

# DRIVE 0

## SYMPOSIUM REPORT

**Fostering experiences from EU innovation projects to accelerate a sustainable built environment**

Drive 0 | Final Symposium & EU Clustering Workshop | 15 November 2023, Brussels



# DRIVE 0

**In December 2023, Drive 0 project approached the end of their 51-month journey. However, before closing the project, the consortium organized the final symposium and clustering workshop on 15th November 2023 in Brussels.**

This full-day, in-person event brought together around 60 participants – representatives of relevant EU H2020 and LIFE projects & stakeholders from Brussels’ diverse sectors: EU institutions working in the field of policy, construction, architecture, energy, manufacturing, social housing, property owners’ associations etc. The event titled: ‘Fostering experiences from EU innovation projects to accelerate a sustainable built environment’ was organized in collaboration with Drive 0 sister projects: PLURAL, GigaRegioFactory, STEP-UP, INFINITE, BuildUPspeed.

The aim was to reflect together with these other relevant EU projects on the profound impact of the developed innovative construction and renovation solutions drawing insights from experiences on the ground. The event explored emerging trends like prefabrication, circularity, off-site construction, modularization, digitalization, and industrialization. Esteemed keynote speakers, captivating project poster exhibitions, dynamic policy dialogues, and inspiring success stories from enterprises across member states were featured prominently.

The event facilitated diverse exchange between private and public sector on the topic of sustainable innovation uptake within the renovation-construction sector. For a better, sustainable future, we need to change the way we build. The built environment is responsible for 40% of final energy consumption in the EU where our buildings in EU are emitting more CO2 than any other sector. The embodied energy in buildings counts for up to 60% of the building’s life cycle energy, with collateral embodied CO2. 25%-30% of waste streams generated in the EU derives from construction and demolition. Therefore, a transition to both a deep and circular renovation process for the total European building stock is necessary. That’s where Drive 0 comes in. The overall aim of Drive 0 is to drive decarbonization of the EU building stock by enhancing a consumer centred and locally based circular renovation processes.

The DRIVE 0 concept was based on developing circular deep renovation solutions and supporting consumer centered business models for 7 specific study and demonstration cases as real environments, in the Netherlands, Ireland, Estonia, Greece, Slovenia, Italy, Spain. Extended experience from previous H2020 projects on deep renovation (especially from MORE-CONNECT project), led to an understanding that a circular renovation approach needs to be suitable for specific national/regional circumstances in terms of climate, building technologies and traditions and cultural habits. As DRIVE 0 is structured around seven pilots in seven countries, for each country industrial partners or concept developers was ‘twinned’ with a technical partner (university, research institute or consultancy) to develop the specific holistic circular renovation products and concepts. For the market uptake and dissemination of the results, the DRIVE 0 consortium was effectively supported by three important European umbrella associations.

To learn more about the Drive 0 partners, circular projects and final achievement, see the final Drive 0 project video featuring the 7 demonstration projects implementing Drive 0 circular solutions: [Drive 0 Final video](#) - discover our pilot buildings and prototypes around EU (youtube.com).

For further information and to deepen the knowledge, visit the project’s official website, visit it at: <https://www.drive0.eu/> and click section ‘Results’.

Four sessions were organized, each with a distinct thematic scope:

- Session 1: **Keynotes by relevant speakers on topic of sustainable built environment.**
- Session 2: **Introducing and discussing technology innovation reached within 6 European projects dealing with sustainable construction and renovation solutions.**
- Session 3: **Exchange of views to improve the effectiveness and efficacy of existing relevant policies.**
- Session 4: **Showcasing success stories and engaging in dialogue about the implementation of sustainable approaches within commercial operations.**





# WELCOME & KEYNOTE SPEAKERS

## MICHEL RITZEN, VITO/ZUYD

'Innovation is key to reduce the environmental impact of deep renovation beyond operational energy consumption'

The moderator [Michiel Ritzen](#) from VITO started the symposium by articulating the nature of innovation project processes. "The way we hope a project will unfold often clashes with the reality of innovation. In an ideal world, we plan everything meticulously and expect smooth sailing. But in real life, unexpected challenges and changes can throw off our plans. **Innovation, by nature, brings surprises, and success isn't just about sticking to the original plan but adapting to unforeseen circumstances.** These surprises, rather than being setbacks, can lead to valuable learning and improvement. Innovation isn't a straightforward path—it's about navigating uncertainties and being open to unexpected outcomes. **Embracing these surprises can uncover new insights and benefits that we might not have initially anticipated.** Truly innovative teams thrive in this balance between our aspirations and the unpredictable nature of the creative process, finding opportunities for breakthroughs in the unexpected."

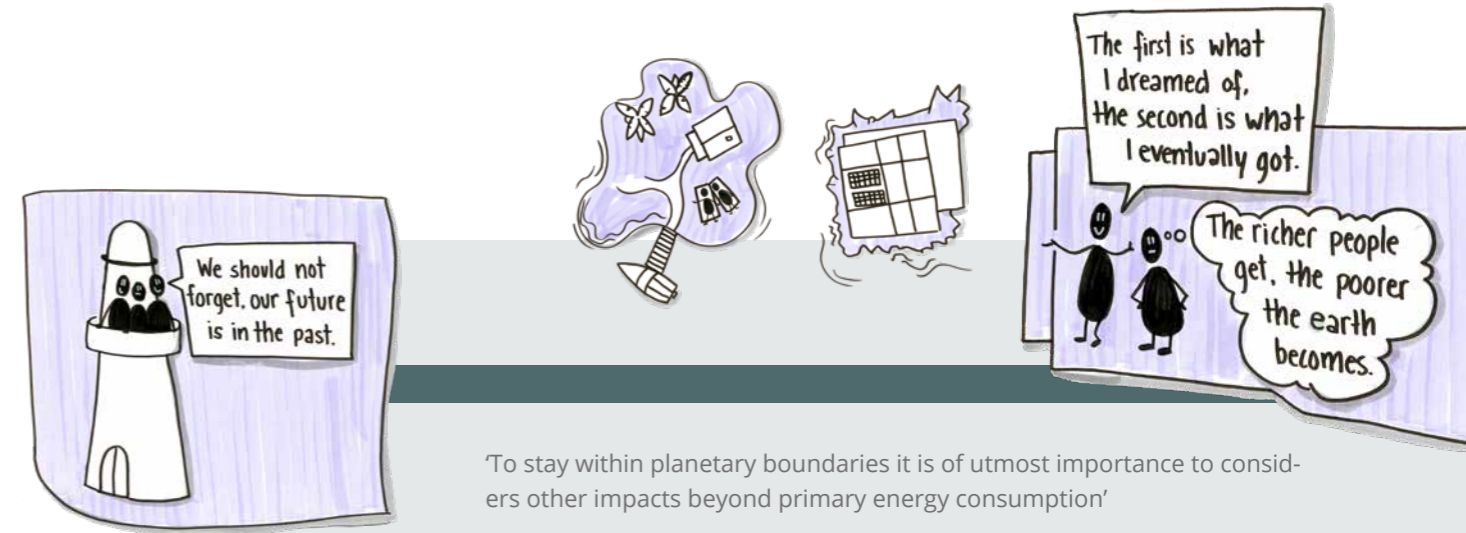
## ANDRES JAADLA, EUROPEAN COMMITTEE OF THE REGIONS (COR), EKYL

'Governments have a pivotal role in boosting the renovation wave as showcased for example in Estonia'

