

THE NEW EUROPEAN BAUHAUS: BEAUTIFUL-SUSTAINABLE-TOGETHER IN STARHAUS*

Petruț BRATU

Akhilesh KUMAR SRIVASTAVA

Alex BUTEAN

Letizia VACCARELLA

Petruț BRATU

PhD Student, Doctoral School of Administration
and Public Policies, Faculty of Political, Administrative
and Communication Sciences,
Babeș-Bolyai University, Cluj-Napoca, Romania
Tel.: 0040-748-644.233
E-mail: petrut.bratu@gmail.com

Akhilesh KUMAR SRIVASTAVA

Senior Scientist, Department of Process Technology,
SINTEF Industry, SINTEF AS, Norway
Tel.: 0047-904-15450
E-mail: akhilesh.srivastava@sintef.no

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Abstract

The article 'The New European Bauhaus: Beautiful-Sustainable-Together in STARHAUS' aims to explore the principles of the New European Bauhaus (NEB) policy and analyze how these principles are implemented across various European projects, with a specific focus on the STARHAUS project. The New European Bauhaus is an interdisciplinary initiative launched by the European Commission to foster a sustainable and inclusive future by combining aesthetics, sustainability, and inclusiveness. It seeks to create spaces, products, and services that are environmentally friendly, inclusive, and accessible while enhancing quality of life.

Keywords: New European Bauhaus, STARHAUS, interdisciplinarity, sustainability, technology, social cohesion.

Alex BUTEAN

Associate professor, Department of Computer Science
and Electrical Engineering, Faculty of Engineering,
Lucian Blaga University of Sibiu, Romania
Director, Wiz Research, Romania
Tel.: 0040-752-310.871
E-mail: alex@butean.com

Letizia VACCARELLA

Research fellow, Department of Social,
Political and Cognitive Sciences,
University of Siena, Italy
Tel.: 0039-347-762.7736
E-mail: vaccarella.letizia@gmail.com

1. Introduction

The article underlines the ambitious goals of the New European Bauhaus (NEB), an interdisciplinary initiative launched by the European Commission to harmonize sustainability, inclusivity, and aesthetics in the technological arena. Drawing inspiration from the historical Bauhaus movement, NEB seeks to address modern challenges such as climate change, social inequality, and urbanization by fostering innovation at the intersection of art, science, and technology. The article examines how these principles are practically implemented in the STARHAUS project, a prominent NEB initiative spread across seven European countries, which serves as a living example of how the NEB vision can materialize in real-world settings.

The general objective of the article is to explore and analyze how the principles of the NEB namely beauty, sustainability, and inclusivity are implemented in real-world projects, with a specific focus on the STARHAUS initiative. By examining the integration of these principles in the design and execution of STARHAUS, the article aims to assess the project's impact on sustainability, community engagement, and urban innovation, while also providing insights into the broader application of NEB values in shaping a more sustainable and inclusive European future. Using STARHAUS as a standard project, the article highlights how the project integrates sustainable design elements, such as flexible production systems and the use of recycled local materials, with a focus on enhancing community well-being. By examining the principles of beauty, sustainability, and inclusivity in the context of STARHAUS, the article provides valuable insights into how NEB-inspired projects can reshape local communities by harmonizing sustainability, inclusivity and aesthetics.

2. Literature review

The NEB initiative was shaped through a bottom-up co-creation process that involved about 2,000 contributors over six months who shared their ideas, best practices, inspirations, and challenges to collaboratively define the identity and scope of the initiative. The initiative is connected to the European Green Deal: these policies aim to drive the green transition in Europe with the ultimate goal of reaching climate neutrality by 2025. The scientific and technological investments play a pivotal role in stimulating and supporting sustainable innovation in different domains, ranging from transport to agriculture. The NEB is another instrument to achieve the European Green Deal, in combination with other initiatives like the European Climate Pact and the European Urban Initiative (European Commission, 2021a).

The NEB builds on the historical Bauhaus ('construction house'), created in 1919, which emerged at a moment of deep transformation towards the modern societal and industrial era. Bauhaus was the school of design, architecture, and applied arts that existed in Germany from 1919 to 1933. The aim of the school was to train the experts in arts and crafts to produce functional and aesthetically pleasing objects for mass society rather than individual items for a wealthy elite. The founders addressed this transformation in their work and searched for solutions to the new challenges. It quickly became a global cultural movement. It brought together artists, designers, architects and craftspeople, since the Bauhaus approach unified art, craft, and technology. This transdisciplinary approach fits the challenges of our times where we are once more facing profound transformation (European Commission, 2021b).

