

Proposal full title	COOPERACY
Proposal acronym	COO
Call	H2020-ICT-2016-2017
Topic addressed	ICT-11-2017 - Collective Awareness Platforms for Sustainability and Social Innovation
Type of action	Innovation action (IA)
Link	ICT-11-2017

Proposal Technical Annex - Section 1 – 2 – 3

N.	Participant Organisation Name	Country
1	Cooperacy Association	IT
2	Centre National de la Recherche Scientifique	FR
3	Universidad de Malaga	ES
4	Universitat Jaume I	ES
5	Mykolo Romerio Universitetas	LT
6	Università degli Studi di Roma La Sapienza	IT
7	Alpha Consultants srl	IT
8	Università Politecnica delle Marche	IT
9	Fundación Hormigas Argentinas (DemocracyOs)	ARG
10	IDLab	IT
11	Purple Network	IT

Supporting partner: Comune di Milano – IT (see letter of interest)

COOPERACY

 Alpha Consult

 DemocracyOS



THE PROJECT IN BRIEF

COOPERACY	
Aim-> Enjoyment of the citizens in collectively funding their own projects in a Cooperation Science awareness platform	
Excellence, Relation to the work programme->	
<ul style="list-style-type: none"> • Citizens need coordination of their potentials. The COOPERACY project will develop a lowest risk (1 euro per month) collective funding platform for participatory innovation in grassroots entrepreneurial activities, that will engage citizens in the ideation of replicable blueprints. • Its governance will be a design democracy (similar to an Open Space Technology) where citizens will have a list of ideas to support with their vote and commitment. It will have a learning background and will represent a learning-by-doing knowledge network about cooperation science, which will enhance the production of collective intelligence (as described in Page's Diversity Theorem and Surowiecki's Wisdom of the Crowds). • COOPERACY will be based on public and transparent blockchain, Bayesian machine learning and sociophysics in order to foster and coordinate mass adoption. We will test "IoT of emotions" sensors to get experimental information about participants' moods in order to have on one side mechanistic information and on the other side a more human and emotive one. 	
Objective-method: democratic collective funding platform for mass participatory innovation.	
Knowledge Network	Collective funding platform
<ul style="list-style-type: none"> • Cooperation Science • Game theory of Cooperation • Computational Social Science of Cooperation • Macroeconomics of Cooperation and Commons • Sociology of Direct Design Democracy • Collective Intelligence of Cooperation 	<ul style="list-style-type: none"> • Low risk collective funding platform • Machine Deep learning - Bayesian AI • Biofeedback sensors (IoT of Emotions) • Blockchain • International Legal Structure • Open Space Technology - Ideas Market
Concept	
<p>Cooperation is acting together neutrally with mutual enjoyment. The platform will be based on quantitative and qualitative benefits model and real and relational-emotive benefits.</p> <p>Equivalence, Trust, Care, Transparency, Freedom, Understanding, Diversity will be key indicators.</p>	
Impact.	
<p>More than 200k active users expected in the 10 years considered (2019-2029). c. €5,8m could be invested to foster the overall economy growth and cooperation in this period. At least 100 successful projects, with an indirect impact of a minimum of 10k each in the society as a whole, as already demonstrated by past initiatives. Further employment will be created with an average of c.3 new jobs for each project launched.</p>	
Implementation	
<p>A 24 months project involving complementary partners and based on a interdisciplinarity approach. A work plan conceived to reach the fixed objectives, through technical, dissemination, exploitation and communication actions.</p>	
<p>The project will result in a collective awareness platforms for sustainability and in a strong social innovation driven in Europe through a cooperative bottom-up process. The measurable global impact will be based on our conditions of cooperation, enhancing the possibility for citizens to realize - and market - the products that fit their sustainability needs.</p>	

New concepts include:

Cooperation Science	A corpus of papers and disciplines dedicated to the study of cooperation.
Collective Funding	A subscription-based crowdfunding with a common fund and a voting system.
Design Democracy	A democracy in which the ideas-projects are voted instead of the individuals.
Hudgets	A budget that includes human commitment
AFTF	Anonymous First Transparent Forever-after

Table of Contents

1 EXCELLENCE	3
1.1. Introduction	3
1.2. Objectives	5
1.3 Relation to the Work Programme.....	8
1.4 Concept and Methodology	10
1.5 Ambition	28
2 IMPACT	29
2.1 Expected Impacts	29
2.2 Measures to Maximize Impact.....	33
3 IMPLEMENTATION.....	46
3.1 Work plan.....	46
3.2 Management Structure and Procedures.....	59
3.3 Consortium as a Whole.....	66
3.4 Resources to be Committed	67

1 EXCELLENCE

1.1. Introduction

To fully capitalise on mass participatory innovation is not only a matter of engagement, but also a matter of contextual systemic approach. Europe has been the cradle for the historical birth of the cooperative movement in England and, specifically in Spain and Switzerland, Nobel Prize Elinor Ostrom has been studying two common pool resources based communities. The system affects the results of people engagement, as we can see in nowadays social networks, that are biased reputation gossip-based enhancers¹ -and are not platforms for social participated action and innovation. Kickstarter, Indiegogo and other crowdfunding platforms are instead a sample of “social acting and innovation production networks”. Crowdfunding platforms engage people in social actions, productivity and real value creation. The start-up mirage and the social networks apparent solidarity instead bring people to chase ego-rewards in group echo-chambers² without following their inner personality and motivations in cooperative efforts.

The contrast between collective intelligence and misinformation (and relative “post-truth”, “fact-checking” etc. academic discussion) is evident in the current media and social media information production. This is due to the financial, monetary, economic incentives -or better, instrumental rewards³- that are at the base of current citizens’ engagement. Misinformation is produced in order to gain profit or feed selfish confirmation and self-serving biases, or to gain power able to provide in turn again profit, services, privileges that impoverish the international economic fabric. The current economic mechanism creates pyramidal structures as well exposed by Oxfam investigations and by the famous paper about the Network of Global Corporate Control⁴. The bias and influences produced by misinformation affect the international collective intelligence level, as well described both by the diversity theorem approach of Scott Page and by the fundamental text by James Surowiecki.

Open Data, Open Science, Open Source Freeware, Open Community-making value creation potentials are limited if not supported by a social system able to create a different mechanism of the use of money, which still remains a most powerful tool if used in the right way as the first economists perceived.

A social system providing more capital to those who are good moneymakers and making them able to influence reputations, politics, rule of law, freedom and even science is not the right way to make the same social system resilient. Giving power to moneymakers collapses complexity into linear thinking, continuous processes into discrete ones, emotional relations based on trust into instrumental ones based on fear. Fear that our citizens describe as not to be able to get what they really want or not to be “included”.

¹ Paolucci, 2000

² Del Vicario et al., 2015

³ Mulder et al. 2005

⁴ Vitali et al. 2011

The mere empowerment of business is not the solution⁵: the “open world” needs a different social system and a different economy.

This is why we developed COOPERACY, a pilot platform based on social innovation that joins different emerging scientific insights and traditional practical heritages in order to evaluate new possibilities of using money and redistributing wealth. Our idea is to let people be able to slowly transform the approach to moneymaking in one that fosters innovation, employment, engagement and motivation.

We ask people to invest 1€ per month in a collective funding platform owned by the participants. They will learn to cooperate while aiming to fulfil their personal growth without instrumental dynamics, having the possibility to get the job or the life activity they really want, and help others do the same. The money collected is in fact used to finance the projects the same participants propose, vote and own collectively, as in a democratic Kickstarter. The voting system is an evolved form of approval multidimensional voting, allowing motivated direct democracy. The voting results are applied proportionally and not only the top winning projects receive the funds. The profit from the projects will be redistributed in other ones, within a virtuous circle that avoids static accumulation. The framework based on cooperation science is able to let people learn to decide together without having to worry about consensus-making.

The knowledge based platform and research group currently generated has been able to create a constant group of 25 people and a larger community of about 200 individuals. The interest of the participants is mainly about learning and practising the insights that Cooperation Science provides. The community spreads from Milan to Rome, and aficionados are connected from Paris, Athens, Spain, Germany, Sweden, Norway, UK, US, Canada, Argentina, Iran, Malaysia, Taiwan etc.

The first notable achievement of Cooperacy as a motivated community of volunteers, citizens and researchers is the **Cooperation Context Index for countries**, whose PLS statistical approach allows to measure the levels of the seven conditions of cooperation in around 170 nations all over the world. Cooperacy presented the index in the last Collective Intelligence Conference at the Stern School of Business, New York, organized by the Centre for Collective Intelligence, MIT. The same index will have a final release this year in Macao, at the international PLS17 conference. If you like, find your country on the [map in our science page](#)⁶.

The first financed project by its members was an **acroyoga course**, that gathered more than **one hundred trial participants and a group of stable “yogis” of around 30**. The activity has now an even balance (no loss) and is able to give reward to the teachers. The legal form we tested was that of an association of associations, having, for example, Cooperacy as the main legal entity and Acroyoga Cooperacy as the subsidiary.

Besides the economic value, the Acroyoga course has produced also a network value: the participants genuinely trust each other and, having a very diverse background, they employ one another for their private and eventually also company related needs. Overall, other than the 2.000 euros produced by the Acroyoga course, we roughly calculate we generated more than 10.000 euros of indirect activity in the Milan environment in 4 months amongst the 30 people.

On a different level, the people in Cooperacy engage in community affective relations, meeting in houses and dining together, watching movies, visiting exhibitions and organizing courses about Cooperation Science or disciplines related to acroyoga. The feeling is that of a “family” where participants like to share ideas on how to foster a cooperative world.

⁵ Sestini, 2012

⁶ <http://cooperacy.org/science>



Figure A Cooperacy Dinner



Figure B Cooperacy Conference



Figure C Acroyoga Cooperacy

If we reach our conservative goal of 200k users in 2029, we may generate a total investment of €5,8M in more than 100 projects in 10 years, with a total economic direct and indirect impact that could achieve even larger dimensions. Nevertheless, it is not only the economic impact that would represent the most important aspect of the project. The economic transformation and the spreading of the **awareness about cooperation and new tools of direct democracy is another most important effect we plan to have**. We all want better organic food, health care, air quality etc. Citizens in fact invent in-house solutions for filtering the water, buy apply-it-yourself solar panels, prefer low emission cars. Multinational companies care less for the environment due to the mono-dimensional rule they follow: profit. The multi-local, instead, has a strong desire -and need- for a sound ecosystem. The design democracy of COOPERACY, its market of ideas, and the possibility to develop new in-house solutions will give the multi-local a possibility to grow and spare the administrative costs being part of a network, pretty much like the Mondragon cooperative, which has 80k employees, 25 billions of assets and 12 billions of revenues. Different studies state that cooperative companies tend to last longer, be more resilient and less susceptible to instrumental incentives and problems of organizational governance.

The **final global impact** of this pilot platform, when empowered by the public and transparent blockchain network, the collective intelligence and cooperation science framework, the bayesian machine learning process and the experimental mood measurement of the “IoT of emotion” sensors, will evolve in a **massively inclusive tool allowing people to gain distributed power, wealth and possibility of employment**.

1.2. Objectives

Our main objective is to **design, develop, test and release an online subscription-based collective funding platform for cooperative participatory social innovation and awareness**.

On one side, we will develop a Cooperation Science knowledge network for citizens to understand how to grow in their collaborative potential with each other, both locally and online. On the other we will propose a lowest risk (one euro per month) e-democratic common investment pool for developing and financing grassroots participatory innovative projects and blueprints.

1.2.1 Detailed project objectives

We propose a new model, “collective funding”, that differs from crowdfunding. In fact, the participants finance, propose, own and vote any idea in this funding platform. It’s an Open Company, a Kickstarter 2.0, a Mondragon Cooperative with distributed open-space governance. It’s a COOPERACY.

Main Objective *Setup a Collective Funding Awareness Platform about Cooperation Science*

The online platform will be made of two levels of awareness: (i) a Knowledge Network about Cooperation Science; (ii) a learning-by-doing cooperative collective funding platform for participatory innovation blueprints.

Objective 1.1 *Develop a knowledge network about Cooperation Science for citizens’ awareness about cooperative interactions*

(i) Make people aware of what is cooperation, what are its conditions and how to foster it, within a learning knowledge network with dedicated documentation and a space for common debate; (ii) A scientific side of the knowledge network, with experimentations within game theory, computational social science, macroeconomics of a cooperative social system, social impact of an online design democracy and collective intelligence of cooperation; (iii) Spread the news and the open data through dissemination and communication

Objective 1.1.1 *Develop a Cooperation Science Knowledge Network*

(i) Divulgate Cooperation Science in a simple way; (ii) Document new academic insights on the scientific pages of the website. (iii) Create an online area for knowledge debate, sharing and learning about cooperation.

Objective 1.1.2 *Investigate the Game Theory and Computational Social Science of Cooperation*

(i) Perform an experimentation within game theory, including expectations, inequality aversion and relational benefits; (ii) Test 4 different gameplays based on Personal, Competitive, Cooperative and Group advantage; (iii) Apply Computational Social Science approach to Cooperation and to objective 1.2; (iv) Perform a human experimentation of game theory insights measuring relational benefit with sensors.

Objective 1.1.3 *Investigate the Macroeconomics of a cooperative social system*

(i) Analyse the macroeconomic effects of a social system based on a common pool resource, a cooperative structure of industries and economic interactions, a proportional Open Space Technology voting system, a reallocating employment methodology; (ii) Analyse sustainability effects of such social system, with a special regard to household innovation.

Objective 1.1.4 *Investigate the Social Impact of an online proportional design democracy*

Analyse the social impact of a social system based on a design democracy, that is a proportional Open-Space based voting system that elects ideas first and people afterwards.

Objective 1.1.5 *Investigate the Collective Intelligence in a cooperative social system*

(i) Compare previous objectives results; (ii) Evaluate the level of Collective Intelligence produced by a social system based on a common pool resource, a cooperative structure of industries and economic interactions, a proportional Open-Space based voting system and a reallocating employment methodology.