[Andres Jaadla](#), a board member of Housing Europe from Estonia gives an official welcome on behalf of the European Committee of the Regions (CoR). Andres has been officially nominated as the rapporteur on smart, sustainable, and affordable housing for the EU's Committee of the Regions. **In this capacity, the Committee of the Regions, through Jaadla's opinion, aims to assess current housing initiatives, understand the on-the-ground situation, and advocate for substantial new investments and policies in both private and public housing.**

This approach not only holds the potential to stimulate the local economic base but also plays a crucial role in combating demographic challenges. It further enables cities and regions to fulfil international obligations related to the reception and integration of refugees, while simultaneously contributing significantly to climate objectives and enhancing resilience in the face of escalating catastrophic events, for which the current housing stock is inadequately prepared.

Highlighting the collaborative efforts in Estonia, Jaadla emphasizes the robust teamwork in the pre-fab modular retrofit sector, involving entities like Taltech, TIMBECO, EKYL, and kREDEX. Additionally, he underscores the impact of the Drive 0 pilot in Estonia on the national renovation strategy, serving as a catalyst for economic growth.



'To stay within planetary boundaries it is of utmost importance to consider other impacts beyond primary energy consumption'



## RONALD ROVERS: [HTTP://WWW.RONALDROVERS.COM/](http://www.ronaldrovers.com/)

[Ronald Rovers](#) started his keynote by elaborating that the Earth is an island, and we can't get out. He used this metaphor for stating that **our planet is a finite space with finite resources.** However, solar energy is the only sustainable infinite resource we have. In recognizing this limitation, the imperative to rely on **solar energy becomes not just a choice but a necessity.** Still, all resources are renewable, but the time frame for their renewal varies. Acknowledging and respecting the constraints of our resources becomes not merely a responsibility but an essential imperative for our survival and the well-being of future generations.

Ronald introduced the term "embodied land", bringing attention to the land required for cultivating the resources essential for constructing and retrofitting housing. This underscores the interconnectedness of our actions with the environment, emphasizing the need for responsible land use and resource management. When addressing our existing housing stock, our commitment should be clear — never demolish, but rather employ strategies to optimize our living efficiency. This involves reducing heated areas, applying targeted measures, such as splitting houses, embracing smaller living spaces, and adopting minimal installations. The idea of 'installation-poor retrofit' aligns with intention of minimizing environmental impact and ensuring resource efficiency in our retrofitting endeavours.

In this holistic perspective, he concluded that **"Our future is in the past"** encapsulating the idea that sustainable living involves drawing from the lessons of the past — understanding and harnessing the power of solar energy, respecting the finite nature of our resources, and making choices that echo through time. It's a commitment to a harmonious coexistence with our environment, recognizing that our sustainable future is intricately tied to the practices and choices that have sustained us in the past.

# WELCOME & KEYNOTE SPEAKERS

**ANA SIN BAGUES**, PROJECT ADVISER AT CINEA - EUROPEAN CLIMATE, INFRASTRUCTURE AND ENVIRONMENT EXECUTIVE AGENCY

Ana Sin Bagues, Project Adviser at [CINEA - European Climate, Infrastructure and Environment Executive Agency](#) introduced various EU funding programmes that contribute to a sustainable built environment. Besides introducing overall funding areas examples within LIVE Clear Energy Transition programmes, she draws attention to the relevant calls that have a deadline for submission on 21st January 2025 (Built4People Partnership) which gives sufficient time for proposal preparations.

- [HORIZON-CL5-2024-D4-02-01](#): Industrialisation of sustainable and circular deep renovation workflows
- [HORIZON-CL5-2024-D4-02-03](#): BIM-based processes and digital twins for facilitating and optimising circular energy renovation.
- [HORIZON-CL5-2024-D4-02-04](#): Design for adaptability, re-use and deconstruction of buildings, in line with the principles of circular economy.

Beyond their individual merits, [Drive 0](#), [StepUP](#), [INFINITE](#), [BuildUP Speed](#), [PLURAL](#), [GigaRegioFactory](#) initiatives collectively serve as the birthplace for new collaborations and more impactful solutions. The symposium not only acts as a platform for the dissemination of current projects but also as a catalyst for the generation of future initiatives that can be elaborated within new project proposals in the suggested European Commission Horizon 2020 (H2020) and LIFE calls. As participants engaged in discussions and exchanged ideas, opportunities for collaboration and expansion emerged organically. Attendees were encouraged to explore potential collaborations and synergies that may lead to the formulation of competitive proposals aligned with the priorities outlined in the European Commission's Horizon 2020 and LIFE calls.

Afterwards a project poster exhibition starts where event attendees viewing and discussing 6 H2020 and LIFE Innovation projects presented in the coffee and posters exhibition area.

The exhibition posters of the six EU-funded projects ([Drive 0](#), [StepUP](#), [INFINITE](#), [BuildUP Speed](#), [PLURAL](#), [GigaRegioFactory](#)) are available on the [LINK](#), or click on the posters on the right.



**ANA TISOV** DRIVE 0 COORDINATOR

Afterwards, [Ana Tisov](#) as the [Drive 0](#) coordinator gives a warm welcome on behalf of Drive 0 consortium that for the last four years worked on this project, emphasizing and proving how circular economy can be brought in the traditional construction sector.

Ana emphasizes the imperative of acknowledging that **the construction industry is widely recognized as one of the most resource-intensive and polluting sectors**. While it has been lagging behind, there is now a gradual awakening within the industry. She emphasizes **the urgency for collective action to catalyse a transformative shift**, highlighting that today's event aims to contribute to this by facilitating proactive engagement among various sectors relevant to the transformation of the construction industry.

The goal is to foster a deeper understanding of diverse perspectives and propel collaborative efforts toward achieving ambitious EU sustainability goals more efficiently and effectively.





# EXPERIENCES FROM THE PROJECTS TO REVOLUTIONISE CONSTRUCTION

## JOHN VAN OORSCHOT ZUYD

The 2nd session focused on 'Experiences from the projects to revolutionize construction' started with presentation by [John van Oorschot](#) from ZUYD with a presentation titled 'A closer look at technological advancements in sustainable construction.' In his presentation, he introduced diverse supply models for industrial retrofit solutions, including the mobile on-site factory, satellite factory, district factory, assembly factory, and service factory. He emphasizes the prerequisites for successful industrialized housing solutions, advocating for a progression from standardization to customization. The key, he asserts, lies in **anchoring renovation efforts to local drivers**, tailoring industrialized solutions to the unique contexts shaped by people, materials, and energy considerations.