The principles of the Bauhaus movement remain the cornerstone of modern design and architecture (Dot ART, 2019): form follows function, minimalist design, emphasis on innovation and constant development, smart use of resources, simplicity and effectiveness. Inspired by these principles, the NEB envisions the combination of science, art and technology, functionality and aesthetics, searching for new techniques, new materials, new ways to address societal challenges (Taylor, 2023).

NEB is an ambitious cultural and environmental movement driven by a commitment to sustainability, inclusivity, and aesthetics (Voineag *et al.*, 2023, p. 73). It builds upon the legacy of the original Bauhaus, reimagining how design and urban planning can reshape the future of living spaces. With the motto 'beautiful, sustainable, together', the NEB initiative envisions a Europe where urban and rural landscapes harmoniously balance ecological sustainability with social inclusivity. The initiative, spearheaded by the European Commission, also underscores the importance of collaboration across disciplines bringing together designers, scientists, and citizens to co-create a future where sustainability is not just a goal but a lived experience. Moreover, it has a solid foundation based on three core principles. Beauty refers not only to aesthetic appeal but also to functional and durable design. The NEB advocates for an approach where form follows function in a way that both the environment and people benefit. Central to NEB is the drive to reduce environmental impact by prioritizing sustainability, green technologies, renewable resources, and

energy-efficient designs. Inclusivity is a key value, focusing togetherness on bridging gaps between different social groups, ensuring that design is accessible to all, and promoting social cohesion (European Commission, 2021b).

Through these principles, the NEB encourages a cultural shift towards a more sustainable and inclusive European society, where the beauty of spaces and structures enhances the well-being of the community while addressing pressing environmental concerns. The application of NEB principles: sustainability, inclusivity, and aesthetics goes beyond just design and technology; it actively shapes how communities develop in harmony with both the environment and their cultural values. NEB principles aim to integrate beauty with functionality, ensuring that urban spaces, buildings, and infrastructure are not only ecologically responsible but also enhance the quality of life for all citizens. This approach fosters a holistic vision where art, technology, and nature intersect, creating environments that are both inspiring and sustainable.

NEB seeks to embed its principles into diverse European contexts, leading to innovation in the realms of architecture, urban planning, product design, and more. Projects inspired by the NEB have been sprouting across the continent, each demonstrating creative solutions to environmental and societal challenges. Art and culture play an essential role in creating this ‘dream-space’, offering fresh perspectives and mental models that allow us to reimagine our world and its possibilities. In this context, culture becomes the foundation upon which new relationships, systems, and potential futures are built. ‘An artful approach to mission-oriented innovation must begin with reimagining the future and to do this, public institutions need a license to dream. Art, and culture more generally, co-create new ways of seeing, of reflecting, of conjuring and experiencing this ‘dream-space’. Culture creates sketches and soliloquies, scaffolding and spaces for new mental models, different relationships, possible worlds. Design is about decision-making, playing the grounding role of practical application’ (Bason *et al.*, 2020 p. 8).

The NEB initiative intends to create a sustainable and inclusive future by integrating principles of beauty, sustainability, and inclusiveness into the design of urban spaces, buildings, and communities (Hu *et al.*, 2023). Rooted in the legacy of the original Bauhaus movement, NEB reimagines how technology and design can contribute to ecological and social well-being while fostering a cultural shift toward more sustainable living. Furthermore, the NEB encourages a participatory approach, inviting citizens to engage with and contribute to the design of their communities. This democratization of design helps ensure that solutions are not only innovative but also rooted in the specific needs and identities of local populations. By blending creative experimentation with practical implementation, the NEB envisions a more sustainable, equitable, and beautiful Europe where cultural expression and social well-being intersect with environmental stewardship. One notable area where these concepts come to life is through the examples of NEB applications, showcasing innovative projects that embody sustainability, inclusivity, and aesthetic excellence. In cities like Lisbon and Copenhagen, projects have emerged to create green, public spaces that are both environmentally sustainable and socially inclusive. These

urban gardens and community parks are designed to bring people closer to nature while reducing carbon footprints. Several housing initiatives, especially in Scandinavia and the Netherlands, have adopted the NEB vision by using sustainable materials and cutting-edge technology to reduce energy consumption. These homes are designed to be affordable and accessible, showcasing their practicality for diverse populations.

3. Methodology

This article uses a multimethod paradigm. It combines qualitative document analysis with secondary data analysis. The documents used for qualitative document analysis consist of European Commission program documentation, Horizon Europe grants project proposals, guides and regulations, consultations on the priorities of NEB in 2024 and beyond, academic programs, prizes requirements and other non-standard related materials like fliers, events presentations, posters, marketing materials, etc. Secondary data analysis has been applied to EU NEB related statistics, such as the European Commission's 'New European Bauhaus Dashboard' (2024).

