ADAPT4CE Newsletter | Issue #1

January 2026 | First Year Overview (M12)

1. Editorial: A Digital Pathway to Circular Construction

Welcome to the first edition of the ADAPT4CE newsletter!

We have successfully completed the first year (M1–M12) of our journey towards redefining the European construction sector. ADAPT4CE (Horizon Europe MSCA Staff Exchanges) brings together 13 partners from 8 countries to bridge the gap between digital technologies and the Circular Economy.

During 2025, we established our collaborative framework, initiated our first technical work packages, and successfully launched our staff exchange program. Our vision remains clear: to transform how we design, build, and deconstruct by integrating Artificial Intelligence, Digital Twins, and Additive Manufacturing.

In this issue, you will discover our technical progress, meet the experts behind the innovation, and see what lies ahead for 2026.

2. Project Highlights: Progress in Year 1

The first 12 months were dedicated to laying the groundwork for our digital and physical innovations:

- Smart Deconstruction (WP2): Work has officially begun on "Innovative Digital Solutions for Sustainable Deconstruction." The team at NTUA and USTUTT has started prototyping AI/Machine Learning models to classify Construction and Demolition Waste (CDW), preparing the datasets needed to train these smart systems.

- Designing for the Future (WP3): Activities for "Lifecycle-Driven Design" commenced in Month 4. Partners are currently developing methodologies for topology optimization and integrating "Design-for-Disassembly" (DfD) principles into BIM workflows.
- Conference Support: ADAPT4CE proudly supported the ICDTDE2025 (International Conferences on Digital Technology Driven Engineering), held in Jordan in December 2025. This event fostered global dialogue on digital tools for efficiency and sustainability.

- Staff Exchanges in Action: Mobility is the heart of our project. In the first year, 13 staff members traveled to partner organizations for secondments (approx. 15% of the total plan). These exchanges facilitated knowledge transfer between academia and industry, particularly in the fields of AI and Circular Economy.
- Dissemination: We launched the project website (www.adapt4ce.eu) and finalized our Dissemination & Communication Plan (D7.1), ensuring our results reach a global audience.

3. Meet the Researchers

Giving a human face to technical innovation. In every issue, we interview team members participating in the staff exchange program.

Spotlight 1: The AI Perspective

Researcher Profile: PhD Candidate specializing in AI & Machine Learning (NTUA Team)

Q: What is your main focus within ADAPT4CE? **A:** "My work focuses on Work Package 2. I am developing Machine Learning algorithms (specifically Convolutional Neural Networks) that can 'look' at construction waste and automatically identify materials like concrete, brick, or metal. This is the first step towards automating the sorting process for recycling."

Q: How has the staff exchange (secondment) helped you? **A:** "Visiting our industrial partners was an eye-opener. As an academic, I work with models and data, but seeing the real-world constraints of construction sites helped me adjust my algorithms to be more practical. The collaboration with experts in IoT and sensors gave me new ideas on how to feed better data into my AI models."

Q: What excites you most about the future of this project? **A:** "I am really looking forward to the demonstrators in WP6. Seeing our code actually driving a robotic arm or a digital twin to sort real waste will be a massive achievement for the circular economy."

Spotlight 2: The Circular Design Perspective

Researcher Profile: Senior Researcher in Structural Engineering (POLITO Team**)**

Q: What is the biggest challenge in sustainable construction today? **A:** "The biggest challenge is that most buildings are designed to be permanent. In ADAPT4CE, we are changing this mindset. We are working on 'Design for Disassembly' (DfD). We want to design buildings like Lego sets-structures that can be easily taken apart and reused, rather than demolished."

Q: How does ADAPT4CE address this? **A:** "In Work Package 3, we are creating plugins for BIM (Building Information Modeling) software. These tools will tell architects

during the design phase how recyclable their building is. It brings sustainability right to the drawing board."

Q: What is your message to the public? **A:** "Sustainability isn't just about using less energy; it's about valuing materials. Our goal is to ensure that the buildings of today become the 'material banks' of tomorrow."

4. What's Next? (Look Ahead to 2026)

As we enter the second year, the project accelerates with new activities:

- **New Work Packages:** January 2026 marks the start of WP4 (Advanced Additive Manufacturing) and WP5 (Centralized Digital Platform). We will begin benchmarking 3D printing techniques and designing the architecture for our digital twin platform.
- **Save the Date - July 2026:** We are organizing the 1st International Workshop on *"Adaptive Digital Systems for Sustainable Construction"* in Athens, Greece. This event will bring together researchers and industry leaders to discuss our early findings.

Contact Info

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