John underscores the **enduring technologies integral to sustainable construction** while highlighting an **impending shift driven by carbon tariffs**, particularly differentiating between applied materials. Additionally, he emphasizes the critical role of enabling technologies, specifically artificial intelligence (AI) and recognition systems, in supporting efficient project delivery. Challenging the conventional narrow focus of industrialization on efficiency and materials, he calls for a **paradigm shift towards considering the broader impact of industrialization**, particularly in terms of reducing the carbon footprint. Recognizing the potential intrusiveness of industrialization, especially concerning residents, he prompts a reflection on the desired impacts of an industrialized renovation approach within the context of the urgent need for accelerated renovation during the Renovation Wave.

Moreover, John points out that while technological innovation has made significant strides, the current challenge is not merely demonstrating new technologies but rather replicating and commercializing them to **ensure affordability and widespread accessibility**. This, he contends, is the key to ensuring that a larger segment of the population can benefit from the solutions ushered in by industrialized renovation approaches. Another conclusion is that if we are to implement circular construction, we need to **go away from linear economy thinking** which is centred around cost efficiency **and prioritize the value retention**.

**After John's presentation, a panel discussion is held with the representatives of 6 EU projects:**

**STEP-UP**  
Making decarbonization of buildings a reliable, attractive investment.

**PLURAL**  
Plug-and-use renovation with adaptable lightweight systems.

**INFINITE**  
Industrialized durable building envelope retrofitting by all-in-one interconnected technology solutions.

**Drive 0**  
Accelerating deep renovation processes through the design of a consumer-centred circular renovation strategies and solutions.

**BuildUPspeed**  
Promoting & implementing industrialized renovation solutions.

**Giga Regio Factory**  
Market uptake and factory development for more affordable Net Zero-Energy renovations through industrialized solution packages.

**SEBASTIEN DELPONT**  
ENERGIESPRONG FRANCE/  
GIGA REGIO FACTORY

[Sebastien Delpont](#) highlighted a crucial consideration in the realm of industrialized renovation: **the inherent trade-offs associated with determining the optimal location and size of factories**. The strategic decision of whether to distribute many small factories across the region or consolidate resources into one larger regional facility involves navigating a balance. The choice carries implications for **efficiency, accessibility, and resource utilization**.

To address these challenges and facilitate the acceleration of housing renovation, Sebastien underscores the importance of implementing **robust industrial policies and support schemes that span the entire value chain**. These policies serve as instrumental tools in streamlining and optimizing the renovation process. Furthermore, he emphasizes that the nature of the **construction industry is inherently local** rather than global. The decision-making process should be informed by factors such as geographical distribution, demand patterns, and resource availability.

**MARIA SARA DI MAGGIO**  
ABT/BUILDUPSPEED

[Maria Sara di Maggio](#) from ABT and BuildUPspeed coordinator brought attention to persistent challenges in the realm of innovative demonstrators, specifically revolving around issues related to **guarantees and liabilities**. In the landscape of groundbreaking projects, uncertainties often arise regarding the assurance of outcomes and the assignment of responsibilities in the event of unforeseen circumstances. These challenges underscore the **need for clearer frameworks and mechanisms** to address guarantees and liabilities associated with innovative demonstrations.

Moreover, Maria Sara emphasized the **importance of inclusivity in scaling up these innovations**. It's not just about the involvement of major industry players; rather, the wide diversity of local stakeholders should be actively engaged. This viewpoint recognizes that the success and scalability of innovative solutions depend on a collaborative effort that goes beyond the traditional players. By incorporating the perspectives and contributions of various local actors, from community groups to small businesses, the potential for meaningful and widespread impact is significantly enhanced.



# EXPERIENCES FROM THE PROJECTS TO REVOLUTIONISE CONSTRUCTION

**MARIA FOUNTI**  
NTUA/ PLURAL

**Maria Founti** from NKUA and PLURAL coordinator highlighted the **growing demand for innovative business models tailored to local and regional needs**. Two distinct scenarios underscore the evolving landscape: a) All-inclusive prefabricated facades with active systems, b) Collaboration with big manufacturers. In both scenarios, the crux lies in the adaptation of business models to accommodate the evolving demands of the industry.

Whether it's integrating active systems into pre-fab facades or navigating uncharted territories with novel solutions, local manufacturers are faced with the dual challenge of technological adaptation and strategic collaboration to remain at the forefront of innovation in the construction sector.

**JURE VETRŠEK**  
IRI UL AND INFINITE

**Jure Vetršek** from IRI UL and INFINITE representative introduces the Built4People partnership initiative, highlighting its pivotal role in a transformative shift towards **a more human-centric approach to technological innovation** within the built environment. This initiative serves as a beacon for a paradigm that places people at the core of technological advancements, emphasizing the importance of designing and implementing innovations that directly cater to the needs, preferences, and well-being of individuals.

The initiative signifies a departure from technology-centric approaches where technological innovation is not just about efficiency or novelty but is fundamentally anchored in improving the quality of life and fostering a more inclusive, comfortable, and sustainable built environment for all.

**MELINDA OROVA**  
ABUD AND STEP-UP

**Melinda Orova** from ABUD and STEP-UP representative underscores the **importance of quantifying multiple benefits** when it comes to deep renovations of existing buildings, emphasizing the need to move beyond traditional economic energy efficiency and energy saving indicators. Despite the presence of supportive policy instruments and a diverse range of technologies, Melinda notes a current challenge: the low rate of energy retrofitting in existing building stock. This discrepancy suggests that, despite the available tools and frameworks, **energy renovations are not yet attractive enough for investors**.

Melinda suggests a potential solution lies in showcasing not only the energy savings but also the added benefits, such as enhanced well-being and improved air quality, to property owners. This **holistic approach** aims to make the case for renovation more compelling and aligns with the evolving priorities in sustainable construction.