As more NEB-inspired projects emerge across Europe, STARHAUS stands out as a reference project for understanding how these principles are translated into real-world practice, providing insights into both the challenges and opportunities of integrating beauty, sustainability, and inclusiveness into the built environment.

Our study objectives aim to explore and evaluate the project's alignment with the principles of the NEB while assessing its expected impact on community engagement, sustainability, and urban innovation. The primary objective of this study is to explore how the NEB principles of beauty, sustainability, and inclusiveness are applied in the design and implementation of the STARHAUS project. Specifically, the study aims to examine the inclusiveness of STARHAUS, particularly in terms of accessibility, public engagement, and promotion of social cohesion through community-oriented programs.

The NEB reimagines technology and design in a way that integrates sustainability, inclusiveness, and aesthetics into the built environment. As a flagship project, STARHAUS offers a tangible example of how the NEB principles can be translated from conceptual frameworks into real-world applications. Applied in seven European countries, STARHAUS blends cutting-edge technologies, thoughtful urban design, and public accessibility to create a model for future NEB-inspired developments. The core principles of the NEB and STARHAUS are closely aligned with the ideals of the 5th Industrial Revolution, a phase marked by the integration of advanced technologies with human-centric approaches and sustainability.

Figure 1 illustrates the progression of industrial revolutions, starting with the 1st Industrial Revolution in 1784, marked by the mechanization of production through steam engines. This era transformed traditional manual labor into machine-driven processes, laying the foundation for mass production. The 2nd Revolution in 1870 introduced electric energy, enabling large-scale production and the standardization of goods. This period also

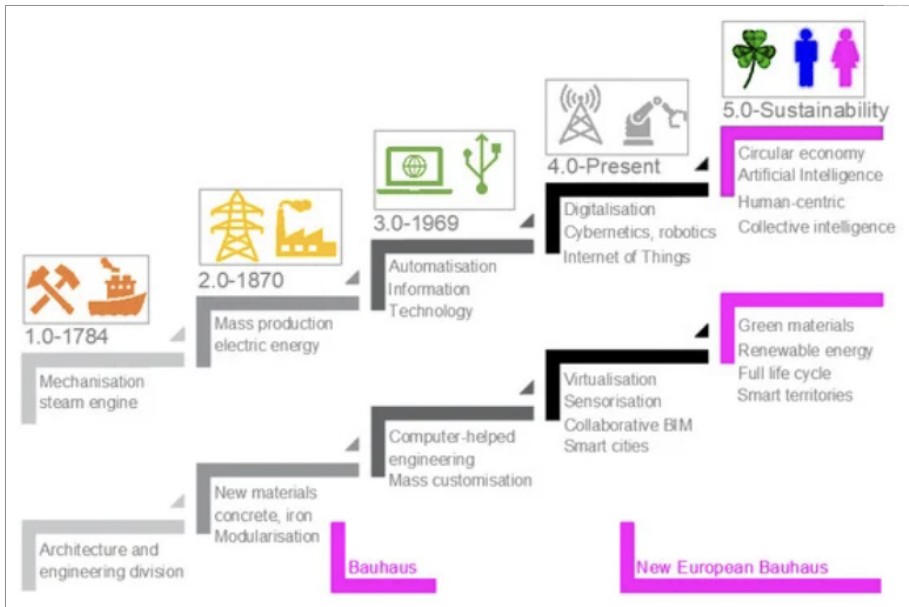


Figure 1: Industrial Revolutions correspondence into architecture and civil engineering

Source: Rosado-Garcia et al. (2021, p. 4)

saw the rise of mass customization, where industries began adapting to market demands with the help of new materials like concrete and iron, alongside advancements in modularization. The figure continues with the 3rd Industrial Revolution around 1969, characterized by automation and the integration of information technology. This phase evolved into the current 4th Industrial Revolution, emphasizing digitalization, robotics, and the Internet of Things. Finally, the figure highlights the emerging 5th Industrial Revolution, which focuses on sustainability, circular economies, artificial intelligence, and human-centric approaches, aligning with New European Bauhaus principles. This final stage envisions a future where architecture and urban planning integrate green materials, renewable energy, and smart city technologies, fostering a harmonious balance between innovation and environmental responsibility.