Objective 1.1.6 *Spread the news and open source data with dedicated dissemination and communication*

(i) Realize videos and infographics; (ii) Contact influencers; (iii) Spread through traditional and social medias.

Objective 1.1.7 *Disseminate the findings in the scientific community*

Spread the new academic insights through publications and a final conference about Cooperation Science

Objective 1.2 *Develop a cooperative collective funding platform generating projects and blueprints thanks to citizens participatory innovation*

(i) Set the platform design based on design democracy and gamification; (ii) Predispose AI and biofeedback sensors tests; (iii) Check blockchain possibility and setup the legal framework; (iv) Develop and Pilot the platform; (v) Compare with objective 1.1 insights; (vi) Engage and coordinate mass adoption.

Objective 1.2.1 *Set the platform design*

(i) Design the platform basing on auto-organization and emergent coordination as experienced in open space technology meetings; (ii) Coordinate citizens' personalities and interests with a proportional voting system with no single winner that in turns proportionally allocates the funds; (iii) Dedicate a special voting to emotional and sustainable projects; (iv) Develop a gamification background.

Objective 1.2.2 *Predispose and launch of the Open Artificial Intelligence*

(i) The platform design will include an automatic open and transparent analysis of the data like budget, ROI, people involved, people in the leadership, business plans, people committed, people feedback and happiness feedback and any other relevant information in order to have a platform that will learn about itself through its own (open) data; (ii) Analyse with Bayesian machine learning and sentiment analysis all the information coming from both platform and research and implement the Artificial Intelligence in the platform background.

Objective 1.2.3 *Test Biofeedback reactions in a Game Theory experimentation and in the platform*

(i) Analyse Game Theory with biofeedback, have the participants to try a simple rendition of the platform while wearing sensors able to evaluate stress and happiness, heart rate, and other biofeedback data. (ii) Test the possibility to have biofeedback sensors to send online information about the user happiness in real-time. (iii) Review of the commercial "IoT of emotions" tools.

Objective 1.2.4 *Integrate a Blockchain structure and develop a legal framework*

(i) Design and test transparent public blockchain for all the accounting of the platform and for making transparent and public the allocation of money for every project; (ii) Determine which international legal status should the platform and the different categories of projects should have.

Objective 1.2.5 *Develop and pilot the platform*

Develop and pilot the platform according to the following phases: (i) Preliminary back-front-end setup (ii) Scaffolding (iii) Development (iv) Preproduction (v) Production (vi) Go-live/Piloting during the Cooperation Day event with the Milan Municipality (see letter of interest).

Objective 1.2.6 *Compare the platform with objective 1.1*

Compare the platform with Nobel Prize Ostrom's Common Pool Resources insights, cooperative and circular economy, household innovation and with the investigation produced so far in objective 1.1

Objective 1.2.7 *Spread the news in the Milan event*

(i) Make a video about all the process in order to show how we developed COOPERACY; (ii) Realize infographic videos explaining the functioning of the platform; (iii) Communicate the go-live and further news through an event in the city of Milan; (iv) Disseminate through a dedicated campaign the testing and research outcomes and the derived methodologies to the relevant communication targets, the scientific community and the social networks. Continue disseminating and communicating with viral means of communication and a transversal campaign based on influencers diffusion

Objective 1.3 *Exploitation*

(i) Calibrate commercial efforts to make the Consortium exploitation strategy as effective as possible. Focus mainly on a specific set of European countries and target audience as reported in Impact section. (ii) After 2029, extend the market rollout to all Europe and at a worldwide level online. (iii) Maximise every effort to make the COOPERACY fund grow from **€2,000 in 2019** up to more than **€1,5m in 2029**.

1.2.2 Background and Motivation

When a group of people start playing volley in a park, or on the beach, it usually makes a circle. They usually start enjoying the game with no agreements, just passing the ball one another. Some other groups play trying to score as many passes they can. They enjoy this emergent unplanned coordination and refine it dynamically while playing. In professional volley this context changes dramatically. A net wall is set to divide the people, the circle is broken, the tension grows and we have what we call conflict, drama, "entertainment". This is one of the simplest example to show the difference between the cooperative and the competitive approaches.

A question arises. When you lose, are you still engaged? What does it mean to lose in our competitive society? How is the life of people who are "losers", maybe just because they aren't good at moneymaking?

We're trained to compete and to love each other. Our CEOs are requested to achieve cynical business goals in their job, but to care for their family and the environment when they go back home. We watch movies based on love, inclusion and affection, but also ones about war, competition, supremacy.

Is our society suffering a bipolar disorder?

"I have not a competitive bone in my body. When I play (recreational) sports, I don't even know the score most of the time. People who are competitive find this odd. They wonder how I get motivated to play well if I don't care about winning. I go out there to have a good time and play my best. I care about how the rest of the team plays and that we all get an opportunity to make our best contribution. If we've played well, I'm happy. I just don't measure "well" by the score. For some people, competition demotivates."

If competition isn't what motivates you, then you don't have to think about competition. You need to think about making your best contribution. Doing your best work. Yes, sometimes you are going to have to compete. If you want to get funding, for example. Other people are going to compare your work to others and treat the whole thing like a competition whether you want them to or not. But you don't have to focus on that. You need to figure out how you are motivated to do that work. That is the basis of your work plan."⁷

Our proposal is not here to compete. We are really motivated and think our proposal deserves the funding: the society needs this opportunity, especially the values-oriented European one. We do not oppose the competitive system. We just want to give citizens an alternative because for many people the competitive system is impracticable. People unable to compete should have a chance to develop common businesses and interactions, while finding a job based on their commitment.

⁷ From the words of a mother, an academic, a sociologist: <http://jovanevery.ca/on-not-being-competitive/>

Being the power of the platform based on subscription, in COOPERACY the important will not be to win, but to participate.

We want to play new circular games: “**distributed equity collective funding**”, “**e-design-democracy**”, “**personality based employment**”. We want Artificial Intelligence to examine the facts and tell us where to better invest our energies. And we want biofeedback sensors to join big data and citizens’ emotions.

1.3 Relation to the Work Programme

In this section, it is explained how COOPERACY addresses the *specific challenges and topics included in the call as well as in the work programme* pointing to the related project objectives.

Key words: *participatory innovation - blueprints - collective intelligence - sustainability areas - open data, knowledge networks, open hardware and Internet of things. - innovative combinations of existing or emerging network technologies - Digital Social Innovation - sustainability challenges - mass adoption - measurable global impact - fresh grassroots ideas and civil society participation in the broad digital social innovation domain*

Corresponding Project Objective: 1 The COOPERACY Platform

COOPERACY is a *model* of lowest risk (1 euro per month) collective funding platform for co-entrepreneurial activities and simple grassroots cooperations. The projects will in turn provide *blueprints* that may be replicated by the citizens. Its governance will be a *design democracy*: a list of projects (not of people) demanding vote and commitment. We will *proportionally integrate the voting results* with no single winners: many projects will win and *aware minorities* will know how their small amount of votes may be a possibility to realize their demands anyways. The process will produce the *collective intelligence* described in Page’s Diversity Theorem and Surowiecki’s Wisdom of the Crowds. A special voting will be dedicated to *emotional and sustainable* projects. COOPERACY will be a *social-action-network for participatory innovation and grassroots ideas*. It will have a *knowledge network* side and a learning-by-doing *platform*. *Open data* from a *public and transparent blockchain* and a Bayesian machine learning, the most cutting-edge software technologies, will be serving in the background. A *computational social science -or sociophysics-* perspective will be developed in order to engage and coordinate *mass adoption* following the results achieved by Alex Pentland through applied sociophysics. The *measurable* global impact will be based on our conditions of cooperation, like in our *Cooperation Context Index* for countries. *Digital Social Innovation* integrating *cooperation science* in a collective funding platform will allow citizens to realize - and market - the products that fit their *sustainability* needs and unleash the great power of household innovation⁸.

Set up of Collective Awareness Platforms (CAPs)

Corresponding Project Objective: 1.1 Develop a Knowledge Network about Cooperation Science

Following the words of Bertrand Russell, “The only thing that can redeem mankind is Cooperation”, we think that making people aware of Cooperation Science through documentation, e-courses, webinars could have tremendous changes in the way our societies face *collective sustainability problems* as well as the worldwide appreciation and respect of diversities. This is the collective awareness COOPERACY seeks to convey.

Demonstrate new forms of bottom-up innovation and social collaboration...

Corresponding Project Objective: 1.2 Develop a cooperative collective funding platform

The design of the platform is unique in its kind. We plan to foster *bottom-up innovation* where the profit -after the salaries are paid- of every social collaboration will be returned to the collective fund for new participatory innovation projects in a pure cooperative and circular economy style.

... Exploiting digital hyper-connectivity and collaborative tools - encouraged to integrate different platforms

Corresponding Project Objective: 1.2.1 Set the platform design

The platform will leverage on digital hyper connectivity with an app version of the platform, allowing cross-platform connections with the standard social networks and tools. The people will be connected with organizational tools like Asana, Trello, GitHub for software development, Video Conference softwares like Zoom or Skype, or any additional platform they would like, just like as Facebook groups, Slack, Google Drive, Dropbox, What's App, Telegram, Instagram, Snapchat, Tumblr, Twitter and even Kickstarter, Indiegogo, Eppela etc. as additional funding platforms. We even plan the unconventional use of the swipe system typical of the

⁸ Von Hippel 2012

gps-based dating apps to vote for the projects Current online voting systems are not so user-friendly. Swipe-to-vote will be fresh and enjoying.

Use of open data, knowledge, source software and hardware

Corresponding Project Objective: 1.2.2 Predispose the launch of the Open Artificial Intelligence

The COOPERACY platform will be continuously generating open data for public knowledge. The software and the hardware will be open too: only with a collective visibility we can leverage a diversified analysis of our project, giving advices to the citizens on how to better plan and realize their projects.

Harnessing crowdsourcing or crowdfunding models

Corresponding Project Objective: 1 The COOPERACY Platform

Our project is a new model of collective funding *and* crowdsourcing. It is based on subscription and a democratic collective fund that allows the citizens to contribute with their personality-based skills to a change of paradigm in the way we use money on a collective basis.

Participatory innovation models - collaborative or circular economy, public services, collaborative making consumption and production

Corresponding Project Objective: 1.1.3 Investigate the Macroeconomics of a cooperative social system

We rely on Cooperation Science, Cooperative Economy and relative Elinor Ostrom theory of the Commons: in fact, our system could also be interpreted like a huge subscription-based cooperative or a self-based common pool resource. How would a society work with such a cooperative social system?

Ethics of digital innovation - social entrepreneurship

Corresponding Project Objective: 1.1.1 Develop a Cooperation Science Knowledge Network

The COOPERACY platform has a strong ethics background, being based on the conditions of Cooperation which are Equivalence, Trust, Care, Transparency, Freedom, Understanding, Diversity. The social entrepreneurship aspect of COOPERACY is evident in the idea of fostering new interconnected projects by the citizens, based on the seven principles.

Direct democracy

Corresponding Project Objective: 1.2.1 Set the platform design

Maybe the first “crowdfunding” platform with a democratic allocation of funds, COOPERACY merges the social entrepreneurship with the idea of a direct, proportional, democratic process of wealth allocation.

Privacy preservation and digital rights.

Corresponding Project Objective: 1.2.4 Integrate a Blockchain structure and develop a legal framework

We take user rights to a collective level: every individual has its own diversity and personal space, its salary and freedom of lifestyle, but the projects ownership belongs to all the participants. The blockchain will be transparent, and the users will have their degree of privacy according to the local law.

Include in consortia an existing and motivated community of citizens, to drive platform development

Corresponding Project Objective: 1.2.7 Spread the news in the Milan Event

The city of Milan has confirmed their interest in supporting COOPERACY and act as a potential piloting environment involving different segments of the citizenship community. Our Cooperacy association and the whole consortium represents already a motivated community of citizens who want a radical change in the pursuit of a different awareness, economy and therefore society. Furthermore, the community represented by the Milan Municipality has been on the frontline regarding open data, e-governance platforms, participated budgeting, social innovation and in particular its Assessore Tajani, part of our Advisory Board, is very concerned about the sharing city development. She included the Cooperacy Association as a main actor in the official municipality list of sharing economy partners.

Distributed social networks, wikis, sensors, blockchains

Corresponding Project Objective: 1.2.3 Test Biofeedback reactions 1.2.4 Integrate a Blockchain structure

COOPERACY will be a social action network, have its own learning platform similar to a wiki, experiment with biofeedback sensors and “IoT of emotions” and be based on a *public transparent* blockchain.

Demonstrate a durable multidisciplinary collaboration by including in the consortia at least two entities whose main focus of interest is beyond the ICT domain

Corresponding Project Objective: 1.2.6 Compare the platform with objective 1.1

Our consortium includes many entities that go beyond the ICT domain, like Universities, different kind of SMEs and the Milan community. The ICT platform is the tool, the goal is Cooperation Collective Awareness.

Addressing several sustainability challenges at a time, in order to achieve critical mass

Corresponding Project Objective: 1.2.1 Set the platform design 1.2.5 Piloting 1.1.6, 1.1.7, 1.2.7 Communication

Citizens are demanding sustainability. Their demand is so strong that created self-sustained innovative improvements, like the invention of self regulating insulin injector for diabetes patients and the terrific amount of innovation developed by caregivers of patients with chronic diseases in the medical sector. Household innovation spreads in the semiconductor and electric fields, in the hardware industry with the Arduino card born from the meetings in the homonymous bar, in the transportation one with the first electric car experiments, etc. Innovation grows as citizens are interconnected. They need, want, require sustainability.

User innovation is so relevant it has been subject of scientific surveys in Canada, Holland, UK as well as proposals in the FP7 and EU-Innovate programmes (<https://www.forumforthefuture.org/blog/supporting-innovation-sustainable-lifestyles-what-will-citizen-innovators-future-need>). Fostering collaborative ideas like the cooperative projects in the platform will help people to learn systemic thinking with massive impact on the ecosystem. Finally, our influencers-based campaign will enhance the critical mass adoption.

