GAME DESIGN MACHINE

A step-by-step and open-ended methodology to create a game based on a specific problem or theme that relates to the reality of a commons' initiative. Provides a process and several tangible tools to think collectively on a field of interest in order to produce new framings, representations or alternative narratives which could be capable of revealing unexplored potentials or solutions.

openlab athens

OpenLab Athens
is an inter-disciplinary research collective

the **Game Design Machine** toolkit was developed by
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GAME DESIGN MACHINE

Introduction to the idea of a Game Design Machine

The experience of interacting with communities and 'commons' initiatives in the context of engagement with digital tools revealed a crucial aspect. The scientific discourse in the field of human computer interaction (HCI) inspires case studies that appropriate models, relations, and processes of real life to translate them in diverse digital worlds and interactions among users in more efficient ways. In most cases, this methodological trajectory is followed by innovative actions and mechanisms to help users to understand and adapt the developed tools. Our research hypothesis involves reversing this trajectory and experimenting on how these innovative approaches to engaging users with digital processes could generate new perceptions of the physical world and everyday problems. We would like to test how learned lessons and cutting-edge methodologies of HCI could be integrated as tools for **raising awareness, increasing participation, and building community with regard to commons**.

In this realm, we will take inspiration from the concept of 'gamification' and use it as a starting point for developing a tool that could generate novel socio-technical processes to support commons ini-

ge.CO Living Lab is an EU funded Horizon 2020 project. It aims at creating a space where people who are involved in communities that deal with generative commons and public initiatives that foster such actions can come together and share their expertise. The programme will connect commons initiatives around Europe and it will provide toolkits that are going to be of use for their proliferation and blooming.

The board game **"12 commons Buildings"** was played by members of cooperatives and commons' initiative along with in the public space of Fokionos Negri (Kypseli, Athens) during the actions of "What do we have in common?" (a one-day festival organized by Ludd Lab and Goethe Institut of Athens, on 10th of July 2021). The process of the workshop and the characteristics of role-play competitive board game designated the potentials of a game environment not only to raise awareness and educate about issues of urban space and right to the city, but also to generate a common ground of discussion about visions, dreams and problematics for our neighborhoods among people who were strangers to each other.
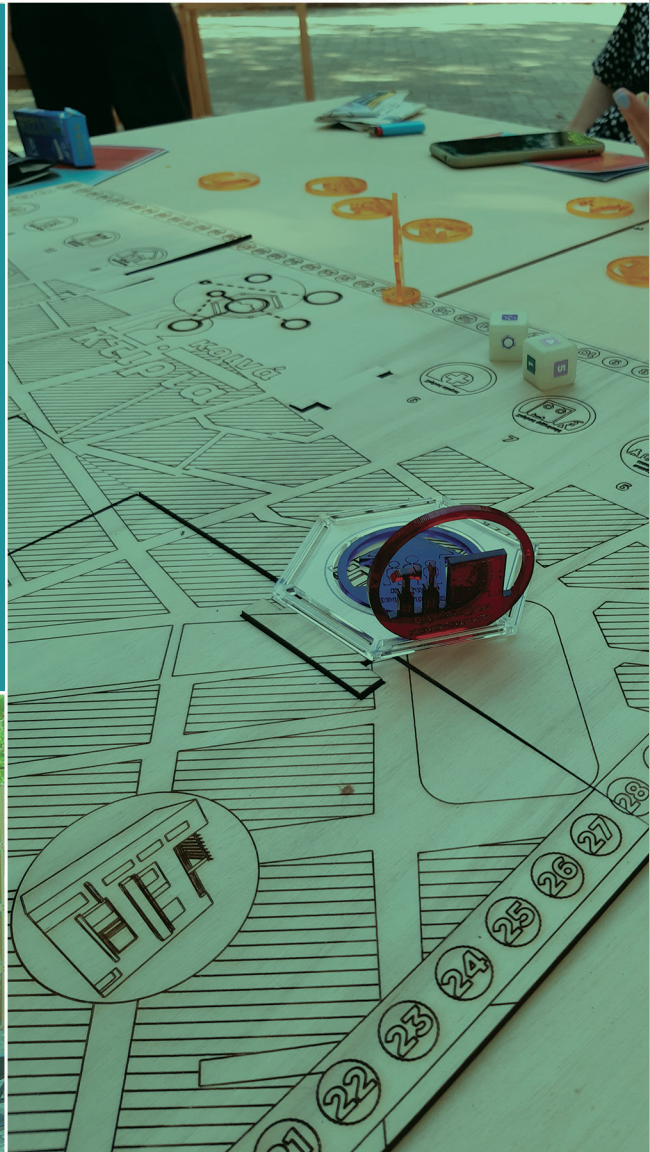
tiatives. The term gamification refers to 'the idea of using game design elements (such as reward and reputation systems with points, badges, levels and leaderboards) in non-game contexts to motivate and increase user activity and retention'[1]. The success of this idea in various commercial use cases made it a trend that has been expanding in recent years in the fields of governance, public administration, and citizens' participation. This basic logic of game elements creates commitment and competitiveness, accompanied by joy and entertainment, to produce data or value inside the given framework of the application or service.

