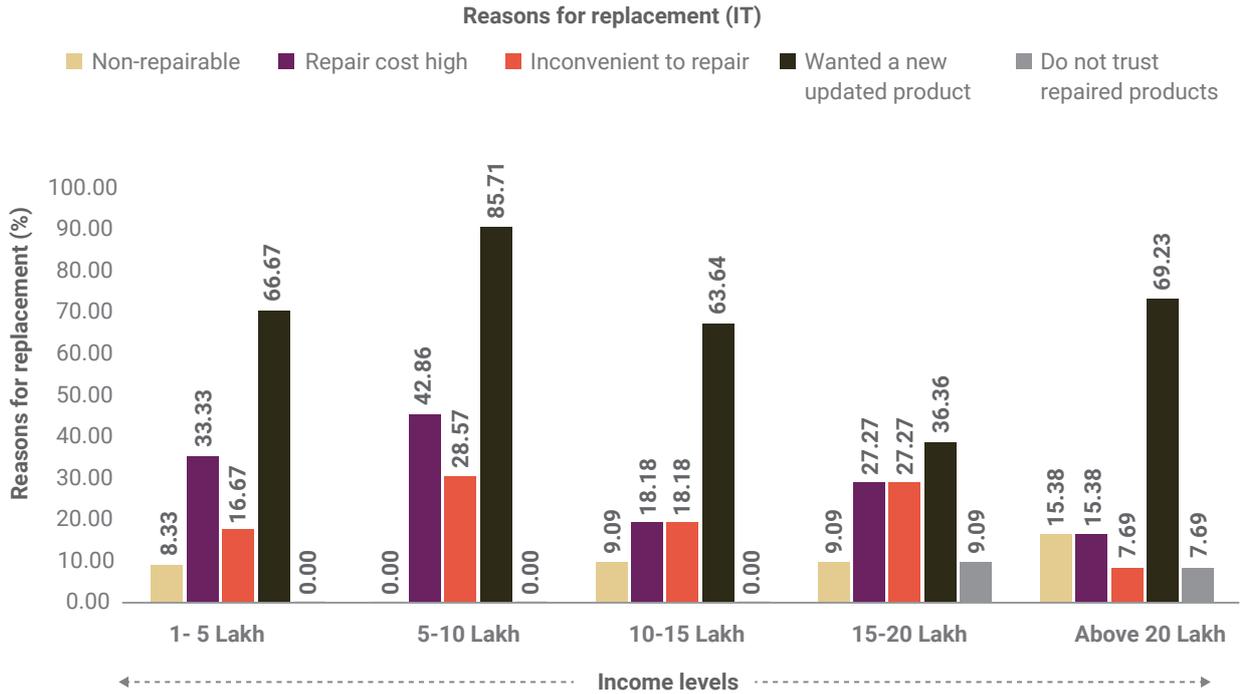


b. IT and Telecom Equipment

In Hyderabad, only 8.33% in the *Rs 1-5 lakh* category, found their products non-repairable, but 33.33% cited repair costs to be high, while 16.67% considered repairs inconvenient. A notable 66.67% preferred an updated product, while none expressed distrust in repaired products.

In the *Rs 5-10 lakh* range, no one found their products non-repairable, but 42.86% saw repair costs high, 28.57% found repairs inconvenient, and an overwhelming 85.71% opted for a new product. The *Rs 10-15 lakh* category had 9.09% stating non-repairability, 18.18% citing high repair costs, and the same percentage finding repairs inconvenient. Meanwhile, 63.64% wanted an updated product, with none expressing distrust. In the *Rs 15-20 lakh* income range, non-repairability remained at 9.09%, while 27.27% mentioned both high repair costs and inconvenience. A lower percentage, 36.36%, preferred a new product, and 9.09% lacked trust in repaired products. Among the highest earners (*above 20 lakh*), 15.38% found their products non-repairable, while an equal percentage cited high repair costs. Only 7.69% found repairs inconvenient, but 69.23% opted for a new product, and 7.69% distrusted repaired products.

Figure 22: Reasons for replacement of IT and Telecom equipment (Hyderabad)



c. SMALL APPLIANCES

For those in *Rs 1-5 lakh* income range, non-repairability was not a concern for any respondent. However, 37.5% found repair costs high, while 12.5% found repairs inconvenient. Half (50%) of them opted for a new product, while 12.5% lacked trust in repaired goods.

Among individuals earning *Rs 5-10 lakh*, non-repairability was again absent, but repair costs were an issue for 41.67%, and the same percentage (41.67%) found repairs inconvenient. Similarly, 41.67% chose to upgrade, but no one expressed distrust in repairs. The *Rs 10-15 lakh* group also did not report non-repairability, but 9.09% cited high repair costs and 18.18% found repairs inconvenient. A much larger percentage (72.73%) wanted a new product, and none distrusted repaired items.

In the *Rs 15-20 lakh* category, non-repairability, repair costs, and inconvenience were not concerns at all. However, every respondent (100%) opted for an updated product, and no one distrusted repaired ones. The trend continued in the *above Rs 20 lakh* category, where non-repairability was not reported, but 40% found repairs inconvenient. A significant 80% preferred a new product, with no concerns about trust in repaired goods.

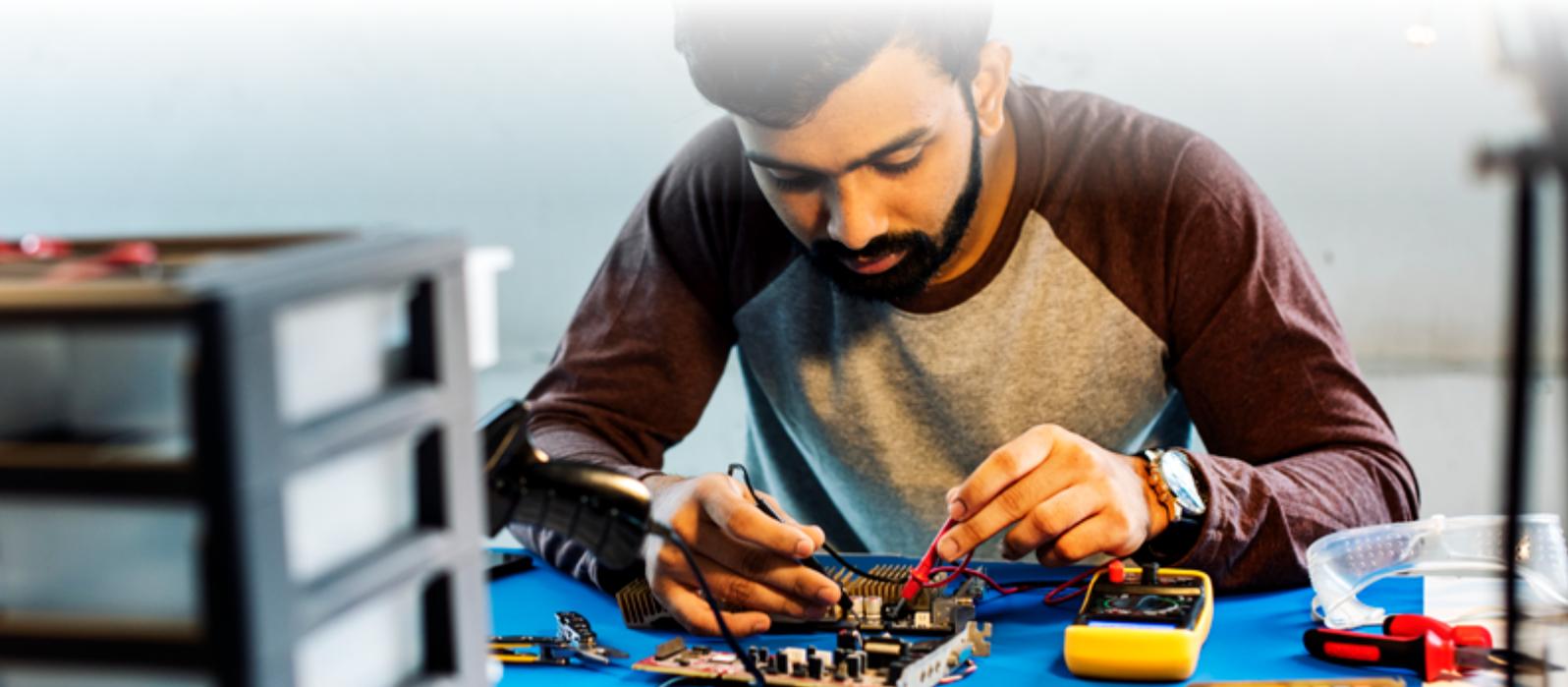
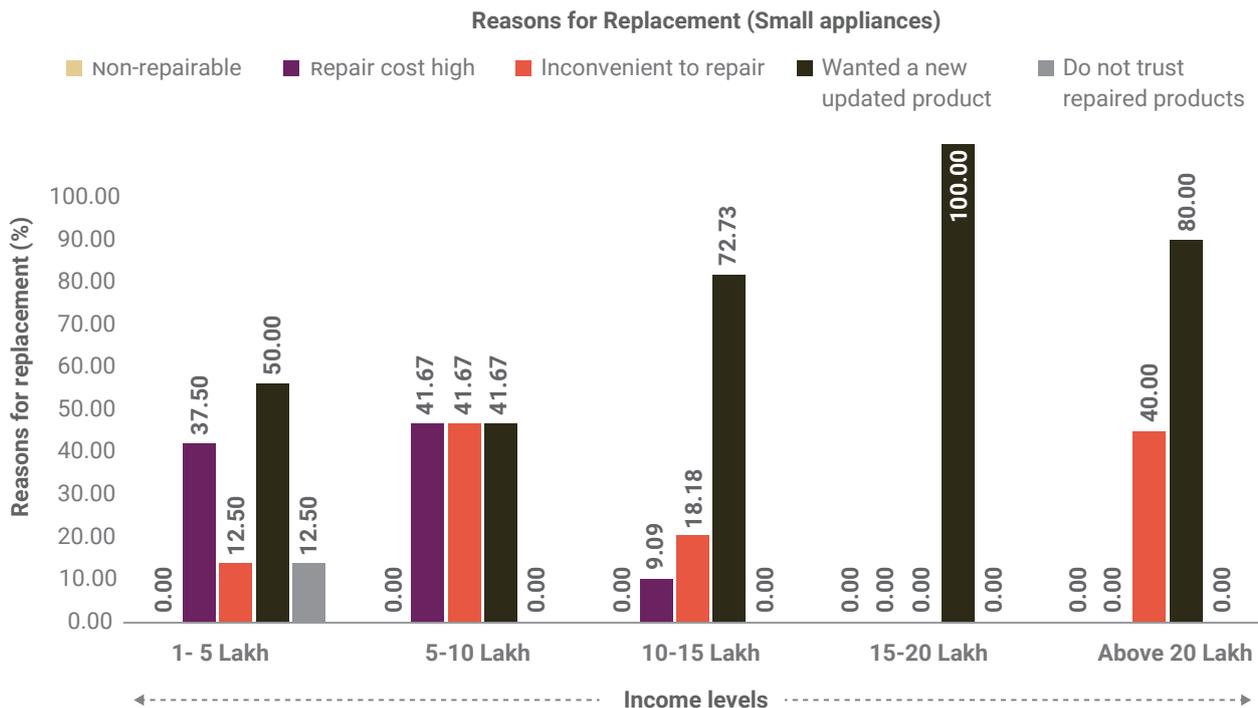


Figure 23: Reasons for replacement of small appliances (Hyderabad)



➔ Repair Trends in Hyderabad

Despite a growing preference for replacement, repair remains a key factor in consumer decision-making, particularly in the lower- and middle-income groups. In the *Rs 1-5 lakh* income range, consumers show a strong inclination towards repairing appliances rather than replacing them. While 78.57% of IT and Telecom equipment is repaired, 69.23% of small appliances undergo repairs. However, the repair rate for large EEE appliances is absent (0.00%), likely due to the high cost and limited affordability of repairs for such items. The key reasons for repairs include budget constraints, availability of spare parts, and the necessity to extend product lifespan.

As income levels increase to *Rs 5-10 lakh*, the repair rate for large EEE appliances rises significantly to 60%, indicating that affordability allows consumers to opt for maintenance rather than replacement. IT and Telecom equipment sees a 47.06% repair rate, while small appliances are repaired 60% of the time. This group balances between repair and replacement, often choosing repairs when they are cost-effective and convenient. In the *Rs 10-15 lakh* group, repair trends remain prominent, with 61.11% of IT and Telecom devices being repaired. Large EEE appliances have a 37.5% repair rate, while small appliances are repaired 53.33% of the time. Consumers in this category may prefer to repair mid-range items while upgrading premium products for better efficiency and performance.

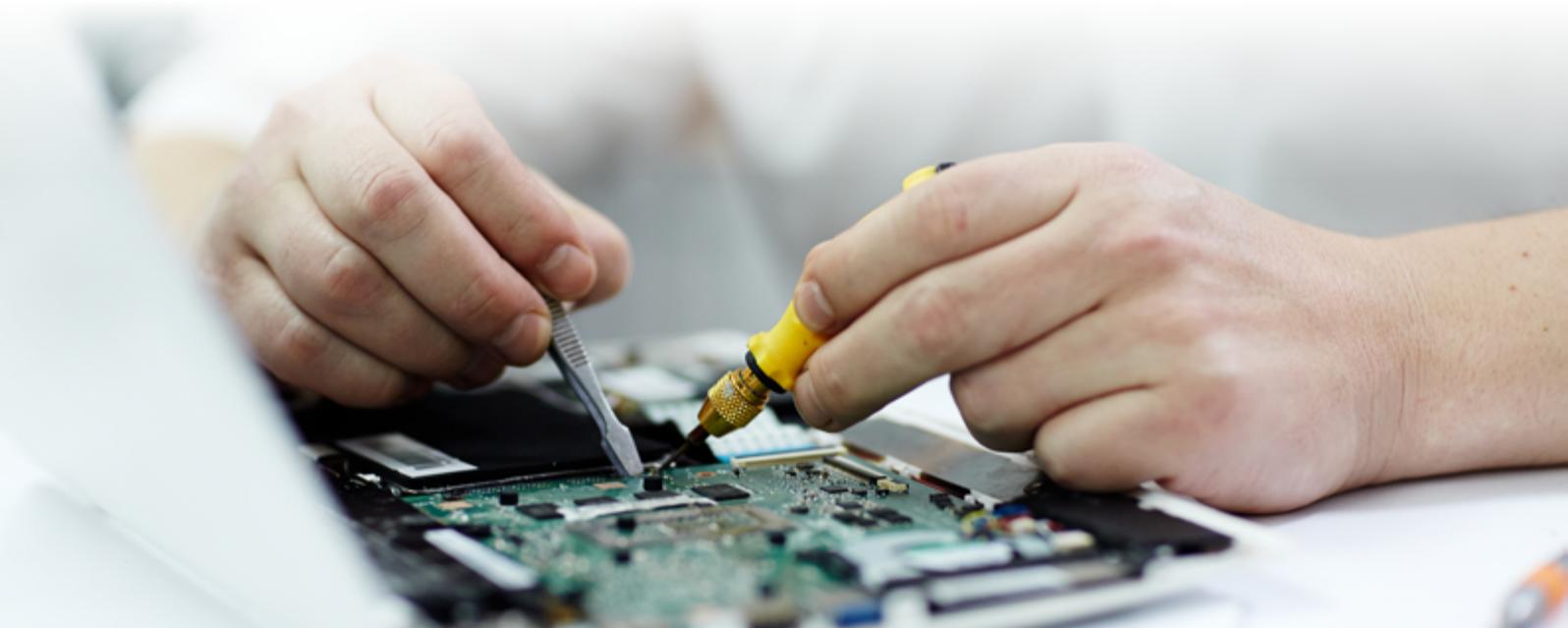
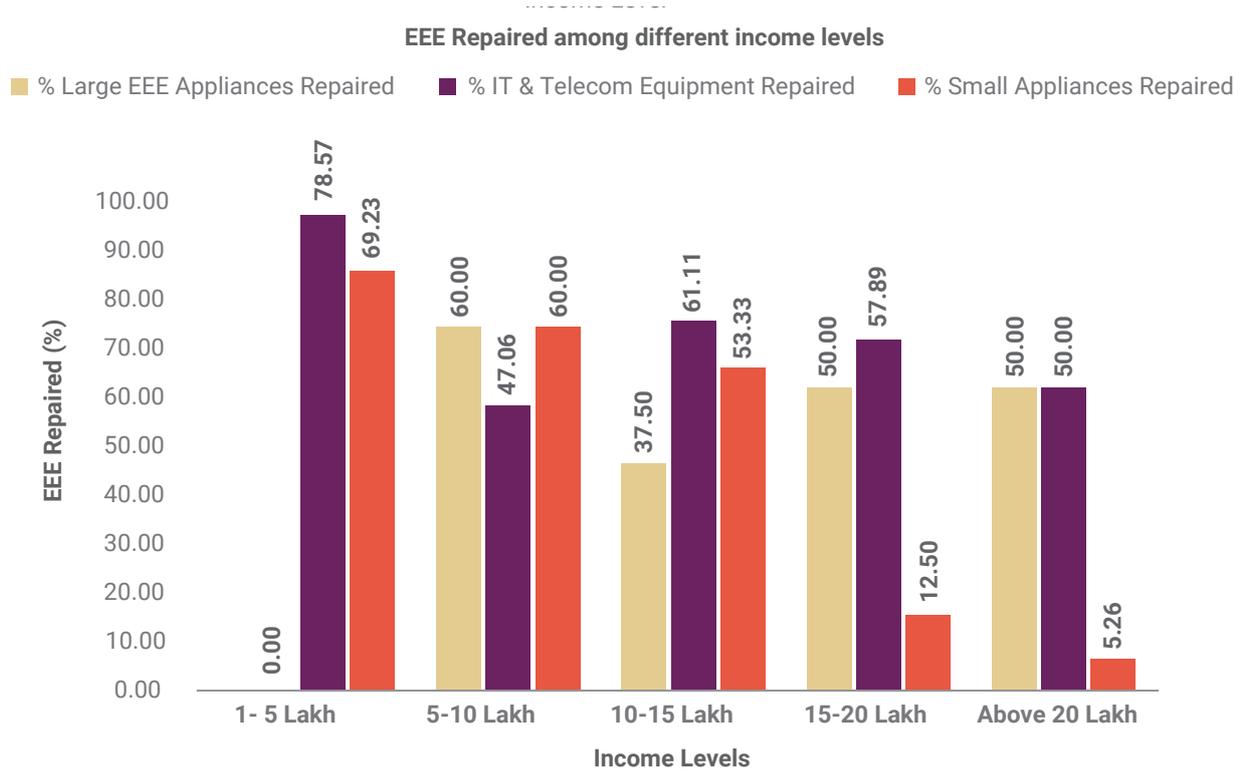


Figure 24: % of EEE repaired among different income groups



For the *Rs 15-20 lakh* income group, large EEE appliances are repaired 50% of the time, showing their preference for maintaining high-value products. IT and Telecom equipment follows closely with a 57.89% repair rate. However, the repair rate for small appliances drops significantly to 12.5%, possibly due to a preference for replacing rather than repairing lower-cost products. Consumers in this segment may prioritise convenience and durability over frequent maintenance. In the *above Rs 20 lakh* category, the repair rates for large EEE appliances and IT and Telecom equipment are both at 50%, suggesting that while consumers can afford new products, they still consider repairs for expensive or premium appliances. However, small appliances have a minimal repair rate of 5.26%, implying that this group prefers replacing such items over repairing them, possibly due to the availability of better-featured models and reduced concerns about cost.

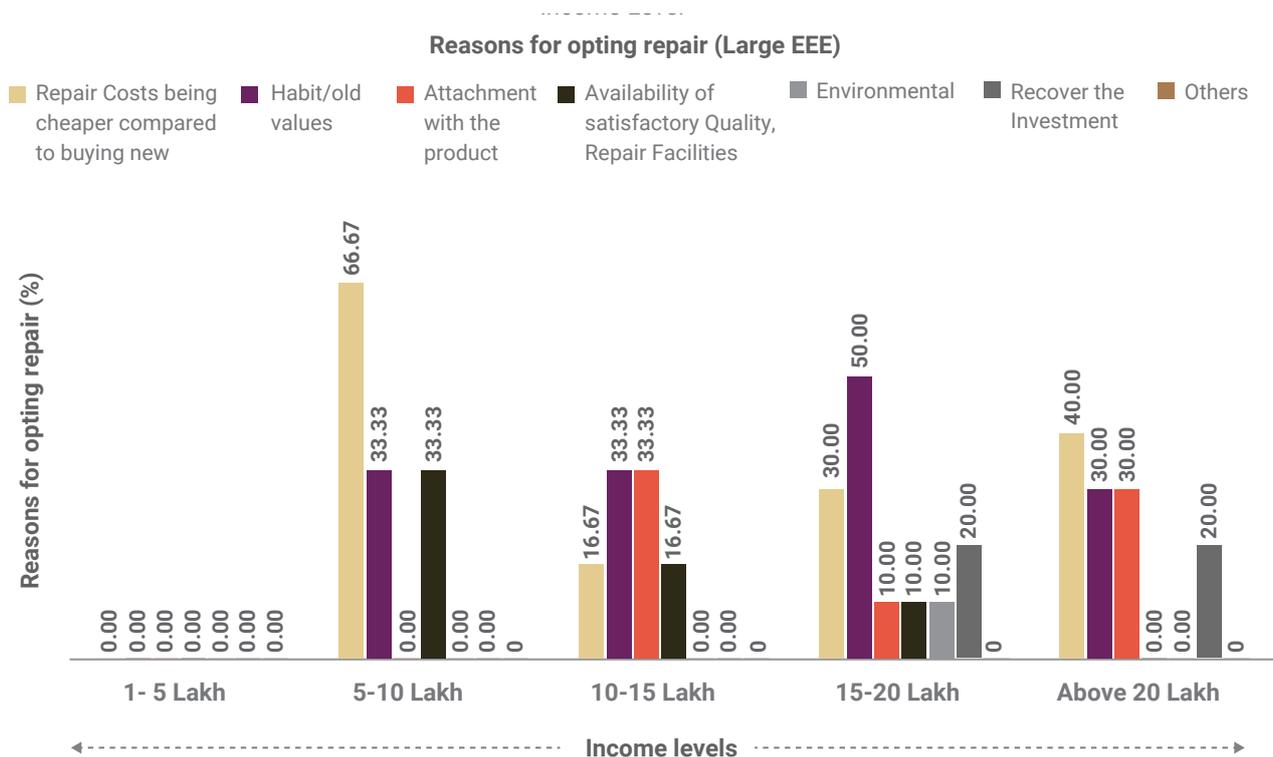
➔ Motivation for repair

In Hyderabad, repair motivation varies significantly by income level.

a. LARGE EEE

The *Rs 1-5 lakh* group shows no inclination towards repairing, indicating a strong preference for replacement over repair, possibly due to lack of repair facilities or affordability concerns. In the *Rs 5-10 lakh* category, repair motivation rises to 66.67%, mainly driven by cost and habit (33.33%). The *Rs 10-15 lakh* group, however, sees a steep decline in repair motivation (16.67%), even as emotional attachment and habit (33.33%) remains. In the *Rs 15-20 lakh* group, repair motivation slightly increases to 30%, with habit (50%) playing a stronger role. Recovery of the investment also is a factor for choosing repair (20%). However, emotional attachment and environmental concern remains low (10%). In the *above Rs 20 lakh* category, repair motivation reaches 40%, largely driven by habit (30%) and attachment (30%), while environmental factors and availability of quality repair facilities seem to have no influence.

