

MELTING DOWN IDENTITY: TOWARDS A PEDAGOGY OF COMPLEXITY

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Received: 21/03/2024, **Accepted:** 01/06/2024, **Published:** 23/06/2024

Abstract: This article presents a proposal to change some key methodological concepts and on introducing early a blurring of identities and situational analysis in multi stakeholder's context where change is necessary, either through innovation or regeneration. Through experience such as the co-design of the table game "Le Grand Jeu" and activities at the site-specific art projects of the Trasformatorio Lab, the paper illustrates how art-driven innovation can foster a trans disciplinary learning community that embraces complexity. The scope of the paper is to hint and guide to a communitarian mindset that is complexity-positive, aware and fearless about unpredictable and erratic behaviour of real complex systems and welcoming instruments of societal and technical use to ride the wave of chaos positively. "Le Grand Jeu", an open ever-changing table game developed and its philosophical assumptions in mind, serves as a platform for exploring the techno-political, societal and knowledge-based elements of the new pedagogy. These elements include consensus, learning by doing, simulation, stack and flow, distributed ledger technology, basic income, or other component that support the design of a sustainable development within a role-playing framework. The act of promoting experiential learning and horizontal knowledge points to a pedagogy of complexity. In the end we show how the formulation of human-centric innovation becomes clearer if it is not inserted in a limited problem solution framework but inserted in a well-defined dynamic of change of narrative for well-constraint situation. The paper concludes by emphasizing the intersection of identity and process in redefining pedagogical discourse and design practices

Keywords: Human Centric Design, Art Lead Innovation, Transformation, Design with Friction, Situation Design, Art Living Lab

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Résumé: Ce travail illustre l'innovation axée sur l'art, s'inspirant des pratiques de performance contemporaines pour identifier et favoriser une communauté d'apprentissage transdisciplinaire où la complexité est accueillie comme une richesse et le chaos est attendu et non redouté.

Le jeu de table "Le Grand Jeu", avec dix ans d'activités du laboratoire Trasformatorio, ainsi que les itérations ultérieures des idées conçues initialement pour des projets d'innovation sociale et technologique de la même méthodologie, sont contextualisés avec une perspective pédagogique. S'inspirant de penseurs comme Paulo Freire et de philosophe-designers comme Gui Bonsiepe, cette approche redéfinit le discours pédagogique et les pratiques de conception, en mettant l'accent sur l'intersection de l'identité et du processus plutôt que sur l'objet et le produit. En transcendant les idéologies de résolution de problèmes et en évitant le marquage de visions spécifiques, cette méthodologie promeut une innovation centrée sur l'humain, décolonisée dans son essence, et compatible avec les processus de co-conception Des divers parties prenantes. De plus, elle constitue une excellente introduction aux descriptions économiques des flux de valeur et aux systèmes de gouvernance coopérative.

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INTRODUCTION

When we started to design the game, we were following the illustrious example of Elisabeth Phillips that actually designed Landlord's Game, aka Monopoli, as a protest against the big monopolists of her time — people like Andrew Carnegie and John D. Rockefeller.

Raffaella Rovida (2018)

I will in this article try to sketch a proposal for a methodology for societal innovation and design, shaped through years and illustrated in two clear cases. I will guide you through a specific set of design concepts where some art practices are central to the process. Will show how those principles are encapsulated into a table game I co-designed to show another economy is not only possible but advisable and to learn to think along those terms creating resilience and a better connection with ecosystems regenerating them. Along the exposition there is an introduction to the story of an implementation of this methodology to a program to develop European Startups within the Next Generation Internet (NGI) ¹.

I refer to these collection of methods as "art lead innovation" because the processes are designed. The processes are designed through artistic tactics rather than uniquely by active participation of artists². These processes are molded to enhance participation of stakeholders and to be communicated properly to society, such a method proposes a shift from solving a problem to set up a system that is able to recognize and use complexity and its known character and welcome changes. Programs like the European New Bauhaus underline the need for a "pedagogy for complexity" to face the difficult times ahead, a way to decline society towards a change in economic priorities using circularity and awareness, a change in the use of energy, a sharp move towards sustainability and open collaboration on higher democratic rationales. We will show how the

¹Next Generation Internet. Retrieved from <https://digital-strategy.ec.europa.eu/en/policies/next-generation-internet> Directorate-General for Communications Networks, Content and Technology. (2019).

²Art and Science interactions traditionally mirror the scientific discovery into a glorifying art piece. So, to say is used for divulgative purposes. For example, the "Collide International" program at CERN (European Organization for Nuclear Research), which is part of the larger Arts at CERN initiative. This program brings together artists and scientists, providing artists with "the opportunity" to collaborate with CERN's "research community" and explore the intersection of art, science, and technology. The results are modest.

concept of etheronomy and eutopia can work together to help this narrative.

Complexity, in my proposal, once considered properly as an active agent within the designer's strategy, can be used to our advantage to shape of process that is more relevant than the result itself.

As for the game, it has been developed initially by a group, redesigned in many design cycles and has had an interesting set of uses so far ³.

Identity is an important part of the puzzle and will be explored along tree main lines: personal identity as it is constructed within the processes of identification, the identity we assume in design processes and how can be useful or toxic, and lastly the common intended personal identity and how should be to safeguard individual privacy and agency in the hybrid data world. I advocate the melting down of the singularity of identity in specific cases, both in the space of the project and the participative design methodology of the type of project such as the one we examine.

The act of playing out a role, that mimics reality and changes, introduced in a game like *Le Grand Jeu* in a workshop environment, is a very effective way to convey information to form both effective collaboration between participants and meaningful dialogue, precisely because it fades the personal identity in the background. Collaboration is better constructed in situations that melt down ranks and allow changing roles in a fair way. Our standpoint is that this is a learning that has pedagogical relevance. The game sets up a situation that enables participants to drop their "perceived true societal identity" and instead places them in a context where they are free to test their abilities to - together - design with the rules of another world. It consists in a protected field of experimentation with a leading learner, a situation that mimics hack labs and living labs. This transmits an empowering sensation to participants, showing them that they can create on their own if they learn and collaborate.

³This game is effective for generating useful and more informed conversation between participants and lowering the threshold for effective participation of multiple stakeholders. These stakeholders might have deep knowledge of their specific field, be professionals, authorities with different scopes and agenda, be or not established. It has been used to include in a participative setup all kind of people and to put them in a situation that allows wanted behaviors. To do so has to cut through some aspects from rank, knowledge, ability of express their own view, perdurance of a foreign language and give a minimal position to start to all participants. As such we set up a situation that is able to melt down and fade to the background those character and frees, as much as possible, all participants from their "perceived true societal identity" and puts them in a condition where they are free to test themselves into designing with the rules of another world.