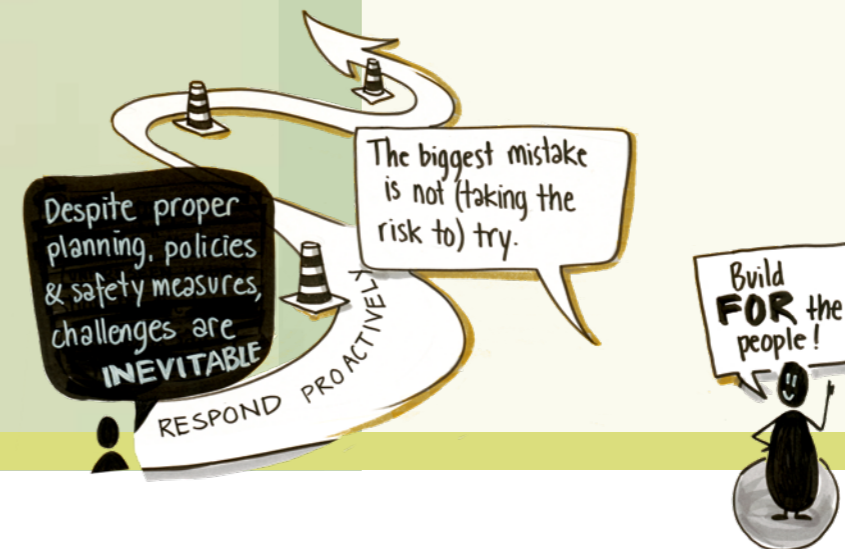
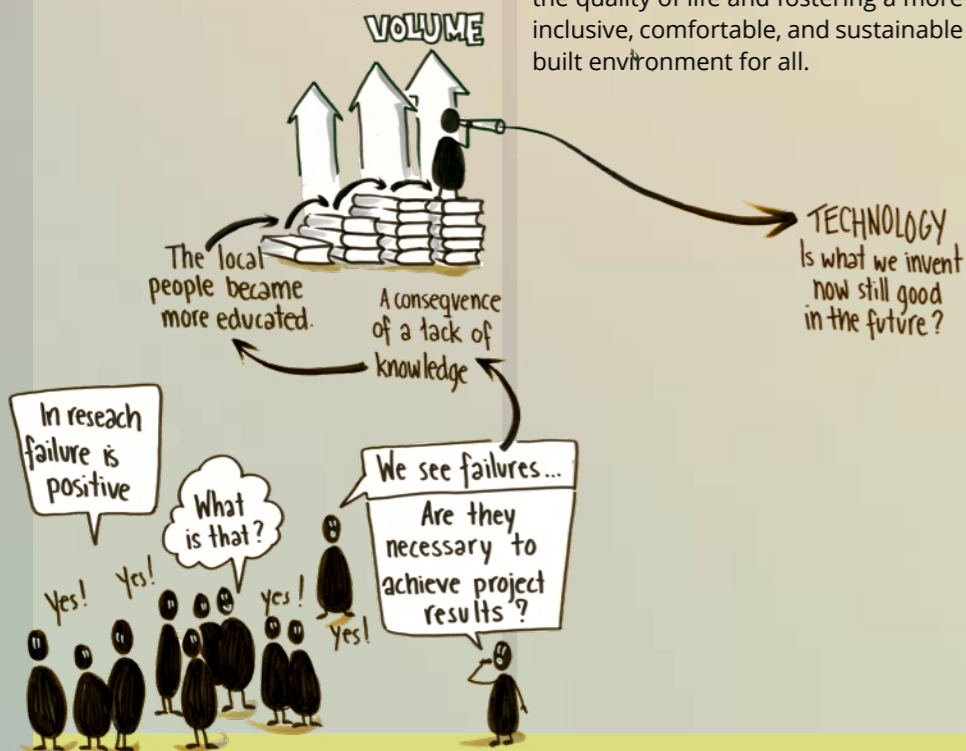
**ANA TISOV**  
HUYGEN AND DRIVE 0

**Ana Tisov** from Huygen and Drive 0 Coordinator emphasized a crucial aspect for the widespread adoption of circular principles in construction — **the necessity for complementary innovations**. She underscores that the effectiveness of modular innovation, for example, is intricately linked to the simultaneous development of innovative social and business models. This holistic perspective calls for a comprehensive approach, where circular principles are not seen in isolation but as part of an integrated system that encompasses technological, social, and business innovations.

**Afterwards, the discussion between the panellists is around the perception of failure within innovation projects.**

Panellists agree that failure is not merely seen as a deviation from the expected path or achieving a different outcome; it encompasses a range of challenges and obstacles inherent in pushing the boundaries of innovation. The discussion advocates for a mindset that values **continuous knowledge generation** and embraces the inherent uncertainties in the dynamic landscape of technological development.

The overarching theme emerges that, as long as knowledge is being generated, there is no true failure. This perspective aligns with the dynamics of technology development, emphasizing that the learning process is inherently iterative. Vulnerability of manufacturers innovating in the industry is acknowledged, highlighting **the need for a supportive ecosystem that mitigates risks for innovative players**. Issues surrounding guarantees and liability in innovative projects emerge as potential obstacles, requiring a careful examination of legal and contractual aspects.





# FROM PRACTICE TO POLICY TO IGNITE TRANSFORMATION

The 3rd session was focusing on 'From practice to policy to ignite transformation' with **Sebastien Delpont** (EnergieSprong France) and **Philippe Moseley** (European Commission, DG GROW) as keynote speakers followed by an open discussion with **Spyros Mathioudakis**, Policy Officer at European Builders Confederation EBC Confederation Representative **Ruth Schagemann**, President of the Architects' Council of Europe **Emmanuelle Causse**, Secretary General of the International Union of Property Owners and **Julien Dijol**, Policy Director at Housing Europe.

## SEBASTIEN DELPONT ENERGIESPRONG FRANCE

[Sebastien Delpont](#) from [EnergieSprong France](#) initiates his presentation, titled 'State of the market & Perspectives for improved policies' by prompting the audience to ponder why the energy retrofit of buildings remains one of the most underinvested key levers in the climate transition. He underscores that despite the growing recognition of the importance of building energy efficiency, the anticipated enthusiasm or "hype" is yet to materialize. Sebastien mentioned that the success of a green Renovation Wave necessitates not only financing the "demand" side but also substantial investment in the "offer" side. He emphasized **the lack of adequate investment in technological innovation for energy efficiency**, a critical element in the broader climate transition. Addressing the perception that deep energy retrofit is inherently expensive, Sebastien reframed it as a current reality rather than an inevitable fate. He advocates for concerted efforts to make cost-effective deep energy retrofit a reality, pointing out that several potential levers for innovation and industrialization remain untapped due to the current players' limited capacity to organize them effectively.

Sebastien argued for the use of industrial solutions, where **LEAN methodologies**, **Building Information Modeling (BIM)**, and Off-site construction are identified as key ingredients for success. These innovations, he contends, can facilitate the retrofitting of more buildings at a faster pace while also integrating a new and diverse workforce, including women. He stresses the need for three primary priorities: **'more volume, more volume, and more volume,'** asserting that these are essential for continued development within a stable and supportive environment. Sebastien emphasizes the proven success of industrial retrofit solutions and calls for a change in pace, advocating for different public policies to facilitate further progress. The challenge now, he suggests, lies in organizing and financing the replication of successful models, requiring a shift in financial regulations and real estate practices.

In his concluding remarks, Sebastien issues a call to action, suggesting that it might be time to take a step further within the New EU Bauhaus initiative. He proposes the idea of organizing an EU EXPO for Nearly Zero-Energy Building (NZEB) Renovation, emphasizing the potential for such an exhibition to be a catalyst for advancing and showcasing innovations in deep energy retrofit.