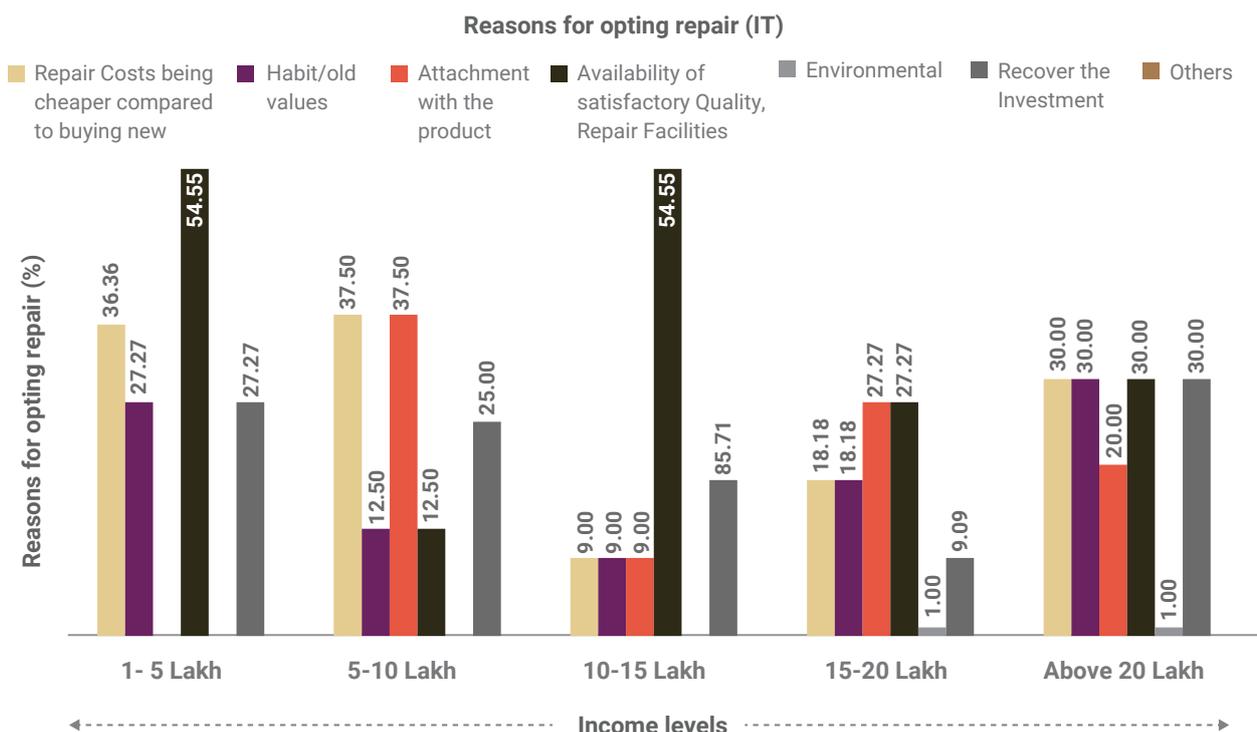
Figure 25: Reasons for repair of large EEE (Hyderabad)



b. IT AND TELECOM

In Hyderabad, repair motivations vary significantly across income groups. The Rs 1-5 lakh segment shows a low inclination towards repair, with only 36.36% finding it cost-effective. However, 54.55% cite the availability of repair facilities as a reason for opting repair than replacing it. Habit (27.27%) and investment recovery (27.27%) are additional considerations.

Figure 26: Reasons for repair of IT and Telecom equipment (Hyderabad)



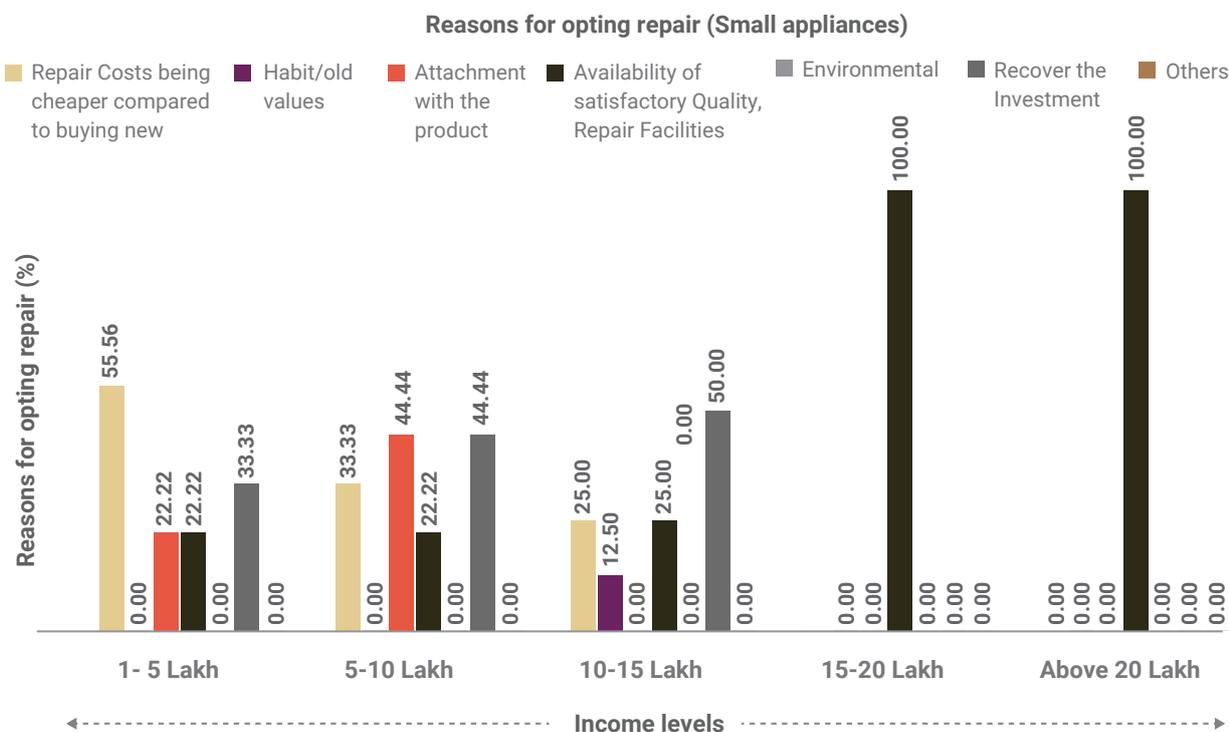
The Rs 5-10 lakh group has 37.5% favouring repair for financial reasons, and 37.5% due to attachment to the product. However, investment recovery is only a factor for 25%, and the availability of repair facilities for only 12.5%. For individuals earning Rs 10-15 lakh, low repair costs motivates 9.09%, while 54.55% highlight access to repair facilities as a key driver. Habit and emotional attachment also stand at 9.09%, while investment recovery is a consideration for 18.18%. Among those earning Rs 15-20 lakh, 18.18% are cost-motivated, while 27.27% find emotional attachment significant. The availability of repair facilities is also a factor for 27.27%, whereas habit plays a minor role (18.18%).

For the above Rs 20 lakh income group, 30% find repair cheaper, while 30% value habit. Emotional attachment (20%) and repair facility availability (30%) contribute as well.

c. SMALL APPLIANCES

In Hyderabad, the motivation to repair small appliances decreases sharply as income increases. Among the Rs 1-5 lakh group, 55.56% repair due to cost savings, while 33.33% repair so as to recover the investment, 22.22% cite attachment to the product and availability of quality repair facilities as motivators. However, for those earning Rs 5-10 lakh, only 33.33% repair for cost savings, while 44.44% cite attachment to the product and recovery of the investment cost.

Figure 27: Reasons for repair of small appliances (Hyderabad)



The Rs 10-15 lakh group shows an even lower interest, with 25% considering repair costs and 12.50% citing habit. The most striking trend is in the Rs 15-20 lakh and above Rs 20 lakh groups, where 0% of respondents cite any motivation for cost, habit, attachment, or environmental concerns, with only 100% of respondents citing satisfactory repair facility availability in both categories. This suggests that higher-income individuals in Hyderabad almost entirely abandon repair unless good-quality repair services are guaranteed.

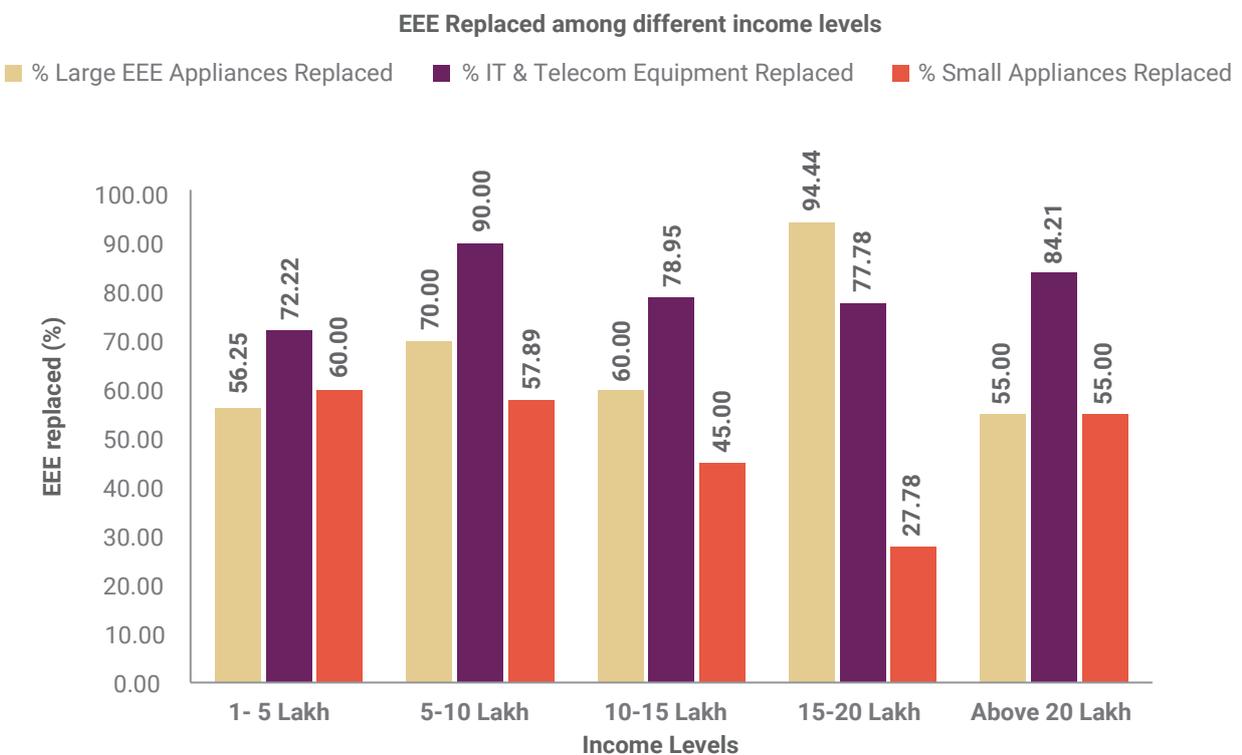
KOLKATA

Kolkata, a major metropolitan city with a rich culture and economic diversity, exhibits distinctive consumer behaviour regarding the replacement and repair of electronic and electrical equipment across various income groups.

➔ Replacement Trends in Kolkata

In the *Rs 1-5 lakh* income range in Kolkata, consumers show a strong tendency to replace IT and Telecom equipment, with 72.22% of such devices being replaced. Large EEE appliances also have a considerable replacement rate of 56.25%, indicating that despite financial constraints, many opt for new appliances when repairs are costly or inefficient. Small appliances are replaced 60% of the time, suggesting that affordability plays a role in consumers' preference for frequent upgrade of technology devices. The main factors driving replacements in this group include outdated technology, high repair costs, and the unavailability of spare parts.

Figure 28: % of EEE replaced among different income levels



As income levels increase to *Rs 5-10 lakh*, the replacement rate for IT and Telecom equipment rises significantly to 90%, reflecting a strong preference for upgrading to the latest technology. Large EEE appliances also witness a high replacement rate at 70%, while small appliances are replaced 57.89% of the time. Consumers in this category balance affordability with the need for newer, more efficient appliances, often replacing products when repair delays become long and inconvenient.

In the *Rs 10-15 lakh* group, the replacement trend remains strong, with 78.95% of IT and Telecom equipment being replaced. Large EEE appliances see a 60% replacement rate, indicating a preference for newer models over repairs. Small appliances, however, have a lower replacement rate of 45%, possibly because mid-range consumers may prioritise larger upgrades over frequently replacing smaller devices.

For the *Rs 15-20 lakh* income group, large EEE appliances see an exceptionally high replacement rate of 94.44%, indicating a strong preference for upgrading premium home appliances rather than repairing them. IT and Telecom equipment follows at 77.78%, reflecting the rapid technology turnover in this segment. However, small appliances have a significantly lower replacement rate of 27.78%, possibly because consumers in this bracket prefer to invest in durable, high-quality items that require less frequent replacement.

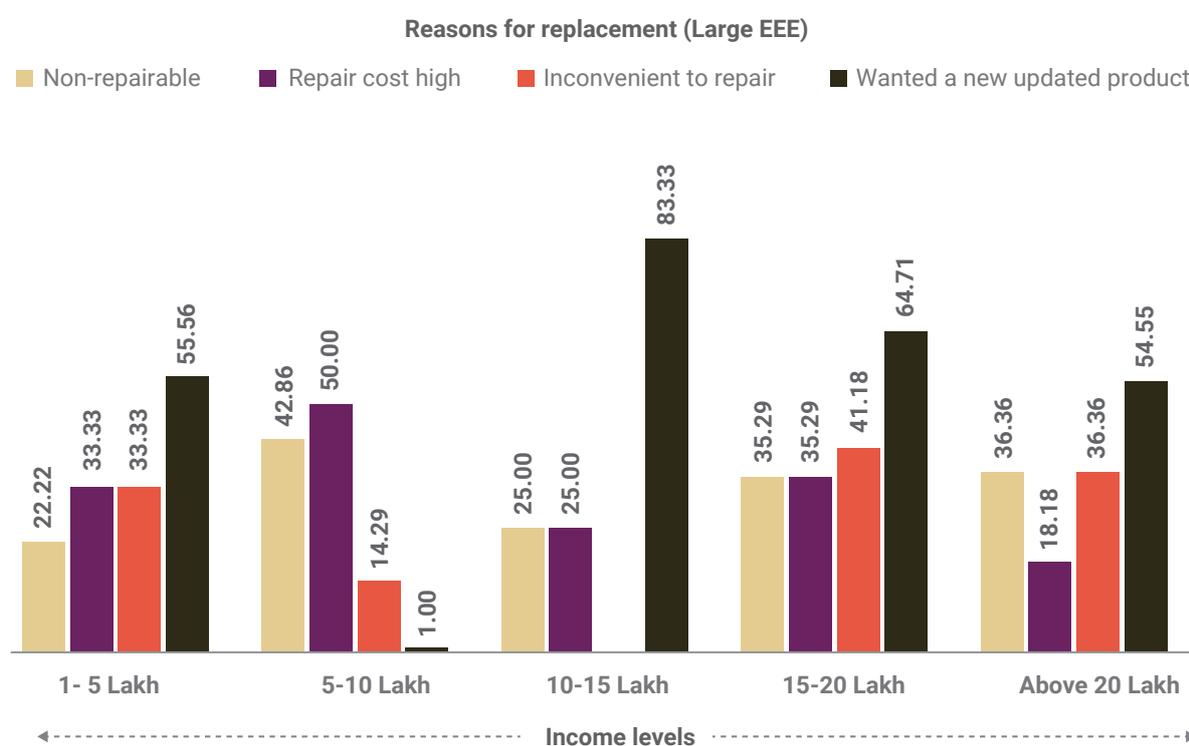
In the *above Rs 20 lakh* category, IT and Telecom equipment remains a priority for replacement, with 84.21% of such devices being substituted with an upgraded product. Large EEE appliances are replaced 55% of the time, while small appliances also have a 55% replacement rate. This group, with higher purchasing power, tends to invest in premium products but may not replace high-value items as frequently as expected, possibly due to a preference for long-lasting, high-end appliances.

➔ Motivation for replacement in Kolkata

a. Large EEE

In Kolkata, the lowest income group (*Rs 1-5 lakh*) reported non-repairability at 22.22%, with 33.33% each citing high repair costs and inconvenience, while 55.56% wanted a new product. In the *Rs 5-10 lakh* category, non-repairability increased to 42.86%, with repair costs being a concern for 50% and inconvenience for 14.29%. Only 1% preferred a new product, suggesting a greater willingness to repair items.

Figure 29: Reasons for replacement of large EEE (Kolkata)



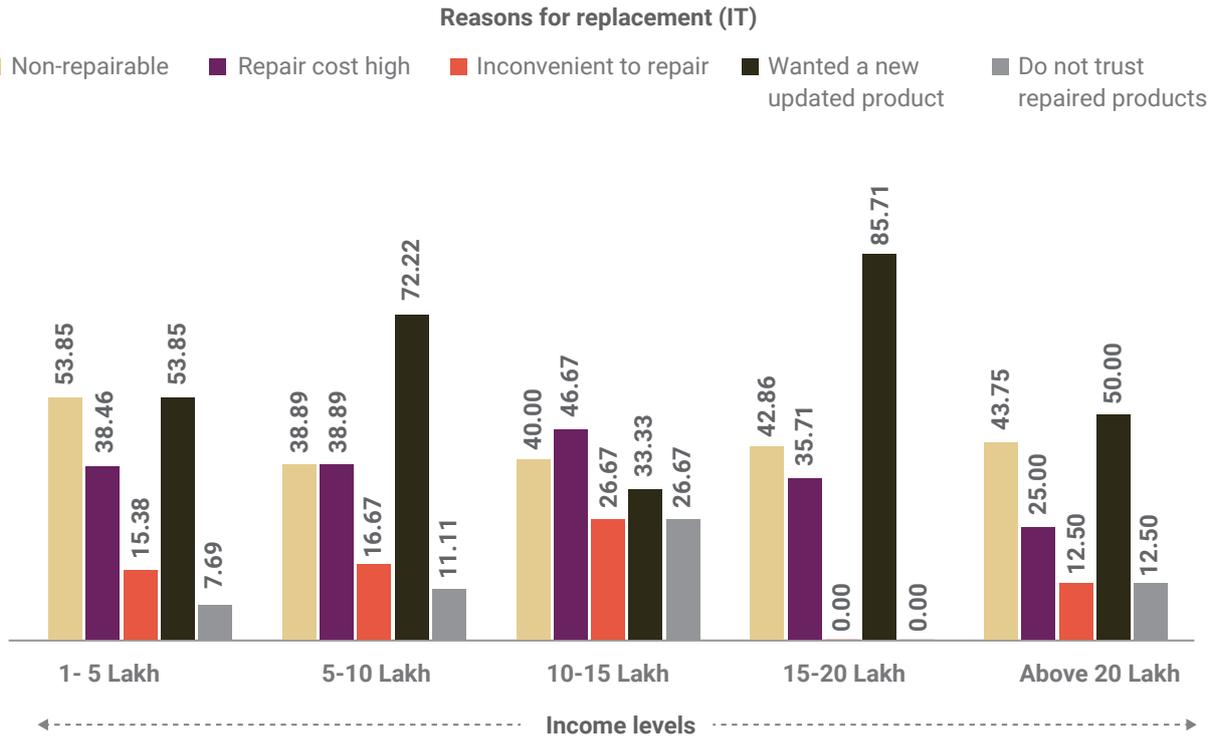
The *Rs 10-15 lakh* category, 25% cited non-repairability and repair costs, with no one mentioning inconvenience. However, a significant 83.33% opted for a new product. In the *Rs 15-20 lakh* group, both non-repairability and repair costs were a concern for 35.29%, while inconvenience was reported by 41.18%. A substantial 64.71% wanted a new product. Among the highest income earners (*above Rs 20 lakh*), non-repairability was 36.36%, repair costs were a concern for 18.18%, inconvenience was cited by 36.36%, and 54.55% preferred a new product.

b. IT and Telecom devices

In Kolkata, the *Rs 1-5 lakh* group reported non-repairability at 53.85%, while 38.46% faced high repair costs, and 15.38% found repairs inconvenient. A significant 53.85% preferred replacing their product, and 7.69% lacked trust in repaired goods. The *Rs 5-10 lakh* income group had 38.89% finding products non-repairable, an equal percentage citing high repair costs, and 16.67% considering repairs inconvenient. A large proportion, 72.22%, wanted a new product, while 11.11% did not trust repaired items.

Among those earning *Rs 10-15 lakh*, non-repairability was at 40%, with 46.67% concerned about high repair costs and 26.67% about inconvenience. However, only 33.33% wanted a new product, while 26.67% lacked trust in repaired products. In the *Rs 15-20 lakh* category, 42.86% cited non-repairability, while 35.71% found repair costs high. None reported inconvenience as a factor, yet 85.71% still preferred a new product, and none distrusted repaired ones.

Figure 30: Reasons for replacement of IT and Telecom equipment (Kolkata)



Among the highest earners (*above Rs 20 lakh*), non-repairability was 43.75%, repair costs were a concern for 25%, and 12.5% found repairs inconvenient. Half (50%) preferred an upgraded product, and 12.5% distrusted repaired goods.

c. SMALL APPLIANCES

Among the *Rs 1-5 lakh* income group, non-repairability was an issue for 44.44%, while an equal percentage (44.44%) found repairs expensive, and 22.22% considered them inconvenient. A majority (55.56%) wanted an upgraded product, and no one doubted repaired items. The *Rs 5-10 lakh* category reported a similar non-repairability rate of 45.45%, but repair costs were even more of a concern at 54.55%, and 27.27% found repairs inconvenient. A smaller percentage (36.36%) wanted a new product, and no one distrusted repaired ones. For individuals earning *Rs 10-15 lakh*, non-repairability remained high at 44.44%, with an equal percentage (44.44%) citing high repair costs, and 22.22% mentioning inconvenience. However, only 11.11% wanted an updated product, while 11.11% lacked trust in repaired goods.