I will expose how we tried our methods within NGI-Ledger - an EU-H2020 founded project- where I shaped a program to orient to human centric values sixteen startups wishing to operate in a delicate sectors for European infrastructure: Personal Data, Identity Protection and Distributed Ledger Technology.

1. Multi Stakeholder Design Processes

A multi-stakeholder design process (MSDP) is a collaborative approach to designing products, services, or solutions that involves the active participation and engagement of various stakeholders from different backgrounds, perspectives, and interests. In this process, stakeholders may include users, customers, designers, engineers, policymakers, community members, and other relevant parties who have a stake in the outcome of the design project.

Key characteristics of a multi-stakeholder design process include:

1. **Inclusivity:** It involves inviting and incorporating input from a diverse range of stakeholders to ensure that the design addresses the needs, preferences, and concerns of all relevant parties.

2. **Collaboration:** It emphasizes teamwork and cooperation among stakeholders, fostering open communication, shared decision-making, and mutual respect for each other's expertise and viewpoints.

3. **Iterative Approach:** It typically involves iterative cycles of design, feedback, and refinement, allowing stakeholders to contribute insights and ideas at various stages of the design process.

4. **Empathy:** It encourages designers and stakeholders to develop empathy and understanding for each other's perspectives, experiences, and constraints, helping to build trust and rapport among participants.

5. **Co-creation:** It promotes a participatory approach to design where stakeholders actively contribute to shaping the final outcome, whether it's a product, service, policy, or system.

6. **Conflict Resolution:** It acknowledges that different stakeholders may have conflicting interests or priorities and provides mechanisms for addressing and resolving disagreements in a constructive manner.

I want to give some examples of multi stakeholder design processes I worked with:

1. **EU funded projects:** NGI (Next Generation Internet) from design of the consortium to final evaluation can be seen as MSDP. I worked for one, NGI-Ledger in 2019 and participated in the writing of many more. The project is created by peers in a design group that takes in account a group of partners that will enter in effect only if project gets approved. A core group writes down the project, all partners agree on deliverable and costs, the project has a stirring committee (if is big enough), has a system of peer review for the deliverable evaluation and is

evaluated and funded for by the European Commission in three or more phases.

2. **Regenerative participatory projects:** depending on the scale can be on owned or common land, but depends on neighbors, shared analysis, access to information, local and national laws and regulations, animal lore, contingencies etc. I have participated to initiatives and groups that use permaculture design and this has been seminal to many of my ideas.

3. **Social Housing and real estate,** for example at the scale of a whole neighborhood or small city as when a large dismissed industrial area must be cleaned and developed or where a small village must cope with depopulation and loss of purpose.

4. **The establishing of a non-hierarchical cooperative,** particularly when the evaluation of circular value flows or environmental impact is relevant and when work must be compensated, including voluntary and pro bono one.

5. **Software design in open source environment,** especially when it is keen to influence the safety of a wider infrastructure and aims to take account and compensate in a fair way the work of key developers.

The principal bias present in many cases is what I call **the problem-solution bias**.

Most of MSDP are not to be enacted for the scope of solving a problem. They happen to be framed like problem solution to fit the allocation of resources to buy a solution due to political considerations.

In another perspective, when the MSDP involves components and agents and many different technical constraints, many issues are presented yet a problem is hard to identify. Problems identification creates conflict and often is prejudicial to a hierarchical way of thinking that is influencing the process in an often-nondemocratic way. We hide usually behind the notion of "a problem" the hard reality that someone has to be paid to find and enforce a solution. An example for me is migration. I see it as a phenomenon. People, family groups, lonely searchers and so on move from a place and a status to another. This generates friction, has advantages, pitfalls, complexity. Forces act along conflicting agendas and if you see this as a problem that can be resolved only applying force your power of oppression will hit first the most vulnerable subjects. Migration is about people: to define it as a problem implies that a solution exists, and this should be demonstrated. Defined for example as a phenomenon migration can be guided, shaped, studied, integrated in a societal structure and be intended as a resource. A larger group of stakeholders should include the migrants themselves, since they have legal and moreover human, rights. Therefore, designing technical solution in that space must

take in account all the complexity, in a participatory way with all stakeholders at the table.

In scientific methodology we would say that we can build a model of a phenomenon where the enforcing of certain parameters would lead to a forecast of the system evolution. Furthermore, a large group of people should agree on what is a wanted state for that system. Ethics should apply.

To obtain such condition locally in MSPD usually some stakeholders are pushed out from the design process. As an example, UX design can be made by highly paid professionals dealing with abstract personae in mind, yet paradoxically these “personae” aren’t expected as well to take part as well in political and societal events, like to vote to the local elections.

The second bias in order of magnitude is the **value to market bias**.

That a market exists for everything valuable is an economic axiom only for certain economic doctrines and we can find many counter examples where there is no market, one being the majority of EU founded innovation projects. According to this bias all, from value of time to soil quality, to innovation or the teaching of a university course, can be valued by taking it to the market and cashing in. Where is the market in societal endeavors? Where does it speak?

Our mere experience of life contradicts the idea that every dimension of our lifeworld may be reduced to monetary value, or said in a different way, measured with money.

Yet the best argument to qualify this as a bias is to connect it with the next bias: does it allow the necessary algebra between local gain and global loss (in case of unhealthy products, or war, or speculation and so on). And the more obvious question about who owns the market and how makes it function (as known in the middle age the problem was clearly solved).

The third bias is therefore the **unit of measure bias**; this is the idea that the price of something, rudely measured in money, evaluated by market or another social agreement, is an objective measure of its value. And that the measure can be proven by bringing the product to the above-mentioned market in the right time. Everything that has no price has no economic interest. This implies that no accountancy is legally possible outside bank made and state enforced money systems. To put on hold this assumption opens very interesting possible ideas of socio-mathematical nature connected with complex systems one as ergodicity and the general interpretation of probability. Talking about value is an opening concept that resides in the space of those biases, and I did play with it with Le Grand Jeu game.

MSPD are better suited to hand out the flows of values and to measure them. This should be integrated when the project is on the go and not a-

priori of the analysis as it is established by KPI's that are requested in the design phase, so before the project is financed.