## PHILIPPE MOSELEY EUROPEAN COMMISSION, DG GROW

Afterwards [Philippe Moseley](#), Policy Officer at [European Commission, DG GROW](#) delivered a presentation that delves into **EU policies supporting the dual transition of the construction sector**. Philippe spotlights Drive 0 project as a project pioneering the integration of circularity into industrial renovation and effectively bringing together disparate agendas. The presentation underscored the economic opportunities inherent in this transition, emphasizing its status as a long-term paradigm shift that is firmly established. Philippe highlighted the significant position of the EU construction industry ecosystem, ranking as the second largest after retail in terms of gross added value and job generation.

Within the policy landscape, Philippe referenced the [Transition Pathway for Construction document](#), offering concrete recommendations for action. Additionally, he touches on the Construction Product Regulation (CPR) revision, a crucial component aiming for consistent harmonized data on construction products. This revision mandates that **every product in the single market must declare its carbon footprint**, contributing to greater transparency and sustainability.

He touches **Level(s)** as well, where key aspect introduced is the consideration of Whole Life Cycle emissions in the design of a building. Other relevant initiatives he bring attention to are EU Taxonomy for sustainable activities, study ['Measuring the application of circular approaches'](#), [EU Construction & Demolition Waste Management Protocol & Waste guidance documents](#). He summarizes that the Digital transition of construction is focusing on Digital Building Logbooks, digitalisation of building permit systems, adoption of BIM and preparing ground for construction data space.



"EU CONSTRUCTION INDUSTRY ECO-SYSTEM IS THE SECOND BIGGEST AFTER RETAIL IN TERMS OF GROSS ADDED VALUE AND JOBS GENERATED."

"MAYBE IT IS TIME TO GO ONE STEP FURTHER IN THE NEW EU BAUHAUS & ORGANISE AN EU EXPO NZEB RENO EXHIBITION?"



# FROM PRACTICE TO POLICY TO IGNITE TRANSFORMATION

After these two presentations, a panel discussion is held with the various sectors representatives:

**European Commission, DG GROW**  
(policy sector)

**EnergieSprong France**  
(broker between supply and demand side)

**Housing Europe**  
(social housing sector)

**International Union of Property Owners**  
(property owners' sector)

**European Builders Confederation**  
(construction SME sector)

**Architects' Council of Europe**  
(architects' sector)

**SPYROS MATHIOUDAKIS**  
EUROPEAN BUILDERS CONFEDERATION

Spyros Mathioudakis, Policy Officer at European Builders Confederation, stresses the crucial role of **including SMEs in the equation for a successful sustainable transition in construction and renovation**. He advocates for a **slowdown in regulatory changes**, emphasizing the need for a shift towards implementation and action rather than continuous adjustments. Spyros highlights the necessity to halt the proliferation of solutions and demonstrations, calling for a **focus on practical application**.

He argues that industrial solutions, while valuable, cannot adequately address the diversity of buildings across Europe, each with its unique performance characteristics and construction timelines. While **industrialization** has its merits, Spyros cautions that it **cannot serve as a one-size-fits-all solution** and should not be viewed as a silver bullet for the challenges faced in the construction and renovation sector.

**RUTH SCHAGEMANN**  
ARCHITECTS' COUNCIL OF EUROPE

Ruth Schagemann, President of the Architects' Council of Europe highlights that **the majority of architectural offices in Europe are small-scale and dispersed not only in urban centres but also in rural areas**. She emphasizes the importance of extending the transformative efforts beyond major cities to reach these diverse regions. While previous discussions solely focused on the energy performance of individual buildings, the regulatory shift is now steering the conversation toward a positive exploration of carbon footprint considerations at the neighbourhood level.

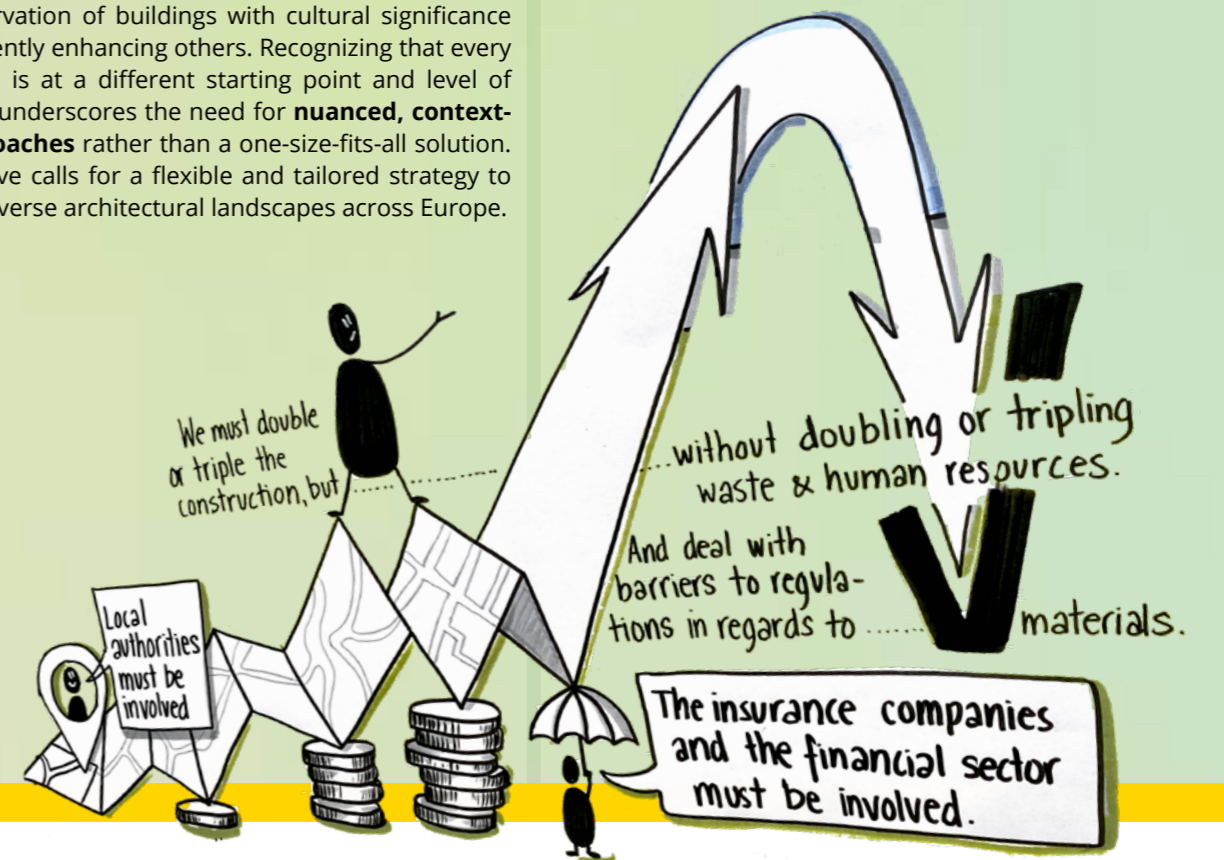
Ruth acknowledges that transposing these changes at the national level poses a challenge for Member States. She emphasizes the **uniqueness of each building, with its own identity, structure, and typology**. Particularly, buildings with high cultural value often face a precarious situation as industrialized renovation approaches might endanger them, especially if they lack protective measures.