Given the broader European Commission’s agenda of promoting ecological sustainability and social inclusion through technology, STARHAUS stands as an important project for study. Its focus on customized production systems, use of recycled local materials and inclusive public spaces presents an opportunity to analyze the successes and challenges of implementing these principles on the ground. The project also provides valuable insights into how technology can serve as a driving force for community engagement, economic revitalization, and social transformation.

By exploring the STARHAUS project, this will offer a deeper understanding of the practical application of NEB principles, highlighting best practices, lessons learned, and areas for improvement. The study’s findings are likely to contribute to the growing discourse

on sustainable urban design and provide guidance for future NEB-inspired projects across Europe.

3.1. Research questions

The research questions will guide the study in assessing the effectiveness and impact of the STARHAUS project, offering broader insights into the practical application of NEB principles in sustainable urban development.

1. How does the STARHAUS project embody and implement the core principles of the New European Bauhaus (NEB) initiative: sustainability, inclusivity, and aesthetics?
2. What are the social, cultural, and economic expected impacts of STARHAUS on the local community, and how does the project foster community engagement?
3. In what ways does STARHAUS contribute to the development of urban sustainability, and what lessons can be drawn for future NEB-inspired projects across Europe?

The main focus of the study is to evaluate how NEB principles such as sustainability, inclusivity and aesthetics are integrated into projects like STARHAUS mainly through document analysis and secondary data analysis. This approach ensures that the research is grounded in evidence drawn from reliable sources, which is a solid foundation for analysis and conclusions.

4. The application of NEB principles in STARHAUS

To observe the application of NEB principles in a real-world setting, the STARHAUS team conducted a study. This is aiming to assess how sustainability, inclusivity, and aesthetics are integrated into the design and functionality of the project ecosystem. In response to the three NEB principles, STARHAUS represents a flagship project that brings NEB's vision to life by blending modern technological advancements with local cultural and environmental elements. With the use of recycled materials and flexible production systems, STARHAUS exemplifies how technology can serve as a catalyst for social transformation and ecological preservation.

STARHAUS represents a project that highlights the NEB principles in action. Organizations that are partners in STARHAUS are distributed across seven European countries (Norway, Spain, Italy, France, Portugal, Romania and Bulgaria) and represent various types of entities (big research centers, municipalities, small and medium companies, clusters, universities and associations).

Out of all seven countries represented in the STARHAUS project, Figure 2 shows the number of total NEB projects developed in each one of those countries. This chart was generated using the NEB Dashboard, where each color stands for a different type of NEB initiative. This tool represents a very important source of information, qualitative and quantitative data about all NEB projects funded and active in the European Union (European Commission, 2024).

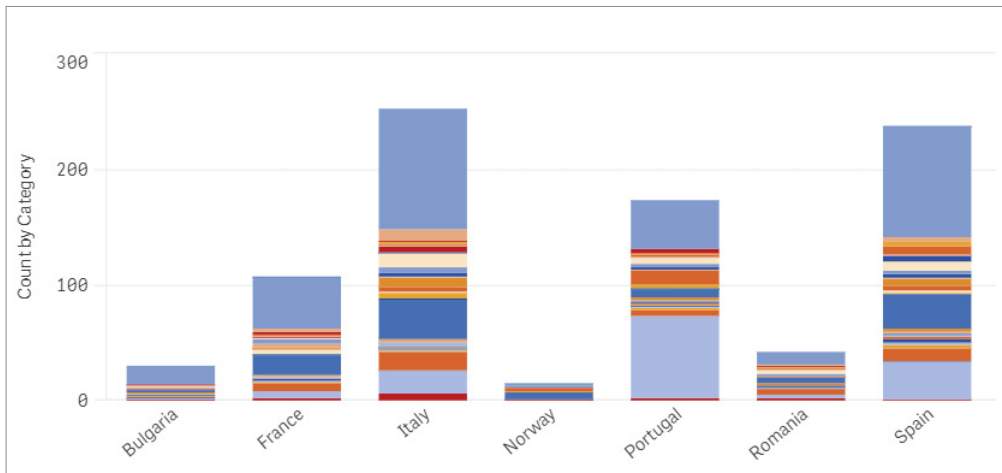


Figure 2: The New European Bauhaus community by country and types of projects.
 Source: European Commission (2024)

