KOAN

Issue Brief: **Towards a Right to Repair in India**

April 2025

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Executive Summary

The Right to Repair (R2R) movement is gaining momentum worldwide, advocating for consumers' ability to repair their devices or seek independent third-party services. Supporters praise R2R for empowering consumer rights and promoting a circular economy. Critics, however, worry about safety risks like accidental puncturing of lithium-ion batteries and potential threats to intellectual property and device security.

Despite these concerns, legislators are expanding repair rights, and original equipment manufacturers (OEMs) are increasingly supporting repair initiatives. In the US, New York was the first state to pass an R2R law for electronic devices, followed by California, Minnesota, Colorado, and Oregon. By February 2025, all US states either introduced or passed R2R bills – a major victory for the movement. In Europe, France's Repairability Index is pushing companies to share repair manuals and design more repairable products. Brands like Fairphone, Shift, and HMD Global have even made repairability a key selling point.

India is also moving towards an R2R framework, driven by global initiatives and domestic policies like Lifestyle for Environment. The government's initial focus includes smartphones, tablets, farm equipment, consumer appliances, and automobiles. To support this transition, it has launched an R2R portal, encouraging companies to share product manuals, repair videos, and information on warranties and spare parts. The government also plans to introduce a repairability index to improve access to OEM-made components and strengthen the repair ecosystem.

An important aspect of India's R2R framework is harmonising trade between OEMs and third-party repair centres. Third-party repair shops dominate the country's mobile repair market, offering faster and more affordable services than OEM-authorised centres. They often achieve this by using low-cost aftermarket parts and bypassing strict OEM quality controls. While this broadens access to repairs, it can lead to inconsistent repair quality and void device warranties, especially when OEMs implement parts pairing. Parts pairing refers to software that blocks the use of non-original components during the repair process.

Third-party repair shops also contribute to circularity by refurbishing old devices and reusing salvaged parts. Their market presence, affordability, and practices in circularity make them key stakeholders in future R2R policies alongside manufacturers, trade associations, and civil society. To gain deeper insights into the third-party repair ecosystem, we surveyed Delhi's electronics markets. The findings reveal:

- OEM-made parts are harder to obtain than aftermarket components. The high price of original parts often drives consumers towards cheaper alternatives.
- Informal technicians, though skilled, lack certification. This poses safety risks, especially when handling lithium-ion batteries, which require strict quality standards and post-repair accountability.

To make R2R effective, India could consider the following interventions:

- **Prioritising Third-Party Stakeholder Engagement:** Facilitating collaboration between OEMs, market associations, and trade bodies to develop common standards and promote fair market practices. Their coordination could help establish a clear, inclusive roadmap towards formalising the third-party repair sector.
- **Enhancing Sensitisation and Certification:** Partnering with vocational centres and OEMs to support training programmes certifying third-party repairers. These programmes should recognise prior learning and promote safe and ethical repair practices.
- **Enabling the Flow of High-Quality and Genuine Components:** Encouraging OEMs to supply authorised parts to third-party repairers and boost enforcement against counterfeits. The proposed repairability index could support this goal by incentivising OEM compliance.

Introduction

Smartphones have undergone a significant evolution over the past few decades. Improvements in performance, ergonomics, and user experience have resulted in thinner, more powerful devices. However, these advancements have also made disassembly and repairs increasingly complex, posing challenges for users with limited technical skills. Original equipment manufacturers (OEMs) often cite this complexity as a reason for steering customers toward authorised service centres to ensure high-quality repairs and a seamless brand experience.

Critics, however, argue that limited repairability is a deliberate strategy driven by factors such as:

1. **Planned Obsolescence:** Designing products with shorter lifespans to encourage faster replacements. For example, devices may lose support for key features, become incompatible with software updates, or experience reduced performance within a few years of purchase.
2. **Proprietary Designs:** Using unique components and repair methods to restrict third-party access and protect intellectual property. For instance, OEMs may design custom screws that require specialised tools, preventing repairs with standard equipment.
3. **Monetisation of Repairs:** Controlling the repair market to generate revenue through authorised service centres and original parts. For example, OEMs may reject warranty claims if a device has been repaired independently or contains non-branded components.

These factors reinforce OEMs' proprietary control over devices and services. A notable example of this trend is the 'parts pairing' practice, where manufacturers program devices to restrict hardware functionality if a non-genuine part is detected. It limits independent repairs and increases customer reliance on authorised service providers.

Authorised service centres enable OEMs to fulfil warranty claims while maintaining their preferred quality control standards. However, warranty periods typically last one year for most mobile phones, and repairs beyond that period can be expensive. For instance, replacing key components like the motherboard and display can cost nearly as much as a new device.[1] Additionally, authorised repairs can be slow due to the imbalance between the number of service centres and mobile phone users in India. The country has an estimated 10,000 authorised repair centres[2] against 1.2 billion mobile phone users.[3] This disparity leads to long wait times for appointments, with repairs often taking days or even weeks.

In contrast, third-party repair centres offer faster and more affordable services. Their simpler operational structure enables quicker diagnostics and repairs, often using cheaper aftermarket components and a less specialised workforce. However, these practices can result in inconsistent repair quality and may void the device's warranty.

These differences force consumers to weigh trade-offs between cost, speed, and reliability when seeking repairs. However, global examples show that independent repair services can maintain high quality while reducing costs.

For instance, US-based iFixit partners with OEMs like Google to provide original spare parts, tools, and repair manuals, empowering consumers and third-party providers alike. Similarly, uBreakiFix, in collaboration with leading OEMs, offers quick repairs with up to a one-year warranty.[4] These models showcase the collaborative potential of OEMs and independent repair services to build a more consumer-friendly repair ecosystem.

Against this backdrop, India is considering a Right to Repair (R2R) framework to give consumers greater choice in how they repair their devices. Under this model, consumers can opt for authorised service centres, independent repair shops, or even self-repair with access to essential tools and resources. This push for repair rights is influenced by international regulatory trends and domestic policy imperatives.