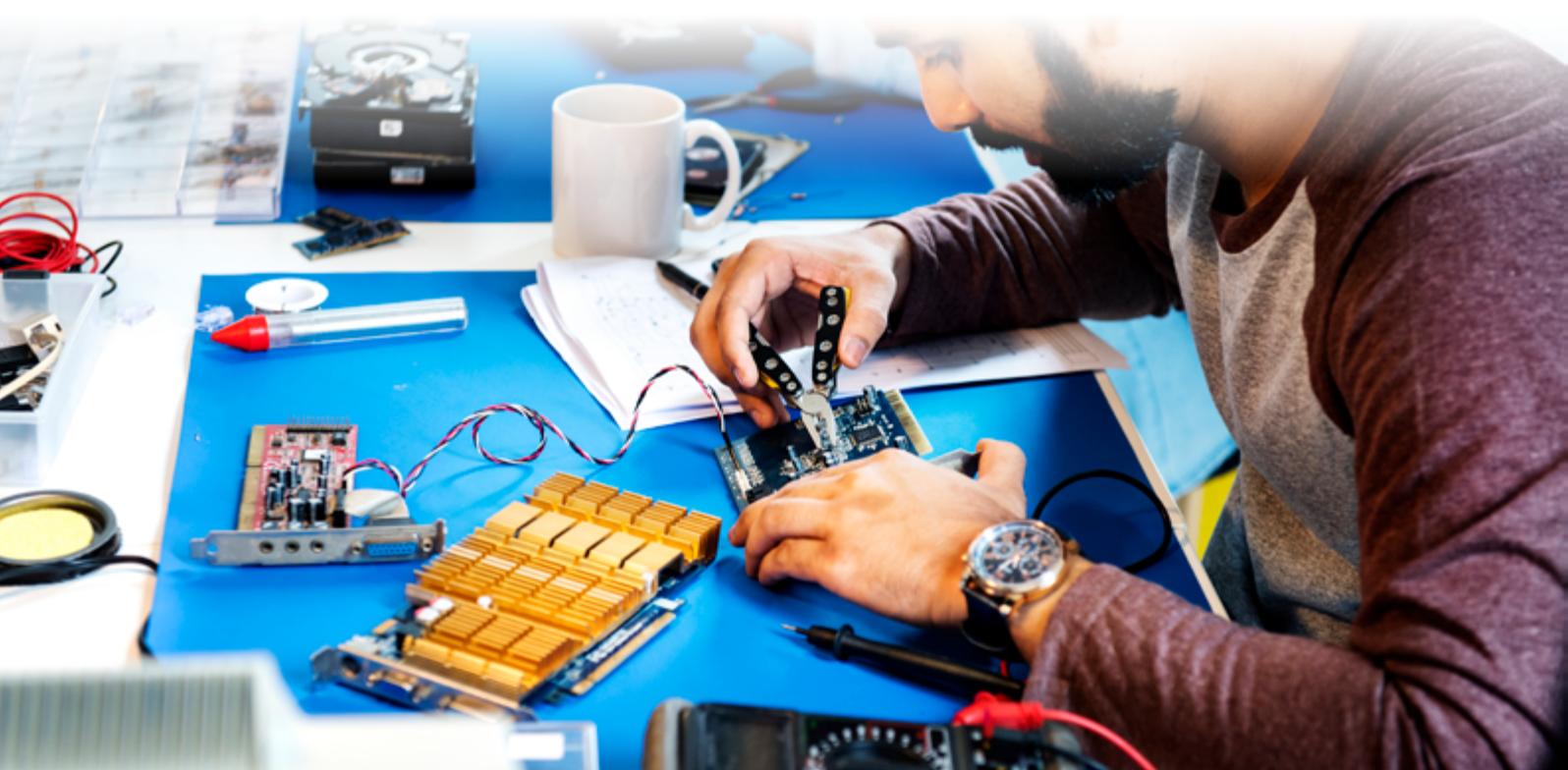
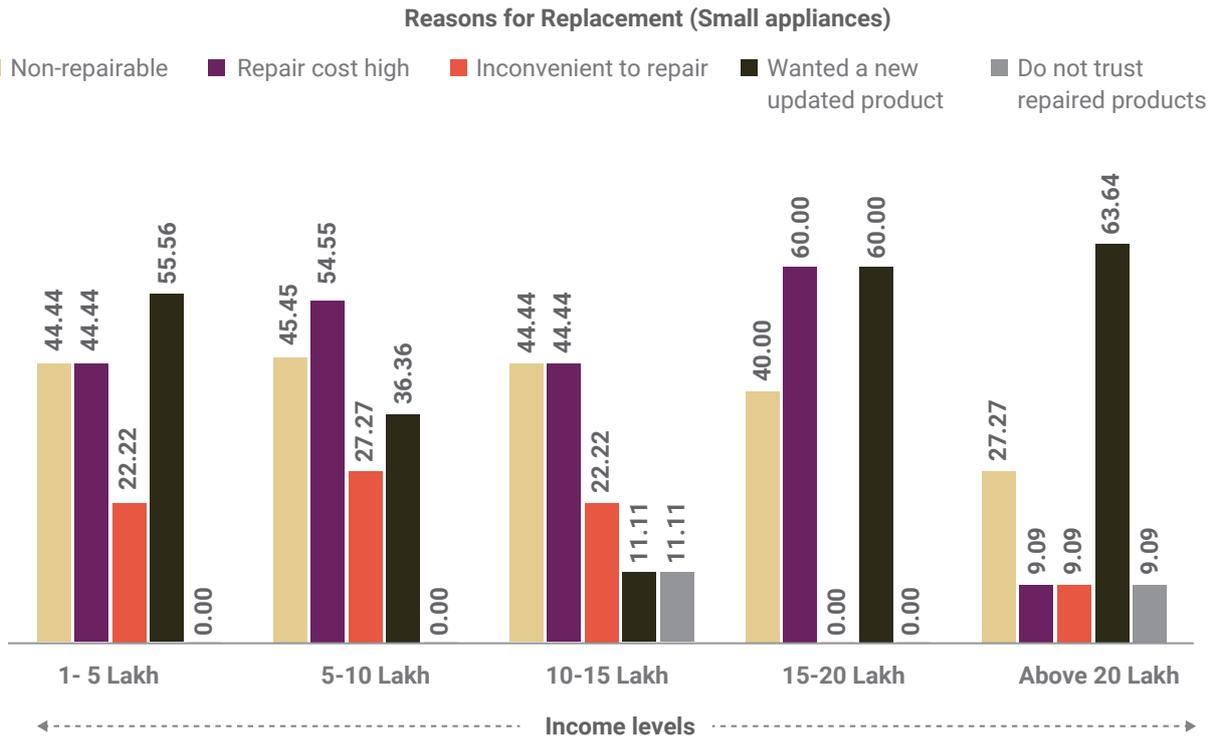


Figure 31: Reasons for replacement of small appliances (Kolkata)



In the Rs 15-20 lakh range, 40% cited non-repairability, and an even greater number (60%) found repair costs high, but inconvenience was not a concern. The same 60% wanted a new product, while no one expressed distrust in repairs. Among those earning above Rs 20 lakh, non-repairability dropped to 27.27%, while 9.09% cited both high repair costs and inconvenience. A larger percentage (63.64%) wanted an upgraded product, while another 9.09% distrusted repaired goods.

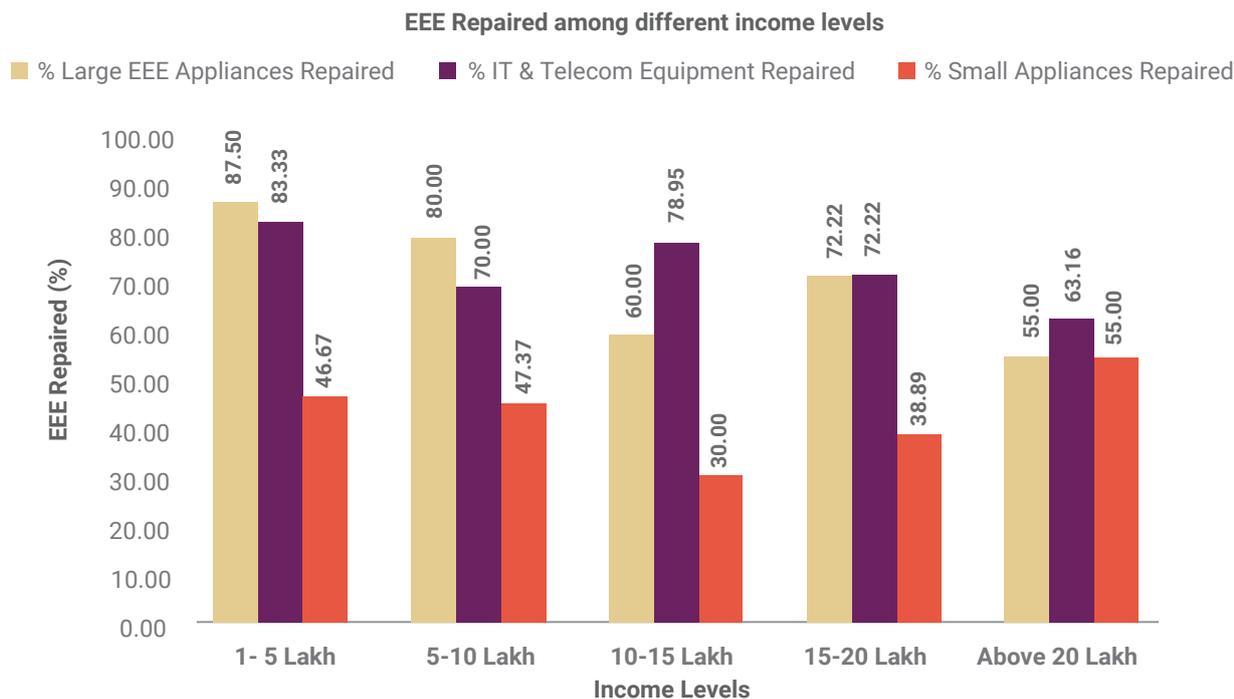
➔ Repair Trends in Kolkata

Despite the growing trend of replacing appliances, repair remains an essential aspect of consumer decision-making, particularly among lower- and middle-income groups in Kolkata. In the Rs 1-5 lakh income range, a significant 87.50% of large electrical and electronic equipment (EEE) appliances are repaired, alongside 83.33% of IT and Telecom equipment and 46.67% of small appliances. This indicates that budget constraints and the need to extend the lifespan of expensive items drive repair decisions in this category.

As income levels increase to Rs 5-10 lakh range, repair trends remain significant, with 80% of large EEE appliances being repaired, though IT and Telecom equipment repairs decline slightly to 70%. Small appliance repair rates remain similar at 47.37%. This group tends to balance between repair and replacement, often opting for maintenance when it is cost-effective and convenient.

In the Rs 10-15 lakh income bracket, repair patterns shift. Repair of large EEE appliances drop to 60%, reflecting a growing tendency to replace high-value items rather than repairing them. However, repair of IT and Telecom equipment remains strong at 78.95%, indicating that consumers in this range still see value in maintaining these devices. Small appliance repair rates decrease to 30%, suggesting that more disposable or easily replaceable items are being phased out.

Figure 32: % of EEE repaired among different income levels



For the *Rs 15-20 lakh* group, repair rates for large EEE appliances increase again to 72.22%, indicating that some consumers still find it practical to extend the life of expensive goods. IT and Telecom equipment repairs also stands at 72.22%, reflecting the ongoing relevance of maintenance for these products. Meanwhile, small appliance repair rates rise slightly to 38.89%, suggesting a mix of repair and replacement decisions based on the specific item’s value and functionality. Among the highest income group—those earning *above Rs 20 lakh*—the repair rate for large EEE appliances drops to 55%, the lowest among all groups. IT and Telecom equipment repair rates also decline to 63.16%, while small appliance repairs increase to 55%.

➔ Motivation for repair

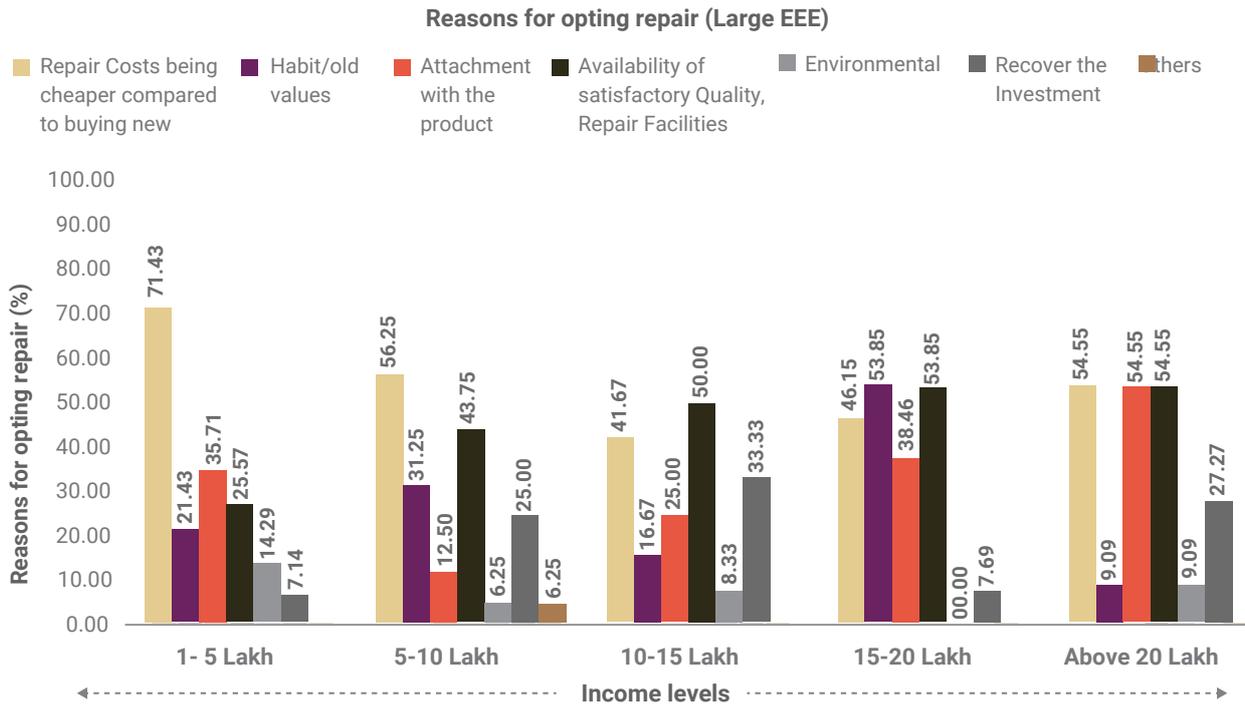
a. Large EEE

In Kolkata, repair motivation among lower-income groups is relatively strong. In the *Rs 1-5 lakh* group, 71.43% repair due to cost-effectiveness, with habit (21.43%) and emotional attachment (35.71%) playing notable roles. Quality repair facilities (28.57%) also contribute to repair decisions.

The *Rs 5-10 lakh* group shows a decline in repair motivation to 56.25%, with habit (31.25%) and investment recovery (25.00%) influencing decisions, while quality repair facilities (43.75%) remain important.



Figure 33: Reasons for repair of Large EEE (Kolkata)



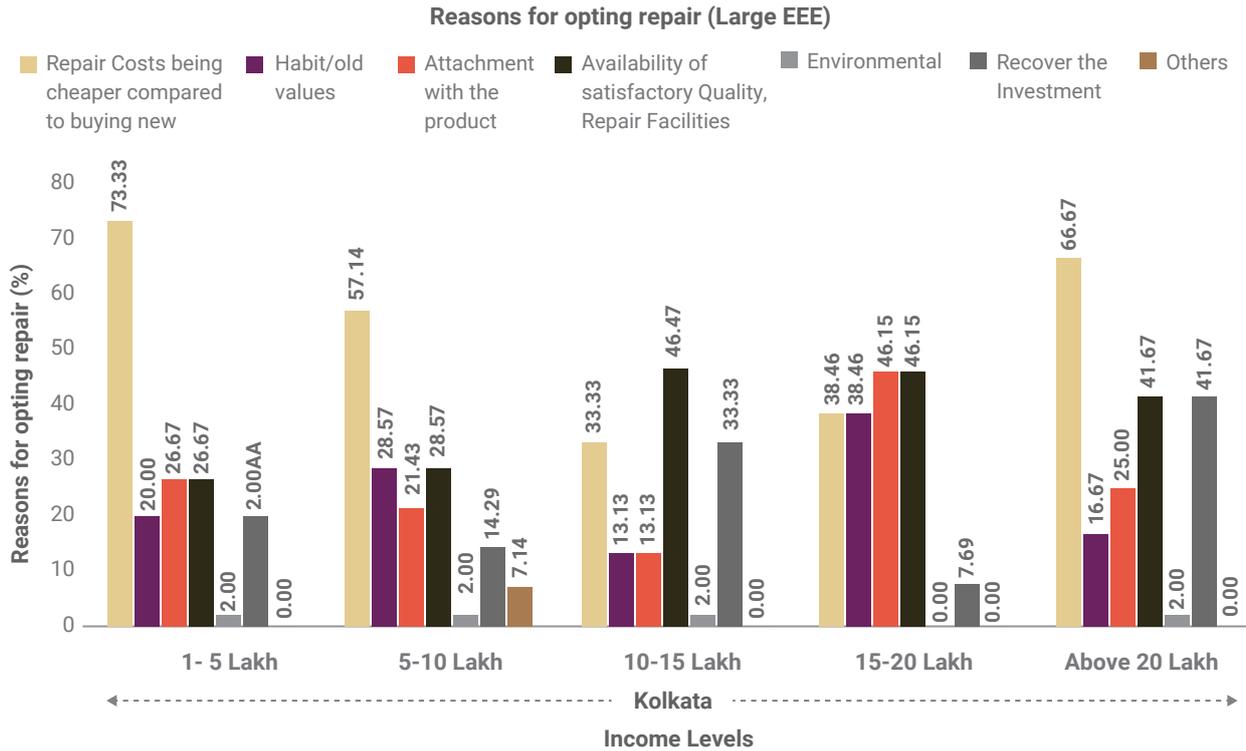
Among those earning *Rs 10-15 lakh*, repair motivation drops further to 41.67%, with repair facility availability (50%) being the strongest factor, alongside attachment (25%) and investment recovery (33.33%). In the *Rs 15-20 lakh* group, repair motivation stands at 46.15%, largely influenced by habit (53.85%) and attachment (38.46%), with repair facility availability (53.85%) playing a significant role. Among those earning *above Rs 20 lakh*, 54.55% are driven by repair motivation, with emotional attachment and repair facility availability (54.55%) being the dominant factors, while investment recovery (27.27%) and environmental concerns (9.09%) are also considered.

b. IT AND TELECOM

In Kolkata, 73.33% of individuals in the *Rs 1-5 lakh* category see repair as cost-effective, while 26.67% cite emotional attachment. Habit (20%) and repair service availability (26.67%) are also factors, with environmental concerns influencing 2%.



Figure 34: Reasons for repair of IT and Telecom equipment (Kolkata)



For those earning *Rs 5-10 lakh*, 57.14% prefer repair due to financial reasons, whereas 21.43% cite attachment. Habit (28.57%) and access to repair services (28.57%) also play a role, while investment recovery (14.29%) influences decisions. The *Rs 10-15 lakh* group has 33.33% considering repair cost-effective, while 46.67% value repair service availability. Emotional attachment (13.33%) and habit (13.33%) play smaller roles. In the *Rs 15-20 lakh* category, 38.46% find repair more economical, a significant 46.15% feel attached to their products, and an equal percentage find repair service availability a motivating factor.

For those earning *above Rs 20 lakh*, 66.67% repair due to cost benefits. Investment recovery (41.67%) and repair facility access (41.67%) are crucial factors, while habit (16.67%) and attachment (25.00%) contribute to the decision.

c. SMALL APPLIANCES

In Kolkata, cost savings are again the strongest motivator, but habit and attachment play a significant role, especially among middle-income groups. In the *Rs 1-5 lakh* category, 85.71% cite cost savings, while 28.57% consider habit and repair facility availability, and 14.29% mention attachment and environmental concerns.