Romania shows significant involvement in the NEB community, participating in a variety of projects that align with the initiative’s core principles of sustainability, inclusivity, and aesthetics. While not the largest contributor in terms of total projects, Romania has a notable presence, indicating active engagement across multiple NEB initiatives. One key observation is Romania’s participation in a wide range of project types, spanning several major NEB programs. The country is involved in EIT Community NEB initiatives, including the ‘Co-create’ and ‘Connect’ projects, which focus on collaborative urban development and community engagement. Additionally, Romania benefits from ERDF-funded initiatives, such as the European Urban Initiative and NEB Local Initiatives, which support local sustainability and urban regeneration efforts. These projects reflect Romania’s commitment to incorporating NEB principles into its urban and rural spaces, aiming to create more inclusive, sustainable, and aesthetically appealing environments. Romania’s engagement with Digital Europe Program’s projects, although present, is more limited compared to other funding sources. This could indicate a focus on community-led and structural projects rather than digital transformation at this stage. Nevertheless, Romania’s varied portfolio across different NEB categories demonstrates a balanced approach to the initiative, combining local, urban regeneration with broader European goals of sustainability and innovation.

From the analysis of NEB policy papers (European Commission, 2024), as well as from the project proposal (STARHAUS, 2023), STARHAUS stands out as a model project embodying the principles of the NEB through a combination of innovative design, sustainability, and community-oriented spaces. The small scale factory utilizes recycled and locally sourced materials, further emphasizing a low-carbon construction process. STARHAUS creates a space that not only functions sustainably but also visually connects with the environment and the community it serves. These key features position STARHAUS as a

leader in integrating the NEB principles into urban development, making it a source for innovation, inclusivity, and ecological stewardship. The STARHAUS project exemplifies a human-centric approach to innovation, positioning itself as a frontrunner in implementing the core principles of the NEB. By embracing the values of sustainability, inclusivity, and aesthetics, keeping the same tone as DIY4U project, STARHAUS redefines how technology and urban spaces can be designed to meet the evolving needs of individuals and communities. In the context of resilient leadership, the project's adaptability mirrors the ability of individuals to change and respond to the ever-shifting demands of the external environment, embodying a vision for a more responsive and future-ready built environment. In the context of resilient leadership, adaptation is seen as the capacity of the individual to change in order to respond better to the requirements of the external environment (Țiclău, Hințea and Trofin, 2021, p. 129), as reiterated by the project proposal analysis.

STARHAUS does not promote a structure but a living, adaptive space where design and functionality are integrated with human well-being at the forefront. It responds to the challenge of creating resilient, flexible environments through the modular components of the factory created, that can evolve over time, supporting not only sustainable practices but also fostering a deeper connection between people and technology. By utilizing cutting-edge design and eco-friendly materials, STARHAUS offers a tangible model of how technological innovation can balance form and function while addressing broader environmental and societal concerns.

Local businesses will benefit from grants through open innovation competitions, increased foot traffic due to the influx of visitors attending STARHAUS events, and heightened visibility within the community. These opportunities have allowed businesses to not only grow but also to collaborate with the project on sustainability initiatives, such as offering eco-friendly products or services aligned with the NEB values. STARHAUS ecosystem benefits from adaptive modern concepts that promote innovation and creativity through arts. This is in line with the statement: 'modern governments need to master the art of equilibristics – they need to offer public value in all governance areas while battling increasing levels of uncertainty and change. Looking back at the last decade, unpredictable change' (Țiclău, Hințea and Andrianu, 2020, p. 168). STARHAUS can transform the traditional interaction between citizens and local authorities by introducing digital platforms that streamline communication and enhance collaboration. 'Interaction between citizens and government has traditionally taken place in community settings, government meetings, special town hall meetings, written correspondence in letters, emails, or texts, or via a phone call to a government representative' (Vlad *et al.*, 2023, p. 129).

As mentioned in the STARHAUS project proposal, the NEB principles of sustainability, inclusivity, and aesthetics are integrated into its design and operation. It incorporates sustainable design elements such as modular manufacturing units. The main topics of all working packages are aligned in order to foster inclusivity: Work Package 3 *Human Centered Processes and Societal Impact* refers to inclusivity by building communities around technological advancements, studying 'the main tenets of the future of the

production from three angles: people/ humans, intelligent/ personalisable production and space place’ (STARHAUS, 2023, p. 10). From the perspective of Work Package 6 *Communication, Dissemination, Exploitation*, inclusivity is assured through ‘creating a community of interested stakeholders and allowing increased acceptance of the developed solutions’ (STARHAUS, 2023, p. 10). Finally, the project emphasizes aesthetic harmony, blending modern design techniques with local cultural elements to create a visually appealing and functional space. These design choices ensure that STARHAUS not only serves environmental goals but also enhances the quality of life for its residents and visitors.