In the US and Europe, R2R legislation, driven by unions in the automotive and electronics sectors, has strengthened consumer repair rights. In India, the movement aligns with legal and policy frameworks such as the Consumer Protection Act (2019), the Lifestyle for Environment (LiFE) programme, and Aatmanirbhar Bharat Abhiyan. These initiatives promote consumer rights, sustainability, and employment generation across industries, including mobile phone repairs.

Circularity is an important component of these efforts, particularly in response to India's electronic waste (e-waste) generation. Rapid advancements in smartphone technology have fuelled a culture of frequent upgrades, contributing to the country's growing e-waste crisis. India's e-waste surged from 1.01 million metric tons (MT) in 2019-20 to 1.75 million MT in 2023-24, less than half of which is processed.[5][6]

FIGURE 1 | Trends in India's E-waste Generation
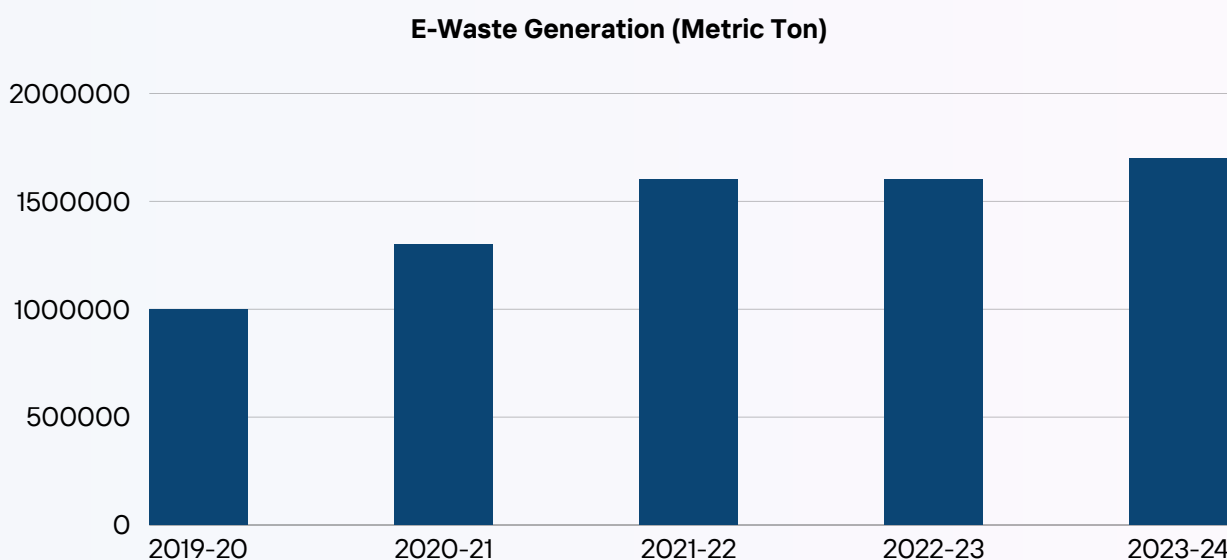
Source: Ministry of Housing and Urban Affairs, 2024

R2R is an attempt to address this crisis. One of the framework's components is the R2R Portal, a platform where companies can voluntarily upload product manuals, repair videos, and information on warranties and spare parts, democratising access to these resources. The government also plans to introduce a repairability index, which will rate products based on factors like technical documentation, ease of disassembly, spare parts availability, and pricing.[7]

These initiatives are a good start to push OEMs towards repairability, though more work remains. This issue brief explores the challenges and opportunities towards shaping an R2R framework in India. It offers insights for government bodies, policymakers, and industry associations, drawing on global best practices. The brief also incorporates primary research to assess the third-party repair landscape and evaluate the industry's readiness for such a system.

Right to Repair Proposal in India

The Department of Consumer Affairs (DoCA) issued a press release in 2022 announcing the formation of a committee to establish an R2R framework in India.[8] This committee prioritised mobile phones and tablets among other product categories, which included consumer durables, farming equipment, automobile, and automobile equipment.

> **The objectives of the framework include:**
> - Greater ownership and empowerment for buyers;
> - Prevention of monopolisation of the repair process by OEMs and 'planned obsolescence';
> - Harmonising trade between OEMs and third-party sellers;
> - Promoting sustainable consumption and reduction of e-waste.

The press release notes that OEMs tend to avoid the publication of product manuals that make repairs easy for users. They also obtain proprietary control over spare parts through practices like using unconventional screw designs, industrial adhesives and soldering.[9] Proprietary control is evident when repairs conducted by informal technicians invalidate the existing warranty of a product offered via digital warranty cards. This counts as an infringement of the consumer's right to choose, a core right under India's Consumer Protection Act 2019.

While OEMs argue that proprietary control helps mitigate risks linked to third-party repairs, this approach involves trade-offs. Maintaining an inventory of original spare parts for all previously sold mobile phones can be costly, especially when the demand is uncertain. This can compromise the quality of service without requisite accountability frameworks in place.

DoCA also highlighted service delays, high costs, and spare part shortages in authorised service centres, reinforcing the need to implement measures under the R2R framework listed in Table 1.

TABLE 1 | Focal Areas of India's R2R Framework

Envisaged Compliance
Technology companies should democratise access to repair manuals, diagnostics and the list of necessary tools and parts.
Genuine spare parts and tools to service devices, including diagnostic tools, should be made accessible to third-parties and individuals.

Cost of warranty, repair parts and labour should be affordable for customers.

Parts-pairing software should not limit access to independent or third-party repair.

OEMs should manufacture phones that are repairable by design, avoiding the use of proprietary fasteners and adhesives that make disassembly difficult without specialised equipment.

Independent or third-party repairs should not void device warranty.

A 'Repairability Index' should assess repairability of devices using a standard metric.