The overarching challenge, as Ruth articulates, lies in balancing the preservation of buildings with cultural significance while concurrently enhancing others. Recognizing that every member state is at a different starting point and level of progress, she underscores the need for **nuanced, context-specific approaches** rather than a one-size-fits-all solution. This perspective calls for a flexible and tailored strategy to address the diverse architectural landscapes across Europe.

**SEBASTIEN DELPONT**  
ENERGIESPRONG FRANCE/GIGA REGIO FACTORY

Sebastien Delpont, Director of EnergieSprong France underscores **the crucial role of orchestrators to facilitate a harmonious connection between supply and demand** in the renovation sector. He emphasizes the necessity of achieving substantial volume in renovations while acknowledging the significance of typology in this process. Sebastien advocates for the aggregation of typologies that hold significance to effectively generate the required volume.

In addressing the financial aspect, Sebastien points out the inadequacy of current financing for both supply and demand, citing the need for increased investment from companies to drive innovation and from housing companies to meet demand. He identifies a structural challenge in seeking **more funding from banks for renovations**, indicating the necessity for regulatory adjustments to support such financial requests.





# FROM PRACTICE TO POLICY TO IGNITE TRANSFORMATION

**EMMANUELLE CAUSSE**  
INTERNATIONAL UNION OF PROPERTY OWNERS

[Emmanuelle Causse](#), Secretary General at International Union of Property Owners asserts the importance of adopting a **human-centric approach** in acknowledging the **diverse ownership structures** of every building. She advocates for recognizing the beauty in small-scale, emphasizing that the building sector is characterized by homeownership, primarily owned by private individuals. Emmanuelle points out that industrialization often caters to owners with extensive portfolios, potentially neglecting the unique needs of individual property owners. She stresses the necessity to tailor approaches for each property owner, especially considering the prevalence of small landlords in the sector.

Emmanuelle observes that small landlords may find it challenging to fully grasp concepts related to circularity and embodied carbon. The key challenge lies in **effectively communicating the importance of circularity** in renovation to homeowners. Despite the limited direct impact of property owners on the transition, Emmanuelle emphasizes the need for collaboration with SMEs and architects to drive meaningful change in the sector. This collaborative effort is essential to navigating the complexities of circular renovation and ensuring its widespread adoption in diverse ownership structures.

**JULIEN DIJOL**  
HOUSING EUROPE

[Julien Dijol](#), Director of Policy at Housing Europe highlights that 10% of the total building stock in Europe consists of social, public, and cooperative housing. The sector faces the challenge of **reducing its carbon footprint without compromising the delivery of affordable homes**. While acknowledging the importance of a circular approach, Julien notes the complexity and vastness of the term. Social housing organizations are tasked with deciding on the most effective solution for carbon reduction, whether through pre-fab panels with recycled, bio-based materials, using these materials without prefabrication, adopting a design for disassembly approach, or employing traditional design while minimizing demolition waste.

Julien underscores the valuable role of local research institutes in assisting social housing organizations in identifying optimal renovation strategies. He emphasizes the significance of **addressing regulations, organization** (including territorial planning and material flows from local authorities), **and information** (pertaining to the materials present in buildings) for making informed decisions on carbon footprint reduction. Julien stresses the contextual relevance of strategies, citing urban mining as an example. What is pertinent in one context may not necessarily be applicable in another. He advocates for achieving scale, efficiency, and speed by tailoring solutions to local needs, reinforcing the idea that identifying and responding to the specific requirements of each locale is essential for success.

**PHILIPPE MOSELEY**  
EUROPEAN COMMISSION, DG GROW

[Philippe Moseley](#) emphasizes **the need to double the rate of renovation, recognizing that both the workforce and waste cannot be doubled in tandem**. He highlights the significant role of cities as major players in this endeavor. Philippe also underscores the importance of industrialization, particularly for certain types of buildings, as a strategic approach to achieving the ambitious goal of doubling renovation rates.



Overall, the panelists collectively recognize the absence of key stakeholders such as insurance, local authorities, and the financial sector at the discussion table.

The ensuing conversation revolves around a shared understanding that a common market for retrofitting solutions across Europe does not currently exist. Retrofitting solutions approved in one country may face hurdles in another, for example with insurance approval. The discussion points to **the potential role of guarantee funds** in bridging the gap left by insurance companies. However, it's acknowledged that **certifications** are intricately tied to national schemes, posing challenges. The **lack of information or knowledge** on certain local materials further impedes their certification. The use of secondary materials in the construction sector is identified as a significant issue for insurance. Particularly, there is **reluctance** among SMEs to take responsibility for reusing structural elements in construction or renovation due to perceived difficulties. While some countries allow the reuse of structural elements, limitations exist, highlighting the **complexity of this issue**.

The discussion emphasizes the need to address supply and demand simultaneously, a consideration embedded in the taxonomy, albeit on a voluntary basis. It is noted that recycling building materials is currently feasible only through the demolition of buildings, a practice that should be minimized. While complete cessation of building demolition may be impossible, prioritizing renovation over demolition is deemed essential. The panel also highlights challenges related to certification, citing the case of CE marking from WEBO (Drive 0 Industry partner), where certain innovative products lack guidelines for testing and certification.

**The European Innovation Council** is identified as a potential avenue, offering grant schemes for SMEs through accelerator and pathfinder programs.

The Technological University Dublin (Drive 0 Research partner) emphasizes the urgent need for a social fund to retrofit large areas using a specific methodology instead of relying solely on demonstrations, particularly in the context of the housing crisis. This multifaceted discussion underscores the complexity of the issues at hand and the need for a collaborative, cross-sectoral approach to address the challenges in the retrofitting landscape.

# ILLUMINATING OPPORTUNITIES TO UNLEASH THE SOLUTIONS MARKET POTENTIAL

As part of the last session successful stories, pitches in implementing sustainable approaches & innovative solutions within commercial operations are given by:

**Jesús Miguel Alonso Pérez - Construcciones ACR**  
(Spanish construction company)

**Daniel Orth - BauKarussell**  
(Social urban mining service provider from Austria)

**Zuzana Prochazkova - PichArchitects**  
(International architectural studio from Spain)

**Kalle Kuusk - Enterprise Estonia & KredEx joint agency**  
(Estonian business & innovation agency)

**Bart Voortman - WEBO**  
(Family-owned carpentry factory from the Netherlands)

All the pitching presentations are available here: [LINK](#). The pitches were followed by a panel discussion between both the supply and demand side representatives.

## BART VOORTMAN WEBO

[Bart Voortman](#) from family-owned carpentry factory WEBO from the Netherlands introduced the circular products utilized in the Drive 0 project, particularly in the Dutch demonstration project. He concludes that circular solutions are readily available in the Netherlands, where certification is no longer a significant obstacle for terraced houses. However, he notes that the engineering and planning process consumes a substantial amount of time.