Engaging civil society at large, for instance through NGOs, local communities, social enterprises, non-profit organisations, students and hackers

Corresponding Project Objective: 1.1.6, 1.1.7, 1.2.7 Communication and dissemination

Any citizen or entity will be allowed to participate. The slight gamified aspect of the platform will promote the relative engagement. NGOs, local communities, social enterprises, non-profit organizations may even merge into COOPERACY as a whole project in order to minimize their management costs. Students, hackers, makers and overall household innovators may have the possibility to gather funds or commitment from anywhere to their specific participated innovation idea: they are in fact our main communication targets.

All the partners including our *Supporting Partner the Milan Municipality* will engage their communities and foster a larger and larger participation to COOPERACY..

1.4 Concept and Methodology

In this section, it is described the overall concept underpinning the project, including its positioning and the linked research and innovation activities. Interdisciplinary and gender aspects are also highlighted.

1.4.1 Concept Description

Our base concept is expressed in the 2015 Collective Intelligence Conference Paper⁹, 2015: Cooperation: enjoying collective intelligence, and following articles. We will therefore use it as the main scientific approach and concept for COOPERACY.

Cooperation, a definition proposal

The term “cooperation” is currently used in many social and scientific fields though it covers different kinds of interactions that may differ from the meaning, the values and the expectations people and scholars bind to the word itself. Terms and concepts like “exchange”, “collusion”, “collaboration”, “compromise”, “cooperation”, “altruism”, “win-win dynamics”, “do-ut-des”.., are used interchangeably both in literature and in common language. Dictionary and rare literature definitions vary. The activities and results generated by the many terms also bring to relevant confusion. How can we understand cooperation dynamics without a definition of what

⁹ Full paper: Merletti De Palo et al. 2015 DOI: 10.13140/RG.2.2.25853.77289; Following papers: Merletti De Palo et al. 2016-1, 2016-2, 2017.

Reference list: <http://dictionary.com>; Cambridge Dictionary, Collins Dictionary, Oxford Dictionary, Merriam-Webster Dictionary, Wikipedia, Dec 2014; Bowels S., Gintis H., (2013); Bochet et al. (2006); Kollock (1998); Tyler, T. R. (2013); Franciosi, U. (2014); CNN, Tampa Bay Times, Center for investigative reporting (2013); Tomasello (2009); Sanfey, et al., Alan G. (2011); Damasio, A. R., (1994); Tuomela, R. (2000); Page, S. E. (2007); Surowieki, J. (2004); Cotesta, V. (1998); Woolly, A.W. 2010; Grice, H. P. (1975); Axelrod, R. (2006); Hammerstein, P. (2003); Mauss, M (1967)[1923]; Bezzi, C(2013); McLure Wasko, M., Faraj, (2005); Lancia F. (2004); Press Release, (2006); Bateson, G (1972); Mead, M. (1937); Frieden, J. (2009); Ostrom, E. (1990).

cooperation is? In this perspective we will differentiate cooperation from “collaboration” using the latter for any generic inter-action. Comparing the current literature, **we propose the following definition:**

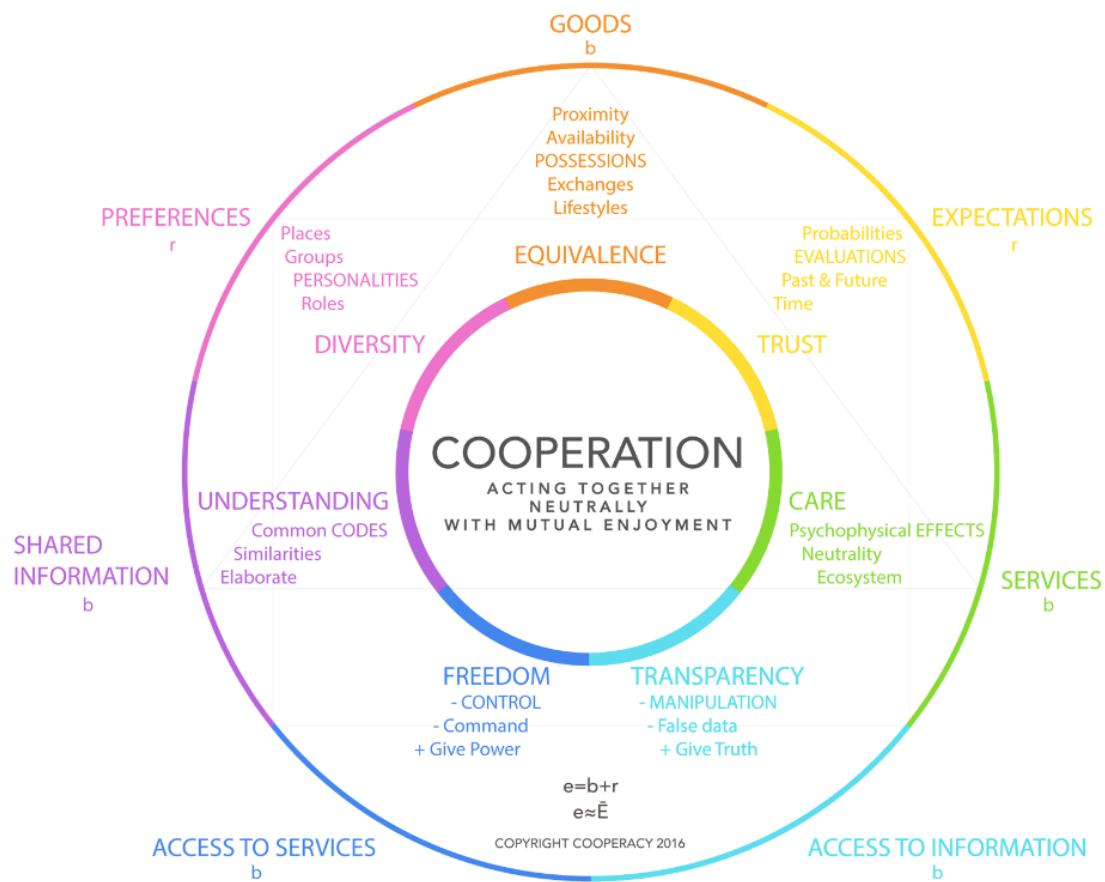


Figure 1 Concept: Cooperation is acting together neutrally with mutual enjoyment

Cooperation is acting together neutrally with mutual enjoyment

“*Enjoyment*” refers to both the relationship (empathic pleasure derived by the interaction, feelings) and the real (creating/realizing common material rewards: results) benefit levels. It also refers to behavioural and neuro-scientific findings about attitude and pleasure in cooperation. “*Neutrally*” means with no disadvantages for third parties, like what happens, instead, in collusion. “*With*” instead of “*for*” implies the enjoyment to also occur in the process beginning and middle, not only in the end.

In other terms, cooperation is a balance where egoism and altruism are both satisfied without excluding one another and for every participant, avoiding internal and external conflicts (competition). In this respect, Egoism and Altruism are both seen as *linear* approaches, oversimplified perspectives that damage the group the more they are extreme: egoism drains the group wealth and altruism exhausts the single human individuals.

Cooperation is instead bound to complexity and to the coordination of the individual diversity potential of development. *This coordination happens when instrumental motivations (monetary rewards or avoidance of punishments) aren't modifying the natural diversity and characteristics of the individual, which instead needs to act according to her/his natural and potential skills and preferences.* Motivated individuals that are aligned with their personalities aren't biased by social pressure and are more prone to be reliable, cooperative and happy.

Inspired by Hamilton's equation, we propose the following mathematical approach to summarize the definition. In our model b is the real benefit already deprived of costs while r represents the relationship benefit. Being cooperation an inter-action involving *time* (t), it can be seen as a continuous process. If $n > 1$ individuals are interacting, for $i=1$ to n , $e_i(t)=b_i(t)+r_i(t)>0$ is the total enjoyment for the individual i . We think of cooperation as a variable *equivalence* rather than a *performative construct*. The average enjoyment of the group will be $E_{avg}(t)=(i=1ne_i(t))/n$. With $d(b_i(t),r_i(t))=0tf(b_i(s),r_i(s),E_{avg}(s))ds$ the group enjoyment will continuously (“*with*” in the definition) influence the enjoyment of the individual. If for every $i=1$ to n $e_{i,t}E_{avg,t}>0$, and there are no external disadvantages ($ext_d<0$), the interaction is *cooperative*.

Cooperation is therefore a *neutral*, balanced relational interaction between *diverse* individuals, based on *freedom of choice, trust/reliability, respect/care, transparency* and *common codes* for mutual *understanding* that generates for every participant a *mutual* and result-independent adequate enjoyment, in which the real *benefits* aren't exclusive of the relational ones. For clarity, we list interactions types other than cooperation fulfilling all the proposed conditions but the listed one(s).

Cooperation Science

The study of the Cooperation is a scientific field that represents today a Science. This is why we talk, support, sustain and diffuse the historical and contemporary findings of Cooperation Science.

This scientific field may be applied to:

- Finding **new economic indicators**, which could enhance the possibilities of cooperation dynamics rather than those of numeric performance or opportunistic exchange of advantages ones;
- Establishing new dynamics in the **workplaces**, where work may be seen as part of a *cooperative* and *enjoyable* teamwork, not just a performative way to get the financial benefit;
- Understanding where a dynamic of supposed mutuality or generosity is really happening, with a special regard to **charities** and the **cooperative** form of companies, sometimes used as a tool to fraud the participants;
- Teaching or monitoring underdeveloped areas how not to compete or fight for resources but to cooperate for mutual enjoyment;
- Find regulations - or better: methods - to align diversified domestic interactions between social classes.

And finally, have a more satisfied and happy international community, establishing better relationships between the people and the governments, starting from the social representations of cooperation, in order to enable most individuals *enjoying* the mutuality, solve policy problems and crises: cooperative structures are central for the existence and maintenance of social institutions and, hence, society at large. We really need "theorems for rainbows" (Page, S. E. 2007).

1.4.2 Linked Research and Innovation Activities

COOPERACY exploits results from past research activities and projects as summarized in the following table.

Table 1: Main international projects linked with COOPERACY.

What	Description of the project
Centre for Partnership Studies	Alessandro Merletti de Palo, coordinator of the project, is a conversation leader in Caring Economics and studied with Riane Eisler her model and theoretical approach to care and economy.
Centre for Collective Intelligence (MIT)	The CCI and their yearly conferences are the first context acknowledging the Cooperacy model. We're in contact with Scott Page and Thomas Malone for exchange of perspectives, ideas and methodologies and we met them in the Collective Intelligence Conference in New York, 2016.
OuiShare (OuiShareFest)	The OuiShare organization has accepted Cooperacy model in their research lab and Alessandro Merletti de Palo has been part of their research group. OuiShare aims at better defining and diffusing the sharing economy phenomena.
LabGov	LabGov was created, on the impulse of the LUISS Guido Carli Department of Political Science , in collaboration with Labsus, Laboratory for Subsidiarity , to train a brand-new breed of professionals, the "experts in the governance of urban commons".
Vilfredo goes to Athens	Vilfredo is a free web application to help a small group of people reach a consensus on the answer to a specific question.
Unum	UNUM™ is a new social platform for group brainpower, allowing people of common interest to come together online and form their own Swarm Intelligence.
Stati Generali dell'Innovazione	Stati Generali dell'Innovazione is supported by Cooperacy and was founded by different associations, movements, companies and citizens for creating better growth opportunities in Italy supporting young people creativity, acknowledgement of merit and meritocracy, removal of the digital divide and government renewal through Open Government.
Collaboriamo	Collaboriamo is a portal of sharing economy information, diffusion and development.

Institute for Economy and Peace	The Institute for Economy and Peace is related to our project in a strong way through the concept of positive peace and their Eight Pillars that slightly resemble the conditions of cooperation in our model.
Pol.is (also: http://blog.pol.is)	Pol.is is a web based tool for quickly gathering open ended feedback in response to an open ended question. Pol.is produces sentiment groups and other insights by running statistical analysis on voting patterns of participants in a 'conversation'.
g0v (also: http://g0v.asia/tw http://summit.g0v.tw/)	g0v.tw is a civic tech community in Taiwan since 2012 with deep open-source roots. With 1,000+ contributors through 40+ hackathons, it is recognized as one of the largest group in the global civic tech community.
IASC	The International Association for the Study of the Commons (IASC), is devoted to encourage exchange of knowledge among diverse disciplines, areas, and resource types, to foster mutual exchange of scholarship and practical experience and to promote appropriate institutional design.
P2P Foundation	The P2P Foundation is an international organization focused on studying, researching, documenting and promoting peer to peer practices in a very broad sense. This wiki is our knowledge commons.
Games for a change	Founded in 2004, Games for Change facilitates the creation and distribution of social impact games that serve as critical tools in humanitarian and educational efforts.

1.4.3 Positioning of the Project

Our current website project is already setting up some stage of the future platform. It is in Alpha state, but it already being updated <http://cooperacy.org>.

Table 1: TRLs that will be achieved by COOPERACY

Product/ Deliverable	TRL	Development
Cooperation Science knowledge network	From 4 To 5	Cooperation Science hasn't a proper knowledge network: we plan to establish one in our Collective Awareness Platform
Collective funding platform	From 6 to 7	We're going to develop a funding platform that will be based on different principles than the standard crowdfunding sites, will be based on a subscription and on a democratic support to the projects.
Dual Benefit Game Theory	From 2 to 3	Game Theory has been experimented for 60-70 years now. Our innovative approach is relative to the introduction of relational payoffs.
Computational Social Science	From 7 To 8	Computational social science is a powerful tool to analyse and predict the behaviour in the platform. By generating an artificial model, we are able to test the effect of one or more policies devoted to increase the participation to the project.
Macroeconomy of Cooperative Systems	From 5 To 6	Cooperative social systems or common pool resource systems have been analysed at a micro level. We plan to observe them at the macro scale.
Design Democracy (Proportional Open Space Technology Voting System)	From 6 to 7	Democracy is based on voting humans. We propose a design democracy in which people vote projects, like in the Open Space Technology and collective intelligence methodology of the ideas market.
Collective Intelligence	From 5 To 6	Collective Intelligence is observed in the innovative context of a Cooperative System.
Open Artificial Intelligence	From 6 to 7	Bayesian Networks has been experimented for more than 20 years, and now Bayesian Machine Learning is getting attention in scenarios where there are no a ton of data to confidently learn our model using other approaches like Deep Learning.
Biofeedback Sensors	From 3 to 4	We will test current biofeedback sensors within different interactions with participants in laboratory experimentations. Wearable or commercial "IoT of emotions" hardware will be suggested for mutual enjoyment online evaluation.
Transparent public blockchain-based ledger	From 7 to 8	A transparent and public blockchain system will be used not to generate new alternative currencies but to improve transparency and trust in the funds delivery to the participants.
Legal	From 7 To 8	Intereuropean legal framework for funding allocation will be developed
Direct eDemocracy	From 6 to 7	A diversified voting system, leveraging the diversity theorem, will be developed, with a special vote for sustainability and emotional project enhancement.
Household Innovation	From 5 To 6	Current state of household innovation is slightly exploited by industries that patent their improvements. We will foster multi-local cooperative household innovation.