OEMs should not indulge in planned obsolescence, and should prioritise longevity and sustainability.

Source: Department of Consumer Affairs

In India, certain judicial pronouncements have indirectly recognised R2R in the context of automobiles, even though it is yet to be identified as a statutory right. In 2014, the Competition Commission of India termed manufacturers with exclusive access to authorised repairs as 'monopolistic participants in the aftermarket' for their car models. It, therefore, amounted to an 'anti-competitive practice'. The Commission ruled that OEMs facilitated the exploitation of the locked-in consumers through increased revenue margins from the sale of auto components. Therefore, it mandated the availability of spares to all repairers by manufacturers.[10]

Automobiles are now part of India's proposed R2R framework. Government-led stakeholder discussions in July 2024 encouraged automotive OEMs to provide roadside assistance to consumers. Participants, including automotive associations and manufacturers, discussed standardising parts and skilled workmanship to streamline repairs. They also addressed deceptive workshop practices, such as misusing motor insurance, which contributes to plastic waste.[11]

However, mobile phones and consumer electronics have been more relevant to R2R discussions due to their rapid growth and shorter lifespans.

On December 24, 2022, DoCA launched an R2R portal, encouraging companies to provide essential product information, including repair manuals, warranty details, and pricing for genuine spare parts and consumables.[12] As of April 2025, 66 companies have joined the portal, including global brands.[13]

Almost two years later, DoCA assembled a committee of experts from various sectors, including government, industry associations, and mobile phone OEMs, to develop a repairability index. Manufacturers like Google, Apple, Dell, and Samsung were part of this delegation.[14] The index aims to standardise how repairability is measured in India, enabling consumers to make informed product decisions.

Right to Repair Movement: Origins and Regulatory Developments

The R2R movement began in the US in the early 2000s and later spread to parts of Europe, often driven by collectives and activist-led efforts. This has paved the way for R2R legislations, community repair coalitions, repair-friendly product designs, certified third-party repair organisations, and frameworks to measure repairability. The movement has also faced resistance within the industry, with some OEMs citing potential safety risks from third-party repairs and concerns over intellectual property threats from counterfeit products.

United States (US)

The R2R movement began in the US with the 2001 Motor Vehicles Right to Repair Act S.2617, influenced by automotive aftermarket stakeholders who wanted to promote independent repair.[15] R2R became law in 2012 in Massachusetts, making the US the first country in the world to adopt an R2R legislation called the Motor Vehicle Owners' Right to Repair Act 2012.[16] It required car OEMs to make repair information accessible to vehicle owners and independent repair shops. This law marked a precedent for future advocacy efforts in electronics and consumer goods as well. The prime example of this is the 2013 Digital Right to Repair Coalition, known as The Repair Association, which has led numerous campaigns and state-level legislative efforts to expand repair rights.[17]

In July 2021, the White House issued an executive order directing the Federal Trade Commission to take action against restrictions that limit third-party or self-repair.[18] The movement achieved a major milestone in June 2022 when New York became the first state to pass an R2R law specifically for electronic devices. Known as the Digital Fair Repair Act, the law mandates that OEMs provide repair tools and lift software restrictions that limit post-purchase repairability.[19]

States like California, Minnesota, Colorado, and Oregon have followed suit with their own R2R laws, with Oregon's and Colorado's bill emphasising resistance to parts pairing. The two bills prohibit manufacturers from using parts pairing to block repairs, reducing a product's functionality or performance, or displaying misleading alerts about replacement parts.[20] As of February 2025, all US states have either introduced or passed R2R bills – a major victory for the movement, with Wisconsin being the last state to pass legislation.[21]

A significant momentum on R2R also exists in civil society. For example, Oregon-based Free Geek is a community-funded organisation that collects and refurbishes old electronics. It provides these devices to the city's most vulnerable populations at low or no cost, along with digital literacy training.[22]

Netherlands

The evolution of the R2R movement in the US coincided with volunteer-led initiatives in Europe. In 2009, Dutch environmentalist and former journalist Martine Postma introduced the concept of Repair Cafés in the Netherlands, where volunteers gathered and shared their repair skills[23] There are over 2,200 Repair Cafés in the world today. The Repair Café International Foundation is the charity organisation supporting these cafés. It also lobbies in the EU, advocating for increasing taxes on raw materials to make repairing a product more attractive than buying it[24]

European Union (EU)

The EU introduced its Ecodesign for Sustainable Products Regulation (ESPR), effective from July 2024, replacing the Ecodesign Directive 2009/125/EC. It establishes a framework for eco-design requirements covering almost all physical goods, including mobile phones, and covering criteria like durability, reusability, upgradeability, recyclability, energy efficiency, and emissions reduction[25]

A key feature of the ESPR is the Digital Product Passport, a digital identity card storing crucial information about products, components, and materials. It promotes sustainability and circularity while enabling authorities to assess products based on performance, material origins, repairability, recyclability, and environmental impact. The first ESPR working plan, set to launch in 2025, will focus on developing product rules, conducting impact assessments, and engaging in stakeholder consultations.

Earlier, in May 2024, the EU adopted the R2R Directive, effective July 2024, requiring manufacturers to provide comprehensive repair services until consumer request. This is currently limited to categories including consumer electronics, electronic components, and white goods. The directive is part of the European Green Deal and Circular Economy Action Plan, which prioritises sustainability, circularity, and waste reduction. Member states must transpose the directive into national law within 24 months, meaning businesses will likely need to comply by the second half of 2026[26]

According to the directive, consumers can choose any repairer, regardless of the manufacturer's obligations. It also promotes the use of refurbished goods as temporary replacements during repairs or, at the consumer's request, as the final replacement.

The directive calls for a European online platform to help consumers find repairers, refurbished goods sellers, or community-led repair initiatives.