After a proper analysis by the whole of the team resources that are abundant locally and therefore available can be preferred to others, data can be acquired, tokenization becomes a possible strategy to increase, recognize and compensate, as an example, citizen participation. Value flows ⁴

can be accounted for in very strict ways via REA ontology⁵; are backed by law and can have other benefits and pitfalls that are still not very clear but deserve to be explored.

2. Le Grand Jeu

Le Grand Jeu is the minimal situation I could think of to avoid most of the biggest problems I had encountered while setting up participated MSDPs. Lack of knowledge and fear to lose rank in participants, all kind of bias especially economical or technopolitical and absence of a common language. often the stakeholders were not really involving themselves in the design process for real, they were just careful to keep business going.

The game was designed by Raffaella Rovida and me initially during an artist in residence in Macao, Milan in 2016 and refined afterwards. We gathered as co-designers an extended expert group and had the active participation of many of the activists in the squat organization and later of all kinds of experts that played it.

In 2016 Raffaella was Head of Research for the Copenhagen Institute for Interaction Design, and I was working within dyne.org, a small open-source venture and hacker community. The idea of a game to talk about money and democracy was asked to me in the context of closing and reporting a European project around complementary currencies use D-Cent⁶. I applied immediately the game to a series of multi-stakeholder workshops organized in the subsequent project named PIE-News/Commonfare⁷

Le Gran Jeu is a French translation of the English phrase "The Great

⁴<https://www.valueflo.ws/>

⁵REA (Resources, Events, Agents) is an accounting ontology that provides a framework for modelling and organizing accounting information within an organization or a federation of them. It was developed in the 1980s by William E. McCarthy and is gaining attention in communism and community currency design.

⁶D-CENT (Decentralised Citizens ENgagement Technologies) was a Europe-wide project bringing together citizen-led organisations that have transformed democracy in the past years and helping them in developing the next generation of open source, distributed, and privacy-aware tools for direct democracy and economic empowerment. The EU-funded project started in October 2013 and ended in May 2016. <https://dcentproject.eu/>

⁷<https://cordis.europa.eu/project/id/687922>

Game", which was popularized in 20th century diplomatic circles in reference to the 19th century clash of European empires in Central Asia⁸. In French, the term *Le Grand Jeu* first referred to tarot card fortune-telling. In Italy is usually referred to in French, as it was the language of XX century diplomacy. The name is a symbolism to the secret treaties and games of spy and aggressive imperialist colonial policies that brought the world to WWI and - as an extension - refers to what happens in the big systems outside and above to our collective agency, us, the players, that must adapt and survive.

We have open sourced the game design⁹ because it intends to take a precise (open) stand about intellectual property in the way it works in its dialectic with his own rules (and the narrative about the games played). You can find a in depth analysis of it, together with a wide array of other types of money games and how they can be useful to talk about other economies in an open access article published by *Degrowth Journal*¹⁰ and curated by wonderful and knowledgeable academics and myself.

I named the game *Le Grand Jeu*, yet what the player plays for 2-3 hours and then reflects on and talks about is the small one, while playing they can make their own adaptation to "the distant forces of history".

To play the game is to design an open ended space were externalities are accounted for, transparency is radical, communication is possible, knowledge circulates, resources are to be reused in circular ways and democracy is direct. Players assume a different identity and have fun, that is a hint in the realization that you can enjoy life through adversities.

The gamer in his first game sees a local setup, a valley for example, a bio region or a small island to set him in. Those remote forces the play is subjected are actualized by 2 elements: a stash of white and black stones of Go (the *Grand jeu* remote bank) and a set of "LGJ Events" cards that are to be picked up in certain moments of the game. According to the game flow rules can be introduced or created with the consensus of the players.

⁸On the history of "the great game" see Peter Hopkirk, *The Great Game*, 1992

⁹All can find a description of the game, with all the necessary tools to make one set and play on the website (www.legrandjeu.net) and fork it (make their own version) on github. Link is this one here <https://github.com/freddbomba/legrandjeu> . *Le Grand Jeu* is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License. The noncommercial clause is to avoid exploitation -if possible- by publishers, like it happened to Ellen Phillips.

¹⁰Pets, M., Eskelinen, T., Bonelli, F., "Le Grand Jeu and the potential of money games for exploring economic possibilities", *Degrowth Journal* Volume 2 (2024), February 2024, DOI: 10.36399/Degrowth.002.01.01 https://www.researchgate.net/publication/378150137_Le_Grand_Jeu_and_the_potential_of_money_games_for_exploring_economic_possibilities

Our small island is not immune to the consequences of external events but learns to adapt creatively. The introduction of the notion of "karma" and feast that allow to burn it. Participants are encouraged into showing their true values both in-game than in the conversations that ensue.

The stones of Go are used initially as coins to account for energy and externalities. The symbolism of Go stones relates to the Taoist idea of transformation but I never explain this to players, there always someone that says it. In various games played this simple suggestion that money can be a design tool gave rise to interesting creative invention by the players as a "green" money to create liquidity for regeneration projects or a "red money" to be created within knowledge pools. This is because the players can change and create the new of the game using what is on the table and their inventiveness.



figure 1: LGJ game at DTU (Technical University of Denmark) within the EUROFUSION game adaptation. Photo by R. Rovida

The depth of issues that relate to the concept of money are only hinted by the practical use of the players in the game of the two currencies¹¹ but in two and a half hours playing them out builds very useful conditions for setting up a MSDP efficiently, especially because playing zeroes ranks of participants but not their ability to contribute, which allows the emergence of new configurations.

I see the game as a tool as one of many to create conversations, using a common language that can be built together as we play. If we are

¹¹I used many times the world "sugar" while referring to money, to distinguish money from value I say that you cannot make a feasty dinner only with the equivalent in sugar of the food you intend to serve.

successful in starting up collaboration every decision taken can be enlarged by readings and studies, co-designed and implemented as a process of a multi stake holder project where everyone is invited to participate.

To the two stashes of coin that are held by the game facilitator. In the tradition of role-playing games, I called him the "Game Master", hitting sometimes certain the remarks by participants about "master and servants". It must be intended ironically. Someone seemed as well sensitive to the "black and white" colour of the coins. I took the habit, when taking the role of the master and introducing the game, of making a random choice in the beginning, on which colour of the stones would represent externalities.

The first game with a group of new players is set up in less than 5 minutes¹². The ideal number of players is 5 or 6, else the turns become too long¹³. It is advisable if more people are present to make teams. Every turn the player can decide if they want to build something and invest, if they want to call an assembly to discuss a law and the use of the local budget that is collected for example with taxation or to invent something in the word of the game. They can as well invent a new rule of the game. The GM is going to take care of various aspects such as the non-playing elements of the scenario, modelling the wishes of people with dice rolls etc.