1.4.4 Overall Approach and Methodology

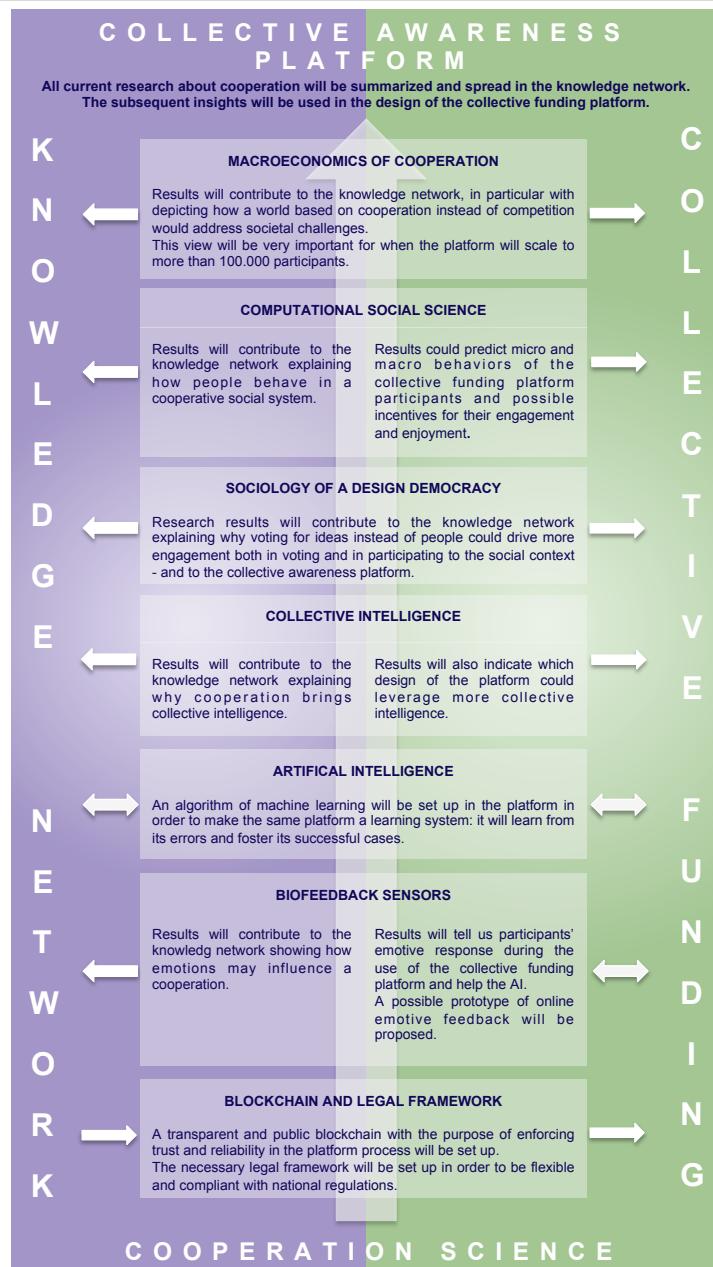


Figure 2 COOPERACY Overall Approach

Table 3: COOPERACY project actors, roles and related partners complementary

Actors	Roles
Cooperacy Association	Main coordinator Platform design Knowledge Network Cooperation Science
Universitat Jaume I	Game Theory Computational Social Science
Università Politecnica delle Marche	Macroeconomy of Cooperative Systems Scientific dissemination
Democracy OS	Direct Design Democracy Voting
Mykolas Romeris University	Collective Intelligence
Universidad de Malaga	Artificial Intelligence
Sapienza University	Biofeedback Sensors research
Centre national de la recherche scientifique	Blockchain and Legal
Purple	ICT
IDLab	Communication and dissemination
Alpha	Business and Exploitation

1.4.5 Methodology

Cooperation Science

We started our research with a proposal to define human cooperation based on current literature and research already enacted by the Cooperacy association. **We proposed the definition of Cooperation and described a possible framework of the field** in the 2015 Collective Intelligence Conference in San Francisco held by the University of Michigan Ann Arbor and the MIT with the presence of Facebook, Google and other international relevant social innovation actors (<http://sites.lsa.umich.edu/collectiveintelligence/>). We presented the model the same year at the OuiShareFest in Paris, the leading worldwide event about the emerging phenomenon of the Sharing Economy (<http://2015.ouisharefest.com>). We refined our approach with semantic clusters and presented it during the IASC conference in Bologna organized by LabGov, in 2016 at the g0v Conference in Taipei and finally in Germany, Hamburg, at the Coproduction Conference. We presented our Cooperation Context Index at the 2016 Collective Intelligence Conference at the New York Stern School of Business and we got accepted in Macao PLS-SEM conference with the same index this year. We spread through very different backgrounds, from the institutional MIT, Michigan Ann Arbor and New York Stern, to the governative g0v or the specific statistical approach of Macao, from the festival style of OuiShare to the serious context in Hamburg, from conferences with partners like Google and Facebook to those with IASC or the same g0v.

These events are symbols of the research and impact effects of our investigation: enabling better relational intelligence and developing productivity through cooperative and mutual satisfactory processes.

The technical and theoretical methodologies resulting from the research will be continuously released as Open Source. We will review all the Cooperation Science insights, transform them into an online documentation and divulgate it into the knowledge and awareness network area of the website.

Building a platform out of the research in the Cooperation Science would result in an efficient structure that could be used as a model for different uses and activities related to participatory innovation.

The funding platform

Our current website project is already setting up some stage of the future platform.

After typing in their cooperation idea, **the users will merge into a coordination system** asking them how to fulfil their task creating subsets and subgroups in total freedom of choice. Everybody will be free to create their own project and meet people related to the same idea or idea “range”.

Their interaction will be managed in a similar way like Area51 by Stack Exchange (<http://area51.stackexchange.com>) with three stages, “pre”, “pro” and “post”, having in the first the definition of ideas and roles, in the second the actuation process and in the third the launch and the feedback phase. Please note that the application will gather people in simple task too, like organizing a dinner or a soccer game, with the probable phases of selecting a menu, cooking and enjoying the meals.

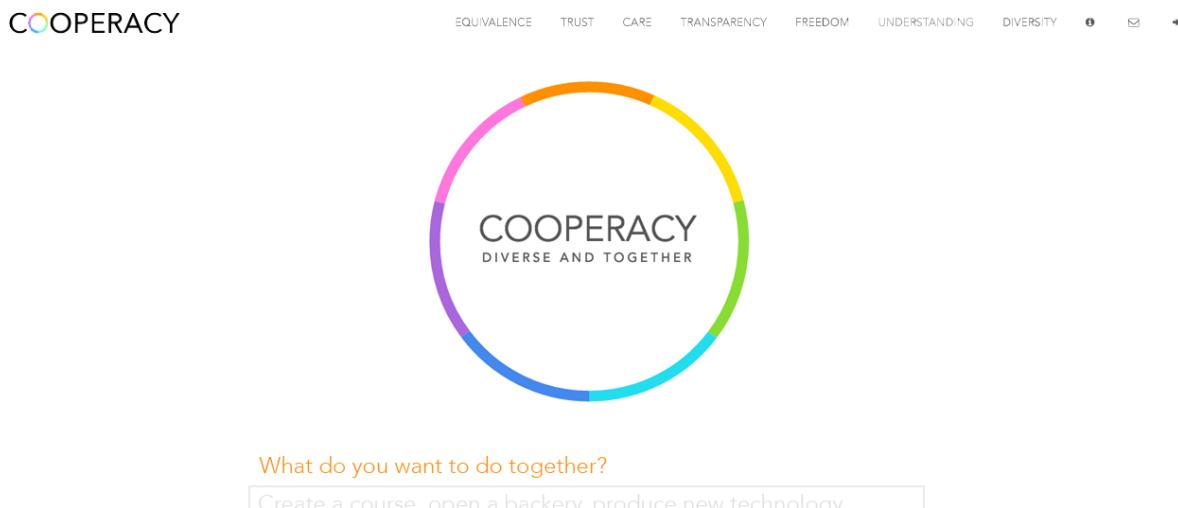


Figure 3 The COOPERACY online platform

The dynamics are very similar to those of the Open Space Technology on a virtual stage. The gamification will be used as main mobilization and retaining tool. Gamification is one of the most powerful tool to motivate and empower the participation of people. World of Warcraft, for example, is able to literally addict people thanks to its strong quest completion and character optimization techniques.

The amount of time and resources people are willing to dedicate to “WoW” is hardly believable:

<https://www.youtube.com/watch?v=K4W0uHG77Zc>.

Besides students and young people, World of Warcraft is played till 50 year of age (<http://www.statista.com/statistics/327283/wow-players-age/>) and if you look for “warcraft statistics” or “warcraft distribution” on google images or google web, you’ll be very surprised to see how much study and effort has been dedicated to the game. We won’t look for addiction or for real gaming of course, but will take into consideration the powers of the gamification reminding Bateson insights about game and humour around 1955 at Princeton.

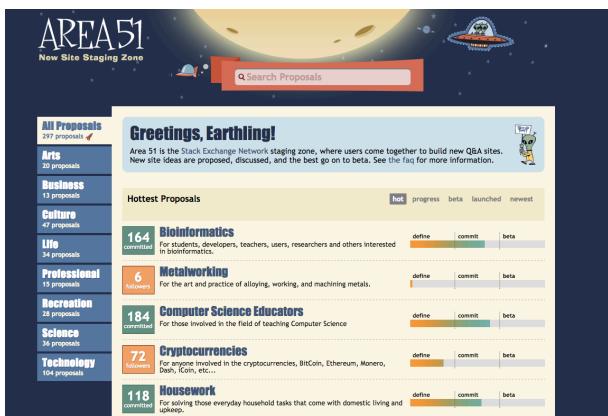


Figure 4 Area 51

Knowledge runs smoothly in websites like Wikipedia or Stack Exchange (<http://stackexchange.com>) which have surpassed five billion pageviews, evident sign that a path of trust, mobilization and commitment has been enacted, in a very *self-organized way*, once highly diversified people received the first, good operative start with the right methodology.

Imagine a similar model for cooperation and action, like the stack exchange Area51 site:

<http://area51.stackexchange.com>

The design democracy of the platform - ideas first, people afterwards

People will decide the progress of the platform voting local and worldwide ideas and not people. This will provide better allocation of *hudgets*, that is budget and human time and motivation.

Multidimensional voting: There are many ways of voting in COOPERACY, not just one, in order to leverage more collective intelligence. You can in fact simply up-vote an idea, or use different kind of votes. The voting will be anonymous but after the project is approved all the votes will be visible for checking, including yours.

Table 4: Vote/ Effect in COOPERACY

Vote	Effect
Up	It proportionally determines the allocation of funds. When the total amount needed is reached, the project becomes transparent and to be approved for the first budget step. Principle: Equivalence
Profitable	Same as above, but the project needs to show the business plan before getting the first amount of money. It is a bit like to say “If this idea has a proof it can produce money, I support it in order to have a richer fund”. Principle: Trust
Heartvote	It's for sustainability projects or ones that generate emotional response in the voter. The emotional response could also be generated thanks to biofeedback sensors. When heartvoted, the project gains higher visibility. Principle: Care
Joke	It's a joke! This vote is a non-punishing way to determine spam. Joking votes include a description of why the project is a joke, and when joke-voted it is moved from the voting system to a final yearly joke-projects list, just for fun. Principle: Transparency
Commitment	Commitment means you would like to work for the project. If the project needs human resources, it will choose you from the commitment list first. Principle: Freedom
AI	This vote is given automatically by the AI and influences the participants with statistic motivations. Principle: Understanding
Bizarre	When a project has a strong “bizardry” (bizarre points), it has more opportunities to be randomly approved. Principle: Diversity

The Funding System and the Hudgets: The Cooperation Wind

The needed votes for a project to be approved are based on their budget requested and on the “cooperation wind”. One euro per month is 0.00000039 euros per second (the wind “speed”). Every second that tiny amount

of money is allocated proportionally, like a wind that moves windmills. The more the votes, the bigger the mill sails will spin like a pinwheel. The more the wind collected, the more productive the project. Anybody can vote for as many projects they want just once, just like as the “like” button in Facebook.

EXAMPLE: A WIND FOR BLOWING IDEAS						
Month 1	300k votes cast	180k participants =	€Euros 180k	Month 2	350k votes cast	200k participants =
Month 1	300.000		€180k	Month 2	350.000	€200k
€ 326k	300.000		€180k	a € 120k	10.000 =	3% €5.4k 20.000 = 6% +12k=€17.4k
a € 120k	10.000 =	3%	€5.4k	b € 26k	50.000 =	17% €30.6k Approved!
b € 26k	50.000 =	17%	€30.6k	c € 30k	36.000 =	12% €21.6k 40.000 = 11% +22k=€43.6k Approved!
c € 30k	36.000 =	12%	€21.6k	d € 20k	24.000 =	8% €14.4k 90.000 = 26% +52k=€66.4k Approved!
d € 20k	24.000 =	8%	€14.4k	e € 90k	120.000 =	40% €72k 130.000 = 37% +74k=€146k Approved!
e € 90k	120.000 =	40%	€72k	f € 40k	60.000 =	20% €36k 70.000 = 20% +20k=€56k Approved!
f € 40k	60.000 =	20%	€36k			

Figure 5 A wind for blowing ideas - illustrative

The approved idea from anonymous becomes transparent in its votes, proposers, and everything is shown. The pre-allocated fund is kept frozen for three days in which if people desire to change their support they can. If a percentage of the people decides not to support the idea anymore, that percentage is released back to the fund and goes to feed other projects. The project will receive the final amount of pre-allocation funding according to the new transparent voting percentage, without any more approval step at the end.

