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Innovate Using The Past: How 'Retrovation' Taps Into Demand For Sustainability & Nostalgia

Ravi Roshan[i*] & Monika Gupta[i]
[i]*S.P. Jain Institute of Management & Research*
**Corresponding author, ravi.roshan@spjimr.org*



Problem of practice

Businesses are now rethinking how to create value in their operations due to rising material costs, supply chain disruptions, and climate risks. Sustainable innovation is one option for value creation. Most firms think of innovation as novel products, processes or business models which involve new-age technologies. However, another readily available source of innovation that is often overlooked: the organisation's own history, historical knowledge within the industry, and within the local community. This source also creates a challenge for innovation managers, sustainability managers, and entrepreneurs: How can organisations identify useful historical knowledge, assess its relevance, and transform it into a sustainable innovation? The concept of 'retrovation' can help, according to research by I. De Noni, S. Blasi, and E. Sabbadin.[1] Retrovation refers to reviving and reinterpreting historical knowledge for new products and processes by tapping into two motivational forces: growing demand for sustainability and customers' nostalgia

[1]The article 'Retrovation typology: Exploiting and exploring past knowledge for nostalgic and sustainable innovation' by I. De Noni, S. Blasi, and E. Sabbadin, featured in Volume 55, Issue 2 of *Research Policy*, talks about how it is possible to give new life to updated products and technologies by drawing on past knowledge

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Past a source for future?

When Fujifilm launched its retro-style digital cameras, it had no idea it would be rated as one of the '10 Most Influential Hardware Companies of 2026' by *Time magazine* for its 'old-school' product.[2] The Japanese technology company also posted 'record-breaking' profit, with the retro-style camera models being one of the highest contributors.[3] Fujifilm's retro digital cameras are just one example of how many historical products and practices, which were developed under resource scarcity, are now being designed for reuse and durability.

Levi Strauss & Co is another example of how the past has become a good source of sustainable ideas and of emotional value. The US-based fashion retailer revived its iconic 501 style while also incorporating sustainable materials and circular practices through its SecondHand program.[4] The initiative includes customisation, repair, buyback, and resale of denim jeans — combining its own brand history with the needs of today's buyers, i.e., durability, authenticity, and sustainability.[5] These initiatives are motivated by industry trends: for instance, 69% of CEOs view sustainability as a growth opportunity, according to Gartner, and nostalgia for the past is now widespread, according to a global survey.[6,7] So how can organisations leverage this insight?

> Retrovation is a combination of 'retro' and 'innovation'. The process involves retrieving useful products, materials, practices, or knowledge from the past and reinterpreting them for contemporary use

Modernising historical knowledge

Research by De Noni and team provides the answer: Retrovation — a combination of 'retro' and 'innovation'. The process involves retrieving useful products, materials, practices, or knowledge from the past and reinterpreting them for contemporary use. Unlike 'vintage' products, which are reproduced or resold as is, retrovation adapts and modernises historical knowledge to address sustainability challenges, serve consumer demand for heritage and nostalgia, or both. But getting one does not guarantee the other.

Retrovation can create sustainable innovation for stakeholders, like reCharkha's lifestyle and home utility products made from recycled waste; nostalgia for



customers, like Nintendo's NES Classic Edition or both, like Levi's SecondHand initiative.[8,9]