On January 10, 2025, the European Commission released battery handling rules for repairs as part of its new Battery Regulation. The rules simplify the replacement of batteries, which make up around 50 percent of device repairs, and prevent manufacturers from blocking repairs via parts pairing. OEMs may continue using software to ensure the safety and functionality of a replacement battery but cannot block a repair simply because the replacement part is aftermarket. For instance, serialisation of the device must not prevent a compatible battery from functioning, even if it hasn't been 'paired' through the manufacturer's software[27]

France

In 2019, France developed a repairability index applicable to products sold in France after January 1, 2021. Ranging from 1 to 10, the index assesses the repairability of a product based on five criteria viz. documentation, disassembly, availability of spare parts, price of spare parts, and product-specific aspects. French law mandates manufacturers to display the index near the point of sale and make it available for anyone requesting it. The EU is reportedly working on a similar index with strong support from the European Parliament and the EU Council.[28]

United Kingdom (UK)

On July 1, 2021, the UK passed an R2R law under the Eco-design for Energy-Related Products and Energy Information Regulations, 2021. It requires electronic appliance OEMs to make spare parts accessible for consumers to facilitate easy self and third-party repairs, with an aim to increase the gadget lifecycle to 10 years. However, the regulation excludes products like laptops, tablets, and smartphones.[29]

The US and European experiences show how the imperative of R2R stemmed from grievances of individual consumers and unions, community-led initiatives and advocacy efforts from conglomerates. Notable factors driving the global narrative include the high cost of OEM-led repairs, planned obsolescence, consumer welfare, e-waste reduction and local economic participation.

Industry Response

In the US, leading mobile phone OEMs have opposed the introduction of an R2R law, citing concerns about user safety, cybersecurity and intellectual property. Their key argument is that self-repair attempts could puncture lithium-ion batteries, posing injury risks. Additionally, open access to proprietary tools and guides could enable hackers to bypass security protections installed by OEMs.

Despite these concerns, some companies are gradually embracing repair rights.

For example, Apple backed California's law requiring device makers to facilitate self-repair.[30] It launched a Self-Service Repair programme, letting customers fix screens, batteries and cameras on the latest iPhones using manuals, official parts and tools.

Google introduced a repair mode in Pixel devices, allowing users to secure their data and enabling technicians to diagnose and service devices without a factory reset. It also offers parts-pairing software on its website. Additionally, Google has supported R2R policy discussions in the US by assisting advocacy groups, backing legislation in Pennsylvania, Oregon, and Colorado, and educating lawmakers on parts-pairing.[31]

In France, brands such as Apple, Samsung, Google and Microsoft have complied with the Repairability Index mandate by publishing repairability scores for their products.[32] Samsung has started offering repair manuals with its new products. Apple shares its repairability ratings on its France website, while Google maintains a 'Design for Serviceability Scorecard' – an internal tool for measuring repairability.[33]

Repairability is also becoming a foundational philosophy for some brands like the Netherlands-based Fairphone and Finland-based HMD. These brands market easy repairability as their unique selling proposition. HMD, for instance, offers repair toolkits, spare parts like charging ports and screens, and repair manuals on its website in India.[34]

Another company, Shift, a German-based OEM, offers a deposit system for its Shiftphone models. Customers pay a deposit, typically around $23 (almost ₹2,000), and can reclaim it by returning the phone and covering its salvage value. The modular design of the phone allows most parts to be easily replaced.[35]

These developments, along with voluntary initiatives such as certified third-party repair models and exchange programs for damaged accessories, reflect a global shift towards more open repair practices.[36]

For example, some companies are adopting multiple authorised repair pathways. For instance, Google offers repairs through centralised mail-in services, partners with third-party providers like Ubreakifix, and supports guided self-repair via iFixit. These firms, and others like Asurion, Justanswer and Repair Clinic, support multiple OEMs by using certified parts or collaborating to handle outsourced repairs.

R2R and Mobile Phone Security

Mobile phone security is a key concern in the R2R debate, often highlighted by OEMs opposed to R2R legislation. Central to this issue is the International Mobile Equipment Identity (IMEI) number, a unique code assigned to devices using cellular networks. The IMEI ensures legitimacy and helps track stolen devices.

Repairs from unauthorised sources can increase the risk of tampering with IMEI numbers. In India, mobile phone manufacturers and importers must register every phone's IMEI through the Indian Counterfeited Device Restriction portal.[37] The IMEI 2022 Amendment Rules, introduced in September 2022, impose penalties of up to three years in jail and fines for IMEI tampering.[38]

Despite these measures, IMEI duplication remains a persistent issue. It undermines device safety, damages brand credibility, and highlights vulnerabilities in even the most secure products. For instance, in 2020, investigators discovered over 13,500 phone numbers linked to the same IMEI across India.[39]

A similar investigation revealed more than one lakh devices across India using duplicate IMEI numbers, often tied to stolen phones.[40] In Delhi, authorities uncovered operations where shopkeepers altered IMEI numbers to unlock phones locked due to missed instalment payments. These shopkeepers replaced the IMEIs of locked phones with those from discarded or exchanged devices bought at low prices.[41]

Such practices create challenges for law enforcement, complicating device tracking in a country with over 1.15 billion (115 crore) active mobile connections.[42] It adds a layer of complexity to R2R implementation. For example, when unauthorised repair stores tamper with IMEIs, they can bypass OEM security protocols, exposing devices to hacking, spyware, and increased risks of being bricked. Such alterations also void warranties and exclude devices from manufacturer support. This particularly affects phones with tightly integrated hardware and software. These devices implement rigorous interoperability checks, and any mismatch can compromise their usability and security.

Third-party Repair Market Survey

In India, the strength of the R2R movement lies in the country's vast network of third-party repair providers, offering consumers alternatives to brand-led services. However, it is accompanied by challenges with the absence of a robust formal repair ecosystem and weak OEM linkages. Also, the reluctance from OEMs to adopt a repair attitude to products makes harmonisation with the third-party repair sector difficult. It affects access to genuine and affordable spare parts, breeding the demand for cheap counterfeit parts.