For the purposes of our argument, we will delve into this playful way of translating various contexts, such as processes and interactions, by forming a fruitful, open-ended, and creative framework. In terms of commons' initiatives, we must consider as contexts for translation the problems they are facing. Whether we are referring to a cooperative or to an informal citizens' initiative, the key element is the reproduction of social relations of equity among the members. Therefore, these communities have the potential to collectively manage their resources to meet their needs and, more important, to address new societal challenges. Thus, the problem of sustainability and growth for these commons' initiatives has a practical and political aspect. The practical aspect is the access to infrastructure and the possession of human, material, and economic resources, whereas the political aspect includes the relations of equal participation among members and the impact of the initiatives on the surrounding social ecology. Both aspects are in constant interconnection, although politics is mainly viewed as the essential condition of a community's well-being at the practical level. However, would it be suitable for the aforementioned context to be conceived as a field for experimentation on game

1 Deterding, S., Dixon, D., Khaled, R., & Nacke, L. (2011). From game design elements to gamefulness. Proceedings Of The 15Th International Academic Mindtrek Conference On Envisioning Future Media Environments - Mindtrek '11

design and to become occupied by translated playful processes?

First, 'playing is not something apart from reality, not a lesser state, or a rehearsal for becoming adult, and not an individualised deliberative choice as fixed molar structures of childhood, adulthood and development would have us believe. It problematizes the taken-for-granted by drawing upon the qualities of playing itself, as a restless desire to release new virtualities into the world through novel assemblages. By doing so it reveals development and growth to be a multitude of singular events, moments which escape representation and categorisation'[2]. The problematization of a structured and determinate situation through the alternate narrative of a game creates a different and open framework for critique. As Foucault mentioned in his work, 'What is critique?', this notion of critique generates a condition of possibility for new knowledge to be produced and, in this regard, for other everyday practices to emerge[3].

Building upon this theoretical tradition, our approach to a game design toolkit for supporting commons' initiatives aims to inspire and help cooperatives, organizations of civil society, bottom-up initiatives, and public administrations **think otherwise**[4] about challenges they face during their everyday routines. According to Sicart, 'two of the key characteristics of play are its appropriative nature and the creativity that ensues. Play is creative when it is taking over, or occupying, a context. Similarly, the playful attitude takes over an activity in a creative manner, even though its pur-

pose remains unchanged. Appropriation leads to carnivalesque creativity, which might lead to a critical approach to the context, the very act of play, or the activity that is being playfully occupied'[5]. Following these notions, we post experimentation in game design as an opportunity for commons communities to generate new socio-technical processes through the emergence of new, more playful framings about commoning problems in terms of collective action and self-organization. In parallel, this orientation will help us rethink and discover new ways of empowering horizontality and self-expression by transforming diverse fields of interest or points of conflict into fictional environments of collective reflection and practice.