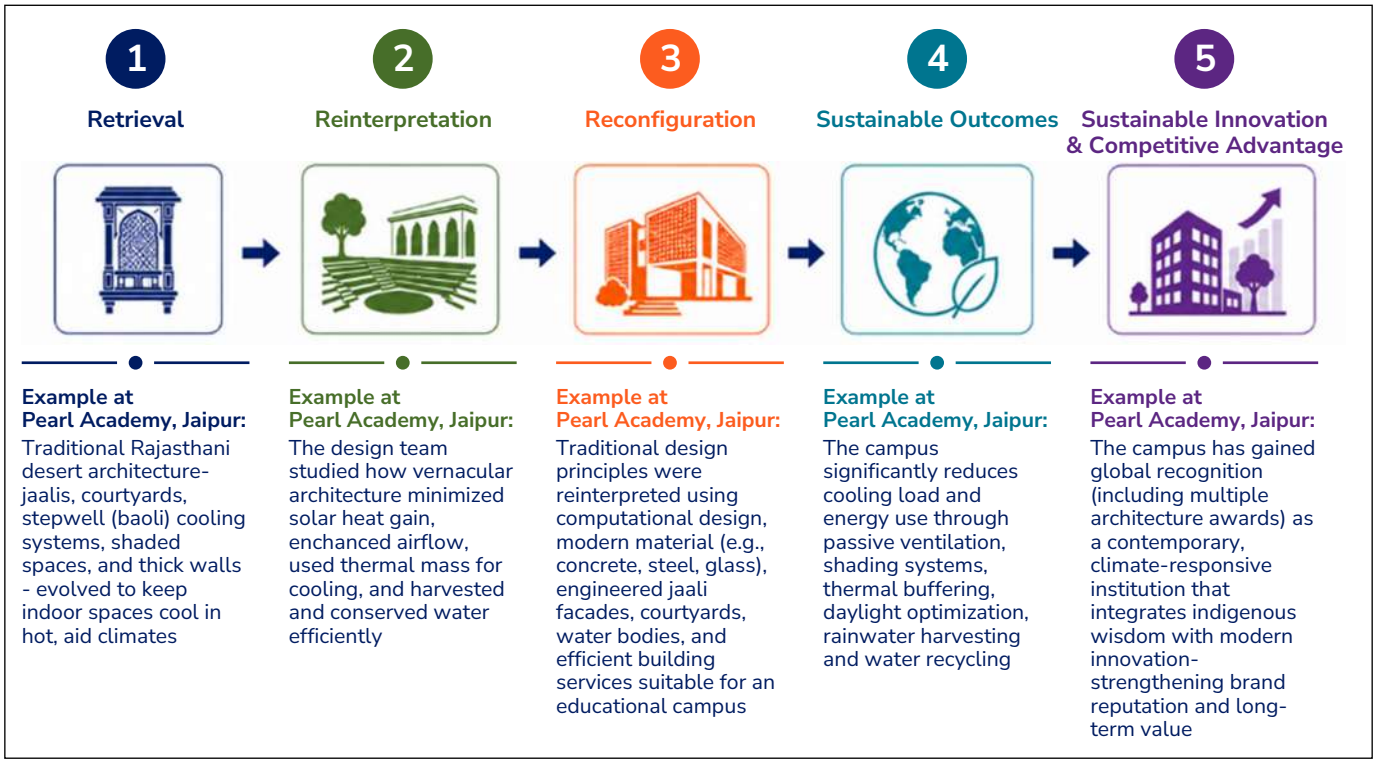
Retrovation typically operates in three steps:

- Retrieval: Organisations identify historical products, processes, materials, or techniques with valuable sustainability traits such as durability, repairability, low energy intensity, modularity, waste reduction, climate resilience, and cultural meaning.
- Reinterpretation: Organisations understand, examine and select which historical principles and elements can be effectively used in the present context and how.
- Reconfiguration: Organisations reconfigure the historical elements using modern technologies, designs, materials, and market needs.

The outcome is sustainable innovations that deliver environmental benefits such as resource efficiency, durability, climate resilience, and reduce carbon footprints. These sustainable innovations can also be a source of differentiation and competitive edge for organisations like Morphogenesis (see **Figure 1**). The architecture firm reinterpreted traditional Rajasthani cooling principles and applied modern engineering and architectural principles to design Pearl Academy Jaipur and help the campus become self-sufficient in power and water requirements.[10]