The GM considers viewers participants as well. After people have played a test game you can open other tables and let other participants master the game. To be a GM is a good training to the role of coordinator for trasformatorio lab, so the expert must give it as soon as possible to one of the players present to keep them active and engaged between peers.

Other elements necessary for the game to be played are:

- the board, that allows to account the space and the infrastructure that we call "the grid". Is transparent so that can be overlapped to other informative elements such as drawn maps.

- the units of property of the space, small equilateral triangles that are "singletons" of a grid, can be clustered to make micro grids and owned or rented or in other way used by players during the game.

- multi-faceted dices - here as well there is a relation with traditional

¹²In explaining the game often, we tell the story of Monopoli: a game originally developed to demonstrate the feasibility of socialist and progressive doctrines of Tureau by Elisabeth Phillips, that patented it in 1903. The monopolist version of the game were a bank takes the place of "mother Nature", was eventually claimed by Charles Darrow as his own and sold to Parker Brothers that paid him pennies and made millions.

¹³In the rules I write 5 because is a good hook to stories about the "circle of five" conspirators of to the role of the cycle of fifths in musical improvisation

role play games like Dungeon and Dragons- a throw is a representation of a aleatory event.

- a Wheel of Fortune (shows probability as distributions)
- coloured clay, post it, pens etc
- and 2 types of element boards cut from white polycarbonate to be able to write on them with white board markers that are used to build activities that process resources and cope with externalities
- two sets of event cards (white on black and black on white) to represent events that might happen to the player or global events so that anyone can make their own board and game set and test by themselves the ways of open source. Some remote games have been enjoyed on a miro board or on paper cut elements.

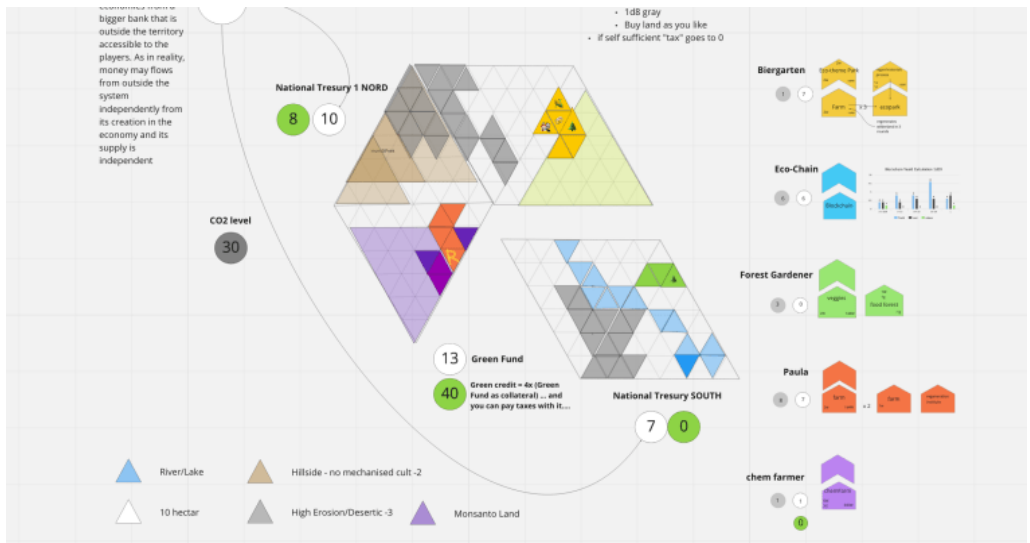


figure 2: a miro board after a game. Source: legrandjeu.net.

There is a moment, at the end of the game were the coordinator of the activity starts to name, on the table all the elements that the people have created in the play. Those are the elements of the toolkit with which they can design their action, sometimes they are existing ones.

3. NGI-Ledger

The Next Generation Internet (NGI) is an initiative of the European Commission, introduced as part of the European Green Deal in 2019¹⁴. In one of the first round of NGI projects I have been involved in 2019 to design a course to qualify startups and create a different approach to

¹⁴The Next Generation Internet (NGI) is a European Commission initiative aiming to shape a more trusted, secure, and inclusive Internet. With an initial investment of over €250m (2018-2020) supporting 1,000+ researchers and innovators, the EC continues to fund NGI projects under Horizon Europe initiative. <https://www.ngi.eu/about/>

incubation of startups that would take in account the idea of Human Centric Internet technology.

The aim that many calls for project NGI shared is to involve multiple stakeholders from society at the same time around a table. This is not only a procedure of a participatory democratic process but an attempt of cultural shaping. I participated in another H2020 EU project that was broad in scope and shared a similar narrative, DECODE, "a response to people's concerns about a loss of control over their personal information on the internet.". In this project I had acquired many notions about the functioning of the legal and technical infrastructure that allow data pools formation and exploitation. One of the objectives of DECODE was to design elements of digital infrastructure with a different concept of identity in mind, such too allows pseudonymity in certain situations, still disclosing key attributes, for example that the identified person has more than 18 years of age while buying alcohol, without disclosing non necessary ones, as their address and family name.

In the case of NGI-Ledger I was tasked to contribute to design an experience for startups team in the space of identity and blockchain technology that allowed passage of information from the technical and legal stack of DECODE, incubation of business ideas into companies and subsequent cascade funding.

Effective project design and implementation process where something new must emerge and be embraced and adopted by many different entities is difficult and risky. My work was an activity of design in what I consider a pedagogic process that could be studied even in case of failure, so that a framework to grow ethical and green innovation would emerge in the sector.

I set up to the task with two perspectives: one considers some of the principal instruments available to design with complexity I had available in this moment, the other my experience with trasformatorio lab and Le Gran Jeu. This was my interpretation, at the time shared by all: in the consortium, by the guidelines of the call, coherent with the theme Identity, and Data Sovereignty and with the concept of Sustainable Finance.

The holistic approach of the NGI H2020 call was far from being a surprise, as was more the product of an extended line of thought and research I have been part into since 2002 and consists in a louse *Thinking Cloud* of people involved in all kinds of projects and open to discussion, exchange of ideas and information, passing from Amsterdam.

I presented and proposed my work for the NGI Human Centric method of growing startups in various special groups, including NGI-Salon one and published slides and results on the Trasformatorio website. Unfortunately, what lacked was protection from above and the experiment was closed

with slamming of doors and little traces.

