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## **Play Circular Families and Discover the Circular Citizens**

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By 2050 cities across Europe aims to become fully circular by promoting a transition to a circular economy (CE) across urban sectors in collaboration with citizens, businesses and research. CE is a regenerative and restorative approach aiming at avoiding waste, extending product lifespans and regenerating natural systems enabling society, the economy and the environment to prosper sustainably. Until now, innovation for a CE has mainly focused on technological solutions with limited attention to social practices and behavioural change even though resource efficiency in cities is strongly connected to citizens' behaviours.

This project explored how citizens can contribute to the transition to a CE in their cities and how they can be engaged. The proposed workshop aims to engage participants in a playful collaborative discovery on how they can take action for a CE in their cities.

The study analysed nearly 60 social innovation initiatives in cities which encourage citizens to change behaviour toward circular practices. Through deductive and inductive strategies by an “adapted version of the Grounded Theory approach” (Perry & Jensen, 2001), the study identified 7 circular citizen types organized into communities, groups of interest, businesses, and social enterprises that implement different circular practices while aligning individual interests with social and environmental benefits (Marchesi & Tweed, 2021). Types are distinguished by different circular production or consumption practices and organized into 3 main motivation-focused categories (Tab. 1). This

taxonomy provides a systematic description of each type of circular citizen in terms of features, actions, challenges and impact (Marchesi, 2022).

Tab. 1 Circular citizens types and alternative production-consumption practices

| <i>formulation of alternative practices</i>       | <b>circular citizen type</b> | <i>alternative production practice</i>   | <b>circular citizen type</b> | <i>alternative prosumption practice</i> | <b>circular citizen type</b> | <i>alternative consumption practice</i>   |
|---|------------------------------|--|------------------------------|---|------------------------------|---|
| <b>focus on alternative social settings</b>       |                              |  | Do-it-Together citizen       | Community empowering prosumption        | Do-it-together citizen       | Community empowering consumption          |
|   |                              |  | Strategic citizen            | Strategic prosumption                   | Sharing citizen              | Commonly organized consumption            |
| <b>focus on individual competences</b>            | Sensor citizen               | Knowledge-expanding production           | Do-it-yourself citizen       | Competence-expanding prosumption        | Do-it-yourself citizen       | Competence-expanding consumption          |
| <b>focus on alternative material arrangements</b> | Zero-waste citizen           | Resource-light/waste-avoiding production |                              |   | Utility-oriented citizen     | Need/utility-oriented consumption         |
|   |                              |  |                              |   | Zero-waste citizen           | Resource-light/waste-avoiding consumption |

Then, the study explored gamification as a method to facilitate citizens' decoding of CE concepts and their engagement in taking action in their cities. The study applied the city gaming method Play the City (Tan, 2017) to develop a card game called Circular Families (Marchesi, 2022) (Fig. 1).

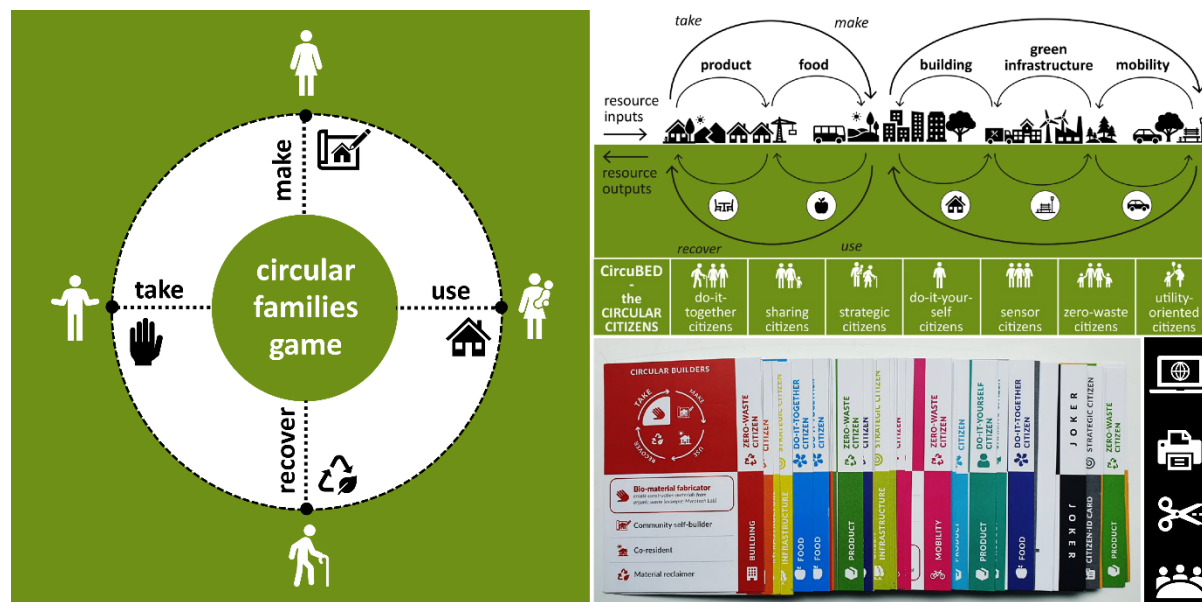


Fig. 1 Circular Families card game

During a play session, each player aims to collect all 4 members from one of 13 'circular family' groups that represent 5 urban sectors: construction, manufacturing, food, green infrastructure, and transport. To form a family, during each turn, players must decide on a circular action which could be 'take', 'make', 'use', or 'recover' to close the resource loop. Actions promote social innovation initiatives which engage in circular practices. After a game session, players can identify the circular citizen type they would like to become and discover features, actions, challenges and impacts.