To gain deeper insights into these challenges, we conducted a primary research exercise in Delhi to gather on-ground perspectives.

We surveyed two major electronics markets – Nehru Place and Gaffar Market. Nehru Place is one of the largest tech markets in Asia, with more than 1,500 shops, most of them third-party vendors repairing electronics, hardware and software.[43] Gaffar Market, also a major electronics hub in India, has around 100 repair shops, including the adjacent Municipal Corporation of Delhi Market.[44] Forty-one respondents, all third-party repair technicians, participated in the interviews.

The interviews were semi-structured and included questions on commonly occurring issues in mobile phones. The respondents were asked to provide details about repair costs, warranty, source of components, reusability, and skilling. The survey involves all phone segments, viz. feature phones, budget, mid-range, and high-end smartphones.

TABLE 2 | Notable Observations from the Survey

Highlights	
Access to Replacement Parts (Figure 2)	- Only two percent of respondents reported sourcing spare parts directly from OEM suppliers. - Most spare parts available for purchase were low-cost replicas made by third-party manufacturers. - Technicians often used parts salvaged from old phones for repairs and replacements, and with negotiation, these parts could be purchased at nearly half the price of new OEM parts. - Third-party repair shops charged minimal fees for assuming liability in case of repair failures, whereas authorised service centres charged higher. Many technicians noted that customers frequently prioritise cost savings over the security provided by branded services.

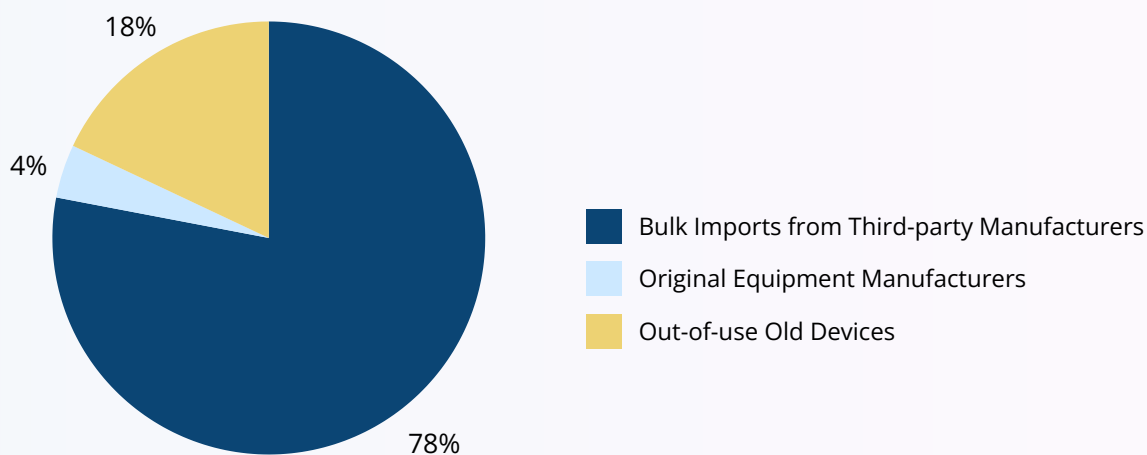| Examination Charges (Figure 4)	• Nearly 83 percent of shop owners did not charge extra to disassemble and diagnose the phone, offering faster service compared to OEM service centres, which often take several days.
Warranty (Figures 5 and 6)	• More than half of the respondents declined to offer a post-repair warranty, particularly when they provided low-cost replacements. • On occasions where warranty was offered, it came from the repair shop in the form of a hand-written bill, not the OEM supplying the parts. • Warranty periods varied based on the cost of the replacement parts, ranging from a few weeks to up to a year.
Training (Figures 3 and 7)	• None of the respondents had any formal training in mobile repairs; most technicians gained skills through apprenticeships, learning from senior peers and online resources like YouTube. • Respondents preferred apprenticeships over formal training at Industrial Training Institutes, private centres or government e-learning portals. • Respondents cited the hands-on 'earn-while-you-learn' approach as a faster and more practical training medium, allowing them to gain experience and cover expenses simultaneously.
Disposal, Reuse and Recyclability	• In over 68 percent of cases, damaged phone parts could not be reused and were disposed of as general waste. In 22 percent of cases, technicians retained parts for future reuse. • Most metallic spare parts were kept by the third-party shop owner and later sold to rag pickers, while silicon chip-based damaged parts were discarded as general waste.
Safety	• Some repair shops were also found selling used lithium-ion batteries, which were cheaper than standard alternatives but posed safety risks due to their tendency to swell even on normal usage.

Source: Author

Discussion

The observations from the survey highlight several challenges that are tied to the recent stakeholder discussions on R2R. These include:

Availability of Spare Parts

Third-party repair shops in India often depend on salvaged parts from older phones or low-cost, mass-produced generic components. In contrast, OEM components are typically more expensive and harder to source, especially as phone models age. The limited number of OEM repair centres, compared to India's large mobile phone user base, also leads to long wait times – despite the common perception that OEM repairs are more reliable. These factors contribute to the widespread popularity of third-party repair centres.

FIGURE 2 | Source of the Replacement Parts

- Bulk Imports from Third-party Manufacturers
- Original Equipment Manufacturers
- Out-of-use Old Devices

Source: Author

DoCA's proposed Repairability Index could potentially fill some of the gaps highlighted in the survey. The department held a 'National Workshop on the Right to Repair in the Mobile and Electronics Sector' in August 2024, outlining a framework for this index. The committee driving this initiative included representatives from DoCA, the Ministry of Electronics and Information Technology, the Ministry of Small and Medium Enterprises, the National Test House, the Indian Cellular Electronics Association, private sector players, and consumer advocates.[45]

The proposed standards include easy access to repair information and toolkits, timely availability of affordable spare parts and modular product design to facilitate component replacement. This could bridge the gap between costly OEM parts and cheaper generic components by making OEM parts more accessible and encouraging higher quality standards in generic alternatives.