5 Sicart, M., 2014. Play matters. London: The MIT Press, p.71

2 Ryall, E., Russell, W., Maclean, M. and Miras Boronat, N., 2014. The philosophy of play. London: Routledge Taylor & Francis Group. pp. 139

3 Foucault, Michel (1996). What Is Critique? In James Schmidt (ed.), _What is Enlightenment?: Eighteenth-Century Answers and Twentieth-Century Questions_. University of California Press.

4 Robinson, Keith A. (1995) Michel Foucault : topologies of thought : thinking-otherwise between knowledge, power and self. PhD thesis, University of Warwick

The "Game Design Machine" methodology

The way we formed the argument in the previous section brings us closer to the literature about **serious games** and their design and development. Serious games can be defined as 'a virtual environment and a gaming experience in which the contents that we want to teach can be naturally embedded with some contextual relevance in terms of the game-playing [...]'[6]. The educational perspective of serious games is more than useful to our concept of commons and can create interactive processes of mutual understanding and collective learning. However, it partially covers our aforementioned field of interest because it assumes a predefined educational goal and it is a structured field of knowledge that will be translated into a game environment. In terms of commons, if we want to develop framings that are open to critique and capable of creating the conditions for new life practices to emerge, we must also integrate in our design the parameter of open-ended procedures. For example, the problem of the low level of participation in the collective processes of a citizens' initiative could easily constitute a tangible educational goal, but there is neither a universal set of recommendations nor a structured process to teach people how to participate. Therefore, our approach on a Game De-

6 Fabricatore, C. (2000) Learning and Videogames: an Unexploited Synergy. 2000 AECT National Convention - a recap. Secaucus, NJ: Springer Science + Business Media, Long Beach, CA.

sign Machine will extract elements of serious games design[7] and get inspiration from the notions of **design thinking and problem solving**. Thus, our proposed methodology would not necessarily lead to the creation of a fully functional game, but it would challenge commoners to take part in a process with the potential to form new representations and reveal new perspectives on their fields of interests[8].

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7 For further reading see:
- Barbosa, A., Pereira, P., Dias, J., & Silva, F. (2014). A New Methodology of Design and Development of Serious Games. International Journal Of Computer Games Technology, 2014, 1-8. doi: 10.1155/2014/817167,
- Schrier, K. (2014). Learning, education and games. Volume One: Curricular and Design Considerations (1st ed.). Dartmouth, Canada: ETC Press.
- B. Marne, J. Wisdom, B. Huynh-Kim-Bang, et J.-M. Labat (2012) « The Six Facets of Serious Game Design: A Methodology Enhanced by Our Design Pattern Library », in 21st Century Learning for 21st Century Skills, Saarbrücken, Germany, vol. 7563, p. 208-221

8 Read more about integration of values in games by artists and social movements in Flanagan, M., & Nissenbaum, H. (2007). A Game Design Methodology to Incorporate Social Activist Themes. In CHI 2007 Proceedings. Politics & Activism. San Jose, CA, USA pp.181-183.

A

Research and broaden your perspectives

First, the most crucial point is the defining of a reason or problem **(A.1)** that you want to address through a game environment. Clarity of wording will help you extract some general keywords that will facilitate the organization of your research on related literature **(A.2)**. Any reason or problem that leads you to start creating a game for it, has limitless interconnections. Of course, it is impossible to exhaust all of them in your reading, but it would be helpful for the next steps to create an initial concrete and tangible theoretical framework. In other words, try to extract important concepts from your reading with small explanatory comments and **create a 'chaotic' diagram**. *Maybe after a day of sketching ideas, you will be afraid to look at your diagram, but do not worry. It represents our collective reality. Also keep in mind that you mapped a part of this mess; that is progress*. Do not delve too deeply into theory and limit your reading to prevent burnout. In the next step, search for references of related games **(A.3)**. Your search will be based on the notions that emerged in the two previous steps, and you should remember to isolate elements and parameters that look helpful to your theme. In terms of elements and parameters in a game, you could include specific rules, characters, or roles; details of artwork or fun facts; the logic behind moves; and the relations created among players during the game.