KEYWORDS: circular economy, circular society, social innovation, circular practices, gamification.

RSD TOPIC(S): Learning & Education, Sociotechnical Systems.

## **Workshop**

### **Workshop format**

120 minutes | in person | maximum number of participants 25

*Aim*: The workshop aims to engage participants through gamification in a playful collaborative exploration of how they can contribute to the transition to a CE in their city by sharing inputs from good practices of sustainable ways of producing and consuming from all over the world.

*RSD11 focus: Products are systemic objects.* This contribution focuses on citizens' engagement in circular design through gamification to build a circular society by social innovation. The circular society vision looks at circularity as a holistic social transformation that integrates social, ecological and political considerations of circularity (Calisto Friant, et al. 2020). This vision has recently seen a growing interest in contrast with the current well-established technocentric CE vision focuses only on circulating resources alone through economic and technical innovation. Literature in design for sustainability and a CE acknowledges that systemic changes for environmental and social benefits in large urban socio-technical systems can be only achieved by complementing technical innovation with social innovation (Ceschin & Gaziulusoy, 2016). Sustainability-oriented innovations show a progressive evolution from technically focused solutions to socially focused innovations to address

sustainability as a socio-technical challenge where user practices and behaviours play a crucial role and make changes in wider socio-economic systems (Geels, 2005).

### **Workshop agenda**

The workshop will be composed of the following 4 activities:

- introduction to the workshop and gameplay (15 minutes)
- game session (60 minutes)
- nominal group activity (30 minutes)
- interactive poll (15 minutes).

### **Workshop description**

The workshop will be held in person since the most important tool used in the workshop is a card game which collects “good practices”. The game freely available on the project webpage (Marchesi, 2022), will help participants collaboratively discover and begin a conversation by triggering and revealing unexpected ways of producing and consuming in cities. The workshop aims at diverging thinking and expanding possibilities: it is an experiment in the “discover” phase of the Double Diamond process (Ball, 2018), an exploratory phase to engage people, and inspire them by presenting a variety of good practices from all over the world and build a “public imagination”, amplifying individual interests into public interests (Meroni et al., 2018). In terms of environmental set-up, a large enough room to accommodate 30 people is needed; it should be equipped with 5 small tables for 6 players each, 30 chairs (6 chairs each table), a paper blackboard, empty walls to pin posters and a screen to project a tutorial video for playing.

The workshop will start with an introduction to the gameplay followed by a game session to showcase good practices from across the world and identify key topics and initiatives of interest for the participants through gamification. Participants will play a card game called Circular Families to facilitate knowledge exchange on CE concepts and stimulate visions for sustainable ways of producing and consuming in the city. Each player aims to collect all member cards of the same family to build a circular family. There are 13 circular families which are divided into five urban sectors: building, product, food, green infrastructure, and mobility. Each family is composed of 4 members, and each member uses a social innovation strategy to implement one of the

circular actions “take”, “make”, “use”, and “recover” to build a circular loop in their family. Players build a circular family by asking other players for a specific member in a specific family. Whoever collects the most families win.

After the game session, participants will be involved in selecting and clustering key topics and initiatives of sustainable ways of producing and consuming they would like to implement through a nominal group technique. The nominal group technique will involve participants in a group and the researcher will present tasks to the group. Each member of the group will write down their preferences on post-its in response to each task. Then each member will be asked to contribute to the tasks by sharing their thoughts with the whole group by placing their post-its on wall charts. Then, the final lists are checked for sense and items may be queried and clarified, and the group will evaluate the lists in terms of importance. A consensus will be achieved by voting or using a rating scale on each list. Through this activity, participants will identify common areas of interest for actions, preferred strategies and the types of circular citizens they would like to become.

Knowledge acquired by participants through performed activities will be measured using an interactive poll.

In terms of the final output, the workshop will show that citizens can contribute to a CE in their cities through social innovation initiatives which promote circular practices while aligning individual interests with social and environmental benefits. Challenges and obstacles limiting their implementation will be included in the session through the circular citizen personas involved in the play. Participants will experience gamification as a tool to be engaged in exchanging knowledge and increasing awareness of the circular citizens, social innovation for a CE and desirable social innovation initiatives that can be used as a basis to start subsequent co-design activities. Further research is required to explore its potential to be embedded in a toolkit to facilitate citizens in a full co-creation process of discovering, defining, developing and delivering to implement social innovation interventions for a CE.

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