NGI seemed at the time not only trying to address the pressing environmental and societal challenges posed by the rapid expansion of digitalization, but also intending to harness the transformative potential of available technology to build a more sustainable and equitable future and include some of the ideas of innovation pushed by the occupy movement in 2011. As far as I am concerned, I felt I had been part of the "pile of hot compost"¹⁵ were these seminal ideas had taken all types of form since the end of the 1990'es and was part of my intention to relocate to Amsterdam in 2002.

But let's go into the details of the methodology of the Trasformatorio Lab that is set out to collect my personal experiences but -as for the game- has been designed to allow transformation without personalization, so can be learned and enacted without me.

4. A description of Trasformatorio methodology

-Trasformatorio is set *in vivo res*. You must be within the context you want to apply to, there is no abstraction layer between the stakeholders and the societal conditions the project must be applied in. For NGI-LEDGER bootcamp I took the participants teams for a full formed exercise in an area of Sicily comprised by the city of Milazzo and part of the province of Messina. In this environment I could show the teams all kind of contradictions between communication and logistics (build on the experience about how to get there) and resources (the harbour, commercial fishing, the castle, tourist attractions, the marina area, the oil refinery and so on). We used our knowledge of the place to at the same time allow the teams to flow from one node to another of our own local network and to discover by themselves new elements to be added to this knowledge.

-Trasformatorio must be applied when participation is welcome. It can be that criticism wants to be shaped in positive directions, for example in the field of design of projects within participated budget in the commons. Feedback is not only welcome, but we want to shape it in forms that are usable to shape the project. We must teach to participants and allow usable and positive feedback

-Situations are designed to allow positive feedback and discourage sabotage. Spam, sabotage and toxicity of behaviours are

¹⁵The term is referencing directly to Donna Haraway, staying with the trouble, Making Kin in the Chtulucene, Duke University Press, London 2016. Is a text that seems, between and above the lines, to appropriately describe the character of the period I lived through.

possible and if stakes are high their force grows in inverse proportion with the perceived value of the project.

-Project must have high stakes for the participants. Performative arts projects have often an existential motivation and a strong open component. In the NGI-LEDGER case this exercise would lead to an evaluation of the 16 participants that would unlock only for half of them the access to another part of the founding. This X-factor competitive setup was not optimal to build collaboration and created many problems.

-The facilitation core group is an experienced artist production team This -value aligned and battle tested- core group must create and control a **situation within the place were all are considered as participants.** In NGI-LEDGER bootcamp for example we prepared to the arrival of the teams in a environment I had worked in during previous 4 editions of the lab in 8 years, with the participation of my production team composed by Giuseppe Morgana (art expert and producer), Emanuela Ravidà (Visual Artist), Mosè Previti (Art Critic), Simona Tarantino (Artist), the videographer Margherita Diurno and myself. All the team components aside of Margherita and myself are originally from Sicily and lived in Milazzo and the province of Messina.

-The designer effort and attention are set on the component of the situation and to their flow. In NGI-Ledger program I followed the teams in the previous 6 months in a variety of workshops. The bootcamp was set to be the last of these events before the team effort was evaluated.

-The narrative of the work must be shaped and controlled by the designers. In the NGI case this was one through the documentary form of the documentation taken <https://vimeo.com/376193538>. and the form of project deliverables to be authored by the members of the consortium. The extra layer of difficulty of training them as well to this type of action -and therefore integrate them into the methodology- created extra layers of complexity.

-Trasformatorio is designed with some level of friction in mind. Friction between participants, between ideas and ways to express them, with the environment and its inhabitants. Sometimes the energetic forces involve breaks the dam in the foreseen directions, sometimes in ways that can be controlled, sometimes not. What cracked my NGI-Ledger plan in the end was, to use the available metaphor, the big game inside and outside the consortium. I had to resign in 2020 and the project was saved by the high tolerance to failure induced by the covid19 pandemics.

-All are to be considered participants at equal right, either internal to the production group, to the consortium people that had various roles in the bootcamp exercise and to the teams of the startups, that represented a variety of different approaches. We used our network to

include actors in the situation. For example, the owner of the hotel, former president of the local commerce association, the chef of a local high-level restaurant as an expert of food, the director of a local brewery and the director of a electromechanical research facility as well as the director of a technical high school and the one of local foundation that owns much of the land. The situation we created, taking in account the presence of the startups and the umbrella of the EU project allowed us to approach any other instance or curiosity proposed by the teams. In the *trasformatório* Lab, where the external component is more limited but the time for the interaction is longer is important to include in the participants as well the inhabitants of the village or neighbourhood that have been encountered by the artists during the production phase and that will transform in accomplices or enablers of their performances.

-**The outcome is not known a priori.** This is a change of prospect that should be included by default in projects that are about innovation but is not. For example, the project have to state the objective before it is financed, its budget has constraints that allow only small movement of resources and the outcomes have to be measured by KPI stated a priori that don't cover usually the most innovative findings of such type of project for which we advocate the use of art lead methodologies like *trasformatório*.

-**Trasformatório is set to recognise (and eventually exploit) Serendipity** through guided improvisation¹⁶. This happened in many ways during the work for the NGI-Ledger bootcamps. In this the guide into developing the methodology takes much from post-dramatic theatre and performance arts were projects have a short life cycle and teams are gathered and dissolved fast and produce their own materials. Has then became standard that the creative team works together with the technical team and interchange roles.

What is the role of guided improvisation and were can be set up and learned by all stakeholders of a MSDP?

5. About complexity and the notion of situation

Complex systems typically exhibit several key characteristics that corresponds to mathematically described characteristics that allow us to implement them on a computer and simulate their evolution.

Since I was a 15 years old kid, waiting the whole night for the calculation of a zoom in the Mandelbrot set, the possibilities of computation opened

¹⁶A complete description of this characteristic of the *trasformatório* methodology has been exposed in: Sauer, S., Bonelli, F., "Collective improvisation as a means to responsibly govern serendipity in social innovation processes", *Journal of Responsible Innovation* 7(4), 2020, DOI: 10.1080/23299460.2020.1816025

up mathematics to experimental, qualitative exploration to unprecedented levels. This has not yet given rigorous responses to main questions about the mathematical nature of those objects or shed more than a small light on their nature, yet we can see them in action, simulated on our everyday machines and build a heuristic about them.