A.1
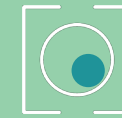
define the reason or problem

create an initial
theoretical framework

A.2

literature review on the theme

A.3

look for other related games

isolate parameters which
look helpful to your theme

A.4

decide about the core elements of the process
that you want to involve the future participants

labyrinth | **dialogue** | role play game | **competitiveness**
strategy | collaboration | **puzzle or brain-teaser**

Research and broaden your perspectives

ENGAGEMENT OF FUTURE USERS OF DIGITAL SERVICE "MAPPING COMMUNITY ~~SPA~~ (NEEDS) ON EMPTY BUILDINGS"

PROPOSING PROCESS

1) AR MAPPING WITH 3D OBJECTS ————▷ SIMULATE AND ENGAGE WITH MAPPING

POSSIBLE USES TO PROPOSE

2) DISCUSSION ON ~~DIRECT~~ A DIRECT-DEMOCRACY DIGITAL PLATFORM ———▷ SIMULATE AND ENGAGE DISCUSSION AMONG DIVERSE STAKEHOLDERS

ON

EMPTY BUILDINGS

AN UNEXPLOITED COMMUNITY ASSET

URBAN COMMONS

NEIGHBORHOOD SCALE

GENTRIFICATION

COMMUNITY NEEDS

▷ TOURISTIFICATION

PROBLEMS AND OBSTACLES

DIVERSE STAKEHOLDERS

MUNICIPALITY

BUSINESSES

NGOs

CITIZENS

URBAN HISTORY FROM GRASSROOTS INITIATIVES

COMMUNITY BUILDING

FORMAL EXAMPLES SPATIAL MANAGEMENT STATE BUREAUCRACY

INFORMAL EXAMPLES

SOCIAL VALUE

PARTICIPATION

DIFFERENT INTERESTS

ECONOMIC VALUE

DECISION MAKING ?

REAL ESTATE MARKET

CONFLICTS AND POWER RELATION IN THE URBAN SPACE

COMMON GROUND FOR ENCOUNTERS AND COLLABORATION

NEGOTIATION

SPATIAL AND SOCIAL AND ECONOMIC

— STRATEGY —

SOCIAL IMPACT

Maybe after a day of sketching ideas, you will be afraid to look at your diagram, but don't worry. It represents our collective reality and keep in mind that it's a progress that you mapped a part of this mess.

Example of a diagram during the creation of board game "12 common Buildings"

After the first three steps inside the Game Design Machine, you have created two pools of inspiration: theoretical and practical. In the next step, connect notions of the first with characteristics of the second. This will lead you to the first decisions about the core elements of the process in which you want to involve future participants **(A.4)**. These core elements have to do with the basic philosophy of the generated game. According to your theme, you must decide by which type of game environment your context will be occupied and appropriated. Will it be a labyrinth with argument contests, a competitive strategy role-play game, or a card game?

IMPACT: A Foresight Game is a serious board game that teaches you to think critically and imaginatively about emerging technology and the future of society.

North Berkeley is a fast planning & negotiation game, based on real life debate about housing at North Berkeley BART

Catan is a multiplayer board game where Players take on the roles of settlers, each attempting to build and develop holdings while trading and acquiring resources.

Ticket to Ride is a strategy game where players collect and play train car cards to claim train routes across the map.

CRITICAL THINKING

DEMYSTIFICATION

SPECULATION   MATERIALITY

GENTRIFICATION

COMMUNITY INTEREST   NEIGHBORHOOD SCALE

COMMUNITY NEEDS

MAP SCALE

DEBATE

SIMULATE AND ENGAGE DISCUSSION AMONG DIVERSE STAKEHOLDERS

TEAMS

NEGOTIATION

DIFFERENT INTERESTS

COMMON GROUND FOR ENCOUNTERS AND COLLABORATION

DIVERSE STAKEHOLDERS

PAIRS

CONFLICTS AND POWER RELATION IN THE URBAN SPACE

CITIZENS

NGOs

BUSINESSES

CLAIMING OF A RESOURCE

BOARD ORGANIZATION

EMPTY BUILDINGS

AN UNEXPLOITED COMMUNITY ASSET

MUNICIPALITY

POINT SYSTEM

SOCIAL VALUE

SOCIAL IMPACT

CARDS

PROBLEMS AND OBSTACLES

The two pools of inspiration. Theoretical and practical elements and their initial content combinations