Bridging the gap between renovation design and execution involves **addressing key challenges through funding, improved public-private coordination**, and an ongoing effort to **raise awareness and consciousness about circular solutions**. Bart's insights highlight both the progress made and the areas that require continued attention and collaborative efforts in advancing circular practices in the renovation sector.

"CIRCULAR SOLUTIONS ARE READILY AVAILABLE IN THE NETHERLANDS, WHERE CERTIFICATION IS NO LONGER A SIGNIFICANT OBSTACLE FOR TERRACED HOUSES."

## JESÚS MIGUEL ALONSO PÉREZ CONSTRUCCIONES ACR SA

[Jesús Miguel Alonso Pérez](#) from Spanish construction company CONSTRUCCIONES ACR SA detailed their successful application of energy efficiency, circular economy, and deep renovation principles in real-life commercial projects through the STEP-UP and Build-UPspeed initiatives. Industrialization and digitalization played key roles in incorporating these aspects, aligning with the core business strategies of the company.

However, Jesús Miguel highlights that despite these achievements, **funding innovation remains a crucial requirement**. He emphasizes the need for enhanced public-private coordination and continued efforts in raising awareness and knowledge to further drive advancements in sustainable construction practices. Jesús Miguel's insights underscore the ongoing challenges and the necessary collaborative actions to propel the industry towards more sustainable and efficient building solutions.

"THERE IS A NEED FOR MORE PUBLIC-PRIVATE COORDINATION AND EFFORTS IN RAISING AWARENESS TO FURTHER ADVANCE IN SUSTAINABLE CONSTRUCTION PRACTICES."

## ZUZANA PROCHAZKOVA PICHARCHITECTS/PICH-AGUILERA

[Zuzana Prochazkova](#) from Picharchitects/Pich-Aguilera, an international architectural studio from Spain, explains how they assist clients, primarily manufacturers of construction systems and companies with a focus on innovation, circular economy, and industrialization. Their approach involves in-depth analysis and innovation to identify improved opportunities in innovation, potential circular economy applications, and the development of innovative products, systems, processes, and business models.

Zuzana illustrates their methodology with three commercial examples: an integrated flooring system for inverted walkable roofs, a bioclimatic prefabricated façade panel, and the development of the PLURAL prefab façade and the Drive 0 photovoltaic planter. These examples showcase the studio's commitment to **providing comprehensive solutions that integrate innovative design, circular economy principles, and industrialization** to meet the evolving needs of their clients.

"ASSISTING CLIENTS IS DONE THROUGH 3-STEP APPROACH: 1) AN IN-DEPTH ANALYSIS AND INNOVATION TO IDENTIFY IMPROVED OPPORTUNITIES IN INNOVATION, 2) POTENTIAL CIRCULAR ECONOMY APPLICATIONS, AND 3) THE DEVELOPMENT OF INNOVATIVE PRODUCTS, SYSTEMS, PROCESSES, AND BUSINESS MODELS."



# ILLUMINATING OPPORTUNITIES TO UNLEASH THE SOLUTIONS MARKET POTENTIAL

**DANIEL ORTH**  
BAUKARUSSELL

[Daniel Orth](#) from BauKarussell, social urban mining service provider from Austria, clarifies how their organization addresses the challenges associated with the vast existing building volume and the substantial construction waste generated from demolitions and renovations. He outlines the connected challenges, including the imperative to renovate 35 million buildings by 2030, uncertainties in the supply of materials, precarity in the secondary labor market, the high environmental footprint of new construction products, and wasteful deconstruction practices.

**Social urban mining, as explained by Daniel, aims to merge social and economic impact.** It involves recovery-oriented demolition with added social value. **The process makes waste visible, transforming it into a valuable resource, conserving materials and reducing energy demand.** Importantly, this approach creates jobs in the social economy and necessitates collaboration with local social economy partners for operational work. The work is co-financed from the proceeds of the sale, emphasizing a sustainable model that not only addresses environmental concerns but also contributes positively to the social and economic fabric of the community. Daniel's insights shed light on innovative approaches to tackle complex challenges in the construction and demolition sectors.

**KALLE KUUSK**  
ENTERPRISE ESTONIA & KREDEX JOINT AGENCY

Kalle Kuusk from [Enterprise Estonia & KredEx](#) joint agency explained how they formulated the **national prefab renovation programme** based on the outcomes of the MORE-CONNECT and Drive 0 projects. He underscores the transition from the demonstrator phase to the daily application of innovations. He emphasizes that while all stakeholders are involved, the crucial aspect often overlooked is the **active participation of the people**. He explains that the key selling points were the **one-stop shop approach** where KredEx handled the procurements and there was only one partner for renovation - designer, manufacturer, and main contractor. Such ecosystem offers innovative solutions, quality and durability, speed of renovation, less disturbance (no scaffolding) and clean construction site.

He emphasizes that the main obstacles are not related to technical issues where the public sector can accelerate the process by taking the lead. Afterall, **having the support of major companies or industry associations is crucial.** When companies see a business case, they are more likely to follow. But to make a business case, it is essential that the **product is financially feasible for homeowners.** Kalle suggests that a higher support rate is essential to facilitate this shift towards routine implementation. Reflecting on the renovation process, he notes that it was a learning curve. The procurement strategy, which involved the renovation of five buildings, only became profitable starting from the third one. Kalle's insights shed light on **the need for sustained stakeholder engagement and adequate financial support** to effectively integrate innovative solutions into everyday practices.