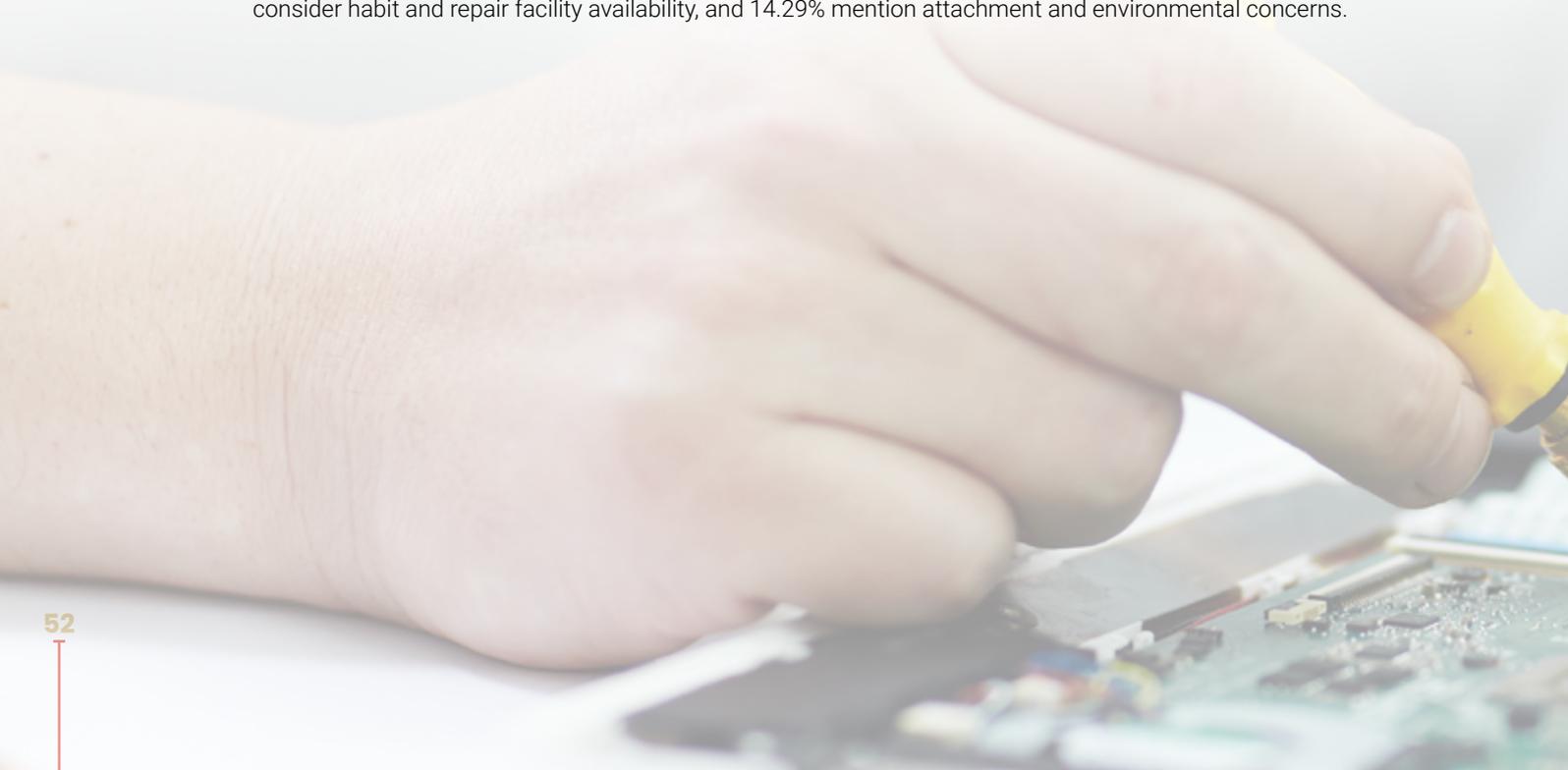
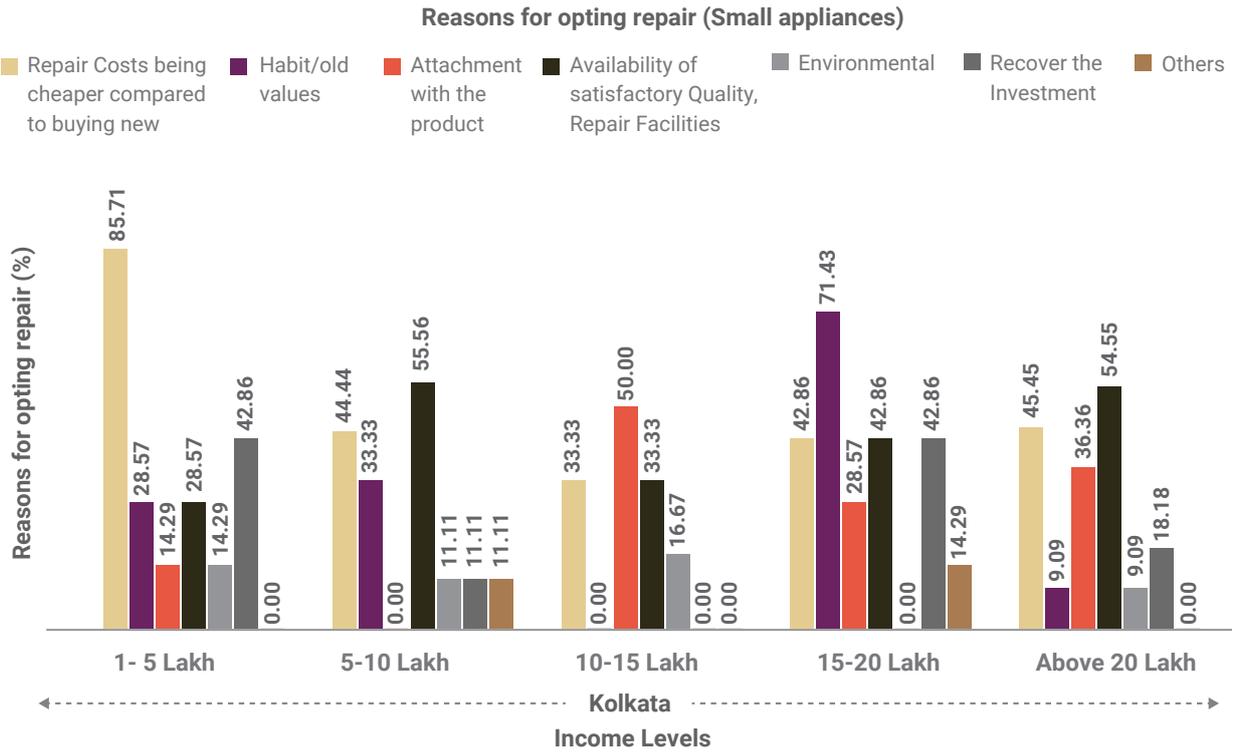
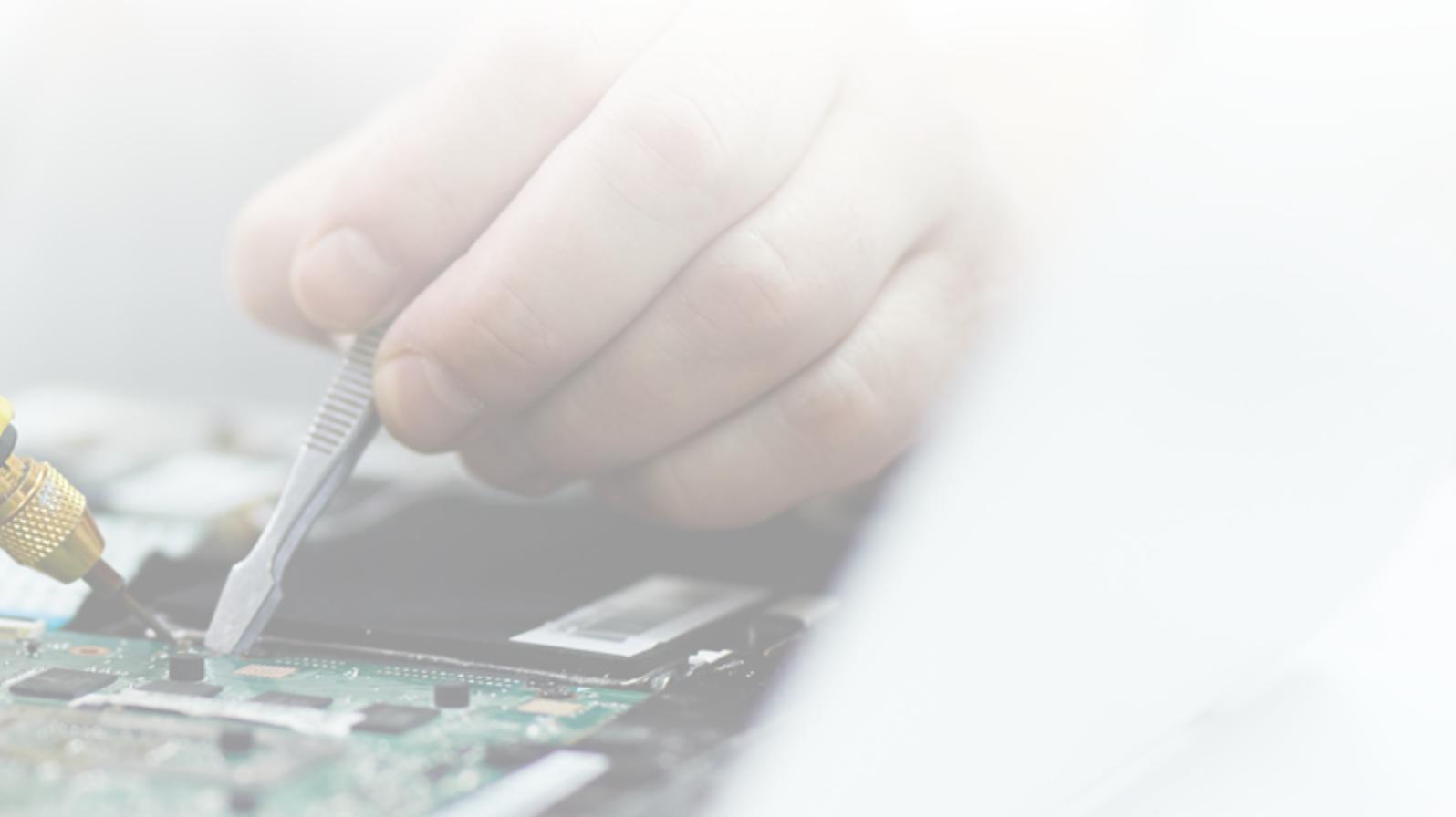


Figure 35: Reasons for repair of small appliances (Kolkata)



Among those earning Rs 5-10 lakh, cost motivation drops to 44.44%, while 33.33% cite habit and 55.56% consider the availability of good repair facilities. Interestingly, the Rs 10-15 lakh group shows the highest attachment to products (50%), while 33.33% consider repair facilities and 16.67% cite environmental concerns. For those earning Rs 15-20 lakh, habit plays the most significant role, with 71.43% of respondents repairing due to habit, while 42.86% cite availability of repair services, cost savings, and investment recovery.

Among those earning above Rs 20 lakh, the motivation is more evenly spread, with 45.45% repairing for cost savings, 9.09% due to habit, 36.36% citing attachment, and 54.55% mentioning the availability of quality repair facilities. However, environmental concerns remain low at 9.09%.



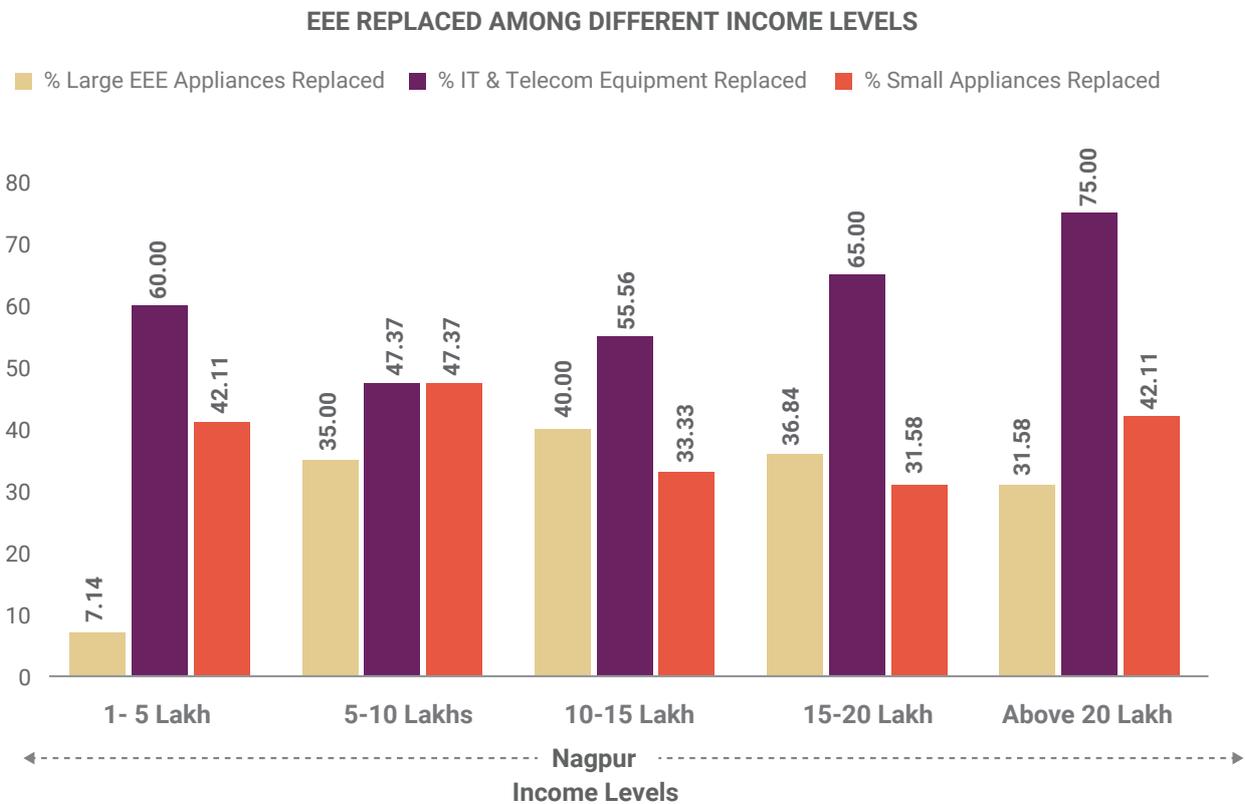
NAGPUR

Nagpur, a developing city with a growing urban population, presents distinct consumer patterns in the repair and replacement of electrical and electronic equipment across various economic segments.

➔ Replacement Trends in Nagpur

In Nagpur, the replacement of appliances varies across income levels, reflecting financial capacity and consumer preferences. Among the lowest income group (*Rs 1-5 lakh*), the replacement rate for Large EEE appliances is minimal at 7.14%, suggesting that affordability is a major constraint, leading consumers to prefer repairs over replacements. However, IT and Telecom equipment replacement is relatively high at 60%, indicating that essential communication devices are prioritised for upgrades. Small appliance replacement stands at 42.11%, influenced likely by cost and availability of newer, affordable models.

Figure 36: % of EEE replaced among different income levels



As income levels rise to *Rs 5-10 lakh* range, large EEE appliance replacement increases significantly to 35%, suggesting that as affordability improves, it allows consumers to replace outdated or non-functional appliances. IT and Telecom equipment replacement drops to 47.37%, possibly indicating that some consumers opt for repairs when feasible. Small appliance replacement remains stable at 47.37%, implying a balance between maintaining and replacing these items.

In the *Rs 10-15 lakh* income group, large EEE appliance replacement rises to 40%, highlighting a growing preference for upgrading rather than repairing. IT and Telecom equipment replacement reaches 55.56%, reflecting a willingness to invest in newer, more efficient devices. However, small appliance replacement declines to 33.33%, indicating that some consumers may still prefer repairs for low-cost items instead of immediate replacement.

In the *Rs 15-20 lakh* category, large EEE appliance replacement decreases slightly to 36.84%, suggesting that some consumers may still consider repair as an option for expensive items. IT and Telecom replacement continues to rise at 65%, reflecting the importance of up-to-date technology in this segment. Small appliance replacement drops to 31.58%, indicating that some consumers in this group still find it practical to repair frequently used items.

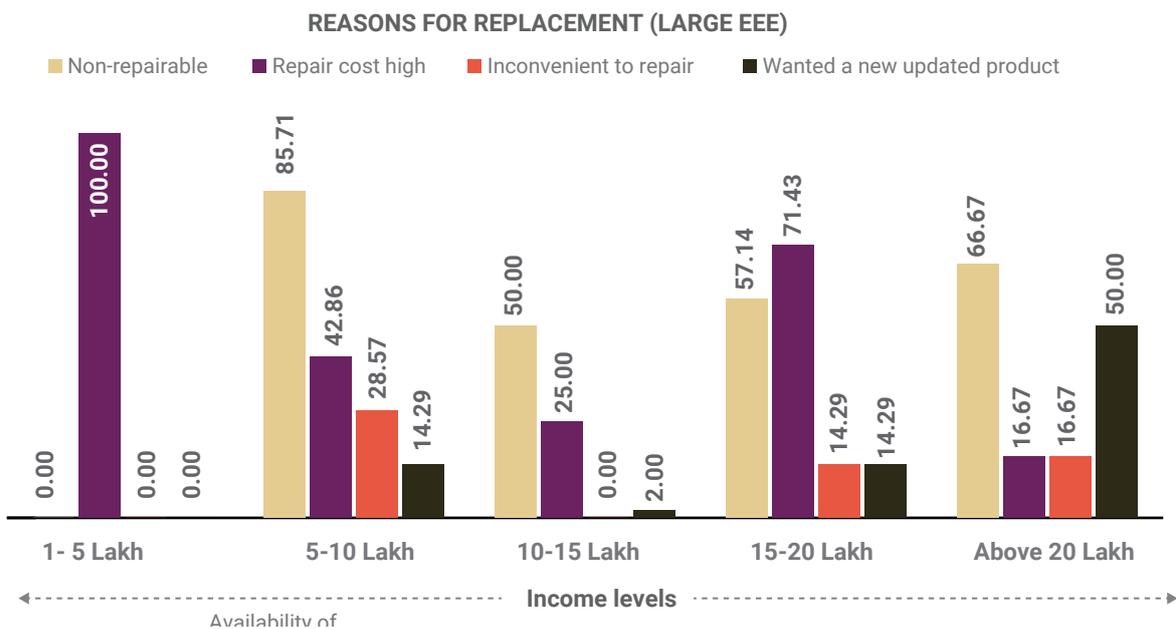
Among the highest income group (*above Rs 20 lakh*), large EEE appliance replacement remains steady at 31.58%, while IT and Telecom replacement reaches its peak at 75%. This suggests that higher-income consumers prioritise having the latest technology and are more likely to upgrade their electronic devices. Small appliance replacement increases again to 42.11%, indicating that wealthier consumers are more inclined to replace rather than repair everyday household items.

➔ Motivation for replacement

a. Large EEE

In Nagpur, the lowest income group (*Rs 1-5 lakh*) reported no non-repairability, but 100% cited high repair costs. None of them opted for a new product.

Figure 37: Reasons for replacement of large EEE (Nagpur)



In the *Rs 5-10 lakh* category, non-repairability was high at 85.71%, while 42.86% found repair costs high and 28.57% found repairs inconvenient. A small proportion (14.29%) wanted a new product. In the *Rs 10-15 lakh* group, non-repairability was 50%, repair costs were a concern for 25%, and no one found repairs inconvenient. However, only 2% preferred a new product.

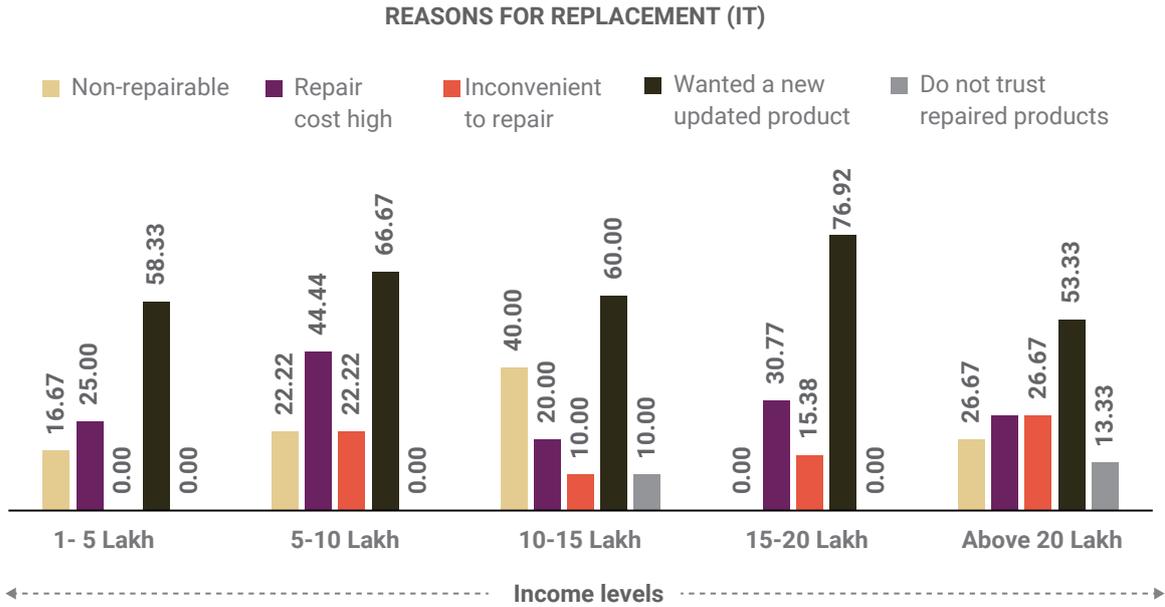
In the *Rs 15-20 lakh* category, non-repairability was 57.14%, and repair cost was a major issue for 71.43%. A smaller percentage (14.29%) cited inconvenience, and an equal percentage wanted a new product. Among the highest earners (*above Rs 20 lakh*), non-repairability remained high (66.67%), while repair costs (16.67%) and inconvenience (16.67%) were minor concerns. However, half (50%) of this group opted for a new product, reinforcing a growing preference for upgrades in higher income groups.

b. IT and Telecom equipment

In Nagpur, the *Rs 1-5 lakh* income group reported non-repairability at 16.67%, with 25% citing high repair costs, while no one found repairs inconvenient. A substantial 58.33% opted for a new product, and no one expressed distrust in repaired goods. The *Rs 5-10 lakh* category had 22.22% citing non-repairability, 44.44% facing high repair costs, and 22.22% finding repairs inconvenient. Two-thirds (66.67%) opted for an updated product, while none distrusted repaired goods.

Among the *Rs 10-15 lakh* earners, non-repairability increased to 40%, with 20% citing repair costs, and 10% finding repairs inconvenient. A large number (60%) wanted a new product, and 10% lacked trust in repaired ones.

Figure 38: Reasons for replacement of IT and Telecom equipment (Nagpur)

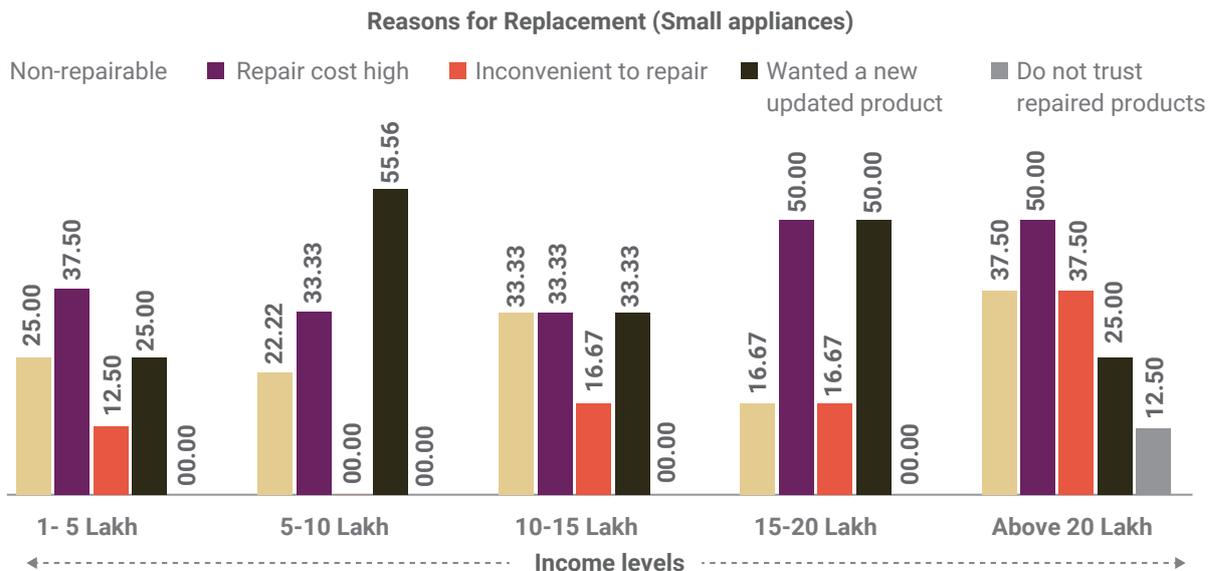


In the *Rs 15-20 lakh* category, no one found products non-repairable, but 30.77% cited high repair costs, and 15.38% considered repairs inconvenient. However, 76.92% preferred a new product, while none distrusted repairs. For the highest earners (*above Rs 20 lakh*), non-repairability stood at 20%, with 26.67% having cited high repair costs and an equal percentage finding repair inconvenient. A significant 53.33% wanted a new product, and 13.33% lacked trust in repaired ones.

c. Small appliances

For the *Rs 1-5 lakh* group in Nagpur, non-repairability was a concern for 25%, while 37.5% found repair costs high and 12.5% found repairs inconvenient. A quarter (25%) opted purchasing an updated product, and none expressed distrust. In the *Rs 5-10 lakh* income group, non-repairability affected 22.22%, while a third (33.33%) found repair costs high. No one found repairs inconvenient, but 55.56% wanted a new product.