Figure 1: The retrovation process

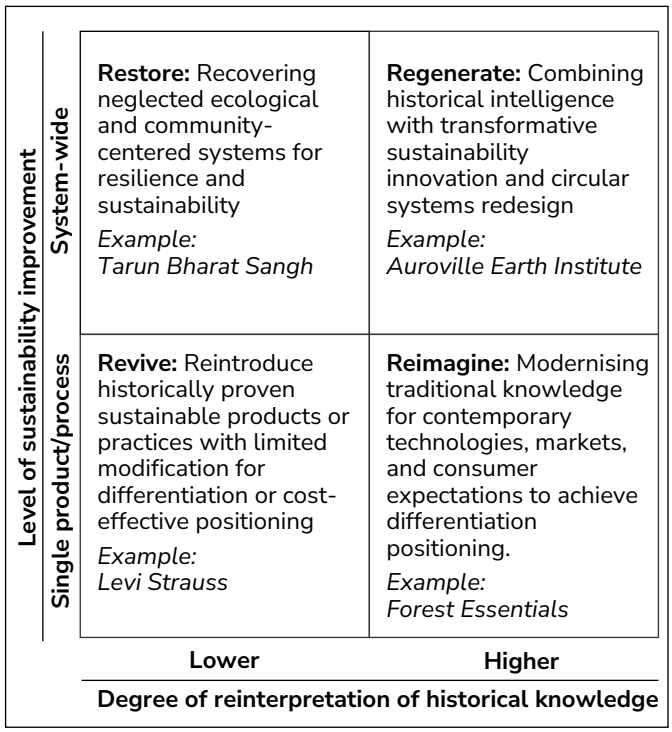


Source: Created by the author based on I. De Noni et al., "Retrovation Typology: Exploiting and Exploring Past Knowledge for Nostalgic and Sustainable Innovation," Research Policy 55, no. 2 (2026): 105406, https://doi.org/10.1016/j.respol.2025.105406. Based on public information about Pearl Academy Jaipur and Morphogenis

Types of retrovation

In the above three-step process, reinterpretation is the design lynchpin on which the retrovation process evolves from idea to plan. So, a key question managers should ask is: what is the level of reinterpretation? A high level of reinterpretation implies a significant combination of modern techniques and historical practices. Building on the research by Noni and colleagues, another question can be: how impactful is the sustainability improvement — is the impact on a single product/process or across an entire system? We combine these two questions into a grid (see **Figure 2**), which managers can use to determine which of the four types of retrovation they wish to adopt.

Figure 2: Four types of retrovation



Source: Created by the author based on I. De Noni et al., "Retrovation Typology: Exploiting and Exploring Past Knowledge for Nostalgic and Sustainable Innovation," Research Policy 55, no. 2 (2026): 105406, https://doi.org/10.1016/j.respol.2025.105406

1. Revive: Reintroducing proven sustainable practices

In the revive approach, the firm reintroduces traditional products, materials, or production processes with built-in sustainability features such as durability, repairability, biodegradability, and low energy use. The firm modernises traditional features of its offering through branding, distribution, and market positioning. For example, Levi Strauss & Company revived the 501 fits and design details without any change but also introduced a circular-economy model through the SecondHand buyback platform, partnering with a re-commerce firm, Trove.[11] Data show that the SecondHand platform reduces CO2 emissions by about 80% and waste by 700 grams per garment.

For the revive strategy to be effective, managers should determine the depth of consumer nostalgia and desire for sustainability.

2. Reimagine: Modernising traditional knowledge

The reimagine approach reinterprets historical knowledge using modern technology, design systems and business models. Firms like Forest Essentials not just revive historical practices but also adapt them to meet current market opportunities and operational requirements — combining the emotional pull of old legacy with new technology and business models. The Indian luxury skincare and wellness brand combines traditional Ayurvedic formulations with sustainable practices, environmentally conscious manufacturing, modern quality control systems and organised retail formats to meet demand for authentic, plant-based beauty products.[12] In 2026, Estée Lauder partnered with Forest Essentials to scale this model globally, a sign of the potential of traditional Ayurvedic knowledge.[13]

For the reimagine approach, managers need not redesign the system or disrupt the supply chain; reinterpreting even one practice can yield substantial sustainability gains.



3. Restore: Recovering neglected systems

This strategy focuses on socio-ecological balance by restoring ecological and community systems marginalised by rapid industrialisation and urbanisation. For instance, Tarun Bharat Sangh, a non-governmental organisation based in India, has adopted the restore approach for managing ecological resources, such as water management and local sustainability infrastructure.[14] The Sangh is known for restoring traditional *johad* water-harvesting systems to combat groundwater depletion and ecological damage.[15] The approach resulted in construction of 13,800 rainwater harvesting systems and revival of 13 rivers across India.[16]

In the restore approach, managers need to identify and restore traditional community knowledge to address a modern, systemic challenge.