As for the second research question, STARHAUS has a significant impact on the local community by fostering a sense of togetherness in environmental educational practices. In STARHAUS the impact is being directly measured in two very different communities: Cluj-Napoca city in Romania and Coimbra region in Portugal. These locations are flourishing in opposite parts of Europe and they cover a broad population that is currently under constant social pressure in their ever-changing local environments. The mobile small-scale factory and the four user-centric applications are the anticipated tangible results of the project that are showcasing the use-cases: cereals, petfood, beverages and fertilizers in order to encourage community participation into customized production practices. Additionally, using citizen-science approaches the project expects improvements in both the quality of life and the awareness of environmental sustainability among the final beneficiaries. STARHAUS’s adaptive governance model also allows for real-time feedback from residents, enabling them to actively shape the future of their community, further strengthening the project’s social impact and making sure that impact is rooted into an active future.

To answer the final research question STARHAUS contributes to sustainable urban development by serving as a model for integrating eco-friendly technologies with

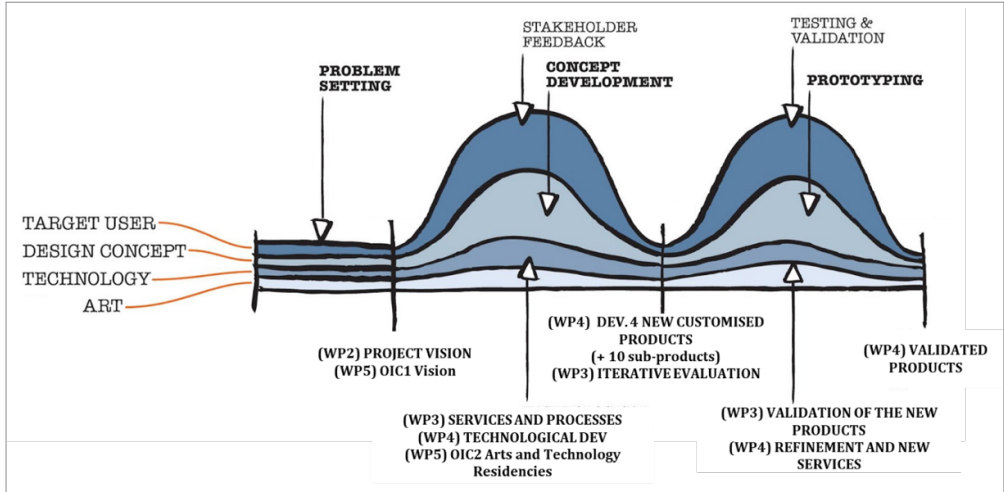


Figure 3: STARHAUS methodology
 Source: STARHAUS Project Proposal (2023, p. 9)

community-driven design. The project showcases how sustainable materials, energy-efficient systems, and inclusive urban spaces can coexist in harmony. It highlights the importance of local context and community engagement in designing spaces that are both functional and socially enriching.

As shown in Figure 5, STARHAUS methodology focuses on a structured approach to developing sustainable urban spaces through a combination of problem setting, concept development, and prototyping, all aligned with the principles of the New European Bauhaus (NEB). The visual diagram outlines a clear process that begins with understanding the target user, design concept, technology, and art, which form the foundation for addressing specific urban sustainability challenges. Lessons from STARHAUS are expected to be applied to future NEB-inspired projects, demonstrating that sustainability and inclusivity are not mutually exclusive but rather complementary.

Traditionally, the interaction between citizens and government has taken place through physical community meetings, town hall gatherings, or written and verbal communication such as letters, emails, and phone calls. However, STARHAUS offers a more dynamic and modern approach, leveraging digital tools to foster continuous and real-time dialogue between beneficiaries, citizens and local authorities.

5. Lessons learned from STARHAUS and other related projects

STARHAUS, along with other NEB-inspired projects, offers valuable insights into how future actions can successfully integrate beauty, sustainability, and inclusiveness. All such projects are relying on increasing the level of participation of citizens into citizen-science programs, living labs and other similar approaches.

The ‘participation ladder’ depicted in Figure 3 highlights the progressive levels of citizen and stakeholder involvement, moving from passive to active engagement. At the lowest level, **informing**, citizens are simply informed about projects, ensuring transparency but offering no real input. As the ladder advances to **consulting** and **involving**, stakeholders are invited to express their opinions, and their input is integrated into the design and implementation processes, creating a more collaborative environment. These stages foster a sense of shared responsibility and help ensure that the outcomes reflect the community’s needs and concerns.