Figure 39: Reasons for replacement of small appliances (Nagpur)



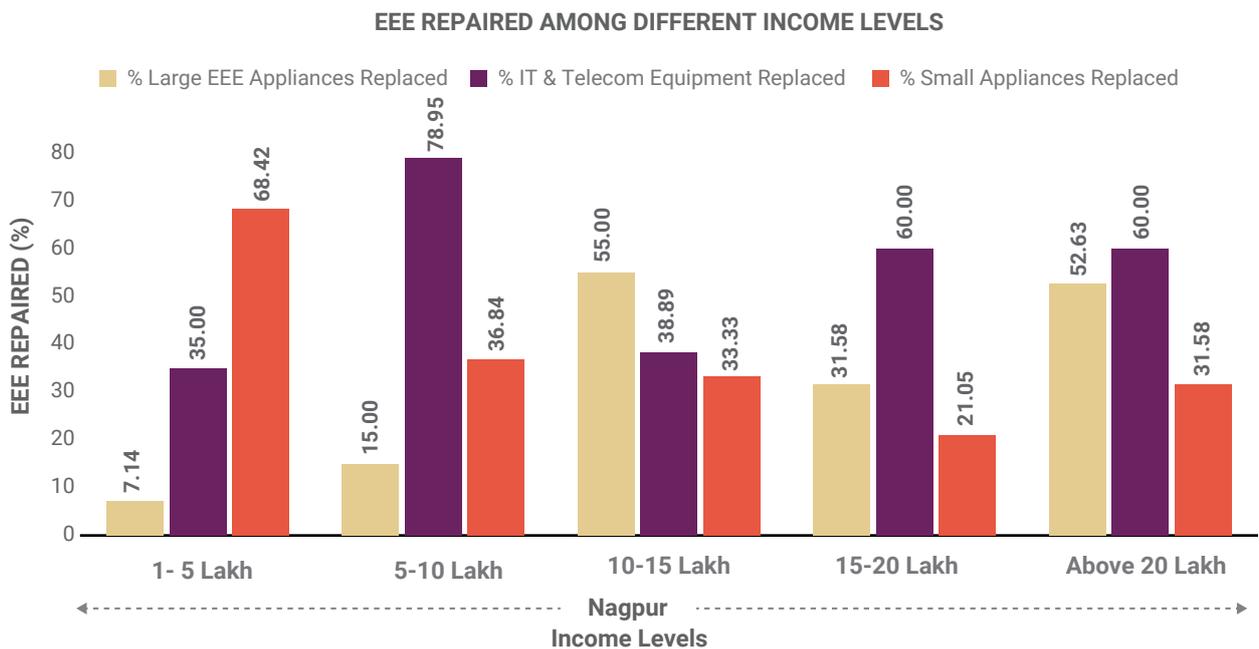
Among those earning *Rs 10-15 lakh*, non-repairability rose to 33.33%, with an equal percentage (33.33%) citing repair costs, and 16.67% finding repairs inconvenient. A third (33.33%) opted for an updated product, while no one distrusted repairs. In the *Rs 15-20 lakh* category, non-repairability was relatively low at 16.67%, but half (50%) found repair costs high, and 16.67% found repairs inconvenient. Half (50%) still wanted a new product.

Among individuals earning *above Rs 20 lakh*, 37.5% reported non-repairability, while half (50%) cited high repair costs and 37.5% found repairs inconvenient. A quarter (25%) wanted a new product, and 12.5% lacked trust in repaired items.

➔ Repair Trends in Nagpur

In Nagpur, repair trends vary significantly across income levels, reflecting consumer priorities and financial constraints. Among the lowest income group (*Rs 1-5 lakh*), the repair rate for large EEE appliances is minimal at 7.14%, suggesting that high repair costs or unavailability of spare parts may discourage maintenance. However, 35% of IT and Telecom equipment undergoes repair, indicating some willingness to extend the lifespan of essential communication devices. Notably, small appliance repairs are the highest in this group at 68.42%, implying that affordability and necessity drive repair decisions for these household items.

Figure 40: % of EEE repaired among different income levels



In the *Rs 5-10 lakh* income range, the repair rate for large EEE appliances rises slightly to 15%, while IT and Telecom equipment repairs increase significantly to 78.95%, suggesting that maintaining digital connectivity is a priority. Small appliance repair rates drop to 36.84%, indicating a potential shift towards replacement for low-cost items. Consumers in this category may balance between repair and replacement based on cost-effectiveness.

The *Rs 10-15 lakh* group shows a dramatic increase in the repair of large EEE appliances, with 55% being maintained instead of replaced. This indicates that consumers in this range find it practical to invest in repairs rather than purchasing new expensive appliances. However, IT and Telecom repair rates decrease to 38.89%, which might be due to the availability of newer models and the preference for upgrades. Small appliance repair rates remain moderate at 33.33%, suggesting a selective approach where only valuable or frequently used items are repaired.

For the *Rs 15-20 lakh* category, large EEE appliance repairs decline to 31.58%, while IT and Telecom repairs increase to 60%, highlighting a preference for keeping communication devices functional. Small appliance repairs drop further to 21.05%, implying that consumers in this income group may opt for replacements rather than repairs for inexpensive items.

Among the highest income earners (*above Rs 20 lakh*), large EEE appliance repairs rise again to 52.63%, reflecting that even wealthier consumers consider repair as a viable option for costly appliances. IT and Telecom equipment repairs remain steady at 60%, reinforcing the idea that maintenance is still relevant. However, small appliance repair rates stand at 31.58%, indicating that replacement is the preferred choice for such items in this category.

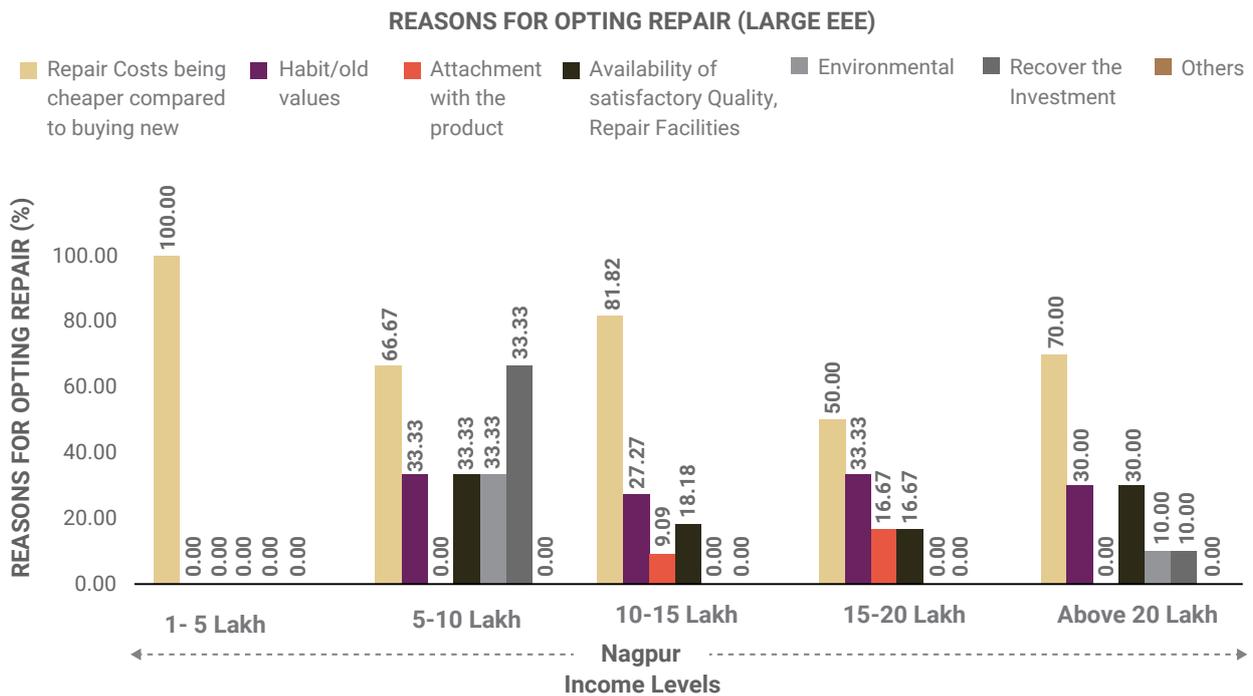
➔ Motivation for repair

a. Large EEE

In Nagpur, lower-income groups show a strong preference for repair. Among those earning Rs 1-5 lakh, 100% repair due to cost factor, with no significant influence of emotional attachment, environmental concerns, or investment recovery.

The Rs 5-10 lakh group sees repair motivation drop to 66.67%, with habit (33.33%) and environmental concerns (33.33%) emerging as factors, alongside repair facility availability again at 33.33%. In the Rs 10-15 lakh group, repair motivation rises to 81.82%, where habit (27.27%) and emotional attachment (9.09%) play a role, but investment recovery is not a concern.

Figure 41: Reasons for repair of large EEE (Nagpur)



The Rs 15-20 lakh category, 50% prefer repair due to it being cheaper in comparison to buying a new product. With habit (33.33%) and attachment (16.67%) being factors. In the above Rs 20 lakh group, repair motivation stands at 70%, with habit (30%) and repair facility availability (30%) being key drivers. Environmental concerns (10%) also start to influence decisions.

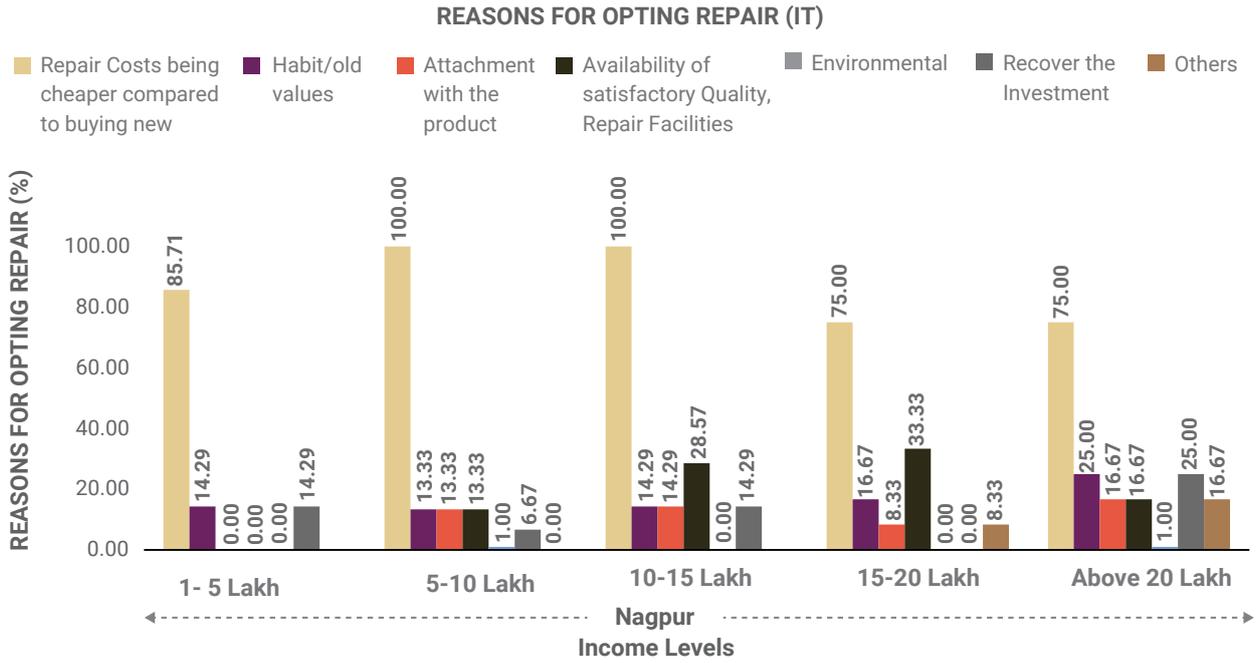
b. IT and Telecom

The Rs 1-5 lakh group in Nagpur sees repair as cost-effective (85.71%), while 14.29% cite habit and investment recovery. There is no significant attachment to products, and repair facilities are scarce. In the Rs 5-10 lakh group, 100% are cost-driven, with 13.33% motivated by habit. Emotional attachment (13.33%) and investment recovery (6.67%) play smaller roles.

The Rs 10-15 lakh category also exhibits 100% cost motivation. Habit (14.29%), attachment (14.29%), and repair facility access (28.57%) contribute to it. For those in the Rs 15-20 lakh range, 75% prefer repairs due to cost benefits, but emotional attachment (8.33%) and habit (16.67%) play minor roles.

The above Rs 20 lakh group has 75% citing financial savings, while habit (25%), attachment (16.67%), and investment recovery (25%) also contribute.

Figure 42: Reasons for repair of IT and Telecom equipment (Nagpur)



c. Small appliances

In Nagpur, repair cost remains the most dominant motivation across all income levels, while other factors like habit, emotional attachment, environmental concerns, and service availability play a limited but varying role.

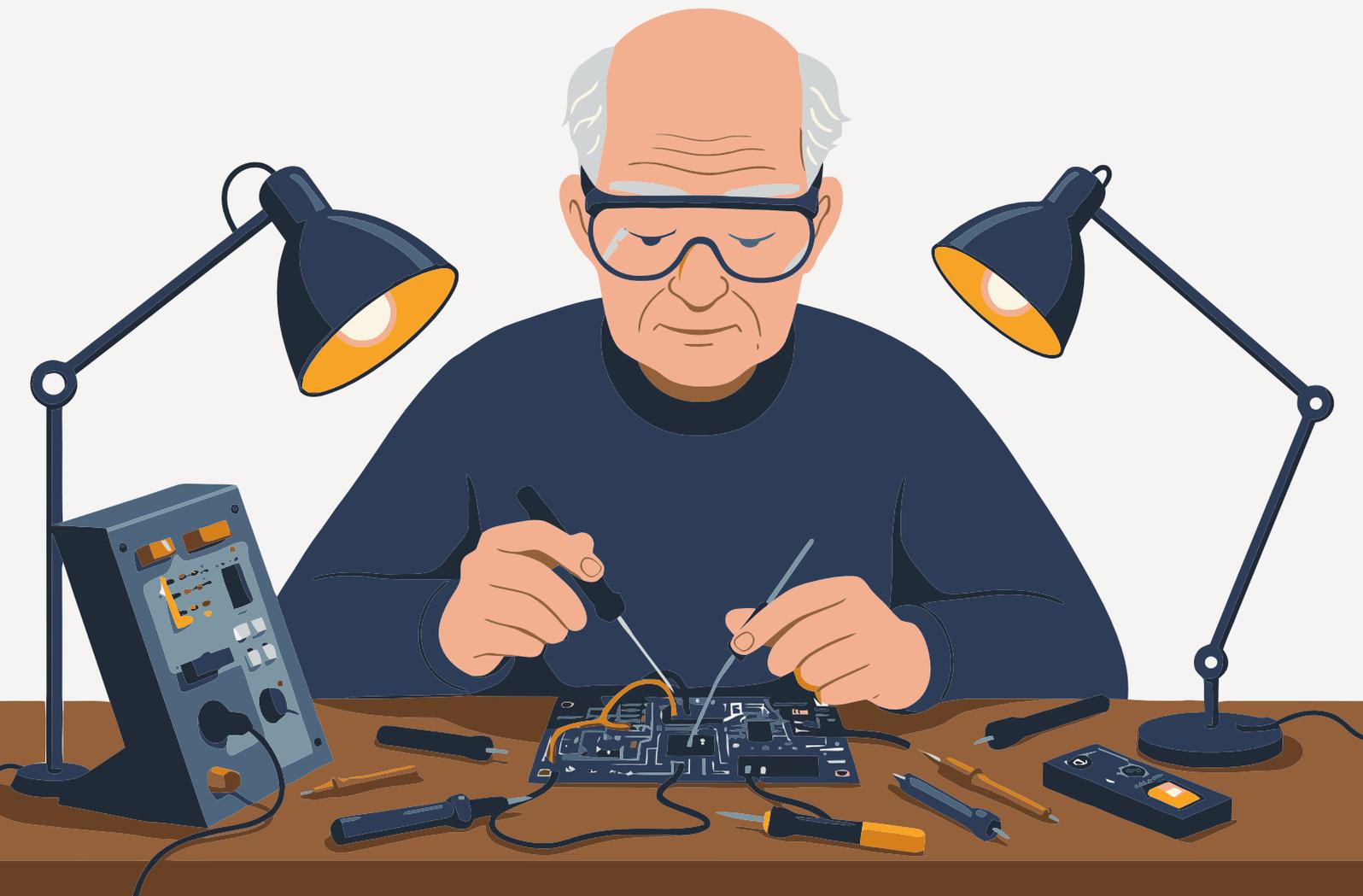
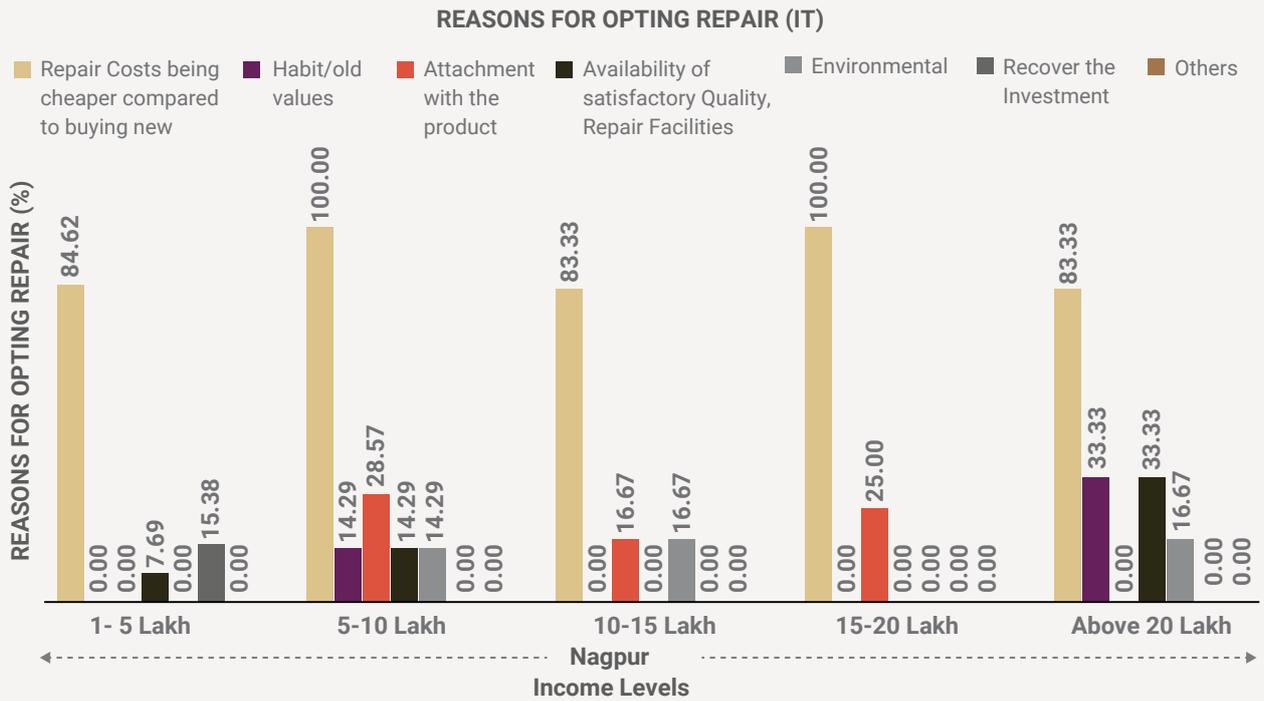
In the Rs 1–5 lakh group, 84.62% of respondents cited repair cost as the main reason, followed by recovery of investment (15.38%) and 7.69% who mentioned the availability of satisfactory quality repair facilities. No respondents indicated habit, attachment, environmental concern, investment recovery, or other reasons.

In the Rs 5–10 lakh income bracket, 100% cited cost savings, with 14.29% mentioning habit, 28.57% indicating attachment to the product, 14.29% citing environmental concerns, and 14.29% acknowledging the availability of repair facilities. Investment recovery and others remained at 0%. In the Rs 10–15 lakh category, 83.33% opted for repair due to cost, while 16.67% each cited attachment and environmental concern. No respondents mentioned habit, facility availability, investment recovery, or other motivations.

Among the Rs 15–20 lakh group, 100% highlighted cost savings as their reason for repair, and 25% mentioned attachment with the product. All other motivations, including habit, environmental concern, facility availability, investment recovery, and others, remained at 0%.

In the above Rs 20 lakh income group, 83.33% were motivated by cost, while 33.33% each cited habit and repair facility availability. Attachment and environmental concern were each cited by 16.67%. Investment recovery and other reasons were again not reported.