4. Regenerate: Building sustainable systems

The regenerate approach is the most transformative, as it often combines indigenous knowledge with sustainability science, circular economy framework, and systemic innovation. Case in point: Auroville Earth Institute, an Indian non-governmental organisation, that has developed an alternative construction material.[17] The organisation's compressed, stabilised earth-block technology reduces the construction industry's dependence on conventional, carbon-heavy construction materials such as fired bricks. This has helped reduce masonry costs by 15% to 50% in some cases. Simultaneously, the new materials have improved earthquake resistance due to their hollow, interlocking structure.[18] Auroville developed this sustainable alternative by combining historical knowledge with modern production techniques to redesign production systems.

In the regenerate approach, managers need to ask themselves how they can integrate historical knowledge with modern practices to redesign entire systems for sustainability.

When not to use retrovation

- The historical practice serves no real nostalgic or present-day need
- Scaling it relies on sourcing that undermines the sustainability
- The organisation lacks the knowledge or capability

Organisations can select their approach based on their technological capabilities, sustainability goals, the extent to which their customers prioritise authenticity and heritage, and the level of market competitiveness. **Table 1** shows the best organisational context for each approach and the main risk involved. It can help managers check the fit of their goals, organisational context, and related risks.



Table 1: Organisational context and implementation risks

Retrovation strategies	Appropriate organisational context	Key implementation risk
Revive	Firms with access to intact heritage knowledge and a limited R&D budget	Easily imitated; risks staying niche
Reimagine	Firms with engineering/design capability and consumer-facing brand equity	Costly to execute; risks feeling neither authentic nor modern
Restore	Community organisations, NGOs or public-sector actors with traditional knowledge access	Depends on community governance; limited commercial scalability
Regenerate	Mission-driven organisations, with traditional-knowledge expertise	High technical uncertainty; hard to scale without a commercial partner

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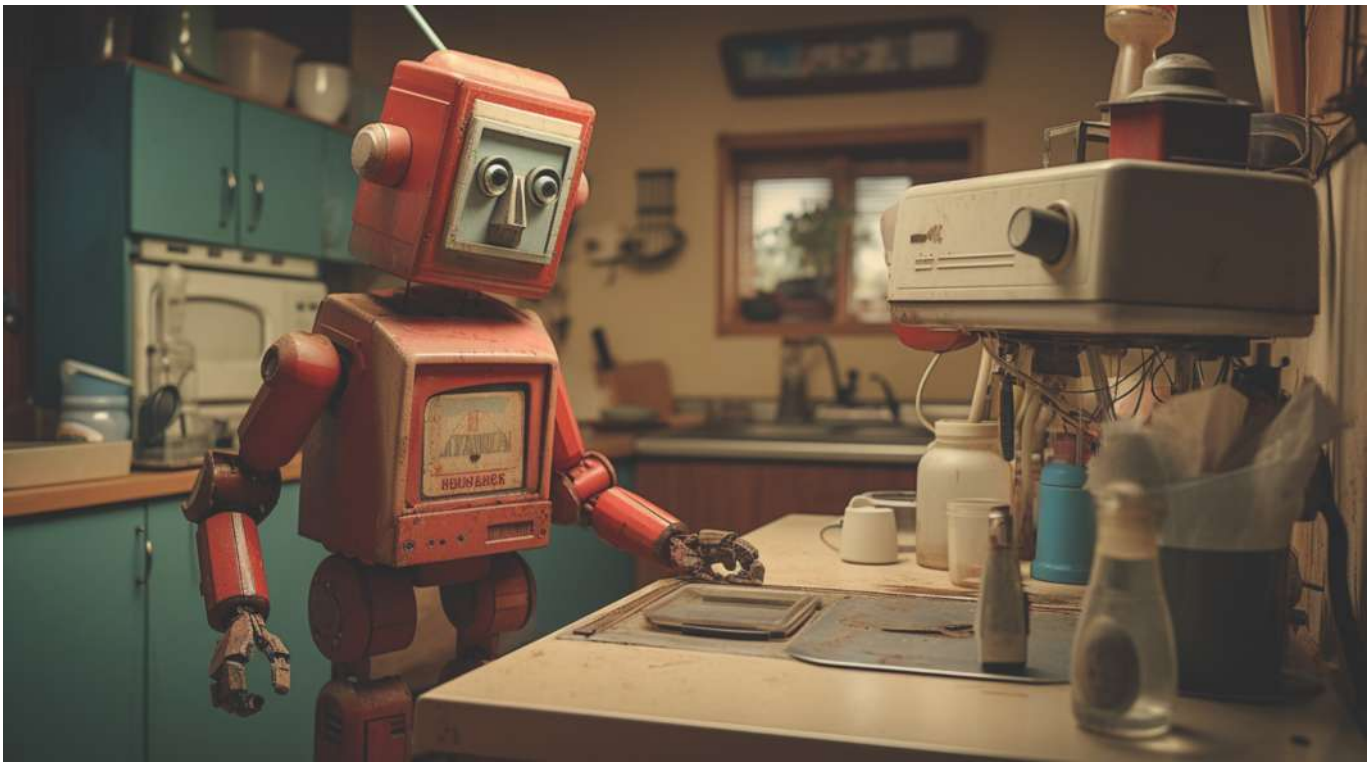
Before committing resources to a retrovation strategy, managers should ask the following six questions:

- **Inventory:** What historical knowledge, products, routines, or technologies already exist in the firm, the industry or the surrounding community?
- **Relevance:** What contemporary customer needs or sustainability problems could this knowledge address?
- **Reconfiguration:** Which elements should be retained as is and which need updating?
- **Viability:** Does the historical solution work today, technically, economically, socially, and environmentally? Or does it just feel nostalgic?
- **Value type:** Does it offer sustainable value, nostalgic value, or both? Does the target market want that combination?
- **Scalability:** Can it scale without losing authenticity or creating new sustainability trade offs?

If the answer to any question is 'no' or 'unclear', managers should pause and address that gap before moving forward.

Conditions for success

Retrovation requires spending to acquire and reorganise past knowledge and adapt it to the process. Firms need to invest in training employees to



reinterpret past practices and their applicability. Time and money are also needed to make substantial changes or upgrades to old products and processes to meet current technological, regulatory, and consumer needs. Organisations need to make a purposeful investment in knowledge management and organisational learning.

Retrovation does not ensure inclusivity, economic viability, or a fit for contemporary regulation, global competitiveness, and market conditions. Companies need careful and responsible reinterpretation to balance historical wisdom with scientific validation, technological adaptation, and consumers' expectations.

The success of retrovation depends on culture, institutions and market conditions. Products rooted in history do better in societies that value heritage. Some societies try to retain traditional knowledge through local communities and organisational memory, making it easier to rediscover, and reinterpret traditional and sustainable solutions.

When there is no fit

However, there are instances when there is a disconnect between traditional knowledge and current demand. For example, consumers who look for cutting-edge technology in cars, such as advanced driver assistance systems, may prefer a Tesla Model 3 over a Volkswagen ID. Buzz, which is inspired by the classic Volkswagen Type 2 van. Therefore, knowing the context and customer preferences is necessary for successful retrovation. Managers need to check whether this process is meaningful and commercially viable.

The ecological and social impacts, along with their consequences, should also be examined before scaling up. A case in point is Neste. The Finnish oil refiner tried to revive a historical idea by 'using a proprietary technology to turn waste oils, animal fats, and used cooking oil into drop-in fuel'.[19] But scaling it up relied heavily on virgin palm oil and faced criticism for its role in deforestation and biodiversity loss.[20] Neste could have sourced from waste-based or circular feedstocks and delivered the same benefit without the ecological cost.

Retrovation does not always guarantee a net positive sustainability outcome.

Recover and modernise

Retrovation shows that innovation does not have to be about inventing something new; rather, it can focus on recovering and modernising overlooked traditional knowledge. Retrovation shows how historically tested knowledge and practices can help reduce R&D costs, enable faster product adaptation, and address sustainability challenges. Retrovation also builds connections and earns trust by appealing to consumers' nostalgia. The net effect is providing a commercially viable solution while improving bottom-line performance. Remember, this process works better in cultural contexts that value their history and where companies have invested in thoughtful reinterpretation.

Ravi Roshan *is Assistant Professor of Strategy at SPJIMR. You can reach out to him at* ***ravi.roshan@spjimr.org***

Monika Gupta *is Associate Professor of Economics and Policy at SPJIMR. You can reach out to her at* ***monika.gupta@spjimr.org***

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