Some of these characters are Emergence of structure and properties from the interaction of parts of a different order of complexity from the analytical rules that governs their behaviour (bids¹⁷, fractal self-similarity etc.); sensibility to initial conditions, as such two evolutions of the same system might differ greatly in a small unit of time due to an infinitesimally difference in their initial state. This makes prediction problematic. Moreover, there is Self-organisation: complex systems tend to modulate their behaviours to adapt to change to their vicinity; border conditions become relevant, and so they seem to adapt. And all those are properties in the model itself and a character of the simpler nonlinear feedback systems in physics. By analogy these characters have been extended to other systems characterized by abundance of "data"

We might add the general notion of "the outside world" that is not in itself a complex system: it can be described as the interaction of many systems, but defies a unique description, not even for exact sciences, because is open and because it is a construction of which we are part.

I refer to this as the "Open World Assumption" even if I don't use it only in a strictly logical sense, but I extend it to physics. No system can be perfectly isolated from the environment and every action in the world is open to interference. The world exhibits surprises as a rule and any plan can only deal with known knowns, known unknowns and is left to the mercy of unknown unknowns. Every plan might be devastated by the intervention of chance. Of the latter it might be sufficient a very small one to complete change the outcomes.

Similarly, our mathematical descriptions of the world are often amazingly powerful models, and they can be put in existence in the world thanks to technical and temporary boundary conditions. I agree with Poincaré when he said mathematics is a peculiar language¹⁸: "*Les mathématiques sont l'art de donner le même nom à des choses différentes.*"

¹⁷ Boids intended as autonomous agents, as in: Reynolds, Craig (1987). "*Flocks, herds and schools: A distributed behavioural model*". *Proceedings of the 14th annual conference on Computer graphics and interactive techniques. Association for Computing Machinery. pp. 25–34.*

¹⁸I hint here to constructivist ideas about mathematics, and therefore of virtual realities and anything that can be computed. As a practitioner I believe that such a skeptic stand is more useful than a firm belief in the existence of theoretical elements, and therefore, to feel bound the prejudice of coherence.

Words can be used to describe complex actions to talk to someone or to make poetry. The relationship between mathematics and things is precisely a technical semantic relationship, with at least three components: the thing we put out in the world, its model, and the context in which the thing is found to operate. We embrace this as a fact we don't need necessarily to understand. We dive from situation to situation with or without a description of it, and not with a unique description.

Being part of a situation, technical objects can be designed to satisfy a function, or can be *détourned*, used for other purposes, hacked. You can happily use a coffee machine to crash a nut or to say I love you in the morning, or to cannibalize it and make other things with it, as a poet with his language can do. Some of these other uses can be found by changing the situation.

"Les objets techniques sont des organes des milieux techniques. Ils ont une fonctionnalité immanente par rapport à un milieu donné, mais ils ont aussi une transductivité qui leur permet de se déplacer d'un milieu à un autre."

Jacques Simondon (1958) "Du mode d'existence des objets techniques"

The one presented here is methodology of design for innovation based on art methodologies that can operate in the real world in carefully designed situation.

So far, I introduced for the phenomenological notion of the world as it is observed by all participants while they plan or perform an action a situation¹⁹

Situations are designed in multiple arts, that concretely and effectively guide the human curiosity and spirit through all kind of transformative experiences. Cinema, Performance in the street or in a black box theatre, religious experience in a church or in a ritual in the woods, dances, the burning man or other techno-pagan rituals and so on.

Noortje Marres says "Situations are considered valuable foci precisely insofar as they present moments of disruption"²⁰. In other works, where

¹⁹Guy Debord emphasized the importance of the situation with the notion of disrupting it. With subversive actions (hacking) we show the true nature -for example- of oppression. In the context of Guy Debord and the Situationist International, the term "situation" refers to a moment or context characterized by heightened awareness, critical engagement, and the potential for transformative action. In the arts the situation can be massively constructed but a characteristic is that the play, both as in a game and in a representation is safe. What we learn is (possibly) not going to kill us.

²⁰Marres, N. (2020). For situational analytics: An interpretative methodology for the study of situations in computational settings. *Big Data & Society*, 7(2), 2053951720949571.

rules can be broken down and can be reconsidered creatively.

One methodology of design for complexity I learned a lot from is the production of an independent movie, another I have nothing to do with is planning and execute special operations in conflicts. Another is the running of a multi stakeholder consortium of firms in a EU founded project, start to finish, without burning out.

Humans have evolved many ways to adapt to complexity. The first thing to observe here is that those arts -the art of performing, the art of movies, the art of war and why not the art of EU-project survival- are essentially ways to do stuff. When you do you are in the thing, in the situation, in the open sea, on stage, dealing with the living injured body, in Indian territory behind the lines. It matters.

The existence of known unknown and unknown ones is not the only thing that *lurks under the surface* and out there you need all our rationality and understanding. Some human methodologies have evolved to allow us to cope with complexity. Understanding is important. As it is knowledge but is and cannot be all. Planned action is not taking in account only knowledge, is to have courage, allies, voice, awareness of change, resources and so on. You must train into be the world and improvise. To do things is about be open to recognize patterns and change course, and then, eventually, introduce innovations or change plan.

We study history and biological sciences to learn about and overcome the limits of our knowledge, to have a sense of understanding and control. Yet we continue to make mistakes, fail. And we continue to realise plans in the face of shoestring budgets, uncertain futures and conflict. We necessarily embrace situations, we repurpose, improvise.

6. Trasformatario for multi stakeholder projects

Trasformatario is born as a laboratory for arts that produces new ideas outside the box. It wishes to create a group of peers and allow them to act. The event is temporary and unsustainable like a party, we produced it, lost money on it and created a lot of value. Value is created and shared by all participants and hosted by the community of a remote location. I developed this concept, that then evolved in a proposed way to design for innovation with the Laboratory for site specific arts. Site specific is art that is developed in the world where the world can be a stage, a character in the play, your enemy or ally.

The idea to move out from my experience in the arts, particularly multimedia installations and open-source software, independent film making and media rich time-based arts came when I was exposed to collaboration with industrial creative research at Philips in 2004-2009. I felt we happened to be much freer to innovate and effective in doing so.

We all should be familiar by now with the policies and the design

methodologies that include a role for the artist. About what are generally considered adoptable methodologies for writing and running innovation programs that I implicitly criticize there is Agile and Design Thinking methods that, if being operatively applicable in many cases were the stakeholders are aligned on the definition of the frame of application, are somehow inadequate to construct a multi stakeholder social innovation project. They set low stakes.

We are forced to take in account the difficulty of defining the different agendas in a problem-solution scheme were the problem and the agencies of the stakeholder are defined by the strongest party. Framed between ethical considerations and friction such tasks are not able to show real participation and therefore adoption.