France's repairability index has already delivered promising results, increasing sales of more repairable products.[46]It has also encouraged OEMs to improve product design, leading to a greater availability of repair-friendly models in the market. This shift benefits consumers by offering a broader range of durable and easily repairable options.

Skill Gap

Access to repair manuals and toolkits is just one part of enabling a repair-friendly ecosystem. Technicians must be able to adopt modern repair practices for these resources to be truly effective. However, our site study revealed a significant gap in formal training, as most technicians rely solely on hands-on learning in repair centres. Although informal training can build practical skills, it also comes with several limitations, including:

1. **Lack of Standardised Knowledge and Skills:** Informal training lacks a structured curriculum that covers foundational concepts in electronics, software troubleshooting, and advanced repair techniques. Practical training cannot substitute theoretical knowledge; both must go hand in hand.
2. **Overlooked Safety Practices:** Informal training may skip essential safety protocols, such as the use of protective equipment and anti-static handling. This could increase the risk of damaging mobile phone components or causing accidents, influencing the quality of repairs and compromising safety.
3. **Lack of Certification:** Without certification, technicians lack official credentials, which undermines their credibility in the job market. Lack of certification is also a barrier towards the formalisation of the workforce as envisioned under India's R2R framework.
4. **Outdated Knowledge of Technology:** Informal training struggles to keep pace with rapid advances in mobile technology. Technicians who lack alignment with OEM standards will likely be underprepared for repair methods required for newer devices, increasing the risk of improper repairs.

FIGURE 3 | Source of Skilling

43%

57%

■ Peer Learning

■ Peer Learning + Online Resources
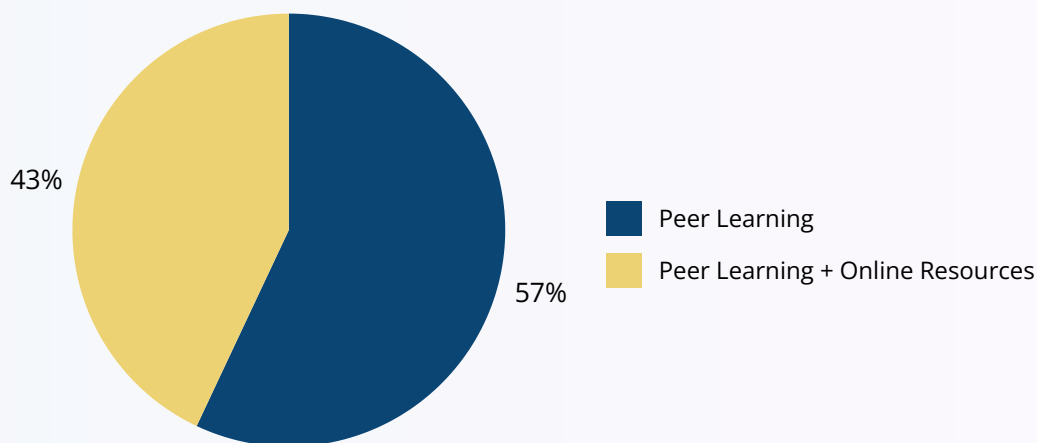
Source: Author

India has several programmes in place to enhance workforce skills. These include the National Policy on Skill Development and Entrepreneurship, Pradhan Mantri Kaushal Vikas Yojana, the National Apprenticeship Promotion Scheme (NAPS), and the Skill India Digital Hub.[47] These programmes have led to a rise in short-term skilling courses, increasing the number of certified workers. However, limited quality checks on the implementation of these courses often produce semi-trained workers, who lack the requisite skills required for the job market.

Limited private sector involvement and industry-led training pathways are two other barriers to skilling. The Apprenticeship Act of 1961 mandates companies to engage apprentices, yet uptake by the private sector remains low. For example, NAPS, launched in 2016 to increase apprenticeship numbers, has fallen short of its target. By 2022, only two million apprentices had been trained, far below the goal of five million.