B

Organize your brainstorming and delve into what you want to achieve

To move forward with the creation of a game, you must further organize your research. This will help you focus on what you want to achieve and, more importantly, on how your game will be developed in a practical way towards this direction. Because you have decided the basic philosophy of the game that fits better with your theme and the process you want to create, you can start development of the main structure of the game. For this reason, you should return to your literature review and mainly to the 'initial chaotic diagram' of your theoretical framework. Based on your explanatory comments for each of the concepts mapped, start analysing them through their main aspects **(B.1)**. In other words, try to extract some subsidiary keywords for your concepts and create a second layer on your diagram with the elements that constitute your concepts. In this layer, you can also add some connections or minor relations between the theme's concepts and their elements **(B.2)**. The whole process is probably becoming more and more chaotic, but now you also have a more detailed map of your data to help you think creatively on your theme. Thus, you are finally ready to start translating your field of interest in a game environment and to let your context be occupied and appropriated by an alternative, more playful representation.

In the beginning of your brainstorming, take some notes about this

second layer of your diagram and think of some symbols or metaphors for your theme, first for the theme as a whole and second for the concepts and relations among the elements that constitute these concepts. Check your pool of elements and the parameters you have collected from your research on related games and get inspiration from how you combined them in the previous stage with your basic concepts. This process has the potential to start generating a new narrative about your theme **(B.3)**. Some questions to dwell upon are as follows: Which is the starting point of the game and how are the players/participants taking part in the narrative? Which is the main goal or mission, how are the players relating to each other, and what are the available tools or resources to accomplish the goal/mission of the game? These are some questions to help you develop a story and the fundamentals of the gameplay based on your theme and the diagrams you created during your research. In the next step, think about and design the actual mechanism of the game **(B.4)**.

Do some more research about the design of the game objects (board, cards, checkers) and roles/characters. Imagine some forms or representations of the main aspects of your narrative. They could be abstract shapes or more descriptive sketches and images. However, you must also develop the rules of the game, which is the most crucial part. Game objects and roles create an engaging atmosphere related to your narrative, but the rules are the substantial aspect of the flow of the process. To develop them, you must rely on the diagrams you created during the previous steps and consider that the relations between your main concepts could be easily translated to regulations or instructions that will be used as guidance or obstacles for players. *The design and formation of the rules may become a creative and meaningful process because they are a smart and indirect way to integrate subjects of political and ethical interest in the game plot and create the conditions for self-reflection and/or collective reflection among the participants.*

B.1

analyze the basic concpets through their main aspects

B.2

produce a diagram of the basic elements of the concepts and the relations between them

try to create a layer of alternative istances for each of your concepts and their relations