Projects lower than 1000 euros won't be supported as according to crowdfunding sites statistics they averagely fail. Projects without activity or significant votes for a season (3 months) will release their pre-allocated funding and start over, in order to avoid fragmentation of the fund.

Table 5: Budget Release

Phases	Given	Total
Business Plan	3%	3%
Human Resources	10%	13%
Setup	12%	25%
Production	50%	75%
Kick Off	12%	87%
Fine Tuning	10%	97%
Celebrate	3%	100%

Every phase has a three days counter-voting time in which the process could be halted and the people in charge changed for corruption or security reasons. Only people who upvoted, participated or are relative to the module will be notified of the phases. Participants are therefore allowed to counter-vote even if they are external to the module but only if they really care, as they won't be notified otherwise.

Every step is also voted for its *transparency* and *sustainability*.

AFTF: The voting process will be **Anonymous First, Transparent Forever-after**: the methodology we follow is similar to the Delphi Method. In our voting process, keeping it anonymous at the beginning makes any influence to be reduced. Turning it transparent afterwards and allowing people a 3-day rethinking time makes us grow and being mature in coping with truth, *avoiding any kind of voting hacking, being the process verifiable*. Anonymity allows to boost collective intelligence first, and transparency boosts cooperation afterwards. The information with this process is available to anybody, but it doesn't have a strong influential weight before the decision is made. This allows you to choose the project in which you want to work to or propose yours in full anonymity until the project reaches its desired “budget”. After that, everything will always be public and 100% transparent also through the blockchain infrastructure. The legal framework will address the privacy issues.

A redistributed common pool: All projects are **owned by COOPERACY, that is the Cooperacy participants' fund**. Corruption tends to disappear: once approved, projects are transparent and all the profits go back to the fund to give birth to new projects. Meanwhile, people earn good salaries because of the low taxation aspects of a not-for-profit or cooperative legal status. Salaries are monitored in a full transparency system: “equisalaries” will be a function of the platform that averages the wages that have similar amounts in order to keep standards of fairness, and specifies those that are way higher -or lower- than the average. Jobs that nobody wants to do or that require high skills may keep their higher salaries. Thanks to the “cooperative industry”, who works in a

field can choose to work in the same field in another project, just like as it happens in the Mondragon Cooperative¹⁰, a strong template we want to leverage from.

The COOPERACY Projects as modules: The modularity allows for an organic and circle-like approach that is able to create **replicable open source blueprints** for the whole platform community. Any project can have a parent and a child and be part of “circles” thanks to the tags. The biggest “parent” module is “mutual happiness”. That’s the only module-agreement we won’t ever change. Everyone will evaluate their happiness according to their preferences. A semantic engine will aggregate similar modules. Every module has:

1 Information: every project has this visible information:

- | | |
|---|---|
| a-Title (and proposers when anonymity ends) | b-Representative image |
| c-Subheading or objective of the project | d-Parents and children |
| f-Location | g-Voting allowance (for specific local projects) |
| e-Tags | |

2 Coordinators: the ears of the module, they listen to what the participants want to do and execute it.

3 Participants: active hands of the module. Minimum 2, the coordinators, advised maximum 150.

4 Experts: possible special participants who do not vote but give advices. The “mouth” of the module.

5 Reporters: two “eyes” of the module, they write reports and compare the module with the business plan

6 Budget: the budget required to fulfill the module: human commitment and budget.

7 Feed: the module is continuously subject of feedback by the participants and the voters. Even after years any participant can decide if something was good or bad, influencing the memory of the system. A simple feedback history is available: after 1 month (M), 1 season (S), 1 year (Y) and after 5 years (YY).

Feedback can be only of three kinds: HAPPY(+) MEDIUM(=) SAD(-)

The projects represent the voting unit of COOPERACY. They have this lifecycle:

- **IDEA:** The idea or module is proposed – it is anonymous;
- **VOTE:** The idea or module is voted – anonymously;
- **BIRTH:** The project is approved, anonymity ends;
- **LIFE:** The budget is released according to the budget scheme.
- **COMMITMENT:** People needed are gathered or employed;
- **DEATH:** When the mission is accomplished, the project “dies”. This is not a bitter end, it means the project goes in the archive. The project could also die due to economic loss and subsequent request to close the module after relative voting;
- **MEMORY:** The module is archived and stored in the memory in order to influence future modules and for future reference;

The COOPERACY proportional governance

The COOPERACY governance is modular and proportional. Proportionality is a characteristic of the Equivalence condition in the COOPERACY model. Modularity is a derivate of the Understanding or Common Codes dimension, that establishes a common, fluid governance for all projects.

There are only two degrees of power, the “role” and the “participant” ones. Participants may assume a role, and have the leadership over a project. For example, if you have a project to sell special flowers, you have the role to manage the project. But if you just want to describe the project and let anybody who wants to accomplish it, then your role of manager will be held by someone else. Granularity will make the “special flowers” project made of subsections like accounting, cultivation etc. Every child project, like accounting, will have its roles.

“Roles” have the right to issue direct decisions over projects. Dual leadership is strongly advised: roles are usually two per module-project. When the roles issue direct decisions, these can be opposed by the module participants. They may even create special decisional projects called “budget 0” projects or modules.

Salaries are compared automatically with transparent collectively decided rules, so roles cannot impose them on participants and participants don’t need to wait centralized justice to act and change them. Participants are part of the governance, in every project. The power of every role is functional, not executive. That’s why roles “function”, but do not dominate, “request” but do not command.

If participants make an opposition, a voting is issued and its results are applied proportionally. To get an idea of the proportionality, this is pretty much like what you would do in a group of friends when you need to decide

¹⁰ <https://www.theguardian.com/world/2013/mar/07/mondragon-spains-giant-cooperative>

what to buy to have a dinner together. The majority want a dish, some others want some different meals, and you proportionally buy food coordinating the choices. Apparently this technique doesn't seem to be applicable in some specific cases, but in our studies we found that those cases, when profoundly observed, are very, very limited.

ICT - The Technical side of the platform

The platform will be developed with few differences from a learning site and a crowdfunding one. The main innovation will be to make it subscription based, that is, have a payment gateway that handles cyclic payments and automatic funds delivery and to realise a voting system for the projects funds allocation.

Front-end and Back-end and in-between communication

For the back-end we will use php7, that is nowadays superior in speed than python and other back-end languages (i.e. Ruby, Java, Perl). Php will stand on the Symfony2 framework, a more advanced and flexible tool than the famous Laravel. Symfony2 is the standard for major project and offers a larger community compared to the other cited languages. Community size is fundamental for bug tracking and solving, overall regarding security breaks. The core system will be integrated with some elements of node-js, an even faster asynchronous runtime environment that will be used to comply with the planning of the runtime tasks like image and video compression and for the communication with the front-end code: "js" in node-js stands for javascript, so that the "front-end javascript" will talk with a "back-end javascript", allowing a more aligned communication. We'll use a LAMP system as per the environment with mysql 5.6 as per database version.

We confirm we will use only open source framework and code.

In order to accomplish great speed and efficiency we will setup the server side aspect of the platform basing on a strong caching effort. We will use mem-cache, redis and varnish as main instruments. This three instruments will allow us to have a great economy of bandwidth, save hardware resources, optimal user experience and a dedicated care about **sustainability**: a very low energy consumption will be another parallel result.

Front-end side we will join the design and the developing work in a re-usable way. This way of working is called Atomic design-development. Base elements will be developed together in the design and development phase and then scaled or used on demand. If we have a 50 pages website the first year and we'll need 100 more pages in three months, we'll just re-use the "atoms" already developed.

We will develop therefore re-usable atom-components in html, css and javascript: this approach is called BEM, block-element-modifier. When you join atomic-design-development and BEM you get a profound re-use of every part of the project and even the whole project itself. Another developer may directly get the overall project to create a smaller demonstrative mini-site. This renders the effort scalable, flexible and sustainable.

We start from day one with a maximum effort towards the scaffolding of the project. This emphasis will comply with atomic-design-development and BEM, and identify those specific components that cannot be re-used and need special attention.

The other strong effect of the scaffolding-emphasis, atomic-design-development and BEM approaches is to generate with small effort and a "free" documentation of the whole project: with Kneath KSS style-guide component all the comments in the code will be collected automatically and generate the overall project documentation.

About the technology, we can describe the *actual* best solution, but *as per the software world*, we live in a fast-changing industry, so the panorama we prospect could change and we will adapt again to the best solution possible.

We will use SASS (SCSS), Html5, webpack2, svg, npm, jquery, "socket.io", angular-js(only for some aspects, we will be very open to change here). We will spend more effort in writing elegantly the front-end, in a way to reduce energy dispersion so useful today on mobile phones and other portable devices that may exhaust battery charge due to simple bad html scripting.

All the front-end code is made in order to be compatible to as many browsers and OS possible and will be based to most of the **accessibility** standards.

All libraries, frameworks and general coding won't be experimental and risky, but we'll build a sound, solid, stable environment to make the platform face even greater volumes of users than expected.

For example, we won't use WebAssembly but will closely follow its development because it may become a valid cross-platform web language. We want to use the best tools in order not to generate harm or malfunctioning in the user experience.

All the project is based on the MVC paradigm. The fruition will be based therefore on php7, but the communication between front and back-end will be based on JSON and AJAX. AJAX is an asynchronous intercommunication between front-end and back-end. Another side of communication front-back-end will be done with web sockets. More specifically, web pages will be generated with php7 views, while the internal functionality of the pages with the back-end will be based on AJAX calls to REST web-services and JSON data structure in order to not reload the pages and have live updated information. The web-sockets instead will talk with the node-js side in order to have updated data of the project funding without reloading the pages. Participants may even see their project funding grow in real-time.

iOS Release

The App side of the platform will be developed compatible with iOS version 9+ and last Xcode version 8.3.2+. The project will be written with native programming language Objective-C and CocoaPods dependency manager. The graphic interface will be managed through Auto Layout, a tool that allows to create layouts that automatically fit to the size of the display. We'll use Fabric (<https://get.fabric.io>) for data analytics, stability monitoring and bug testing.

Android release

The Android release will be compatible with Android version 5.0+ and last Android Studio version 2.3.1+. The project will be written with native programming language Java and with support of Gradle for the dependency management. We'll use Fabric (<https://get.fabric.io>) for data analytics, stability monitoring and bug testing.

Other App releases

Any other release will be decided according to the state of the ever-changing mobile OS industry market and will be based on the above versions as templates.

Coding

Versions will be managed with Git, in particular in the BitBucket.org environment for Git development.

This way we will develop in parallel different development phases, with no editing harm.

Developers team management

We will use Jira or Redmine for the project management in order to establish the classic roadmap with dedicated milestones.

E-learning

For any e-learning experience needs in the Cooperation Science knowledge network we will use the open source FORMALMS. It has been developed by a cooperative network of SME of which we represent the prevalent founders and authors. In Italy it has been used by the Equitalia learning courses and abroad for different presidential institutions. There is the possibility to have different roles like teachers and students and it may even release certificates. All the platform is completely compliant with the same tools: php, mysql, etc. For the framework: <https://formalms.org/>

Payment Gateway, IoT Sensors Integration, Blockchain, AI Integration

We will use paypal developers endpoint as per the inflow and outflow of money. Paypal is currently the safest and most advanced gateway with a special feature that the Cooperacy association is currently already using: "micropayments". The feature handles special payments of less than 5 euros and will be fundamental for saving transactional money with the 1-euro subscription fee.

Being substantially a "web-service", we won't install therefore any libraries for implementing Paypal.

For the AI analysis, the blockchain and the IoT sensors or other devices that may come up from the IoT emotional review (like those measuring eye movement, mouse/trackpad behavior, chair pressure patterns, typed selections, cortisol levels, heart rate and the like described in the biofeedback objective) we will simply use a similar gateway like the paypal one to connect with the web-services of the devices via CURLs in a two-way exchange.

Infrastructure acquisition

Amazon Web Service(AWS) Ireland Region servers will be used as main infrastructure hardware.

We will use a clustered structure of multiple server instances managed by a load-balancer which equally shares the loads to the different machines. This will be wrapped in an auto-scaling system of temperature **sensors** in order to avoid an excessive charge. Even a massive presence of users due to specific news or events will activate the sensors that will reallocate the demand. This is valid for computational calculation.

For the storage, we will use S3 and Cloudfront as CDM for asset management (video, pictures etc.). For the database we will have amazon Relational Database Services. A dedicated server SES will be used for mailing, always in the Amazon offer. Lambda services will manage the server-side automation CRON-tabs.

We could eventually add a few more services according to the platform needs.

Piloting and testing

We will share the preview of different milestones, within different development environments, like a staging space (for every partner including the designers), a server suite with a dedicated URL both for the partners and the product managers for the pre-production phase. Finally, we will do the go-live step in the above production infrastructure system. Test Driven Development will be done *in advance* before the go-live, so that the piloting will generate minor effects. Automated process with Nightwatch and Browsers Stack will face all cross-browsing phase of testing. The go live will be therefore tested obsessively in advance. We will then contact the Milan Municipality and organise a public show of the platform for the go-live “piloting” phase, but the PURPLE partner usually launches their products crafted at the maximum level of refining.

OTHER METHODOLOGIES AND CONCEPTS

Other basic methodologies that will constitute the platform both in the Cooperation Science knowledge network and in the funding platform.