In the context of NEB initiatives, participation is essential to creating sustainable and human-centric solutions. By reaching the higher parts of the ladder, such as **collaborating** and **empowering**, citizens together with local stakeholders can co-create projects and even assume ownership of decision-making. This approach aligns with NEB’s values of sustainability, beauty, and inclusion, ensuring that projects are deeply rooted in the aspirations and well-being of the communities they serve. Engaging with local communities, policy experts, engineers and designers ensures that projects meet diverse needs while staying true to NEB principles. Projects like STARHAUS emphasize that sustainability is multi-dimensional. It’s not only about reducing carbon footprints but also ensuring social,

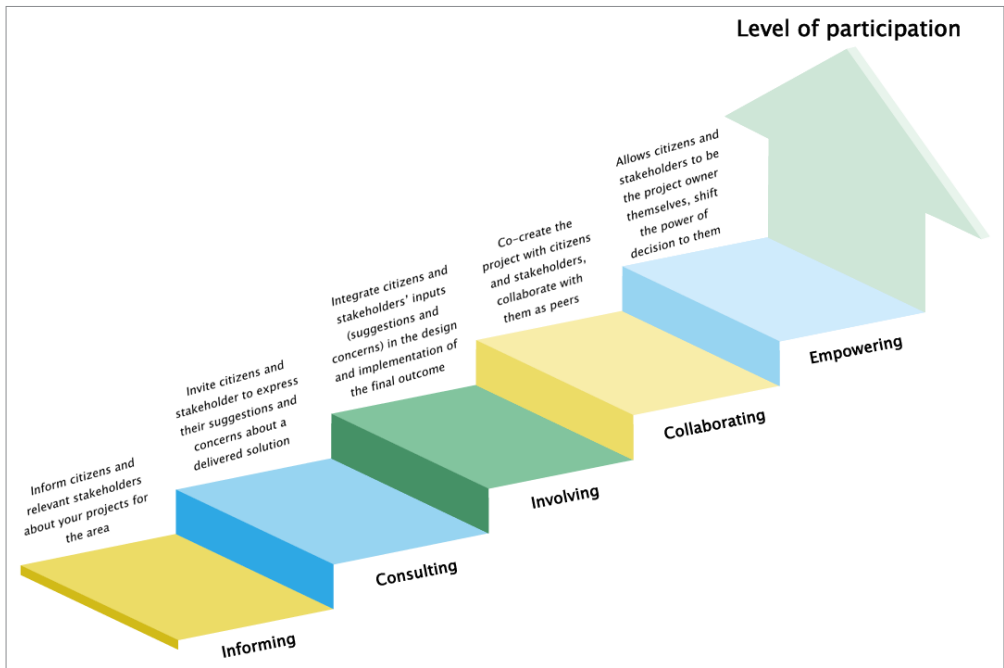


Figure 4: The participation ladder into community projects (NEB)

Source: Bäcklund and Einarsson (2024, p. 68)

economic, and environmental well-being in the long term. NEB projects succeed when they are tailored to their local environment. STARHAUS demonstrates how flexibility in design can allow a project to respect local traditions while embracing modern sustainable technologies.

There has been growing interest in manufacturing customized fast moving consumer goods (FMCGs) to fulfill the special needs and requirements of customers. To address this challenge, project DIY4U (co-funded by the European Commission under grant agreement ID 870148) was started in 2019 (European Commission, 2023b). The project has developed two modular manufacturing units along with user centric digital platforms to formulate and produce personalized powder- and liquid-based detergents. Figure 4 presents a modular unit for powder detergent products designed and built in the DIY4U project. The project is featured in the official material published by the European Commission (European Commission, 2023a).

Moving forward from the DIY4U, the STARHAUS project (funded by the European Commission under grant agreement ID 101136027) was started in 2023 (European Commission, 2023c). This project aims to design eight new hardware module prototypes for the existing DIY4U manufacturing demonstration unit to manufacture newly designed FMCGs. This project is focusing on four new use cases: pet food, fertilizers, beverage, breakfast cereals. The STARHAUS project is taking an interdisciplinary approach to educate modern consumers where technology adoption and service design processes



Figure 5: Modular manufacturing unit for personalized powder detergent
Source: SINTEF (2019)

are progressing with the use of human centered design, social science impact and indicators, full technology cycle (hardware + software), creativity and arts, circularity and sustainability. Upon conducting an analysis within a framework of NEB documents and STARHAUS project proposal, we have answers to the research questions.