B.3

start to develop a narrative based on your diagram

research on, think about and design the game rules

give attention to relations produced by the concepts and the forms

B.4

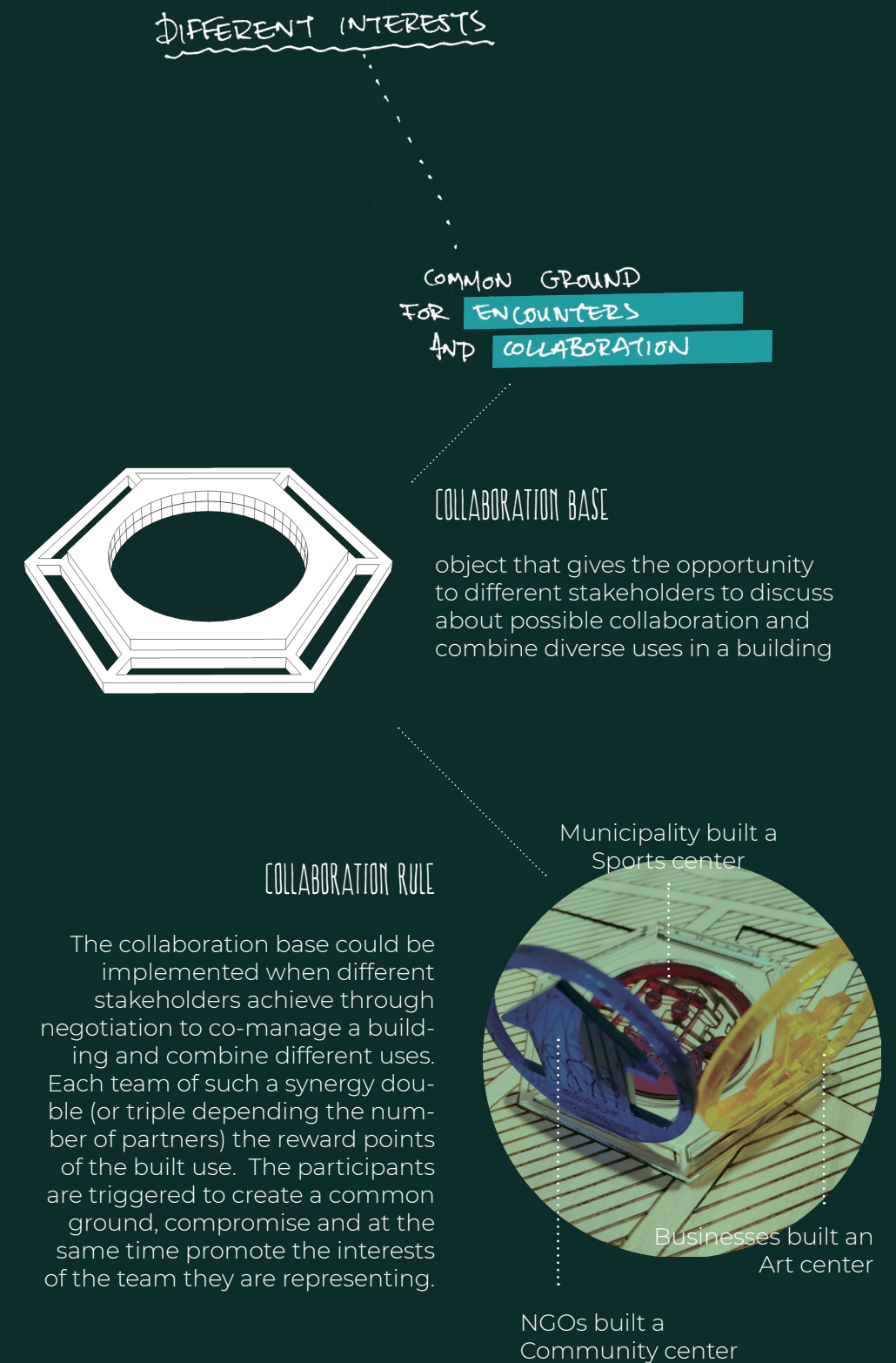**research on,think about and design the game objects / roles**

give attention to relations produced by the narrative and the rules

decide about the factor luck in the gameplay

Organize your brainstorming and delve into what you want to achieve

Keep in mind that in the first versions of the game, you will not have a small starting brief for the gameplay. It needs time and pilot tests for the game to become simpler. Another tip is that if some rules seem too complicated, you could adapt them as incidents that emerge during the gameplay. That way, you will have a more understandable starting brief, and the participants will have a handle on the game just by playing it. Finally, decide on the factor of luck in your game. It could be an 'ally' on many occasions, especially when you want to simulate points of conflict. The factor of luck could turn out to be decisive for outcomes and could perhaps open discussion on possible consequences.

DIFFERENT INTERESTS

COMMON GROUND FOR ENCOUNTERS AND COLLABORATION

COLLABORATION BASE

object that gives the opportunity to different stakeholders to discuss about possible collaboration and combine diverse uses in a building

COLLABORATION RULE

The collaboration base could be implemented when different stakeholders achieve through negotiation to co-manage a building and combine different uses. Each team of such a synergy double (or triple depending the number of partners) the reward points of the built use. The participants are triggered to create a common ground, compromise and at the same time promote the interests of the team they are representing.