Open Space Technology, Delphi Method, Ideas Market, Design Democracy

Since 1985 Open Space Technology, based on ancient African social technology, has been used almost all over the world and in any kind of situation and counts many thousands of practitioners in US, Europe, far and middle east, Africa, Oceania and Latin America. Its underlying approach has become a reference point for many project consultants, managers and facilitators: it has been used in Israel-Palestine citizen discussions as well as NASA or EU discussion methodology and, in the business sector, by Dupont, Boeing, At&T companies and many more. It is based on meeting around a circle, listing ideas, letting people adhere to only those ideas or project they like, and a final circle in which people decide what to do in the future.

The Delphi Method is a parallel methodology used in research, that utilizes anonymity of the contributions to naturally coordinate groups and avoid biases due to relational influences.

The Ideas Market is one of the techniques used in the collective intelligence paradigm, that is to have different ideas on a market at the choice of a diversified group, and it is used in the Open Space Technology.

A Design Democracy is a Democracy in which people at first vote the projects and then they vote the people, and their vote proportionally allocates resources and spaces to the projects, pretty much like the above.

These four approaches represent different aspects of the same methodology: coordinating diversity and giving space to every difference.

All these methodologies will be part of the very structure of the platform itself and of the Cooperation Science learning area, allowing common people to use them for their own decision making processes, friendly activities and group synergy.



Figure 6 AIR3, Italian Directors Association (Director's Guild) chose Cooperacy Association for organizing their annual meeting as an Open Space, and now, upon member's demand, the meeting will be organized every 3 months.

Proportional Direct Design Democracy

The demand for direct democracy possibilities is highly felt by local communities and institutions. Recent activity in Italy by the Movimento 5 Stelle, the results of DemocracyOS (the organization held by COOPERACY partner Fundación Hormigas Argentinas) in Latin America and Europe, the Sharing Cities phenomena and the participatory budgeting methodologies are a massive and evident signal of the awareness in the society that new ways of deciding a participatory future is mandatory.

In this context, DemocracyOS offers a reliable open source, free software with an easy user experience for citizens to get informed, debate and vote on public matters. The DemocracyOS technology isn't only used by

Partido de la Red (The Net Party), the Argentinian party that uses the software, but evolved to become one of the most used platforms for collaborative decision making, available in 15 languages and with more than 100.000 users around the world.

The examples we provide are impactful: although the Movimento 5 Stelle is in press described as a illusory direct democracy, and effectively does not allow full control by the citizens, it stands amongst the three most important political forces in Italy. The political aspects of DemocracyOS in Argentina and their numbers are evident, like the debate about different law proposals in the Buenos Aires Legislature. This project made bills available to every citizen of Buenos Aires. During one month, 19089 citizens visited the website, and more than 6000 of them (including all the representatives) signed up in order to take part in the debate, reaching 26.833 views. More than one thousand comments and exchanges were made on the platform. The result of the collective intelligence generated in the discussion forum was presented to the lawmakers and influenced the legislative assembly.

The sociological investigation carried out by the DOS partner will study how direct democracy tools that elect a project rather than an individual may support a Cooperation based platform or social system.

Our idea is to leverage on this study to make people go back to action instead of leaking in the gossip sea of social networks. We really think people can transform the world in a sustainable and pleasurable one if they learn to *decide and do together* rather than *only chatting and expressing opinions*.

Commons

Elinor Ostrom's insights about the management of "Common Pool Resources" are still today indications on how to build a better society. The solution found by the populations investigated by the only female Nobel Prize in Economics are so effective that lasted for centuries and in a specific case over around a thousand year. These cases will be compared in the Macroeconomics of cooperative economy investigation.

The study of the commons will help us to understand how to manage and better develop the common pool resource of the platform: the collective fund.

Macroeconomics of cooperative economy

Cooperative firms have the advantage of allowing for a democratic management of production and distribution, similarly as in the Common Pool Resources. To reach this objective some problems of coordination and organization have to be overcome firstly within the single firm. A useful approach aimed at studying the internal organization of firms, with a particular emphasis on cooperation, is the one based on controlled laboratory experiments. Alternative configurations of cooperative firms may then be considered. Based on the micro analysis of internal organization, a further step can be implemented to understand the system-wide implications of a cooperative organization of firms, namely its external viability. This is a relevant step in that the "micro" and the "macro" levels cannot coincide in a complex system like the economic one. From a macroeconomic perspective, the viability of a cooperative economy can be assessed by evaluating the collective performance of firms and the consequences for the society according to a welfare analysis. The agent-based computational economics approach is well equipped to study such a complex micro-macro nexus and it allows for the study of emerging properties from the bottom up as the result of decentralized interactions among heterogeneous agents. Based on an agent-based modelling (ABM) approach, alternative scenarios and different configurations of cooperative vs. non-cooperative organizations can be simulated. For a comprehensive list of resources and references¹¹. Overall, a comparative investigation of the performance of the cooperative economy vs. the typical capitalist organization can be carried out in order to understand the pros and cons of both systems with respect to economic and social goals. A particularly interesting topic is how inequality is related to alternative mode of production/distribution and, specifically, if a cooperative economy is able to reach the goal of both mitigating inequality and boosting economic development, also reducing the environmental impact of economic activities. Within this framework, it can be studied if a threshold exists according to which a minimum number of cooperative actors is needed in a mixed economic system (that is a system composed of both cooperative and capitalist firms) in order to allow for their survival and if above that threshold a spreading effect can lead to an extension of the cooperative economy, by (partially) displacing the traditional mode of production and thus allowing for more economic democracy and the sharing of economic,

¹¹ See <http://www2.econ.iastate.edu/tesfatsi/ace.htm>

social and environmental goals among citizens. Inspired by the successful experience of the Mondragon Coop, a particular aspect of the cooperative economy can be studied by simulating the performance of reallocating fired workers within the same cooperative industry, thus preserving the level of employment. The macroeconomic impact of such an employment strategy can be assessed by evaluating its effect on the growth potential and the related distributive regime. By the same token, a more complex scenario in which workers vote to set possible industry processes and employment is preserved can be simulated and compared to the traditional capitalist approach in which workers are typically excluded from decisions on production and the problem of unemployment should be faced by the government (if in its political agenda).

The cooperative economy studies are fundamental to understand the effects of a large scale mass adoption of the platform and to tell the citizens what will change in the entire social system if they all choose Cooperacy.

Computational Social Science and Social Physics

Cooperation among living beings has been widely explored both in Physics and Social Science. Specifically, the main focus of the so-called social physics (Pentland 2014) is to investigate the aggregate behavior of the crowd. In fact, by observing how individual choices affect aggregate behaviour, this discipline is able to extrapolate the "law of motion" which governs the choices of people, especially in terms of cooperation.

On the other hand, Social Simulation Science (Epstein 2006) focuses on the representation of aggregate behaviour by constructing an artificial system. Aggregate outcomes usually emerge via the interaction of agents. Since interaction depends on differences in information, motives, knowledge and capabilities, this implies heterogeneity of agents and, as a consequence, for externalities. This globally; thus the organization is achieved in a way that is parallel and distributed (no element acts as a central coordinator). According to this view, a system can be analysed as a self-organizing entity (F. Hayek's catallaxy describes a 'self-organizing system of voluntary co-operation' see Hayek, 1973) and Krugman, 1996) In many complex systems in nature, there are global phenomena that are the irreducible result of local interactions between components whose individual study would not allow us to see the global properties of the whole combined system. Thus, a growing number of researchers show that many macro properties of the social system are not directly encoded by any of the single components involved, but are the self-organized outcomes of the interactions of the components.

By observing an artificial platform where human subjects can interact, we are mixing the Physics and Social Science approaches. The platform design, in fact, allows us to extrapolate a mathematical representation of the system. Once obtained the model, we can investigate the system through individual behaviour of virtual agents or through direct observation of the human choices in the platform. From this observation of the micro data, we can reproduce the dynamics in an artificial model for making predictions and developing social incentives.

The goal of our analysis is twofold. First we want to verify that the above-mentioned mechanism is a good description of the reality. Second, we want the mechanism to be able to predict the future behaviour of our agents. Finally, having successfully proven our mechanism for input, output and predictive, we also test its efficiency in identifying several incentive schemes able to foster cooperation. This last goal will be achieved by testing the model with different individual expectations and/or preferences.

Collective Intelligence and Cooperation

The COOPERACY platform is an ideal environment for collective intelligence to emerge and can be considered as Collective intelligence (CI) system. Luo et al (2010) conceptualizes Collective Intelligence system "as knowledge network created by web-mediated interaction amongst individuals with personal knowledge". The "intelligence" in the system can be described as "collective" not only in the sense "that it arises from the interactions – that isn't new – but that it does so according to specific principles better known for extracting wisdom from crowds" (Servan-Schreiber, 2015). The wisdom of crowd's means that community commonly exhibits higher-level intelligent capability than any community member does. Surowiecki (2005) identified the 4 basic criteria for emergence of collective intelligence: diversity, decentralization, independence and an appropriate mechanism for information aggregation. The COOPERACY platform integrates all these elements. Because of the flexible and vague boundaries people have freedom of joining and leaving the platform as opposed to fixed boundaries of institutional organizations. This will result in easier recruitment of the new members with different demographic, educational and cultural backgrounds and continual flow-in of new ideas and knowledge (diversity). The decentralized structure and distributed leadership in the platform will influence self-organization and self-governance capabilities of the community (decentralization and independence). Although online platforms are often criticized for the lack of direct contact, yet, in comparison with traditional

communities the networked ones can operate more efficiently, due to technologies that make it possible not only exchange of large amounts of information, but also help to store and process the information more efficiently (information aggregation).

In the platform not only people, but also information communication technologies will be involved in knowledge creation or aggregation.

We will evaluate the best ways to produce collective intelligence within the platform and explain in the learning area how a cooperative process may generate collective intelligence.

Artificial Intelligence, Deep Learning, Bayesian Machine Learning

We will apply Bayesian Machine Learning to the Open Big Data produced by the platform, analyzing every successful project characteristics and every failed project insights in order to make the same platform a learning sustainable ecosystem. More in detail, we will also observe the platform dynamics after releasing it, and applying a Big Data approach to the research background and future implementation includes many software projects producing solutions for different data analysis tasks. In the case of machine learning and data mining, Spark MLlib (<http://spark.apache.org/mllib/>) is the reference for the Big Data community. For example, clustering algorithms included in Spark MLlib can be used to discover groups of people based on their interactions. Identifying groups based on their interactions will be the best way to test our framework and observe its coherence with the provided methodologies. Spark MLlib support Naive Bayes algorithm, and its implementation currently supports both multinomial naive Bayes and Bernoulli naive Bayes.

The user-centered platform will "autotarget" the citizen with the first question, "What do you want to do together?" enabling her/him to interact directly with other people with the same intentions.

We will then compare the many most important experiences -including blockchain ones- in ICT solutions in terms of effective and satisfying cooperations, adding both qualitative and quantitative measurements and dimensions of their efficacy, for an effective panorama of Cooperacy Global Impact.

This aims at using these machine learning approaches to enable computers to make rapid and accurate inferences from multiple modes of data, such as determining the enjoyment of the users. Formulating probabilistic models on the basis of domain knowledge and training data, and then performing inference according to the rules of probability theory. Cooperacy will explore also the use of biofeedback to train these models (multiple sensors: video, mouse/trackpad behaviour, chair pressure patterns, typed selections, cortisol levels, heart rate etc) in a joint effort with the Sapienza partner investigation. This type of solution is especially challenging due to problems of sensor channel variations.

The data will be transparent for every participant, and owned by everyone.

In simple words, the Artificial Intelligence act as a "smart memory" of the system that every human can access in order to make better decisions. Powered by big data and human moods, the system will create an equilibrium of efficiency and humanity, and will behave like a single big learning organism or ecosystem.

Biofeedback and Game Theory

One of the ways to analyse human behaviour in a simplified form is by investigating the individual choices with the Game Theory approach¹². We will therefore implement a simple game with 3 agents and 3 possible choices the combination of which determines different strategies paying different payoffs. The game is played under four different scenarios that represent the pressures of different social systems: Egoistic, Group, Competitive and Cooperative. The Egoistic one represents a situation where players choose according to the maximum individual payoff, the Group one a condition where the maximum aggregate payoff is preferred. The Competitive and the Cooperative scenarios are based on the standard deviation of the payoffs. The first maximizes the distance between the higher and the lower payoff, the second minimizes this gap. The four scenarios perform different payoffs which will be compared.

Once analysed the simple model described above, the objective is to carry out a dynamical analysis.

The final benefit of both groups and subjects depends on: the individual choice, the scenario and the function that generates the relational benefits. The main idea is to introduce different "utility functions" or expectations about the others' behaviour in order to change only the relational benefits. For example we might consider the specification proposed by Fehr and Schmidt (1999) and Bolton and Ockenfels (2000) in which the utility, and so

¹² See for example Camerer, 2003

the satisfaction, of each individual is a function of the *inequality*. The goal of this long term dynamical analysis is to observe how the final outcome evolves without changing neither the individual choices nor the scenarios. The aim of this final analysis is to test the conditions under which the cooperative scenario is the best one. Theoretical results will be compared with the results emerging from the interaction among human beings. This sort of validation procedure will be useful to test the assumptions of the model and the main findings.

The final outcomes of this study will be a theoretical model including relational benefits together with real benefits. It will be mainly used as a base to compare the user experience of the platform. On a side level it will be used to verify if on average a cooperative scenario is able to foster development and wealth amongst the citizens. We are testing, one more time, our same assumptions.

While experimenting with human groups that will play with the Game Theory approach, we will use the same groups for testing scientific biofeedback devices comparable to commercial "IoT of emotions" sensors.

This will be done to verify possible IoT solutions to evaluate the irrational and dynamic relational benefits.

Different categories of participants will be randomly assigned to one of the experimental dynamics (Egoistic, Competitive, Cooperative, Group Benefit) for the game. So 4 different rules will be developed and the players will play the simplified version of the game in 4 different ways. Groups will be balanced by sex and age. We will correspond a participating expense cost of 50 euros to 100 participants, arranging them in groups of 5/7 people that will be "re-shuffled" in order to obtain higher number of groups until the results will be satisfying.