Figure 43: Reasons for repair of small appliances (Nagpur)



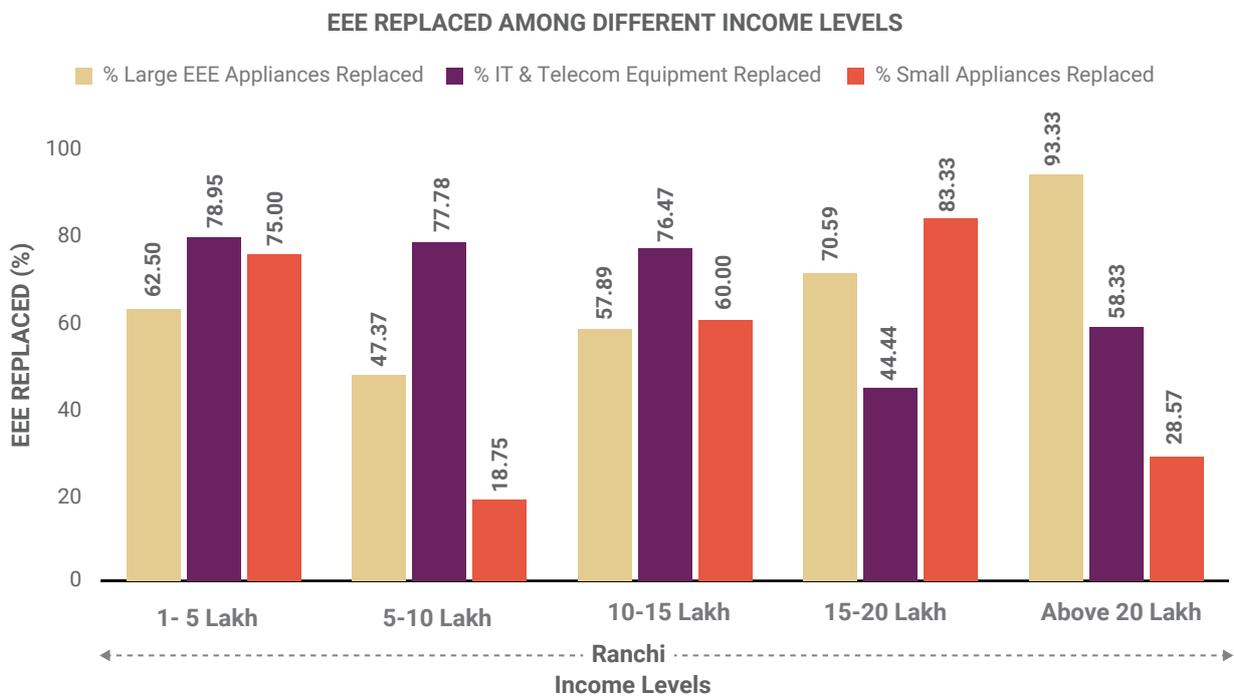
RANCHI

Ranchi, the capital city of Jharkhand, exhibits distinct consumer behaviour regarding the repair and replacement of EEE. As a growing urban centre with a mix of middle-income and affluent households, consumer choices in Ranchi are influenced by factors such as income levels, availability of repair services, technological advancements, and product affordability.

➔ Replacement Trends in Ranchi

In Ranchi, consumers in the lower-income group (*Rs 1-5 lakh* per annum) demonstrate a cautious approach towards replacement. Large EEE appliances, being significantly costlier, have a replacement rate of 62.50%, as consumers tend to extend products lifespan through repair. IT and Telecom equipment exhibits a relatively high replacement rate of 78.95%, driven by the necessity for functional and up-to-date technology, especially among working professionals and students. Small appliances are replaced 75% of the time due to lack of affordable repair options and the declining efficiency of older models. Key reasons for replacement in this segment include technological obsolescence, unavailability of spare parts, and high repair costs relative to the price of new models.

Figure 44: % EEE replaced among different income levels



In the mid-income range (*Rs 5-10 lakh* per annum), the inclination to replace appliances varies across categories. IT and Telecom devices see a replacement rate of 77.78%, as consumers in this group often opt for feature-rich, newer models with better performance. Large EEE appliances, including refrigerators and washing machines, are replaced 47.37% of the time, with decisions often influenced by factors such as repair delays and the appeal of possessing upgraded models offering better efficiency and advanced functionalities. Small appliances, such as kitchen gadgets and personal electronics, are replaced only 18.75% of the time, primarily due to cost-conscious behaviour and attempts to maximise product lifespan.

For consumers earning between *Rs 10-15 lakh* per annum, the shift towards replacement becomes more pronounced with considerable rise in replacement rate of small appliances and Large EEE appliances. IT and Telecom devices have a 76.47% replacement rate, reflecting the increasing importance of cutting-edge technology in both professional and personal spheres. Small appliances are replaced 60% of the time, showing a balance between repair efforts and purchasing new models. Large EEE appliances, though still having a moderate replacement rate of 57.89%, are increasingly upgraded as newer, high-performance models enter the market. The primary drivers for replacement in this category include warranty expiration, the availability of innovative features, and enhanced energy efficiency in modern appliances.

The higher-income group (*Rs 15-20 lakh per annum*) exhibits an even stronger preference for replacement of small appliances and Larger EEE. IT and Telecom equipment are replaced 44.44% of the time, a decline from the previous income group, possibly due to better quality products lasting longer. Large EEE appliances see a replacement rate of 70.59%, indicating a growing preference for upgrading to premium models with advanced features. Small appliances, though still being repaired in some cases, are replaced 83.33% of the time, often due to brand preferences, convenience considerations, and disposable income levels supporting frequent upgrades.

In the highest income group (*above Rs 20 lakh per annum*), replacement is the dominant consumer behaviour. IT and Telecom equipment is replaced 58.33% of the time, showing that while high-end models last longer, there is still a significant turnover due to technological advancements. Large EEE appliances follow with a high replacement rate of 93.33%, suggesting that premium models, smart technology, and energy efficiency drive purchasing decisions in this segment. However, small appliances are replaced 28.57% of time, a relatively lower rate compared to mid-income groups, possibly due to a preference for high-end, durable products that do not require frequent replacement. Consumers in this category are strongly influenced by brand loyalty, premium product features, and the pursuit of the latest innovations.

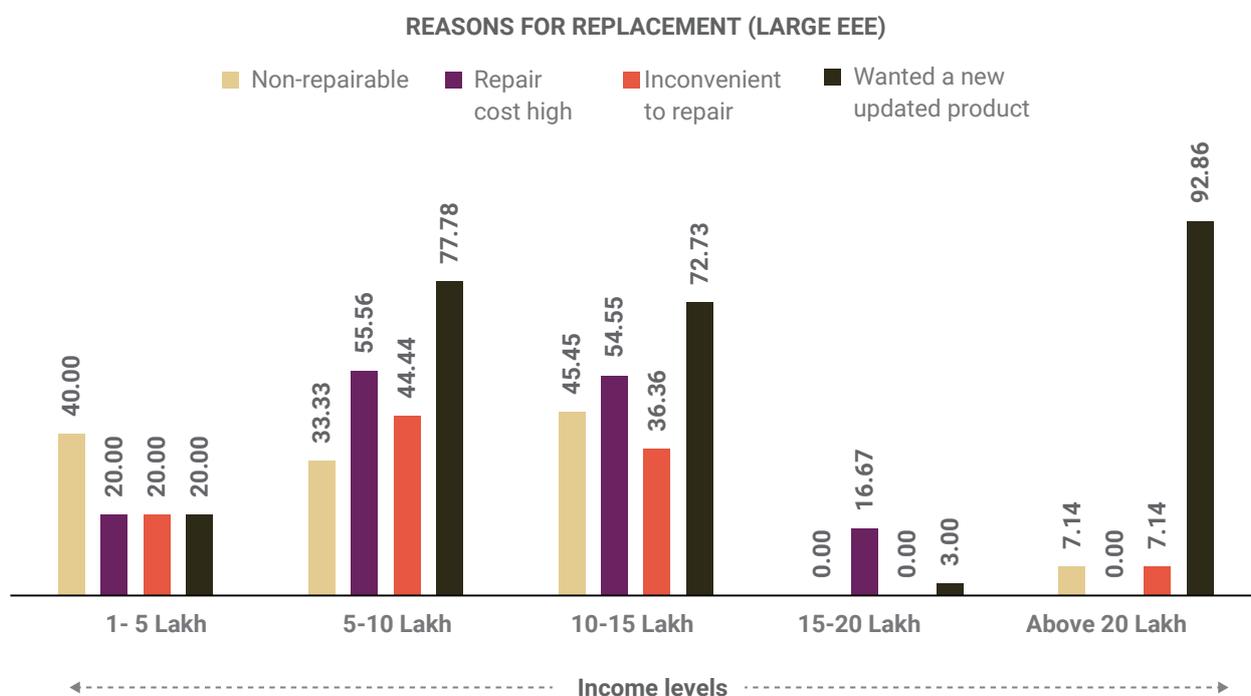
➔ MOTIVATION FOR REPLACEMENT

a. Large EEE

In Ranchi, the lowest income group (*Rs 1-5 lakh*) had a non-repairability rate of 40%, with 20% citing high repair costs, 20% inconvenience, and 20% preference for a new product. In the *Rs 5-10 lakh* category, non-repairability was slightly lower at 33.33%, but repair costs (55.56%) and inconvenience (44.44%) were major concerns. A significant 77.78% opted for a new product.

The *Rs 10-15 lakh* group saw non-repairability at 45.45%, with repair costs at 54.55%, and inconvenience at 36.36%. A large majority (72.73%) preferred a new product. In the *Rs 15-20 lakh* range, no one found products non-repairable or inconvenient, while 16.67% cited high repair costs. Only 3% opted for a new product, indicating a stronger inclination towards repair.

Figure 45: Reasons for replacement of large EEE (Ranchi)



Among the highest earners (*above Rs 20 lakh*), non-repairability was very low (7.14%), and no one found repair costs to be an issue. A minor 7.14% found repairs inconvenient, but an overwhelming 92.86% preferred replacing their product, emphasising a strong preference among wealthier individuals for upgraded products.

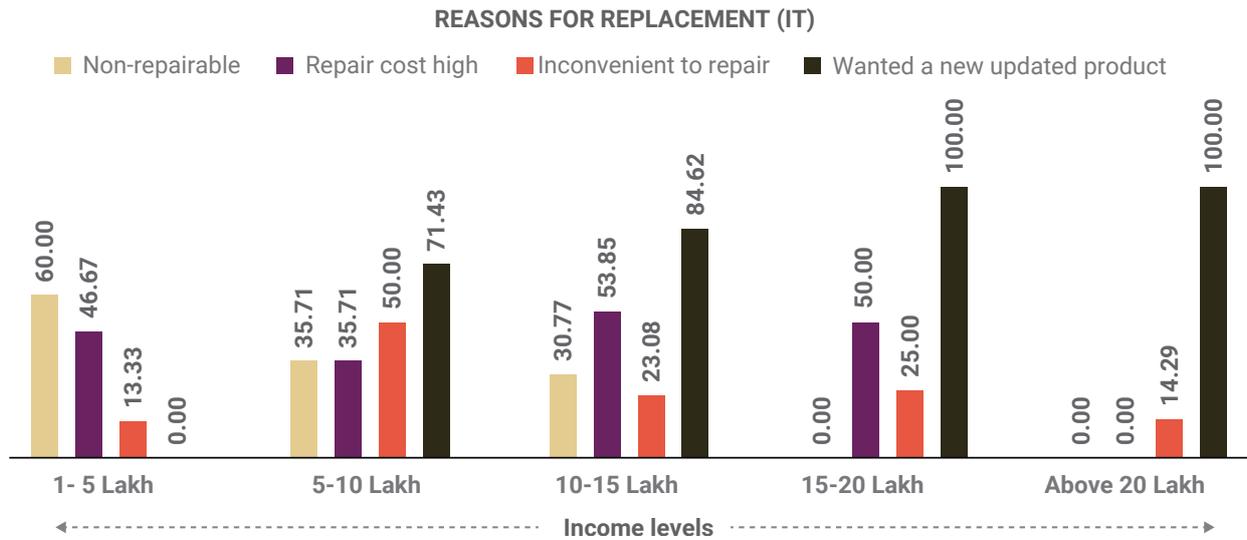
b. IT and Telecom Equipment

In Ranchi, the *Rs 1-5 lakh* income group had 60% citing non-repairability, while 46.67% found repair costs high, and 13.33% considered repairs inconvenient. Interestingly, none preferred a new product, nor did anyone express distrust in repaired items.

In the *Rs 5-10 lakh* group, non-repairability dropped to 35.71%, but an equal percentage cited high repair costs, and 50% found repairs inconvenient. A significant 71.43% preferred an updated product, while none distrusted repaired items. The *Rs 10-15 lakh* earners had non-repairability at 30.77%, with 53.85% citing high repair costs, and 23.08% finding repairs inconvenient. A substantial 84.62% opted for a new product.

In the *Rs 15-20 lakh* category, no one found products non-repairable, but 50% cited high repair costs, and 25% found repairs inconvenient. A striking 100% preferred a new product.

Figure 46: Reasons for replacement of IT & Telecom equipment (Ranchi)

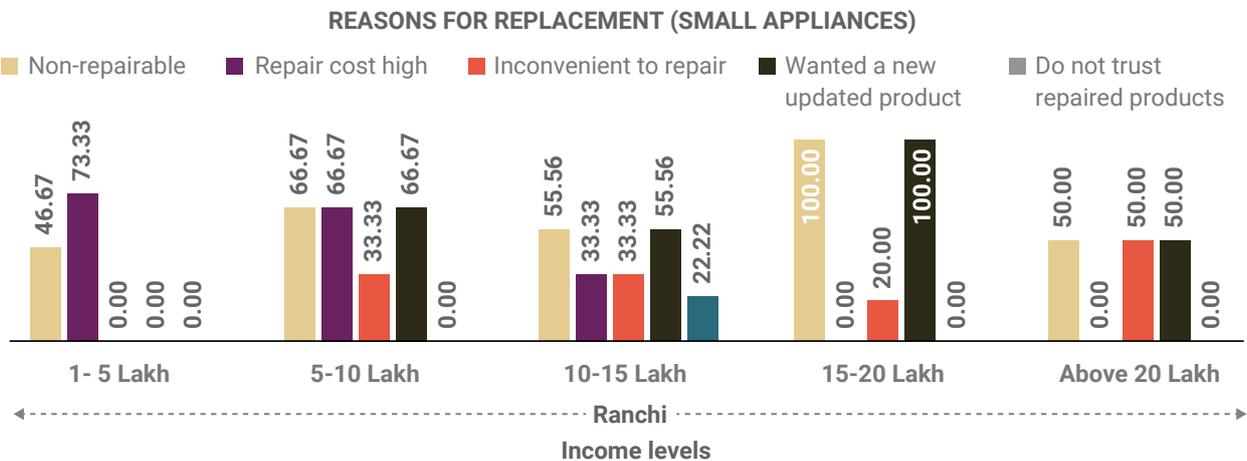


Among the highest earners (*above Rs 20 lakh*), no one reported non-repairability or high repair costs, but 14.29% found repairs inconvenient. All (100%) preferred a new product, and none distrusted repaired items.

c. Small appliances

In the *Rs 1-5 lakh* category, non-repairability was an issue for 46.67%, while a much greater percentage (73.33%) found repair costs high. Interestingly, no one reported inconvenience, wanted a new product, or distrusted repaired goods.

Figure 47: Reasons for replacement of small appliances (Ranchi)



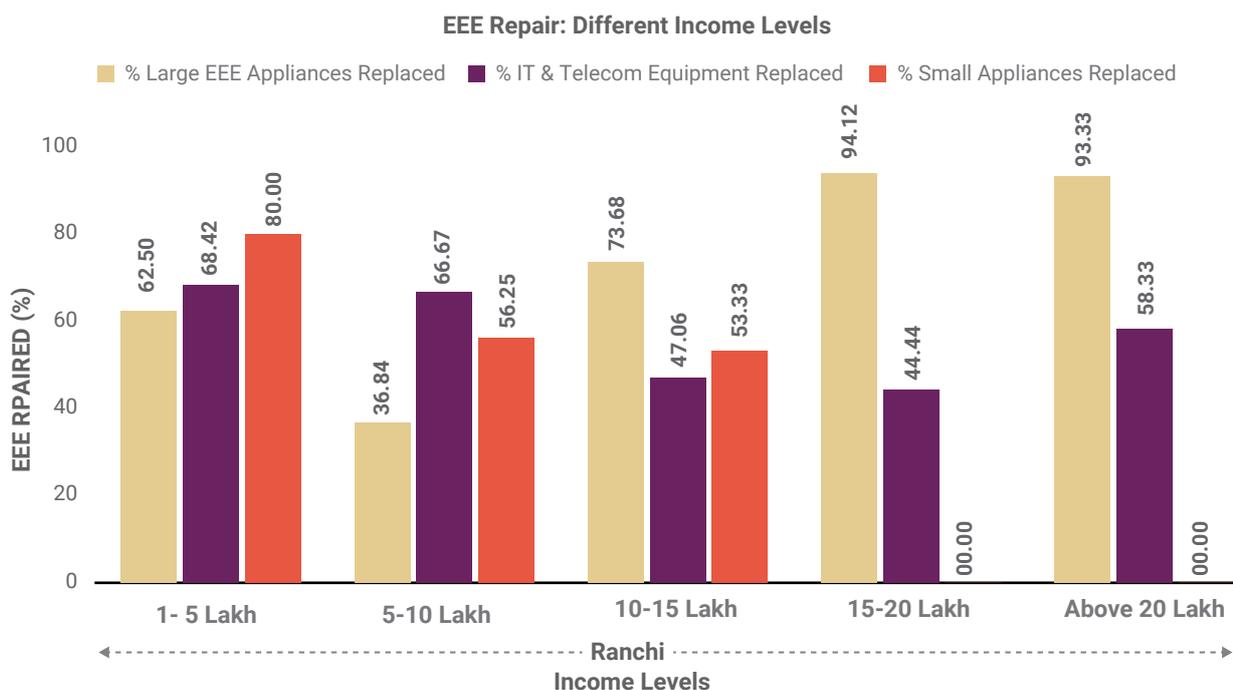
Among individuals earning Rs 5-10 lakh, non-repairability was even higher at 66.67%, with an equal percentage (66.67%) citing repair costs, while 33.33% found repairs inconvenient. Two-thirds (66.67%) opted for an updated product, with no distrust in repairs. The Rs 10-15 lakh income group saw non-repairability at 55.56%, with a third (33.33%) reporting high repair costs and another third (33.33%) finding repairs inconvenient. More than half (55.56%) wanted an upgraded product, while 22.22% distrusted repaired goods.

In the Rs 15-20 lakh category, every respondent (100%) found their products non-repairable. None cited high repair costs, but 20% found repairs inconvenient. Everyone (100%) opted for a new product, and no one distrusted repaired goods. Among the above Rs 20 lakh group, non-repairability affected half (50%), while no one found repair costs high. Half (50%) cited repairs as inconvenient, and an equal percentage (50%) preferred a new product, with no distrust in repairs.

➔ Repair Trends in Ranchi

In Ranchi, consumers in the lower-income group (Rs 1-5 lakh per annum) exhibit a strong inclination towards repairing appliances rather than replacing them, likely due to budget constraints. Large EEE appliances, such as refrigerators and washing machines, are repaired 62.5% of the time, as consumers prefer extending their lifespan through maintenance. IT and Telecom equipment sees a 68.42% repair rate, suggesting that while technology is essential, cost-effective repairs are prioritised over purchasing new models. Small appliances have the highest repair rate at 80%, indicating a strong tendency to fix rather than discard, possibly due to limited affordability and access to low-cost repair services.

Figure 48: % EEE repaired among different income levels



In the mid-income range (Rs 5-10 lakh per annum), the repair rate of appliances decreases as consumers start opting for replacements. Large EEE appliances are repaired 36.84% of the time, showing that while repairs are still a consideration, more people in this income group prefer upgrading to new models. IT and Telecom devices see a 66.67% repair rate, reflecting the ongoing need for functional devices at a lower cost than replacements. Small appliances, such as kitchen gadgets and personal electronics, are repaired 56.25% of the time, but the declining percentage suggests an increasing preference for newer models with enhanced features.

For consumers earning between Rs 10-15 lakh per annum, repairs is still widely practiced, particularly for large appliances. Large EEE appliances have a 73.68% repair rate, the highest among all groups, possibly due to a mix of affordability and a desire to maximise product lifespan. IT and Telecom equipment repairs drop to 47.06%, indicating a shift toward replacement, as consumers in this category prefer newer models with better performance. Small appliances are repaired 53.33% of the time, showing a relatively balanced approach between repairing and replacing.

In the higher-income group (*Rs 15-20 lakh* per annum), the repair rate for large appliances reaches its peak at 94.12%, suggesting that even affluent consumers prefer maintaining expensive household appliances rather than replacing them frequently. IT and Telecom equipment repair continues to decline, standing at 44.44%, as consumers lean more towards newer, technologically advanced models. Small appliances, however, are no longer repaired (0%), indicating that convenience and brand preference along with affordability drive decisions, leading to outright replacements instead of repairs.

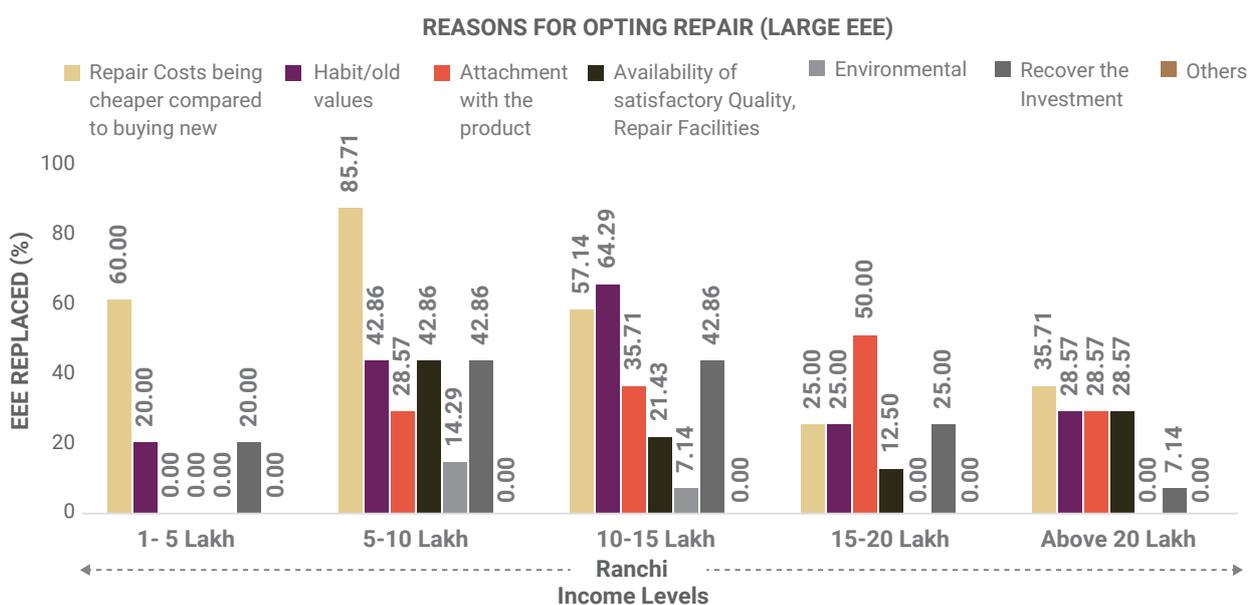
In the highest income group (*above Rs 20 lakh* per annum), repair trends for large appliances remain high at 93.33%, likely due to the preference for maintaining high-end models. IT and Telecom equipment sees a 58.33% repair rate, slightly increasing compared to the previous income group, possibly due to the high cost of premium gadgets making repairs a viable alternative. However, small appliances continue to have a 0% repair rate, showing that wealthier consumers prioritise convenience and prefer replacing rather than fixing smaller, less expensive items.

➔ Motivation for repair

a. Large EEE

In Ranchi, repair motivation fluctuates across income groups. The *Rs 1-5 lakh* group has 60% motivation to repair, with habit (20%) and investment recovery (20%) being major factors. Among those earning *Rs 5-10 lakh*, motivation is high at 85.71% because the cost of repair is cheaper compared to buying a new product largely driven by habit (42.86%), attachment (28.57%), and the availability of repair facilities (42.86%). In the *Rs 10-15 lakh* group, repair motivation drops to 57.14%, with habit (64.29%) and attachment (35.71%) playing key roles, while investment recovery (42.86%) remains a strong driver.