These hardships that I have encountered in my experience might have a small place in history in design but have a very long one in art collaborations and other type of cultural production.

Participation pivots on two different attractors: one is the narrative of the intervention, made by the most successful stories circulating about it, and the other the complexity of the endeavour that contains the plausibility of the adoption of a new tool introduced in the process. When design is enacted by a community of peers, coordinated by a core group and immersed in a situation that involves the place it needs a shell. It has to enlarge to the maximum the participants and stay open, not always simple tasks were relations are already set and cemented. This is why trasformatorio is designed to be temporary. It contains the notion of creative sprint but cannot sustain it.

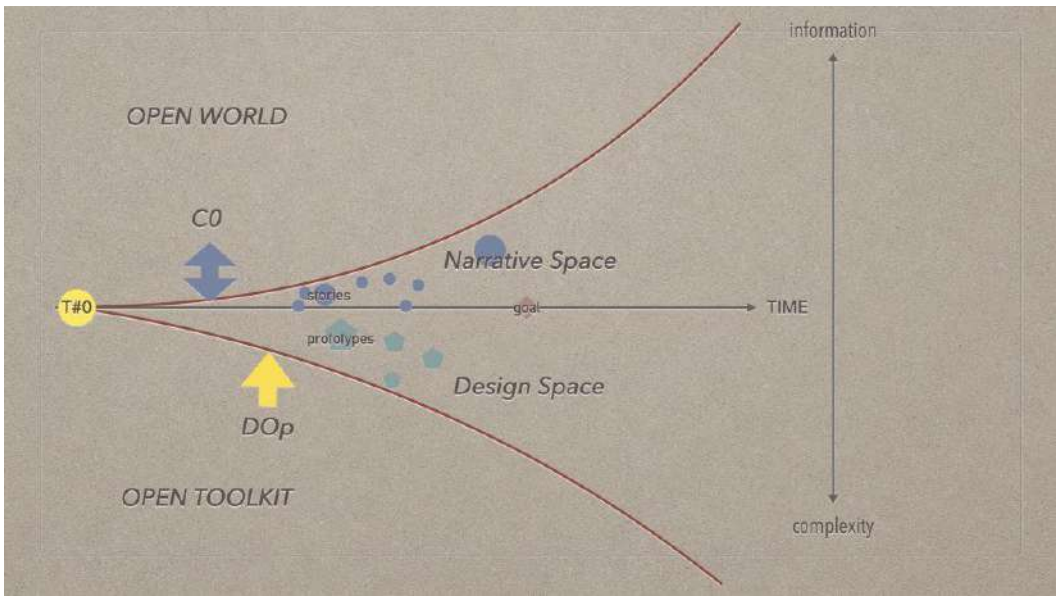


figure 3: slide from a presentation, image by the author

The activity to concentrate upon is determined collectively in a way that is owned by the group, or in some cases with something like a dragon dreaming²¹. Follow ups need to be built from the outcomes of these interventions and in no way *a priori*.

In the above picture the goal is such and will set in time while working on the space of stories and in the space of things done to reach it. As you see complexity mirrors information and the attention must be put into the development and maintenance of the culture that sustain the collaboration, like for a permaculture garden must be put in the health of the soil.

Some explicit examples of multi stakeholder design process are EU founded projects where stakeholders are gathered by the designers of the project proposal 4 to 5 years prior to the final evaluation process. In societal form we can think to a wide variety of projects were to design an

²¹Dragon Dreaming is a methodology developed by John Croft and Vivienne Elanta as a framework for project design and community development. While there might not be a specific scholarly reference in traditional academic literature, you can find more information about Dragon Dreaming in their book: Croft, J., & Elanta, V. (2015). *Dragon Dreaming: Introduction to Dragon Dreaming*. Available at: <http://www.dragondreaming.org/wp-content/uploads/2015/06/Dragon-Dreaming-Introduction-EN.pdf>. We used Dragon dreaming with success with the habitants of a small village that were in the process of finding what was the way they wanted to look for sustainable living in the village. See TR 21 Collective Report, trasformatorio publications 2021, ISBN 978-1-6780-3674 available for free from the trasformatorio website.

action in terms of problems to be resolved by an innovative solution forces an ideological standpoint that collides with some of the stakeholders implicit or explicit interests or is ideological in nature. The narrative of the project is very important and might cause the success of the project.

In the case of Free, Libre (or) Open-Source software development, very relevant for the media art scene for at least 30 years, we have another different case of multiple stakeholder innovation: development can be forked and adapted and sometimes evolves collectively into such a level of complexity that the determination of very wide policies about digital infrastructures are necessary.

7. The role of identity in multi stakeholder endeavours and the case of Documenta 15

In the recent years a big effort has been taken up by progressive parts of society to deal with identity in design. It is not the scope of this short contribution to deal with the amount of insight and research produced in this regard. Personal identity is now the key to complete access to the connected life of a person and therefore a big risk to societal safety and democratic processes. Traditional way of dealing with identity and identification include copyright protection and value of work in the arts and moreover in per formative and media arts that are traditionally less prone to investment and produce work that can be monetized.

Personally, I have experimented recently a process in the art world that goes beyond what i managed to do with Trasformatorio Lab, expressed as a philosophy in action and a concept of curation by the Ruangrupa²² collective in Kassel in 2022. I am referring to the area-wide and ideologically well framed methodology of *lumbung*²³ that is intrinsically a larger scale way to act as a cluster of collectives.

The context of my participation to this was given from the the Gudskul²⁴

²²**Ruangrupa**, stylised as **ruangrupa** and abbreviated as **ruru**, is a contemporaryart collective based in Jakarta, Indonesia.[1][2][3] Founded in 2000 by a group of seven artists, ruangrupa provided a platform in South Jakarta for organizing exhibitions, events, and festivals, also conducting publishing services, workshops, and research. As a collective, they co-directed documenta fifteen, which took place 2022 in Kassel, Germany; notably the first Asian group and the first art collective to curate the large-scale international exhibition. <https://en.wikipedia.org/wiki/Ruangrupa>

²³Lumbung is a word from the Indonesian language. It means: Rice barn. But Lumbung can also mean many other things. For example: Friendship, working well together, sharing things, looking after everyone in a group. That is why Lumbung is an important idea for documenta 15. If you read further, you can find out more about it. In this text, the word Lumbung is always written with an upper-case L. But it might be written in lower case in other texts. The word looks like this then: lumbung.