To control for potentially confounding variables, as mood, personality traits, empathy, values, thinking styles, and education, a set of questionnaires will be administered at baseline. Such factors will be included in the statistical analyses as covariates if significant differences among groups will be observed. Moreover, major psychophysiological measures (PMs) related to psychological well-being and cognitive flexibility, as Heart Rate Variability (HRV) and levels of Cortisol (and possibly Oxytocin), will be measured at pre-, during and post-test.

For cortisol levels, we will use solutions similar to <https://www.salimetrics.com/assets/documents/1-3002n.pdf> and for eye tracking: <https://imotions.com/blog/top-eye-tracking-hardware-companies/>. Unfortunately, AFER (Automatic Facial Expression Recognition) research has come to a static period of investigation, that could have a new strong increase of activity after Apple acquisition of Emotient (an AFER company) in 2016, but for now we will experiment through the different patterns listed above. The world of emotions is a growing side in ICT, this preliminary study will investigate the possibility to have some feedback tools able to measure emotions and eventually propose low cost solutions like a "cortisol meter", alike to current oxymeters: <https://www.google.com/patents/US5830137> (see Emotional IoT review).

PMs will be used both as trait variables, considering the possible differences between groups at baseline, and as dependent objective variables (comparison between groups at post-test). Other subjective and objective dependent variables related to cooperation, group and individual performance, psychological well-being, satisfaction, quality of communication, information and emotional knowledge, will be identified and/or developed. Data will be analysed by a series of analyses of covariance and regression models. Subsequently, we will cycle again the whole process with an online simplified rendition of the COOPERACY platform, in order to allow participants to propose changes to the platform mechanisms.

Emotional IoT review.

To decide what devices to use and compare in our investigation, we will proceed to a Comparative meta-analysis and qualitative review of the tools used to interpret human emotions in the commercial IoT realm aside to our scientific investigation tools (i.e. bodyguard by firstbeat and ProComp5 Infiniti System), like integrated sensors for measuring temperature, pulse and observing ECG. For some preliminary or divulgative reviews: <https://medium.com/@alfredbeiley/what-is-emotional-internet-of-things-32c1498707af>

<http://blog.affectiva.com/the-mood-aware-internet-of-things>

<http://mashable.com/2016/01/30/internet-of-emotions/#LpsAOgy7w8qC>

<http://www.microcreatives.com/general/the-emotional-internet-of-things-how-to-design-for-it/>

The world is heading towards new devices able to read the people feelings and our partners SAPI and PURPLE will join the technical and psychological approach to a final review in order to compare professional scientific instruments and relative results with commercial ones and suggest a possible set for the platform emotional side.

Household innovation

Product innovation plays a crucial role in the Economic development. In fact, it represents a large share of the total progress and, as suggested in Von Hippel et al. (2012), it is a part of the total production in a Country. In

the set of all possible product innovation we find the so-called "household innovations", meaning all the improvement made by household to industrial products in order to get a better products able to satisfy their needs. Only in the last decades economists have shed light on the importance of this kind of innovation, even if it has always played a very important role especially in rural areas (see for example Wu, 2003). The same Von Hippel in a Collective Intelligence Conference stated that the Household Innovation investments in England are more than the overall companies innovation investments, meaning that the companies could stop investing and delivering their funds directly to the customers. The reason behind this scarce attention to the household innovation is due to the fact that, usually, the new products and services are shared among small community or simply used by households and so they are in the "dark side" of the economy (Von Hippel et al. 2012). The frequent impossibility to measure the household innovation weight on the overall economy has two main consequences: firstly, it is difficult to investigate and, secondly, it represents an externality for multinational industries. The latter aspect involves also another economic feature: the "free-riding" problem. As we said, these innovations are directly produced and used up by families or small groups of people and, in order to improve the products, these people sustain a cost the society and the companies don't return. Once the household innovation become more known and public, multinational industries are able to produce and market this improved good without sustaining any innovation costs.

Indeed, COOPERACY could represent a new form of Multinational, a Multi-local in the style of the Mondragon cooperative, where the externality of the innovation are internalized, the management costs shared and having special taxations because of the non-profitable cooperative reinvestment of the earnings for the good of the local producers and innovators.

Giving to households the possibility to get in contact through a platform like Cooperacy represents a twofold opportunity: household innovation can be accurately measured and its specific innovative community of citizens can be sustained.

This investigation will be fundamental to understand their needs and be ready to support them.

Blockchain

For blockchain possible integration, the Cooperation Science model will be implemented also into a series of prototypes exploring the possible implementations, validated by the continuous user-testing received by the case studies, and checked for compliance with law and privacy-by-design principles. A set of agent-based simulation models will also be elaborated to reflect the specificities of the model. The simulation will be designed to show the emergence of overlapping and interacting communities, with a constant flow of participants joining and leaving. The Blockchain is another technology that could incorporate the agreements the citizens could choose according of our Cooperation Science model, by incorporating them directly into the underlying technical infrastructure.

Ethereum, for example, is a next-generation distributed cryptographic ledger that is designed to allow users to encode advanced transaction types directly into the blockchain. The objective is to create a platform upon which other blockchain-based applications can be built: instead of just interacting with other users on the network, users can also interact with applications (or *smart contracts*) that subsist within the network.

Smart contracts are often assimilated to a vending-machine. Individuals insert coins into the machine and (assuming the inserted amount is correct) the machine delivers what they asked for. This is a predictable interaction that requires little to no trust amongst the contracting parties: unlike an individual who takes the money, the vending machine has no choice but to deliver the good that the money was meant for. Technology itself guarantees that the contract will be fulfilled. The contract is self-enforcing, as well as the trust level.

In a smart contract, code and law have been merged together: the method by which the law is defined (the code) is the same method by which the law is enforced. Anyone can interact with these contracts, assuming that they agree with the rules stipulated (and automatically enforced) by them.

Blockchains make it possible to replace top-down hierarchical organisations with distributed bottom-up collaboration -eliminating the figure of the middleman, which gains profit from the work of others.

We imagine something like Facebook or another social network owned by its own users. A decentralized collective funding network that brings people into action and innovation.

The blockchain enables the emergence of new organisational structures which are managed *by* the community and *for* the community —and where every user is simultaneously a contributor, and an actual shareholder in the organisation. Most importantly, the blockchain can foster a tremendous amount of procedural justice, one of the key pillar of Tyler's (2011) studies on cooperation.

The limitations of the blockchains are those of scarce flexibility and of lack of transparency when not set up in a transparent form. The DAO was a Decentralised Autonomous Organization deployed on the Ethereum blockchain, which has raised over \$150 millions dollars worth of ether (Ethereum native digital currency) in less than one month (thus making it the most crowdfunded project of all times). Unfortunately, the code of The DAO was flawed and an attacked exploited a vulnerability in the code to drain over one third of these funds. Due to the tamper-resistant and autonomous character of blockchain-based smart contracts, there was no easy way for the funds to be recovered, without changing the underlying blockchain code. And due to the lack of a proper governance mechanism within the Ethereum community, it took several months of discussion before a decision has been taken concerning the best course of action to recover the funds. With this in mind, we will leverage on the Ethereum blockchain or other similar smart contract systems, but the COOPERACY system will not entail the use of any cryptocurrency and organize the blockchain structure in a flexible way.

The blockchain is a system able to give accountability to citizens but shouldn't be too rigid.

We will deploy smart contracts on the blockchain in a public and transparent manner, while nonetheless maintaining the possibility to continuously adapt the smart contract functions: we will follow the feedback we receive from the artificial intelligence analysis of the citizens feedbacks about their *enjoyment*.

Legal Framework

Regarding the legal entity, we will undertake a detailed overview of all possible legal form that the COOPERACY system might take—including the various cooperative forms, the foundation-holding, the association, or a combination of these (and comparing the Mondragon Cooperative model as well).

Our aim will be to identify the best way to structure a legal basis for all the upcoming projects and the COOPERACY system in a way to ensure the respect of users rights and to promote further engagement.

1.4.6 Gender Aspects Considerations

Since our starting group, the Cooperacy association considered of great value the diversity and the gender equity themes. In the people involved in our group there is a slight majority of the female gender, and, as already exposed, Alessandro Merletti De Palo education includes the Centre for Partnership Studies Conversation Leader title, which is another warranty of the level of consideration of the gender respect, care and equity we would seek. Having the same Riane Eisler in our Advisory Board strengthens our ethics position. We will base our research and realization with specific regard to published "Strategy for equality between women and men 2010-2015" and "Gender Equality in Horizon 2020" publications¹³¹⁴.

This will be relevant also in demographics research aspects about the platform and we'd like to go even further and consider inclusion a matter not only of gender but also of cultural heritage, religious views, languages, lifestyles. Our same definition of cooperation and its specific conditions would not be respected if we would not acquire the requested gender equity. We will ask therefore to our partners to participate in maintaining the same approach in respecting the demanded "equity" that we prefer to call equivalence, even if we are confident that there would be a pleasurable and enjoyable attention for all of us.

In the design of the platform, gender equity will be achieved by not discouraging it. A common pitfall in design is to segregate genders into labels, categories and then further reinforce that by assigning certain tags of behaviour that implicitly or explicitly dictate what each gender is and how they should behave. This causes failure of gender equity. The task is not to encourage gender equality, but do the opposite, do not discourage gender equality. Alarmingly, more effort is being put toward labelling and segregating genders, which is what sustains gender inequality and reinforces that. To encourage gender equality, one would need to simply represent both genders as human beings, a common type, instead of dividing them intentionally (or unintentionally).

Therefore, gender equivalence is best achieved by the concept of treating both genders as simply 'humans', regardless of their biological features. Effort will be dedicated to prevent arbitrary restrictions on appearance, behaviour and capabilities, promoting the concept of an omni-human, where both male and female -and transgender or other kinds of sexual identities- are interchangeable in how they behave, what they can do and how they can present themselves. Everyone of us is human. And every human is unique.

¹³ http://europa.eu/rapid/press-release_IP-14-423_en.htm

¹⁴ http://ec.europa.eu/justice/gender-equality/files/strategy_equality_women_men_en.pdf

1.5 Ambition

We want to create a collective funding platform open to everyone, at the lowest investment cost of just one euro, and leave the fund investments to flow with a direct democracy voting system based on proportional integration of the different interests. The innovation is to transform the crowdfunding paradigm in a collectively owned and managed CAP through coordinated interests.

We believe that a platform based on Cooperation Science considering not only productive but also relational aspects of the human interactions would not result in an eventual proof of amazing technical technologies and solutions, but in effective results in terms of social development and systemic awareness growth, with strong side business development through the projects market. We aim, therefore, effective changes not only in the tools, but overall in the people. That is, we aim changes affecting not only the rewards and the benefits (business development), but also the motivations, the expectations and the systemic awareness of the citizens: socio-cultural motivated actions are way more productive than those enacted through the punishment/reward methodologies¹⁵.

1.5.1 Progress beyond the state of the art and innovation potential

We are following a contemporary trend and at the same time a very ancient human concept, trying to define it and to find the right tools to make it prosper. The same concept, in other words, that could be at the base of the FP7 and Horizon 2020 projects: Cooperation.

There are currently no crowdfunding platforms based on voting, ownership and meritocratic redistribution of the profits. In crowdfunding risk is not distributed. In collective funding instead, the risk is low and distributed. At a research level, there's no current definition of the cooperation construct. Recent studies converge to similar results, like the eight pillars of peace offered by the Institute for Economics and Peace, the recent publication funded by the same Horizon 2020 programme by the Mykolas Romeris University about Social Technology and Collective Intelligence, and some active action confirmations by the growing movement of the sharing economy, but we think our approach is simple, effective and measurable.

The key factors of innovation of COOPERACY are:

- The Cooperation construct, re-defined and analyzed like never before;
- Cooperation Science applied to collective funding, social entrepreneurship, participated innovation;
- Collective funding, our idea of a next stage participated crowdfunding, like a Kickstarter 2.0, innovative from a design and an ICT point of view;
- A new disruptive approach on Game Theory based on relational benefits and expectations too;
- Bayesian Machine Learning sensors-based, a disruptive approach to Artificial Intelligence;
- Public Transparent Blockchain for transparency and management and not for alternative currencies;
- The Wisdom of Crowds, Group and Collective Intelligence at the citizen's service;
- The eDemocracy and virtual decision making methodologies applied to collective funding;
- Macroeconomics applied to Nobel Prize Elinor Ostrom common pools as a social system, evaluating the viability of a cooperative economy through agent-based modelling;
- Structuring a participatory innovation platform based on Household Innovation models
- Evolving the Mondragon Coop case transforming it into a distributed governance cooperative
- Evaluating social action networks based on IoT of Emotions

1.5.2 Interdisciplinary approach and use of stakeholders knowledge

Cooperation Science is one of the most interdisciplinary field in science. The presence of the term cooperation in literature is used by diverse disciplines, like biology, zoology, anthropology, philosophy, sociology, psychology, business, management, behavioral economy, politics, international relations, game theory, theory of evolution, linguistics, neuroscience, oncology, robotics, radio and wireless networking.. to name a "few". We may interpret this variety of applied disciplines as a signal that cooperation refers to a complex system context.

¹⁵ Tyler, T. R. - 2013

Examples of the application of cooperation in the scientific fields observed by the Cooperacy Association in its interdisciplinary approach are:

Mathematics (Game Theory - list of authors is extremely long, i.e. Colasante), Physics (Computational Social Science, Game Lattices, Networks; i.e. Nowak, Pentland, Del Vicario), Statistics (in our case Partial Least Square or other multivariate analysis), Neuroscience (Damasio, etc.), Psychology (Montesarchio, Masia, Wu, Van Lange, Balliet), Social Science (Parsons, etc.), Law (Tyler, etc.), Philosophy (Tuomela, etc.), Anthropology (Mead, Bowles etc.), Economy (Vernon Smith, Guala etc.), Political Science (Axelrod, etc.), Evolutionary Biology (huge list here too, Hamilton, Dawkins, Gintis..), Zoology (Tomasello, etc.), Ecology (van den Berg, etc.), Ethology, Medicine (Aafke van Santen), Semantics and Communication Science (Searle, Grice), System Thinking - Complex Systems (Page), Collective Intelligence (Malone), Decision Theory and Voting Systems (Arrow, Sen, etc.).