Successful models abroad demonstrate the value of strong private sector participation. For instance, the German vocational education and training system involves a formal partnership between public vocational schools and private companies. Employers play a crucial role in the system, shaping the curriculum, and recognising prior learning and experience to enhance relevance to the industry. Countries like Austria, Switzerland, the Netherlands, France, and China have already adopted the Germanic demand-driven model of skilling.[48]
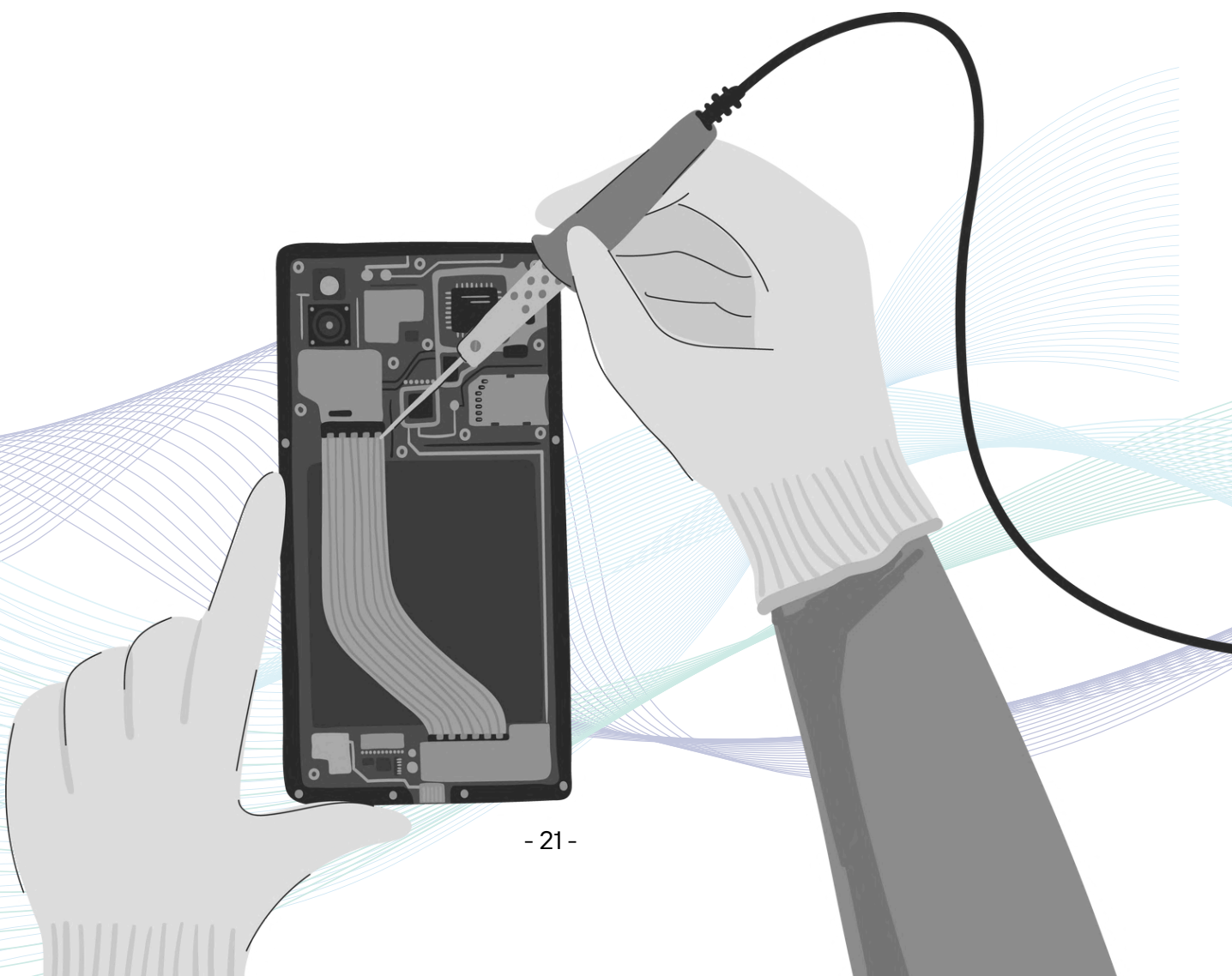
Intellectual Property and Counterfeiting

India has a comprehensive legal framework to combat counterfeiting in sectors including mobile phone and electronic components. The Customs Act, 1962 and the Intellectual Property Rights Enforcement Rules, 2007 authorise Customs to intercept and destroy counterfeit electronic parts at borders. The Trade Marks Act, 1999 criminalises the sale of goods with false trademarks, targeting the unauthorised use of brand names. Additionally, the Information Technology Act, 2000 regulates online sales, requiring e-commerce platforms to swiftly remove counterfeit listings upon complaint from rights holders.[49]

Despite these laws, the country faces obstacles in enforcement. For instance, distinguishing between genuine and counterfeit components can be challenging. This issue is particularly relevant in the case of parallel imports[*] in electronics, which are permitted under the Trade Marks Act. India follows the principle of 'international exhaustion,' allowing parallel imports from any global market.[50] While these imports involve genuine products, they bypass the brand's authorised distribution channels, blurring the line between authorised and unauthorised goods. This creates opportunities for counterfeit products to enter the Indian market, posing challenges for intellectual property owners, authorised distributors, and regulators.

*Parallel imports involve selling genuine products in a market without the permission of the trademark owner for that region. These goods are often legally purchased in one country and then imported into another, bypassing the brand's authorised distribution network.

Recommendations

The R2R movement continues to gain momentum, driven by activists, worker representatives, and repair associations advocating for consumer rights and accessible self-repair. Many major economies, particularly the US, are embracing it. Supporters believe that R2R legislation can help lower repair costs, discourage planned obsolescence, create jobs, and promote a circular economy.

However, many experts and industry stakeholders remain cautiously optimistic, raising valid concerns around safety, cybersecurity, and intellectual property. The R2R movement presents an opportunity to reform India's third-party repair sector and improve consumer welfare. Achieving its full potential will require a coordinated effort between the government and market associations. In this context, our recommendations are:

Prioritise Third-Party Stakeholder Engagement

Third-party repair businesses, particularly those monetising old or discarded mobile phone components, play a crucial role in the repair ecosystem and circular economy. Currently, repair services generate approximately $350 million in annual revenue, with substantial potential for growth and job creation.[51] Given the sector's economic significance, the proposed R2R framework should recognise the third-party repair sector as an important stakeholder. The government could work with market associations and trade groups to enhance coordination, develop shared standards, and promote fair market practices. These efforts could help establish a clear, inclusive roadmap towards formalising the third-party repair sector.

Enhance Sensitisation and Certification

The government could work with OEMs and vocational centres to train and certify third-party repairers, focusing on compliance with safety and privacy standards. It can promote best practices in areas like lithium-ion battery handling, prevention of IMEI tampering, diagnostic tool usage, and delivering warranty support. Such initiatives could bridge the gap between third-party repair practices and the quality standards expected by OEMs.