Figure 49: Reasons for repair of large EEE (Ranchi)

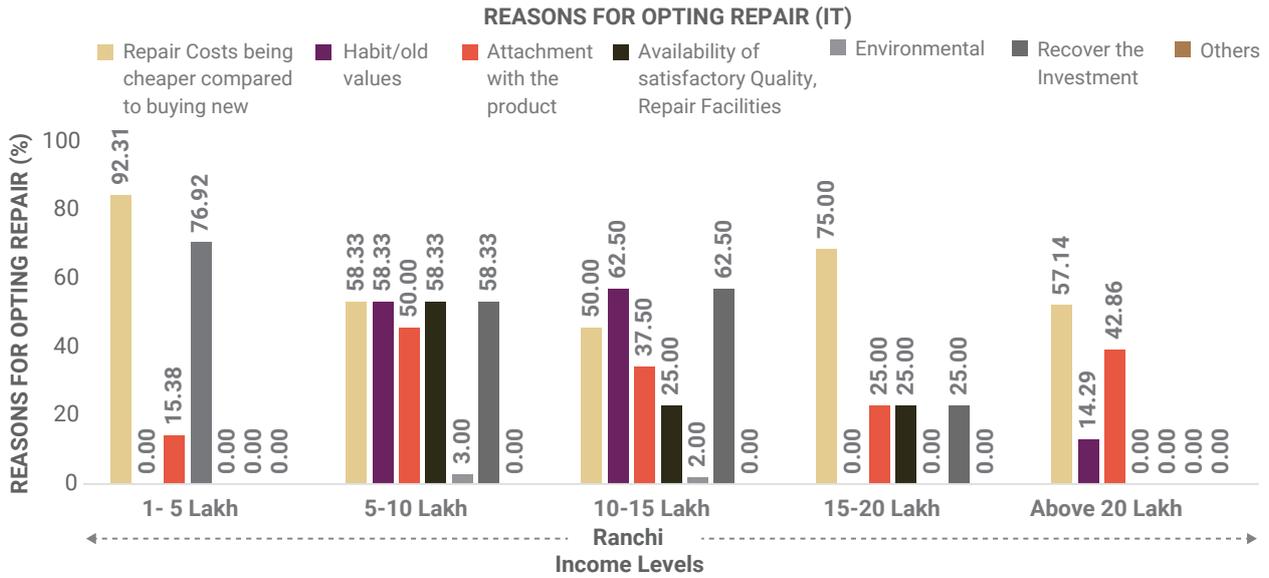


The *Rs 15-20 lakh* category sees a significant decline in repair motivation to 25%, though emotional attachment (50%) remains a strong influence, along with investment recovery (25%). Finally, in the *above Rs 20 lakh* group, repair motivation stands at 35.71%, with habit (28.57%) and attachment (28.57%) being the primary influences, while investment recovery plays a minimal role (7.14%).

b. IT and TELECOM

In Ranchi, 92.31% of the *Rs 1-5 lakh* group see repair as cost-effective, with 76.92% finding repair service availability a key driver. Emotional attachment (15.38%) plays a moderate role. For those earning *Rs 5-10 lakh*, 58.33% cite financial motivation, while 50% consider attachment important. Habit (58.33%), repair facility access (58.33%), and recovering the investment (58.33%) contribute as well.

Figure 50: Reasons for repair of IT & Telecom equipment (Ranchi)

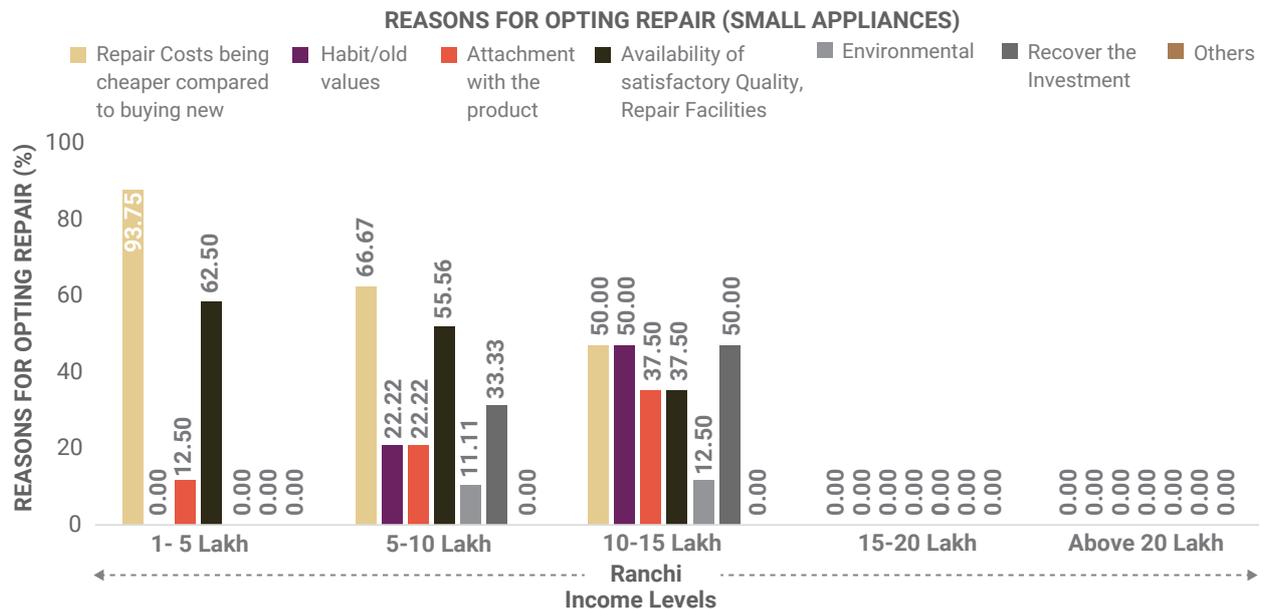


The *Rs 10-15 lakh* segment has 50% prioritising cost savings, with habit (62.5%) and investment recovery (62.50%) playing major roles. Emotional attachment (37.50%) and repair services (25%) also influence decisions. Among the *Rs 15-20 lakh* earners, 75% favour repairs for financial reasons, while 25% consider product attachment, investment recovery and repair service availability as key factors. For those in the *above Rs 20 lakh* group, 57.14% find repairs cheaper, while 42.86% cite emotional attachment. Habit plays a minor (14.29%) role.

c. Small appliances

In Ranchi, cost savings continue to be the strongest motivation for repair, with 93.75% of the lowest income group citing it as their primary reason. Interestingly, 62.5% of those in the *Rs 1-5 lakh* group cite the availability of quality repair facilities as a key factor, making it the highest percentage across all cities for this category. Among those earning *Rs 5-10 lakh*, 66.67% prioritise cost savings, 33.33% for recovering the investment done on buying these products, while 22.22% consider both habit and attachment, and 55.56% mention the availability of quality repair facilities.

Figure 51: Reasons for repair of small appliances (Ranchi)



For those in the *Rs 10-15 lakh* group, 50% repair due to cost savings, 50% due to habit and investment recovery both, 37.5% due to attachment, and 37.5% due to repair facility availability. Interestingly, 50% of this group also repair to recover their investment, the highest percentage for this motivation in Ranchi. However, in the *Rs 15-20 lakh* and *above Rs 20 lakh* groups, there is no motivation at all for repairing small appliances.

➔ City-Wise Comparison: Repair vs. Replacement Trends

a. Overall trend

Across all cities—Delhi, Hyderabad, Kolkata, Nagpur, and Ranchi—income levels play a crucial role in shaping consumer’s decision to repair or replace. Lower-income groups prioritise repair as a cost-effective way to extend product lifespan, whereas higher-income groups are more inclined towards replacement, driven by technological advancements, convenience, and brand preferences. While affordability remains the primary motivation for repair, other factors such as recovering investment and emotional attachment also influence decisions.

Higher-income groups consider environmental impact and the quality of repair services, whereas lower-income groups focus primarily on affordability. In cities like Hyderabad, motivation for repair are more balanced, with affordability, accessibility of repair services, and sustainability playing key roles. Meanwhile, Delhi stands out for its cultural preference for maintaining and repairing products rather than replacing them, reinforcing the significance of repair practices in the city’s consumer behaviour.

b. Regional Contrasts in Consumer Behaviour

Delhi & Hyderabad: Being major metropolitan cities, Delhi and Hyderabad both exhibit a strong replacement trend across income groups, especially in the IT and Telecom sector. Consumers in these cities frequently replace gadgets due to rapid technological advancements and brand loyalty.

Kolkata: While replacement is significant, Kolkata has a higher repair culture than Delhi and Hyderabad. Traditional preferences and a well-established repair ecosystem contribute to sustaining appliances longer.

Nagpur: Unlike larger metropolitan areas, Nagpur has a more balanced approach. While higher-income groups opt for replacement, middle-income consumers show a strong preference for repair due to cost considerations and the availability of local repair services.

Ranchi: Among all cities, Ranchi has the strongest repair inclination, especially for large appliances, and IT and Telecom products. Limited availability of newer models, combined with cost-conscious consumer behaviour, encourages repair over frequent replacements.

➔ Income-Wise Analysis: The Influence of Financial Capacity on Repair vs. Replacement

For consumers in the *Rs 1-5 lakh* income group, repair remains the dominant choice across all cities. Limited financial ability forces them to extend the lifespan of their EEE, particularly large appliances, where replacement costs are significantly higher. Small appliances and IT and Telecom equipment, however, see a slightly higher replacement rate in metropolitan cities like Delhi and Hyderabad, where cheaper alternatives and easy financing make upgrades more accessible. In contrast, cities like Kolkata, Nagpur, and Ranchi demonstrate a stronger repair culture due to the availability of cost-effective local repair services and the consumers’ reluctance to invest in new devices unless absolutely necessary.

As income levels rise to *Rs 5-10 lakh*, there is a gradual shift towards replacement, especially for IT and Telecom devices and small appliances. Consumers in this group begin balancing affordability with the convenience of owning an upgraded product. In Delhi and Hyderabad, IT and Telecom devices are replaced frequently as newer models with enhanced features become available, while in Kolkata and Nagpur, repair remains a viable option unless repair costs exceed 50% of the replacement cost. Large appliances are still predominantly repaired, as consumers in this group prefer to maintain them for a longer period, particularly when under warranty or when repair services are accessible.

In the *Rs 10-15 lakh* income range, purchasing power increases, but consumers still evaluate the cost-effectiveness of repair versus replacement. IT and Telecom products continue to see higher replacement rates as new features, software advancements, and market trends drive purchasing decisions. While consumers in Delhi and Hyderabad lean heavily towards replacing large appliances and gadgets, consumers in Kolkata, Nagpur, and Ranchi remain pragmatic,

often opting for repair if services are readily available. Small appliances show mixed trends, with replacement increasing for lower-cost items but repair persisting for moderately expensive products.

For those in the *Rs 15-20 lakh* group, replacement becomes the preferred option, particularly for IT and Telecom products, where convenience, newer technology, and brand preferences influence purchasing decisions. Large EEE appliances, which were previously repaired at high rates in lower income groups, now experience a considerable shift towards replacement in Delhi and Hyderabad, whereas in Kolkata and Nagpur, the decision to repair remains for high-end appliances which are costly to replace. Ranchi consumers, even in this income group, still exhibit a strong inclination for repair, particularly when repair is more economical and practical.

In the *above Rs 20 lakh* category, replacement is overwhelmingly dominant. Consumers in this income range prioritise premium products, frequent upgrades, and brand-new purchases, reducing their reliance on repairs. In Delhi and Hyderabad, IT and Telecom equipment reaches a 100% replacement rate, indicating a near-total shift away from repair culture. Kolkata and Nagpur consumers, though also inclined towards replacement, consider repair for expensive appliances when warranty options are available. Ranchi remains an exception, where some consumers in this high-income group still prefer repair for specific categories like large appliances, especially when servicing is convenient and cost-effective.

This income-based trend analysis reveals a clear pattern—lower-income groups strongly favour repair due to financial constraints, middle-income groups exhibit a balanced approach depending on cost-effectiveness, and higher-income groups gravitate towards replacement, driven by convenience, technology, and brand preferences. However, regional variations persist, with Kolkata, Nagpur, and Ranchi maintaining a stronger repair culture compared to the replacement-dominant trends of Delhi and Hyderabad.

➔ H. Barriers to Repair

a. CITY-WISE BARRIER

Delhi: As a major metropolitan hub, Delhi has access to both authorised and third-party repair services, but barriers still persist. High repair costs for premium brands, unavailability of spare parts, and extended repair wait time discourages consumers to opt for repair, especially of IT and Telecom products. Affluent consumers often perceive repair as an inconvenience, preferring to replace rather than wait for repairs. Lower-income groups face challenges in finding affordable, reliable repair shops, especially for complex electronic devices, where authorised repair centres charge disproportionately high fees.

Hyderabad: Hyderabad exhibits mixed repair trends, with certain neighbourhoods having easy access to local repair shops while others facing a shortage of skilled technicians for high-end products. IT and Telecom repairs are particularly challenging due to frequent software restrictions imposed by manufacturers, making third-party servicing difficult. Consumers also report issues with warranty voiding, where unauthorised repairs can nullify product guarantees, discouraging repair even when it is more affordable.

Kolkata: Kolkata retains a strong repair culture, but barriers such as limited availability of original spare parts for imported brands and outdated repair techniques hinder the effectiveness of repairs. While local repair markets thrive, delays in acquiring specific components often force consumers to opt for replacement, especially for IT and Telecom devices. For large appliances, the dependence on manufacturing services create cost and service delays, discouraging repair when warranty coverage expires.

Nagpur: Nagpur faces a lack of specialised repair services, particularly for high-end and imported appliances. Many consumers express frustration over manufacturers prioritising replacements over repairs, leading to difficulty in obtaining affordable servicing. Additionally, the lack of awareness about repair options results in many consumers prematurely replacing products rather than exploring repair alternatives. Large appliances are repaired, when possible, but challenges such as high transportation costs for servicing discourage the repair of bulky items.

Ranchi: Ranchi experiences some of the most significant barriers to repair, primarily due to limited access to skilled technicians and spare parts. Consumers in this city often have to travel to larger urban centres for repairs, increasing both time and financial costs. Additionally, warranty-covered repairs often require longer wait periods, leading many consumers to choose replacement over repair for IT and Telecom products and small appliances.

Lack of awareness about local repair options further exacerbates the preference for replacement, particularly among younger consumers.

b. INCOME-WISE BARRIER

Rs 1-5 lakh Income Group: For lower-income consumers, cost is the primary barrier to repair. Many struggle due to high repair fees of branded products, forcing them to delay repairs or resort to cheaper, unauthorised repair services that may compromise quality. Spare parts for older or discontinued models are often unavailable, making replacement the only feasible option. In cities like Delhi and Hyderabad, the dominance of expensive authorised service centres restrict access to affordable repairs, whereas in Kolkata, Nagpur, and Ranchi, informal repair networks are more accessible but may lack reliability.

Rs 5-10 lakh Income Group: Consumers in this income group face time-related constraints as a major barrier to repair. Many prefer quick replacement over waiting for lengthy repairs, particularly for IT and Telecom devices. Repair costs also begin to outweigh perceived value, with consumers opting to replace aging appliances rather than invest in high-cost repairs. In Delhi and Hyderabad, this trend is stronger due to a greater availability of financing options for new purchases, whereas in Kolkata and Ranchi, cost-conscious consumers still attempt repairs when feasible.

Rs 10-15 lakh Income Group: For middle-income consumers, manufacturer-imposed restrictions pose significant repair barriers. Warranty limitations, deliberate design choices that make self-repair difficult, and software locks on IT and Telecom devices force consumers to choose official repair services, which are often expensive. In Delhi and Hyderabad, brand-conscious consumers hesitate to go to unauthorised repair shops, whereas in Nagpur and Ranchi, accessibility remains the biggest issue—many repair shops lack expertise to repair advanced electronics and high-end appliances.

Rs 15-20 lakh Income Group: This income group encounters repair feasibility concerns. Many consumers prioritise convenience over repairability, viewing repairs as a hassle rather than a cost-saving measure. While they are willing to repair expensive large appliances, smaller items are often discarded instead of repaired. In Delhi and Hyderabad, premium service options exist but are often slow and inefficient, discouraging repair. In contrast, consumers in Kolkata and Nagpur are more likely to repair if spare parts are available quickly.

Above Rs 20 lakh Income Group: For high-income consumers, the major barrier to repair is perception rather than cost. Many view repairs as a compromise on product quality and prefer replacing it with the latest models. Brand loyalty, technological advancements, and the appeal of new features drive high replacement rates. While some high-value appliances are repaired under extended warranties, the majority of products—particularly IT and Telecom devices—are discarded rather than repaired. Consumers in Delhi and Hyderabad exhibit near-total replacement tendencies, whereas in Kolkata and Ranchi they occasionally opt for repair when premium services ensure quality restoration.

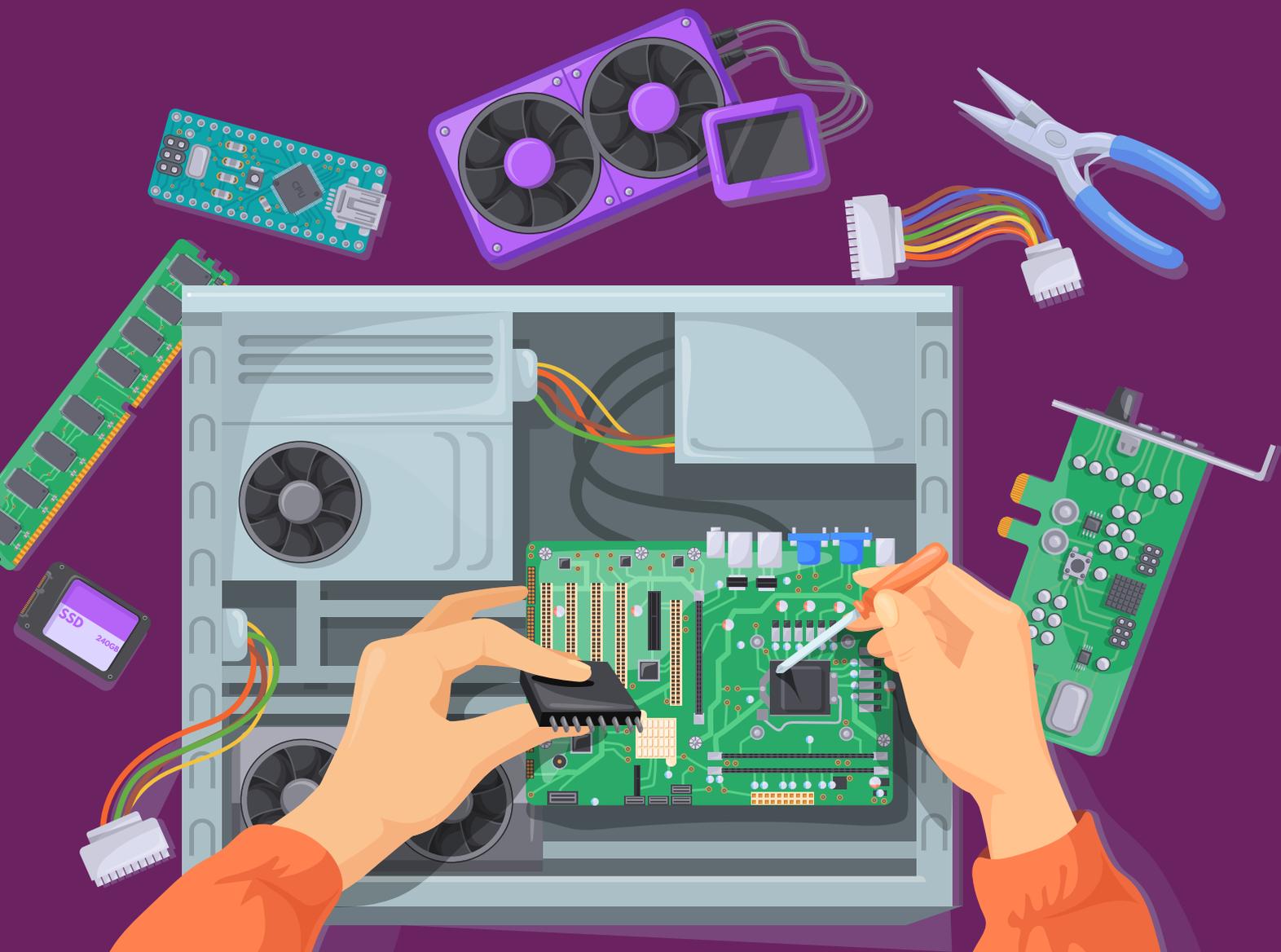


KEY FINDINGS

City-wise, Delhi and Hyderabad show higher repair barriers due to expensive service options and manufacturer-imposed restrictions. Kolkata and Nagpur have a stronger repair culture but struggle with spare parts availability, while Ranchi faces the most significant repair accessibility issues.

- ➔ Income-wise, lower-income groups are driven by cost constraints but struggle with spare parts availability. Middle-income groups are more likely to replace due to repair delays, while high-income groups see repair as an inconvenience rather than an economic decision.
- ➔ The intersection of city and income group influences repair barriers significantly—while higher-income consumers in metropolitan cities exhibit the least interest in repair, lower-income consumers in smaller cities attempt repair but face accessibility challenges.

Environmental concerns play a very limited role in repair decisions, with most consumers prioritising cost and investment recovery. Even in higher income groups, environmental reasons are rarely a major factor, showing low awareness or importance given to sustainability in repair choices.



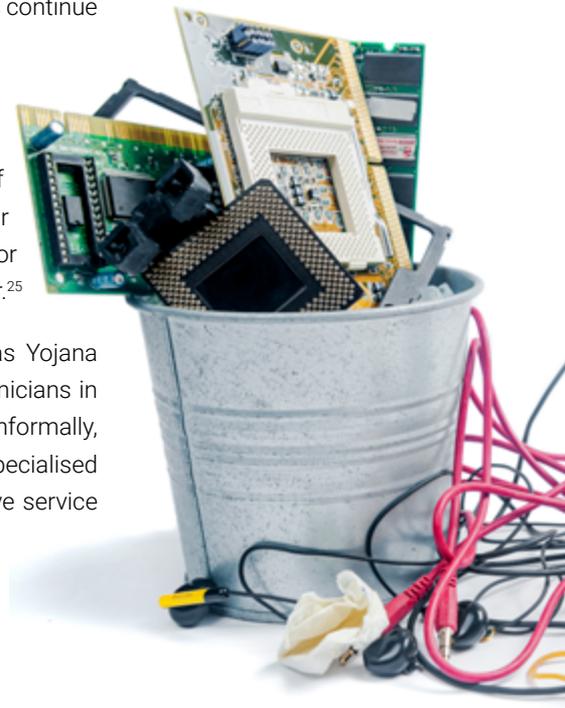
Strengthening the Repair Ecosystem in India: **Policy Landscape and Government Initiatives**

The repair sector plays a vital role in India's transition to a circular economy. However, policy frameworks governing repairability, e-waste management, and consumer rights remain fragmented. India has made significant strides in promoting sustainable electronic waste (e-waste) management, but repair as a formal strategy is still underdeveloped.^{19,20} Policies like the E-Waste (Management) Rules, 2022, the Right to Repair (R2R) Framework, and initiatives under the Skill India Mission aim to integrate repair into India's sustainability agenda.^{21,22} But the effectiveness of these policies depends on proper implementation, industrial cooperation, and consumer engagement.