²⁴Gudskul is an educational knowledge-sharing platform formed in 2018 by three

collective campus in the Federicianum Museum during Documenta 15, were a collective of collectives met up while working at setting up and animating the program of the event in the city of Kassel.

Their approach can be found extensively illustrated on the published documentation of the exhibition²⁵

A *lumbung* – or rice barn – is a place to store communally-produced rice as a common resource for future use. If documenta was launched with the noble intention to heal European war wounds, this concept will expand that motive to heal today's injuries, especially ones rooted in colonialism, capitalism, and patriarchal structures.

Learning from the accumulation of previous experiences in directly practicing institution building as an artistic form, ruangrupa has proposed collaboration to document the imagining, tinkering, experimenting and executing models of *koperasi* (closely but not exactly translatable to cooperative), a model of economy based on democratic principles of *rapat* (assembly), *mufakat* (agreement), *gotong royong* (commons), *hak mengadakan protes bersama* (right to stage collective protest) and *hak menyingkirkan diri dari kekuasaan absolut* (right to abolish absolute power). *Lumbung* as a model of resources management will serve as the centre point of this practice. (<https://ruangrupa.id/en/documenta-fifteen/> accessed the 11 February 2024)

Documenta 15 should and will be a subject of extensive study in the future, both for the scale, that is unprecedented, that for the friction that caused and the way it has developed into the destructive fire of divisive conflict afterwards²⁶.

The efficiency (or not) of art methodologies in these contexts of friction has traditionally led to the need to depersonalize, search for anonymity,

Jakarta-based collectives Ruangrupa, Serrum, and Grafis Huru Hara. <https://documenta-fifteen.de/en/lumbung-members-artists/gudskul/>

²⁵I was present during the final phases of setup to which I was invited by one of the participants bodies, Scutoid coop from Kaoshung, Taiwan. It was just during the first phases of the friction that brought to the disruption of the event. The learning, both in terms of artistic output and about the in vivo production of *process art* and - moreover - the curatorial challenges of such approach will resonate in the future and the serve a long study. I can only add here some general considerations that are pertinent to the discourse here.

²⁶For a short story see: this balanced article on Hyperallergic.com by Hakan Topal, "Beyond the Controversies, Documenta Is a Remarkable Gathering of Voices", 28 une 2022 and <https://hyperallergic.com/744018/beyond-the-controversies-documenta-is-a-remarkable-gathering-of-voices/> and the article from Ruangrupa "We are angry, we are sad, we are tired, we are united" <https://ruangrupa.id/en/2022/09/10/we-are-angry-we-are-sad-we-are-tired-we-are-united/> . The controversy about antisemitism has caused a chain of resign and has put the whole Documenta affair on the spot for months.

hide or collectivize. In co-design and creative process's personal identity must be tamed, blurred, melted into the landscape. It is not only because of minimizing the surface of attack for people involved but to disenfranchise inside manipulators. Art action in the tradition of Joseph Beuys is highly political and nothing can be put up by culturally engaged minority that has more impact on society than a bold move in the forms of the imaginary. Moreover, the Ruangrupa came from the front of the very high stake reaction to a repressive government in Asia and that vibe was present all over the campus.

Is a fashionable way of thinking for the European, design is done by the hero (the fountainhead, the genius, the architect-stars, the lonely hacker) and proceeds linearly shaped by moments of radical changes and all out conflict. Ruangrupa -between many precedents but to a unprecedented scale- showed an alternative that is efficiently collective and aims to be self-sustainable. The gudskul project is explicitly presented as a happy pedagogy of participants. The whole museum had become a transparent and horizontally organized open lab.



figure 4: a picture with some of the runagrupa and gudskul curators at the end of the setup of the scutoid.coop installation in **documenta 15**. I am the one-person posing in profile. photographer unknown.

Conclusions

We have given a in depth description of Trasformatorio methodology for art lead innovation, a name for a space we carved to learn and test

hypothesis about art. We have given some examples of strategies to tame complexity and construct adaptation and resilience bottom up in processes of participatory design. We tried to convey the idea that much more is to gain from a close collaboration between art, society, science and technology growing them together instead of in separation and hinted to way to recreate a common language that can shape stories in a different narrative space.

The word Utopia was invented by Thomas Moore. It indicates the island that never existed that we could dream and contemplate in a gigantic "what if". To talk about utopias has been relegated to spaces of dream and to act to shape our action according to a utopic idea deemed a foolish endeavour. The greek word was composed by Moore changing the previous Greek term of eutopia, the good place, the beautiful place, excluding the eu- suffix and applying a negative particle u-. Moore himself tells this story in the addenda of the book. Our idea of the role of the arts in society is all in this anecdote. We should use art to create good places to live in; gardens, places to receive others as friends, being them other humans, useful insects, good fishes or compost piles that consume optimally in a circular fashion our "faeces" to create fertile soil.

Art is a force that invents and enhance transformations. Trasformatorio consists in a useful exploration and learning setup for activities that allow all participants to envision how they can appropriate themselves the eyes of artists for their own life. To be for a while constructor of eutopias together. The game shows the instruments in the toolkit for this transformation to be enacted in the world. The knowledge is few clicks and few contacts away.

We should as well allow projects to be designed with ways to incorporate friction and uncertainty as a resource and not as a enemy. Trasformatorio found some ways to integrate operations that involve people doing, people being part and people being spectators and many technically complex aspects and lots of unknown. There is a whole field open forward filled with useful knowledge we still don't know and ideas to do it better and to scale it up to change for the better many situations in this biosphere and this is just another beginning.

The biggest suppressors of innovation I found were the habits of power and the egos of the powerful. To transform these bottom-up transformation must be protected and cherished.

Art is emotional and participatory in nature. As intended design, that moves out there in the world proposing to co create meaning and stories from situation to situation should be the task of the wise. Wisdom is more necessary and difficult to teach and reach than science.

Acknowledgements

I want to thank my friend and colleague Raffaella for endlessly sharing insight and ideas. Sabrina Sauer for her encouragement and factual help. Rob Van Kranenbourg for his ability to always introduce me with enthusiasm to interesting people and ideas, Gaelle Le Gars for sharing my interest in history and being so good in distinguishing history from conspiratorial paranoia. I must thank the more than 100 artists that participated in Trasformatorio lab in 7 editions from 2013 and those that became part of the foundation and sustain research with passion and sacrifice since. To be friends, as Nietzsche said you must have shared the smoke and the dust of the fight.

PS All your Base Are Belong to us
<https://www.youtube.com/watch?v=jQE66WA2s-A>

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