Enable the Flow of High-Quality and Genuine Components

There is a strong demand for OEM-manufactured electronic spare parts in the repair market. However, restrictive OEM policies often limit access, driving the growth of counterfeit alternatives. The R2R framework can encourage OEMs to improve authorised spare parts availability to third-party repairers. It should also strengthen safeguards against counterfeits through enhanced customs enforcement. The government's proposed repairability index is an encouraging first step, as it incentivises OEMs to make spare parts more accessible in pursuit of higher ratings.
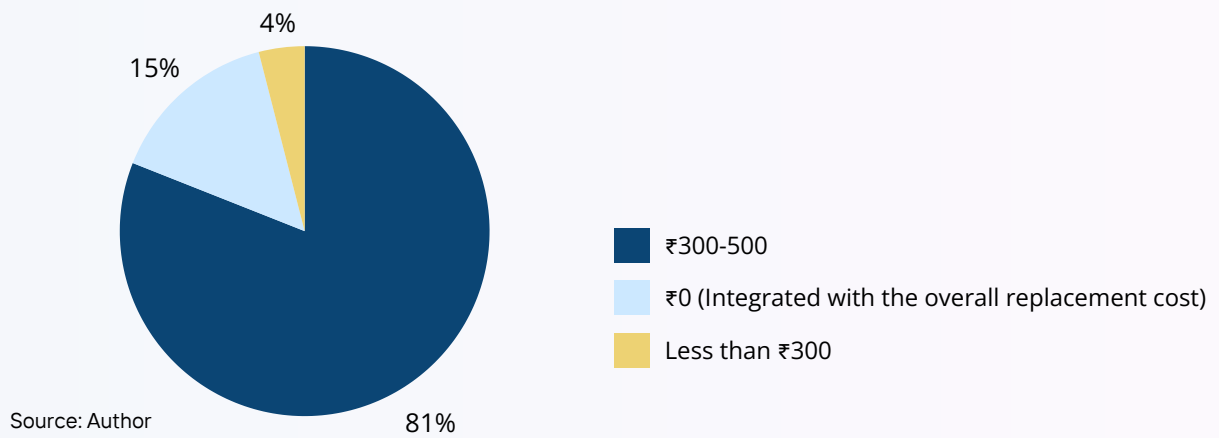
Annexure

FIGURE 4 | Examination Cost

- ■ ₹300-500
- ■ ₹0 (Integrated with the overall replacement cost)
- ■ Less than ₹300

4%
15%
81%

Source: Author

FIGURE 5 | Warranty Duration

- ■ 1 year
- ■ 3 months
- ■ 6 months
- ■ Less than 1 month
- ■ No warranty

20%
13%
7%
4%
56%

Source: Author

FIGURE 6 | Warranty Provider

- ■ Not Applicable
- ■ Part manufacturer
- ■ Third-party service shop

44%
54%
2%

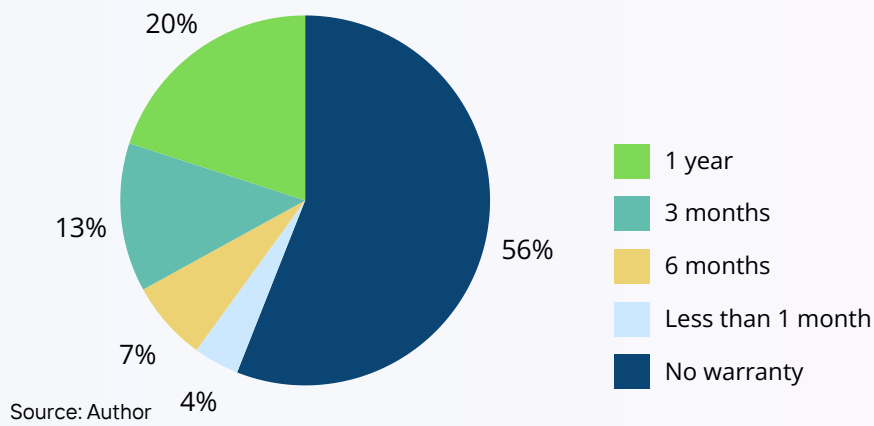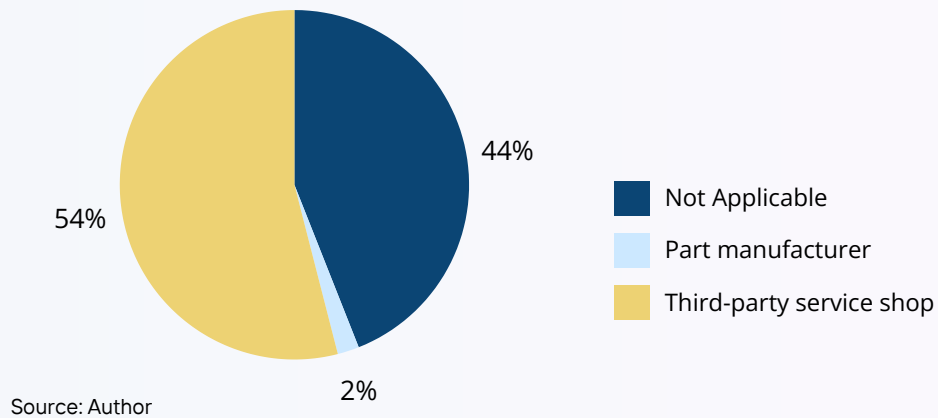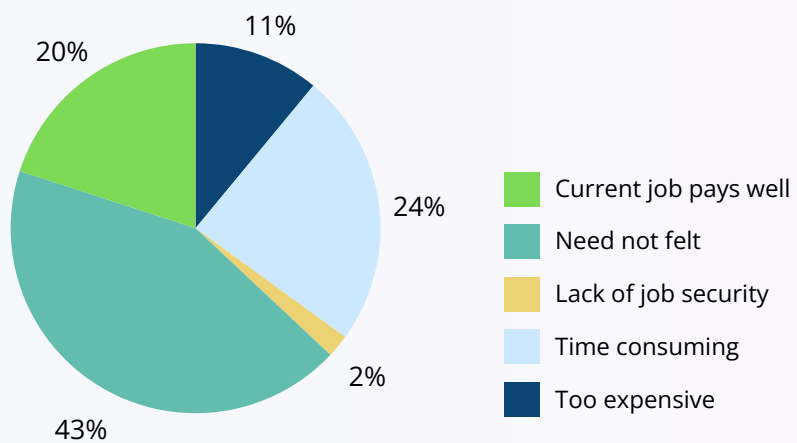Source: Author

FIGURE 7 | Reasons for not Pursuing Formal Training

Source: Author

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