Supplementary Material: Workshop survey

Introduction

Circular economy (CE) concepts are gaining attention across various fields, but implementation in the construction industry is slow due to complex production processes, supply chains, and specific industrial characteristics requiring extensive resource integration. For companies in this sector, adopting CE practices becomes meaningful when they perceive a transition to CE business models that align with growth and value-driven competitiveness. The most common CE strategies, such as reduce, reuse, and recycle, should not be viewed as an exhaustive list. It is crucial to review CE strategies at multiple levels of the building life cycle.

The objectives of this study are to identify and rank the most relevant CE strategies associated with building life cycle stages, as perceived by European-based stakeholders who participated in the CircularB workshop, "Creating a Roadmap towards Circularity in the Built Environment – State-of-the-Art."

Participation in this survey is voluntary, and responses will be confidential. It should take approximately 10 minutes to complete.

This survey is part of the Second Part of CircularB Workshop 1 in Cordoba, Spain, supported by the European Cooperation in Science and Technology (COST). COST provides networking opportunities for researchers and innovators across Europe, promoting collaboration and knowledge exchange in various scientific fields. The views expressed in this survey are those of the participants and do not necessarily reflect the official policy or position of COST. For more information about COST Action CircularB, please visit https://circularb.eu/. If you have any questions or require further information, please feel free to reach out to the PI directly at ferhat.karaca@nu.edu.kz or to the CircularB Action Secretariat at ca21103@civil.uminho.pt .

If you agree to respond to the survey, please continue. If you disagree, please withdraw.

Part I: Demographic characteristics

Q1: Please select the option that corresponds to your age group:

- 20-29
- 30-39
- 40-49
- 50-59
- 50-59
- 60+

Q2: Please select your gender:

- Male
- Female
- Not specified

Q3: What is your highest level of education?

- Secondary education
- Bachelor's degree
- Master's degree
- Doctorate degree

Q4: Which stakeholder role do you believe best represents you?

- Academician/Researcher
- Client and/or Investor
- Project manager
- Material supplier
- Manufacturer
- Technician and/or Engineer
- Designer Architect and/or Engineer
- Contractor
- End-user
- Government and/or Councilor
- Urban designer
- Environmental agency
- Other, please specify.

Q5: How many years have you worked in the construction industry?

- <5 years
- 5-10 years
- 11-15 years
- 16-20 years
- >20 years

Q6: Have you ever been involved in the implementation of CE concepts?

- Yes
- No
- Don't know.

Part II: The importance of CE strategies in different levels of building life cycle

Please rate the importance of the following CE strategies for constructing CE buildings:

1-Not important at all	2-Slightly important	3-Neutral	4-Important	5-Extremely important

Planning & Design						
Q7	Building material bank and passport	1	2	3	4	5
Q8	Bio-based building materials	1	2	3	4	5
Q9	Reused building materials	1	2	3	4	5
Q10	High-strength building materials	1	2	3	4	5
Q11	Modular design and method	1	2	3	4	5
Q12	BIM-based construction management	1	2	3	4	5
Construction						
Q13	Adjustment of the building's spatial configuration through minor interventions	1	2	3	4	5
Q14	Rented construction equipment	1	2	3	4	5
Q15	Building volume can be increased vertically/horizontally	1	2	3	4	5
Q16	Construction waste management	1	2	3	4	5
Operation						
Q17	Multifunctional design	1	2	3	4	5
Q18	Solid waste and food waste management systems	1	2	3	4	5
Q19	Equipment maintenance and management	1	2	3	4	5
Q20	Renewable energy systems	1	2	3	4	5
Q21	Building-scale wastewater treatment and reuse system	1	2	3	4	5
End-of-Life						
Q22	Deconstruction waste management	1	2	3	4	5
Q23	Optimization of waste collection and transportation route	1	2	3	4	5
Q24	Construction waste is handed over for further use/reselling	1	2	3	4	5
Q25	Demolition waste minimization	1	2	3	4	5

Part III: Adoption of selected CE strategies on current/previous projects

To what degree did your company adopt the following CE strategies on current/previous projects?

1-This CE strategy is never adopted in projects	**2-This CE strategy is rarely used in projects (about 25%)**	**3-Some (about 50%) projects use this CE strategy**	**4-Most (about 75%) projects use this CE strategy**	**5-This CE strategy is adopted in almost all projects**

Planning & Design						
Q26	Building material bank and passport	1	2	3	4	5
Q27	Bio-based building materials	1	2	3	4	5
Q28	Reused building materials	1	2	3	4	5
Q29	High-strength building materials	1	2	3	4	5
Q30	Modular design and method	1	2	3	4	5
Q31	BIM-based construction management	1	2	3	4	5
Construction						
Q32	Adjustment of the building's spatial configuration through minor interventions	1	2	3	4	5
Q33	Rented construction equipment	1	2	3	4	5
Q34	Building volume can be increased vertically/horizontally	1	2	3	4	5
Q35	Construction waste management	1	2	3	4	5
Operation						
Q36	Multifunctional design	1	2	3	4	5
Q37	Solid waste and food waste management systems	1	2	3	4	5
Q38	Equipment maintenance and management	1	2	3	4	5
Q39	Renewable energy systems	1	2	3	4	5
Q40	Building-scale wastewater treatment and reuse system	1	2	3	4	5
End-of-Life						
Q41	Deconstruction waste management	1	2	3	4	5
Q42	Optimization of waste collection and transportation route	1	2	3	4	5
Q43	Construction waste is handed over for further use/reselling	1	2	3	4	5
Q44	Demolition waste minimization	1	2	3	4	5