The Right to Repair (R2R) Framework, introduced in 2022 by the Ministry of Consumer Affairs, mandates that manufacturers provide consumers with access to repair manuals, spare parts, and diagnostic tools. This is to reduce dependence on authorised service centres and discourage "planned obsolescence". Although it aligns with global efforts like the European Union's Eco-design Directive, enforcement remains challenging as many companies continue to restrict access to genuine spare parts and software updates.²³

The E-Waste (Management) Rules, 2022, emphasise Extended Producer Responsibility (EPR), requiring producers to establish systems for collecting and recycling e-waste. While this indirectly promotes repair by encouraging the reuse of functional components, it lacks specific provisions to strengthen independent repair businesses.²⁴ Countries like Sweden and Germany have introduced tax incentives for repair services, a model India could adopt to enhance the viability of its repair sector.²⁵

The Skill India Mission, through initiatives like the Pradhan Mantri Kaushal Vikas Yojana (PMKVY) and the National Apprenticeship Promotion Scheme (NAPS), trains technicians in appliance and electronics repair. However, many repair professionals still operate informally, with limited access to modern training and certifications.²⁶ Recognising repair as a specialised skill within India's vocational education system could formalise the sector, improve service quality, and create sustainable employment opportunities.²⁷

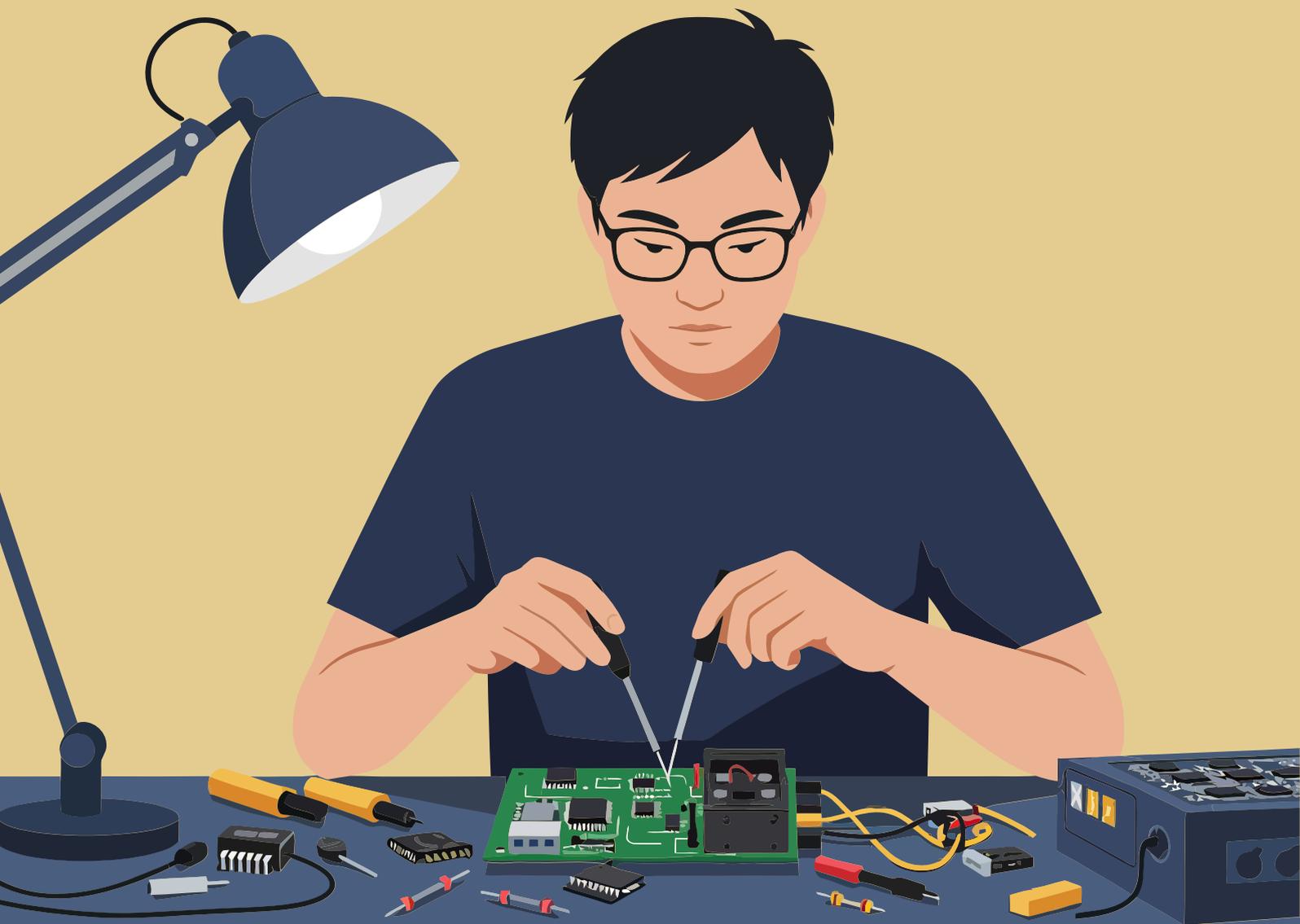


Local and regional governments also play a crucial role. Strengthening municipal repair networks, supporting community-led initiatives, and integrating repair into e-waste management plans can enhance access to affordable repair services.²⁸ Electronics markets could pilot incentive programmes for repair businesses, fostering a shift towards circular economy. For long-term success, India must address gaps such as repair affordability, spare parts availability, and consumer awareness. Collaborative efforts between policymakers, industry and civil society organisations are essential to mainstream repair practices.²⁹ Embedding repair within sustainability policies will reduce e-waste, promote resource conservation, and build a resilient repair ecosystem.

India's approach to a repair-friendly economy is further reinforced by the Repairability Index and skill development initiatives. The Repairability Index, launched by the Department of Consumer Affairs, allows consumers to evaluate the ease of repair before purchasing a device.³⁰ This index assesses factors like modularity, spare parts availability, and repair simplicity, encouraging designs that prioritise long-term usability and sustainability.³¹

India's large youth population provides a significant talent pool for industries like electrical and electronic equipment (EEE) repair, where demand for skilled technicians is high. Programmes such as Skill India and PMKVY are vital in equipping this workforce, making India a competitive hub for repair services. The growing demand for repair services, driven by India's rapid adoption of technology—especially in the mobile phone and electronics sectors—presents an opportunity to foster a culture of repair.^{32,33} E-commerce platforms like UrbanClap (now Urban Company) have also made it easier for urban consumers to access repair services, reshaping how repair services are delivered.³⁴

As India's digital penetration continues to grow, the repair sector is poised to create new job opportunities, reduce e-waste, and stimulate economic growth.³⁵ With supportive policies, a skilled workforce, and a burgeoning market for repair services, India can build a sustainable repair economy. However, continued efforts are needed to tackle challenges such as affordability, consumer education, and workforce training to realise this vision fully.



Conclusion & Recommendations

The repair industry in India faces multiple structural challenges that hinder its sustainability and growth. Limited access to genuine spare parts, reliance on informal training, inadequate infrastructure, and workforce instability contribute to inconsistent service quality. Further, economic barriers such as low profit margin and consumer preference for replacement over repair are the constraints of the sector. Additionally, the absence of a robust environmental framework exacerbates unsustainable e-waste handling practices, leading to pollution and health risks.

Despite these challenges, repair and reuse remain essential strategies for reducing e-waste, conserving resources, and mitigating environmental harms. The introduction of Right to Repair (R2R) framework and a potential reparability index framework are steps in the right direction. However, without legal enforcement and structured support, the repair industry struggles to achieve its full potential. Addressing these issues requires a collaborative approach involving policymakers, manufacturers, repair professionals, and consumers to build a resilient, economically viable, and environmentally sustainable repair ecosystem.

Recommendations

- 🔗 **Legally Enforce Spare Parts Availability and Price Transparency by OEMs:** To address the high costs and limited availability of genuine spare parts, OEMs must be legally mandated, under strong Right to Repair laws, to maintain regionally distributed supply chains and ensure the availability of original spare parts for at least a few years following a product's launch. This obligation should be backed by strict penalties for spare parts scarcity and excessive pricing. Price transparency must be enforced across all OEMs and third-party suppliers, with spare parts carrying mandatory minimum warranty standards. These requirements must apply across categories including IT, telecom, and large household appliances to guarantee equitable and timely access to repair services for all consumers.

The introduction of **Right to Repair (R2R)** framework and a potential reparability index framework are steps in the right direction. However, without legal enforcement and structured support, **the repair industry struggles to achieve its full potential.**



- ➔ **National Skill Training Programmes with Mandatory OEM Contributions:** To address the lack of availability of skilled technicians, a nationally certified repair training initiative must be launched with OEMs mandated to contribute financially and technically under their Corporate Social Responsibility (CSR) or Extended Producer Responsibility (EPR) obligations. The programme should include modules on advanced electronics, software repairs, and diagnostic tools, ensuring that technicians are equipped to handle modern devices. Collaborations with ITIs, polytechnics, and other skilling institutions are essential to create a consistent flow of certified repair professionals accessible across all income groups and geographies.
- ➔ **Public-Private Repair Hubs to Empower Small Enterprises and Consumers:** To address the lack of infrastructure for affordable and quality repair services, publicly funded repair hubs must be established through strategic public-private partnerships. These hubs should provide subsidised access to tools, authorised spare parts, and certified technicians to make reliable repair services widely accessible. Simultaneously, local micro, small, and medium enterprises (MSMEs) should be supported through tax rebates, low-interest loans, and formal recognition or quality certification schemes to enhance their viability and build consumer confidence in the local repair economy.
- ➔ **Strengthen Right to Repair Law with Pro-Consumer Design and Warranty Norms:** To combat OEM-imposed design restrictions and software locks that obstruct repairs, robust Right to Repair legislation must be enforced, prohibiting OEMs from voiding warranties due to third-party repairs. This legislation should mandate the elimination of anti-repair design practices. These measures will guarantee effective and equitable repair options available for all consumer income groups.
- ➔ **Introduce Tiered Repair Incentives and Environmental Penalties on Replacement:** To address high replacement tendency among consumers and the resulting surge in e-waste, implement a Repair Incentive Scheme that provides cashbacks or tax rebates for choosing repair over replacement, particularly for high-value electronics. Simultaneously, impose green taxes or environmental levies on premature replacement of functional devices to discourage wasteful consumption. Retailers should be mandated to prominently offer a 'repair-first' option at the point of sale, while repair loyalty programmes and warranties should be integrated to promote and reward sustainable consumer behaviour.
- ➔ **National Repair Awareness Campaign and Verified Digital Mapping of Services:** To tackle the widespread lack of awareness about reliable repair services across all income groups and cities, initiate a government-led campaign promoting repair as a sustainable and cost-effective alternative to replacement. Develop and maintain a digital platform that lists certified repair providers along with transparent information on service costs, wait times, and consumer ratings. This platform should be searchable by city and integrated with municipal corporations, resident welfare associations, and e-governance portals.
- ➔ **Mandatory OEM Service Performance Audits and Public Reporting:** To address the lack of transparency and weak consumer trust in OEM-authorized repair networks, enforce mandatory annual service audits. These audits should cover spare parts availability and delivery timelines, repair success rates and customer satisfaction scores, regional service coverage including infrastructure gaps, and standardised cost estimates for common repairs. These audit reports must be published on a Central Government platform. This will ensure accountability, and empower consumers to make informed repair choices.

By implementing these measures, India can move towards a more sustainable and consumer-friendly repair ecosystem. Strengthening the repair industry through policy reforms, financial incentives, and public awareness will empower consumers, support local economies, and significantly reduce electronic waste.

Appendix:1

Questionnaire for Focussed Group Discussions (FGDs)

Functioning

- ➔ 1. How long have you been in the repair business?
- ➔ 2. What devices are repaired in the shop/area?
 - ➔ Large household appliances (Fridge/SM/AC/TV)
 - ➔ IT and telecom (Mobile Phones/Laptops/tablets/desktop)
 - ➔ Small appliances (Mixer Grinder/toaster/shaver/microwave/oven)
- ➔ 3. Does a shop need or has a separate license to run repair service and if yes, what?
- ➔ 4. Are the repair technicians trained or get trained during the job?
- ➔ 5. Do you use original spare parts/non-original lower quality spare parts or both?
- ➔ 6. From where do you generally procure these spare parts? What are the major challenges in sourcing original parts?
- ➔ 7. What is done with the old replaced parts and non-repaired EEE?

Economics

- ➔ 8. How much does the shop earn from this business (monthly average)?
- ➔ 9. How much do trained repair experts make every month? Are they paid on a monthly or job basis?
- ➔ 10. How much do untrained employees make every month? Are they paid monthly or on job basis?

Challenges

- ➔ 11. In your opinion, has the repair market gone down--both in terms of people getting their equipment for repair and also people buying repaired goods?
- ➔ 12. What according to you are the reasons behind decreased repair service demand?
- ➔ 13. Why do you think products now are difficult to repair?
 - ➔ Lack of spare parts
 - ➔ Modular design

- Costly spare parts -Time-consuming
- Any other

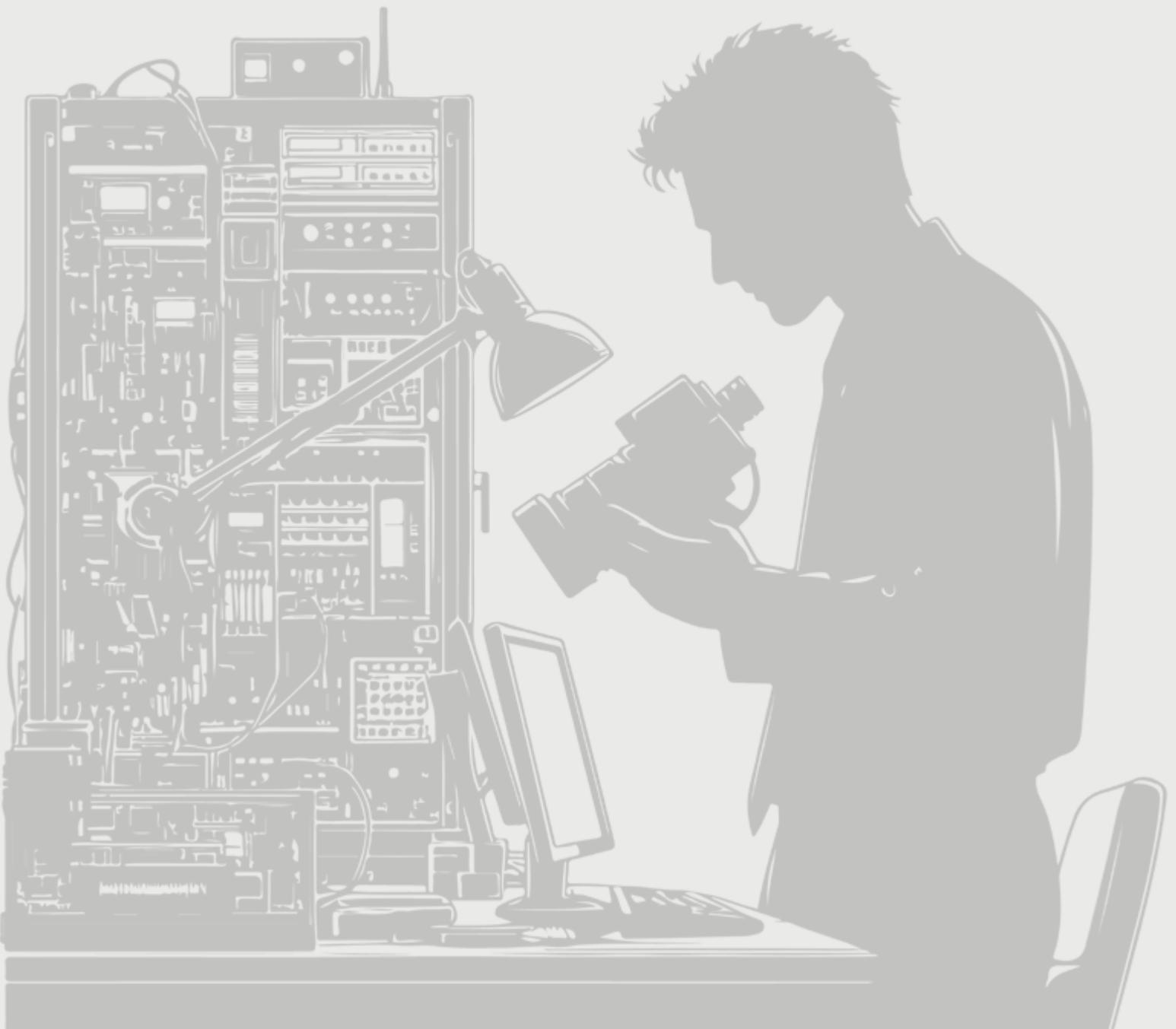
→ 14. Do you face any issues in sourcing skilled technicians and does that impact your repair business?

Possible Solutions

→ 15. In your opinion, what are the solutions to the above challenges?

- Modular design
- Repair Manual with product
- Availability of cheap and old spare parts
- Skill development programme for repair
- Other

→ 16. What kind of support do you need from the government or brands to promote repair services?



Appendix:2

Consumer Survey Questionnaire

Ground Consumer-Survey

- ➔ Please mention your age.
 - ➔ 18-25
 - ➔ 26-35
 - ➔ 36-45
 - ➔ Above 45
- ➔ Please mention your gender.
 - ➔ Female
 - ➔ Male
 - ➔ Third Gender
 - ➔ Prefer not to Say
- ➔ Please select your household income per annum in INR/Rupees (Rs).
 - ➔ 1- 5 lakh
 - ➔ 5-10 lakh
 - ➔ 10-15 lakh
 - ➔ 15-20 lakh
 - ➔ Above 20 lakh
- ➔ What EEE do you own (tick all that is applicable):
 - ➔ Large EEE appliances (Refrigerators/Washing Machine/TV/AC)
 - ➔ IT and Telecom equipment (Computer/Laptop/Tablet/Mobile Phone)
 - ➔ Small appliances (Mixer Grinder/Toaster/ haver/Microwave/Oven/Iron/Hair dryer)
- ➔ Among these, which have you got replaced with new products in the last five years? (Tick the applicable)
 - ➔ Large EEE appliances (Refrigerators/Washing Machine/TV/AC)
 - ➔ IT and Telecom equipment (Computer/Laptop/Tablet/Mobile Phone)
 - ➔ Small appliances (Mixer Grinder/Toaster/ Shaver/Microwave/Oven/Iron/Hair dryer)
- ➔ Reason for replacement
 - ➔ Non- repairable
 - ➔ Wanted a new updated product
 - ➔ Repair cost high
 - ➔ Inconvenient to repair
 - ➔ Do not trust repaired products

- ➔ What was done with the replaced (old) product?
 - ➔ Exchanged with new product at formal distributors (e.g. retail shops)
 - ➔ Sold to informal buyers (kabaadiwala or repair shop)
 - ➔ Given to someone else (househelp/others)
 - ➔ Stored at home
 - ➔ Others (Please specify)

- ➔ Among these, which devices have you repaired in the last five years? (tick all that is applicable)
 - ➔ Large EEE appliances (Refrigerators/Washing Machine/TV/AC)
 - ➔ IT & Telecom equipment (Computer/Laptop/Tablet/Mobile Phone)
 - ➔ Small appliances (Mixer Grinder/Toaster/ Shaver/Microwave/Oven/Iron/Hair dryer)

- ➔ Why do you prefer to repair these devices/appliances (beyond warranties) over buying a new product?
 - ➔ Repair Costs being cheaper compared to buying new
 - ➔ Habit/old values
 - ➔ Attachment with the product
 - ➔ Availability of satisfactory Quality Repair Facilities
 - ➔ Environmental
 - ➔ Recover the Investment
 - ➔ Other (Please specify)

- ➔ Where did you get the above repaired?
 - ➔ Local Repair Shops
 - ➔ Brand Service Centres
 - ➔ DIY
 - ➔ Other (If other please mention)

- ➔ For what kind of goods do you prefer going to Authorised service centres?
 - ➔ Product under warranty
 - ➔ Expensive products
 - ➔ All goods
 - ➔ Any other

- ➔ For what kind of goods do you prefer local repair shops?
 - ➔ Small appliances
 - ➔ Large appliances
 - ➔ Products beyond warranties
 - ➔ Any other

- ➔ The reasons for preferring local repair centres:
 - ➔ Lower costs
 - ➔ Convenience
 - ➔ Products no longer serviced by authorised service centres
 - ➔ Any other

- ➔ Barrier against the repair of large household appliances?

- Not worth as can buy new product at almost the same price
- Lack of repair facilities
- Inconvenient
- Unavailability of spare parts
- High Repair Cost
- Unsure of repair quality
- No guarantee on repaired products

- Barrier against repair of small household appliances?
 - Not worth as can buy new product in almost the same price
 - Lack of repair facilities
 - Unavailability of spare parts and tools
 - High Repair Cost
 - Unsure of repair quality
 - No guarantee on repaired products

- Barrier against repair of IT and telecom equipment?
 - Data safety
 - Not worth as can buy new product in almost the same price
 - Lack of repair facilities
 - Unavailability of spare parts
 - High Repair Cost
 - Unsure of repair quality
 - No guarantee on repaired products

- Is EEE repair less preferred now than it was 5-10 years (depending on the age group) ago?
 - Yes
 - No

- Which EEE are you likely to get repaired in future?
 - Large EEE appliances (Refrigerators/Washing Machine/TV/AC)
 - IT & Telecom equipment (Computer/Laptop/Tablet/Mobile Phone)
 - Small appliances (Mixer Grinder/Toaster/ Shaver/Microwave/Oven/Iron/Hair dryer)

- What can motivate you to repair more devices/appliances?
 - Warranty on Repair
 - Certified Repair Shops
 - Lower Repair Costs
 - Accessibility
 - Genuine Spare Parts
 - Other

- Would you prefer the brands to:
 - Provide service for longer periods
 - Provide spare parts for longer periods
 - Make modular design to make repair easy

Endnotes

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