6. Conclusion

STARHAUS serves as a tangible example of the transformative power of the New European Bauhaus principles. By integrating beauty, sustainability, and inclusiveness in urban environments, it illustrates how technology can contribute to both ecological friendliness and social well-being. The success of STARHAUS demonstrates the potential for NEB-inspired projects to drive significant changes in how we design and use technological advancements. Given the broader perspective and the results coming from the initial stages of the project, STARHAUS raised three main research questions that covered the following topics: principles, expected impact and urban spaces. These topics were covered as lessons learned and concluded into a very important aspect: modern urban environments have a starving will to change but this has to come from multiple directions: citizen centric research, local policy changes, consumption habits, and environmental awareness. The strategy for an ideal synchronization between these directions is a topic for further research that will be followed up towards the later stages of the project.

By examining STARHAUS within the NEB ecosystem, this study answers the research questions and reveals significant lessons learned about the practical application of NEB

principles, while also contributing to the broader discourse on sustainable urban design. Addressing the first research question, STARHAUS embodies and implements the core principles of the NEB by integrating sustainability into its design through the use of recycled materials and modular production systems. As highlighted in the literature (European Commission, 2021a; Voineag *et al.*, 2023, p. 73), the NEB principles emphasize a holistic vision combining aesthetics, functionality, and ecological responsibility. STARHAUS aligns with this vision by creating spaces that are not only visually appealing but also function sustainably, thereby enhancing the quality of life for the communities it serves. Its human-centric approach mirrors the NEB's interdisciplinary framework, combining technology, art, and community engagement to foster a model of urban development that is both innovative and inclusive. This integration reinforces the NEB's objective of harmonizing science, art, and technology for societal benefit (Taylor, 2023).

In response to the second research question, the project's social, cultural, and economic impact is evident through its emphasis on community-oriented programs and the creation of spaces that foster social cohesion. STARHAUS actively promotes community engagement, demonstrated in its activities in Cluj-Napoca, Romania, and Coimbra, Portugal. This engagement resonates with NEB's emphasis on inclusivity and citizen participation, as discussed in the literature (Bason *et al.*, 2020). The project's adaptive governance model allows for real-time feedback and participation from residents, which strengthens its social impact and ensures that the NEB principles are deeply embedded in the community's evolution. This participatory approach echoes NEB's co-creation process (European Commission, 2023a), where citizens, designers, and stakeholders collaborate to build more inclusive and accessible spaces. Regarding the third research question, STARHAUS contributes to sustainable urban spaces by serving as a reference model for integrating green technologies with a community-driven design philosophy. The project's use of eco-friendly materials, energy-efficient systems, and its promotion of local cultural elements align with the NEB's principles of creating environments that balance aesthetics with ecological responsibility (Hu *et al.*, 2023). STARHAUS demonstrates that flexibility in design allows projects to respect local traditions while incorporating modern sustainable technologies, highlighting a key lesson: sustainability and inclusivity are not mutually exclusive but are complementary goals that can coexist in harmony (Rosado-García *et al.*, 2021, p. 4). The project's methodology, centered on a structured problem-setting and concept development approach, reflects the NEB's vision for dynamic and resilient urban environments.

In synthesizing these findings, several key lessons emerge that connect with the literature on NEB and sustainable urban design. First, the integration of beauty, sustainability, and inclusivity in urban development requires an adaptive and participatory approach that empowers communities and incorporates technological advancements. As Bason *et al.* (2020) suggest, this artful approach to mission-oriented innovation must involve re-imagining spaces to align with both environmental goals and human needs. Second, STARHAUS reinforces the importance of a multi-disciplinary framework that includes

art, technology, and community engagement as essential elements in creating sustainable and beautiful urban spaces, as envisioned by the historical Bauhaus movement (Dot ART, 2019).

Lastly, STARHAUS highlights the necessity for continuous dialogue between citizens, policymakers, and designers to foster inclusive, responsive governance models. This aligns with the broader NEB philosophy of co-creating a future where environmental sustainability and social inclusivity are interwoven (Voineag *et al.*, 2023, p. 73). Moving forward, the study of STARHAUS suggests that modern urban environments must embrace change from multiple directions: citizen-centric research, local policy adjustments, sustainable consumption habits, and heightened environmental awareness. The strategy for synchronizing these directions effectively presents an area for further research in the later stages of the project. In conclusion, STARHAUS illustrates how NEB principles can drive significant changes in designing and utilizing technological advancements to enhance urban spaces. As Europe continues to adopt these principles, projects like STARHAUS offer valuable lessons for achieving a sustainable, inclusive, and aesthetically enriching future.

Looking to the future, the New European Bauhaus initiative holds immense potential to foster innovation in urban development. As more projects adopt its principles, Europe will continue to move toward a future where environmental sustainability and social inclusivity go hand in hand.

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