**ANNE VAN STIJN**  
DUTCH ASSOCIATION OF HOUSING CORPORATIONS

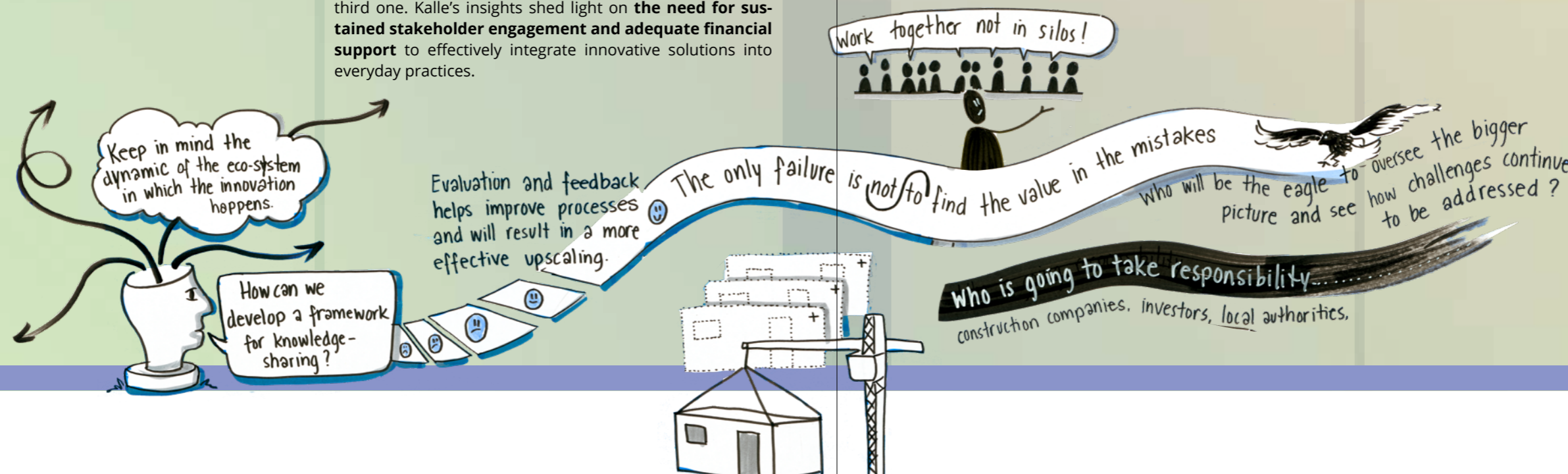
[Anne van Stijn](#) from Dutch Association of Housing Corporations notes that some of the solutions presented are already in use within the social housing sector in the Netherlands. She emphasizes **the importance of disseminating knowledge from these frontrunners to the broader sector.** Anne advocates for all-inclusive solutions, stressing that part of the presented solutions may be feasible while others won't. To achieve scalability, she suggests focusing on the variants that prove feasible, especially in the context of larger building volumes.

Even with circular business models, Anne points out that upfront payment is essential. **Housing associations play a significant role in investment,** drawing from rents paid by low-income tenants, subsidies (particularly for energy-efficient buildings), and the possibility of applying for loans with guarantees. While accessing highly subsidized retrofitting is a positive step, Anne acknowledges that there are additional barriers, such as finding the right balance between customization and industrialization. She emphasizes the importance of considering feasibility perspectives from the outset, especially in practical scenarios where other priorities may compete with circularity-driven initiatives outside highly engaged circles. Anne's insights underscore the practical challenges and considerations in implementing circular solutions in the social housing sector.

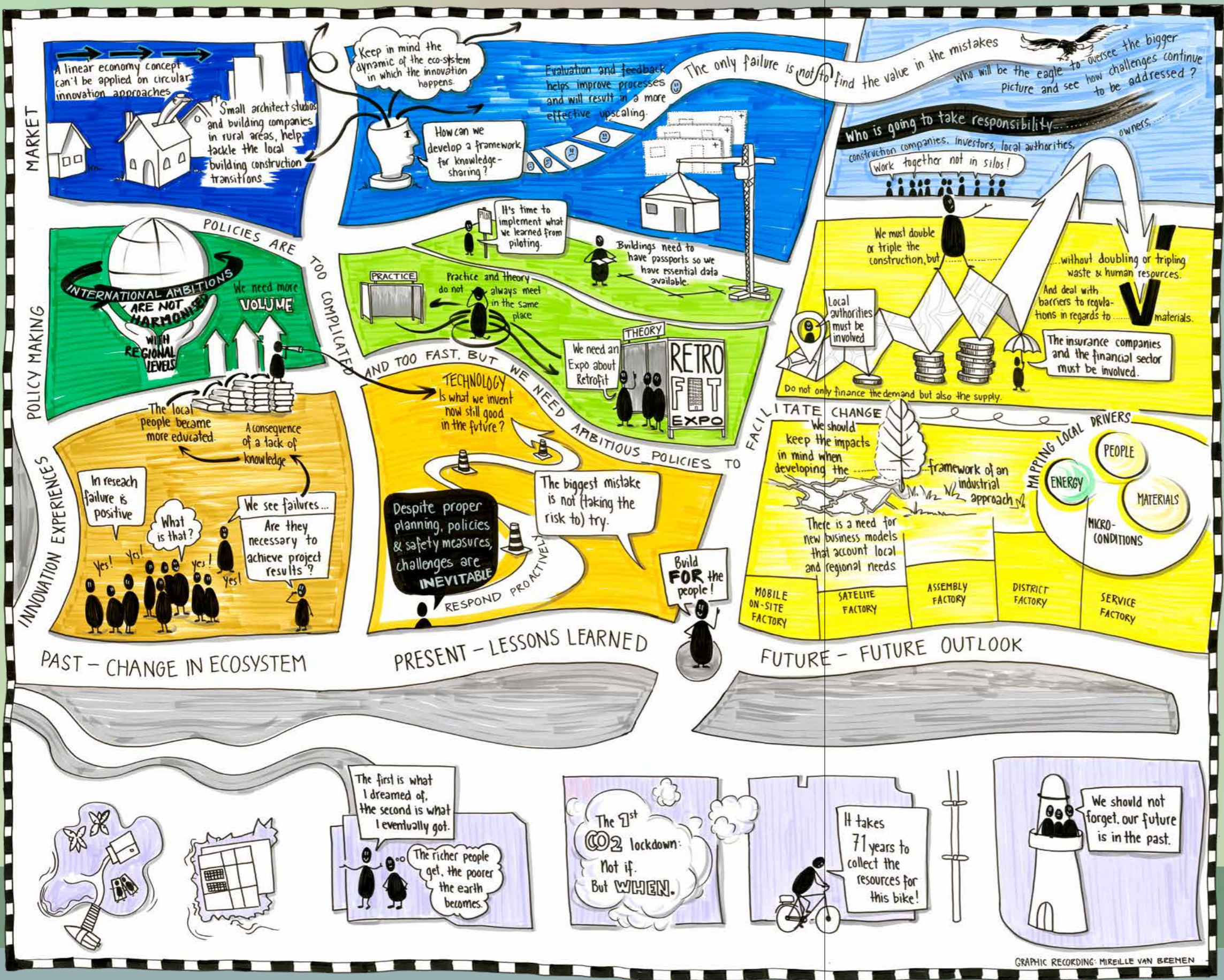
**EMMANUELLE CAUSSE**  
INTERNATIONAL UNION OF PROPERTY OWNERS

[Emmanuelle Causse](#), Secretary General at International Union of Property Owners stresses the importance of **cyclical investment from homeowners** and underscores the need for step-by-step solutions, especially in the transition from innovation to upscaling. Moving from the development of innovative ideas to their **widespread adoption requires a strategic approach** that acknowledges also the needs of homeowners and home occupants (people centered perspective).

“AGAIN, WE SHOULD NOT FORGET THE NEEDS OF PEOPLE.”







GRAPHIC RECORDING CAPTURED DURING THE DRIVE 0 CLOSING SYMPOSIUM

# DRIVE

ACCELERATING SUSTAINABLE BUILT ENVIRONMENT



GRAPHIC RECORDING: MIREILLE VAN BEEMEN





[www.drive0.eu](http://www.drive0.eu)



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