Municipality built a
Sports center

Businesses built an
Art center

NGOs built a
Community center

Example of concept translation into game element and rule of political speculation

C

Prototype and pilot test

You are now moving from the design to the production phase. In this part, it could make things easier to have an artist, architect, or graphic designer in your team or as a consultant to help with the implementation of your idea. Access to a makerspace or fab lab could also help make the result more attractive. If not, do not be afraid of handicraft. *You can do it!* Simple geometrical shapes could represent everything in the world, even abstract theoretical ideas. You can always keep things minimal by following the philosophy of 'less is more' or taking the path of an immaterial 'mind game' that can 'construct' interesting conditions out of nothing. Thus, in this final step, you must finalize your design of the game objects in accordance with the available means of production **(C.1).** Choose the materials and the colours of the objects in a way that generates unity for elements that are related and that lets points of conflict differentiate from and be contradictory to the whole. The means of production should be chosen in a sustainable and efficient way. You must consider the available resources and the time needed for the construction of the physical instance of your game. Do not spend much time in the preparation of something that will probably need improvement or changes in the immaterial aspect of its rules.

Now you are ready to test your game with your team. Organize

a pilot test **(C.2)** and be careful during the process to evaluate all the elements. It would be helpful to create a canvas to write down every insight or observation about the narrative, the objects, the roles, the overall gameplay and its flow across time, and participants' reactions and interactions, as well as interesting stories or comments.

When the pilot is completed, you will have a clear view of how your game functions and which points could be helpful for your initiative. Do not be disappointed if things did not go the way you imagined. Make some corrections to the rules, but be careful and try to maintain a balance with the changes you decided on because it is easy to damage aspects that are operating well. Maybe you will need to produce at least two prototypes to have a process capable of addressing the challenges faced. In any case, the number of prototypes depends on the needs and the desired outcomes. **Before trying a new version, you should go back and review steps B.1–B.4 to confirm that the game is still moving in the right direction and is focused on the field of interest.** During the pilot tests, do not forget to think collectively about the name of the game, and consider a more descriptive subtitle!

C.1

produce the prototype

choose materials and colours

decide about means of production

take into account the time and the resources needed for the production

review how the different forms reflect the relations produced on your conceptual diagram

C.2

pilot test

evaluate: narrative, objects and roles, rules, overal gameplay

map: game flow across time, interesting stories or comments, interactions created between participants

Produce at least 2 prototypes and each time review steps b.1-4

Final Version

Prototyping evolution through pilot testing. "12 common buildings" from 1st to 3rd prototype

Concluding thoughts

"Like all collective cultural practices, game creation produces its own mythologies (Barthes, 2006), foundational narratives that serve to reaffirm the shared norms and values within or the origins and shared histories of its community"[9].

Living in a world of recurring crises, we believe it is important to re-think and empower our collective processes. The Game Design Machine is the first attempt to structure an open-ended mechanism of reflection on our everyday challenges, where digital is not the sole solution, but the reason behind the creative appropriation of novel trajectories of thought in the intersection of digital technology and social innovation. In this respect, we are also acknowledging the unexplored potential of the process through which a community attempts to reinvent minor collective narratives, to strengthen the relations among its members, and to understand deeply and diffuse members' shared values.

"Like any other object or instrument or technology, games are political, but the true political effect of these objects takes place when we occupy them, that is, when they become instruments for

9 Wernind, S. (2021) Making games. The Politics and Poetics of game creation tools The MIT Press London, pp. 190

political expression"[10]. (Sicart, 2014, p. 73).

The critical questions in this statement are how to appropriate a game and how a context could be claimed by a playful attitude and in that way become political. Through our approach, we propose a method designed to experiment on possible ways of addressing these questions. Finally, we believe political expression, participation, visibility, and commitment to a collective future will become more chaotic and evasive in the next few decades because of the growing fragmentation of social realities. Therefore, we believe it is necessary to think beyond traditional forms and norms of collective action and give more space to our imagination to reflect on the challenges the future poses to commons' initiatives.

10 Sicart, M., 2014. Play matters. London: The MIT Press, p. 73

GAME DESIGN
MACHINE

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