Cooperacy is also an international research project whose participants investigate Cooperation Science.

The platform will therefore illustrate most insights deriving from our investigations that range through Dual Variables+Network/Lattice Game Theory, Open Space Technology, Delphi Method, Ideas Market, Diversity Theorem, Collective Intelligence, Participatory Budgeting, Nobel Prize Ostrom Common Pool Resources model, Sharing Economy, Rosenberg's Non-Violent Communication, Theory of Desires, African Indaba and Fisher/Ury principled negotiation, Cooperative Gameplay, Computational Social Science applied to Cooperation, eDemocracy, eDecision-making, Public Blockchains Technologies - Smart Contracts for regulations, Social Representation of Cooperation, Cooperation Context Index for countries.

Stakeholders knowledge

All our project is based on the integration of the stakeholder knowledge. We will leverage on it through the Ideas market in the Design Democracy, with their user stories in the Communication phase, with leveraging on the Household Innovation, with observing the knowledge of the stakeholder's hearts with the IoT of Emotions, with the participants of the laboratory experiments and with a User Forum in the Knowledge-Network-learning area of the website.

2 IMPACT

2.1 Expected Impacts

As shown in the previous section, COOPERACY project will create an innovative, multi-purpose platform for the engagement of citizens, with the aim to collect funds, manage them and launch new businesses and projects in a collective and cooperative management environment.

The impact of COOPERACY is to deliver a user-friendly democratic space to provide micro-investment in sustainable projects, supporting them with votes and contributions, thanks to a strong membership and transparent rules of participation. The platform will leverage crowdfunding spirit, e-government demand and gamification techniques to push for a massive adoption and create opportunities and jobs for all members.

COOPERACY tackles all the expected impacts of the topic ICT-11-2017 "Collective Awareness Platforms for Sustainability and Social Innovation" and specific KPIs to assess its success are defined, as detailed below. The KPIs will be periodically assessed in order to check the progress toward the targets and to take appropriate actions, whenever needed.

2.1.1 Impacts in relation with the Work Programme

Impact 1: Increased effectiveness, compared to existing solutions, to societal and sustainability challenges

A complete innovative and unique platform will be developed. It will be based on a mix of different approaches to grant an open environment and a large impact. Currently, crowdfunding platforms and e-government solutions rarely appear as connected, with no specific relation with transparency management (such as in cryptocurrency case through blockchain technology). COOPERACY approach will grant a **no-waste system** through its fund, always sustained by membership (1€/month) and by the revenues of the projects launched by the community.

Impact 2: Capability to reach a critical mass of European citizens and to transpose the proposed approaches to other application areas related to sustainability.

Today, a strong demand of new participatory approaches to old and new challenges is changing the way companies, public bodies and civil society interact with citizenship and the way citizens interact among themselves. COOPERACY is a cross-border innovative platform with elements of crowdfunding, co-creation and participatory planning, mixed together to create and support best practices and projects from all over Europe. This solution is open to every European citizen, with a low-risk investment for common good. Sustainability will be a key concept behind projects promoted by COOPERACY. Moreover, the collaborative approach and development could be replicated in all areas related to sustainability (from health to recycling).

Impact 3: Achieve effective involvement of citizens and relevant new actors.

Donations are emotion based; investments are not. Even when the difference is very thin, a citizen investing 1 euro per month in a membership programme to sustain projects is not making a donation; s/he wants control what happens afterwards. Effective participation is the base of COOPERACY system. Relevant new actors will be involved in crowdfunding, e-government and smart cities sector, due to the total transparency and the civic engagement that COOPERACY wants to reach. Moreover, a dedicated exploitation strategy has been already conceived in order to reach as many new users as possible. In fact, nowadays, the platform counts a group of 20 users and a community of about 200 followers. To enlarge this network, a strong promotion and marketing campaign will be undertaken starting from most relevant countries and reaching all key geographies in Europe, as already identified in the first strategy.

Impact 4: Achieve measurable improvement in cooperation

Cooperacy was launched in 2014 as an independent research project aimed to support a research team about Cooperation Science; our complete research project includes dedicated experimentations with small groups in different environments and countries, through several methodologies (Open Space Technology meetings, Enjoyable Communication, Non-Violent Communication, Principled Negotiation and Theory of Desires). 7 concepts were investigated: *common benefit, trust, care, transparency, freedom of choice, understanding, common codes and diversity*. Our consequent definition, based on a multidisciplinary model, is: *cooperation is acting together with mutual enjoyment*. Then, we built a framework for cooperation, based on these 7 concepts and **28 existing international indicators** of development. The result is a first **Cooperation Context Index**, and we aim at creating a **Cooperation Index for Countries**, with assumptions and methodologies for a better growth based on cooperation¹⁶.

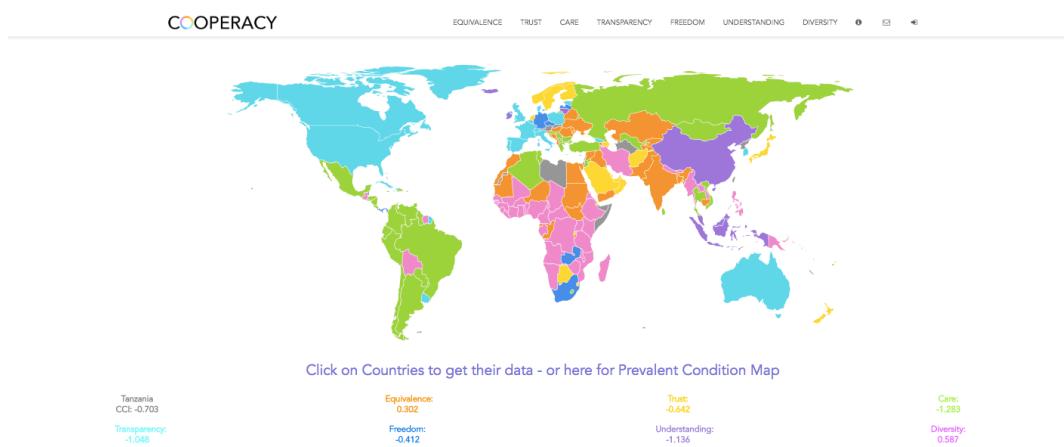


Figure 7 The Cooperation Context Index Map

Impact 5: Demonstrate the applicability of concrete and measurable indicators to assess the social impact and the "social return of investment" of the proposed solutions.

During the COOPERACY project the Cooperation Context Index will be fine-tuned and used to evaluate the level of cooperation of main European countries. Moreover, COOPERACY will generate a social impact based on

¹⁶ DOI: 10.13140/RG.2.2.25562.13769

projects/start-ups launched through the support of its fund, new jobs created and indirect investments on the overall economy. In addition to that, COOPERACY will create an economic impact for all the entities and local communities involved in the project. These impacts will generate a benefit for the society as a whole, with a SROI measured through a specific costs-benefits analysis done with the involvement of citizens.

Table 6: Impact KPIs

KPI description	KPI Target ¹⁷¹⁸¹⁹
New ideas emerged and promoted by the platform	At least an average of 20 per year since 2020
Successful projects launched	At least 100 successful projects in ten years (up to 2029) based on a cooperative approach
New employees within Cooperacy Association	At least 10 new employees in ten years (up to 2029)
New jobs created thanks to the projects launched	C. 3 jobs for each project launched
Indirect investments on the local economy	At least €10k for each project
New actors/ communities/ citizens reached	More than 1 million potential users in ten years (up to 2029)
Global community	Active members from at least 7 countries
Cooperation improvement	Cooperation Context Index fine-tuned and used to evaluate the level of cooperation of at least the 7 addressed European countries

2.1.2 Other impacts not related to the Work Programme: Emerging markets and Consortium members

As already stressed above, economic inputs for initial adoption of the solution are taken from crowdfunding market, due to the perception of members investing their money in the platform. But cooperation among citizens means an impact on society as a whole, and a special attention from specific groups and categories can be foreseen: there are other users (also collective entities) potentially interested to know more about COOPERACY and grant a group participation in it.

2.1.2.1 Emerging markets

Despite COOPERACY has been conceived mainly as a crowdfunding platform (so the related market has been analysed in paragraph 2.2.2), its objectives and architecture aim at reaching also other emerging domains, included in the “collective funding platform” concept, such as:

- **Common pool resources platforms:** in fact, COOPERACY foresees, after the investment, the possibility to participate in a collective process to decide which projects should be pushed forward. This can be relevant to all those users, developers and investors in participatory management of collective or mutual funds;
- **Smart cities and e-government platforms:** this domain is even more connected with blockchain technology. After the first use of this new technology, initially adopted for payments and created to support cryptocurrency transactions, a wide range of new applications started to arise - from massive voting management and e-democracy activities to new human resources solutions through smart contracts. The disintermediation and the equivalence of the members allow large communities to organize and participate. Due to the great importance of blockchain technology in COOPERACY structure and philosophy, its active users, developers and platforms managers can be impacted by COOPERACY.

2.1.2.2 Consortium members

The Consortium could also register different impacts according to their expertise and services provided. In fact, all the **COOPERACY entities will provide specific services** for future system development and adoption in the market, e.g., from technological to consultancy services, from marketing to commercial activities, from user involvement to communication actions. These services will be ruled by **commercial agreements** in relation to the service and effort put in place, with a related growth of **Consortium entities expertise or, in case of companies, turnover** thanks to the proposed solution. The expected impacts for Consortium entities are briefly summarised below.

¹⁷See preliminary business plan.

¹⁸[Crowdfunding for Sustainable Entrepreneurship and Innovation](#)

¹⁹As estimated for Acroyoga project

Many COOPERACY partners are Universities and research centres. Many social theories are involved in the project, and specific parts of the general workflow will be dedicated to observations and tests, due to the strong interest of these stakeholders in the Cooperation Science evolution and in the interaction results. A new kind of community will settle down in the platform, with many elements of existing ones but with different engagement and interaction rules. This participation will generate big data on cooperation indexes and on people behaviour in a common pool resource management environment. In particular, **Cooperacy** Association as project Coordinator, foresees a significant growth in terms of both expertise and new jobs within the Association thanks to this project. On the other hand, involved entities could leverage the information acquired during the project and in the subsequent implementation phases to provide to interested users a new consultancy service, such as the “Big Data analysis”.

COOPERACY will provide an advantage **resulting in new opportunities in emerging markets, new services in innovative domains and research areas and new job positions**

2.1.3 Overcoming Barriers for Impact

The main barriers for achieving the impacts identified within the project are detailed below.

Barrier 1: Regulation

The available data suggest that crowdfunding remains largely national, with cross-border activity still very limited. Although national regimes are overall consistent in their approach, some stakeholders have expressed the view that divergences in the specific design and implementation of regulatory frameworks could create obstacles to the development of cross-border activities and lead to market fragmentation. The need to comply with different requirements may be costly for platforms²⁰.

COOPERACY will perform a permanent research on regulations and requirements, in order to join international communities and platforms in their proposals to governments. The community that will interact in COOPERACY will generate international projects as well as local ones, and the arise of local groups inside the community is foreseen: it means that projects will have a local identity and a local impact, helping COOPERACY to manage local regulations in the involved country and through the community itself.

Barrier 2: Taxation

As the margins of all the project launched by COOPERACY will go back to the fund, there will be a study on how to create them under the Italian legal environment. Moreover, international legal framework will be developed to ensure that all the process will be compliant with international regulations and that participation can be granted to all EU citizens.

Barrier 3: Risk Perception

In some segment of crowdfunding – especially in P2P lending and equity crowdfunding – there are financial risks that should never be underestimated by participants: loss of capital, dilution, insolvency of the platform operators and many more. Despite its difference in all the process, COOPERACY could face scepticism and fear from initial users: indeed, we will not ask for “donations” but we can’t even consider membership incomes as real investments – members are not shareholders, everything is kept in the fund. COOPERACY will:

- Build a strong community based identity through a clear and transparent communication: subscriptions and payments will turn into a **membership**, allowing people to participate in a process that will be recognised as effective, democratic and transparent among international main platforms of alternative finance. Membership fees, as usual, will not be refunded and will not lead to revenues. It can lead, instead, to professional positions or to representative roles, depending on the personal involvement in the platform or in a specific project;
- Ask for an affordable economic effort (1€/month) which is representative of a low-risk opportunity for members

²⁰EC working document “Crowdfunding in the EU Capital Markets Union”

- Build a financial plan (see business plan below) aiming at investing up to 85% of revenues in projects, with the consequent perception of a zero-waste system, and the remaining part for new employment creation.

Barrier 4: "Tragedy of commons"

The tragedy of the commons' is an economic theory of a situation within a shared-resource system, where individual users acting independently according to their own self-interest behave contrary to the common good of all users by depleting or spoiling that resource. COOPERACY goal is to create an environment where the individualistic approach is mitigated by rules and opportunities; however, it's important to protect the collected fund from any external risk, and this will be done through transparent rules of participation and the identification of a collective management system that does not allow any member to directly handle the fund or a part of it.

Barrier 5: Abandon

Due to its participatory nature, COOPERACY will face the same risk of any democratic environment: the abandon of members that do not feel themselves anymore as a part of it. This issue has been considered in the Business Plan, where a drop-out rate has been calculated. Moreover, we will work on this topic on two sides:

- Prevention, always pushing for a strong membership feeling and focused on the process, and as much as possible disconnected by final results of votes and projects launched;
- Engagement, always trying to reach new members through our communication and through initiatives on cooperation science.

Barrier 6: Language and communication

Nowadays, human interactions and cooperation, other than vis a vis, may be carried on through very different communication media (e.g. phones, e-mail, chat, video-conferences, blogs) and information sharing systems (e.g Dropbox, Google Drive). Therefore, the present cooperation model may imply different outcomes when it is implemented consistently with those systems. To face this issue, a series of observational and experimental studies will be carried on to highlight significant differences in the cooperative interactions of real and virtual groups.

Not having a human being in front of you enacts different dynamics than those in real life. Establishing Facebook-like participation (posts, comments) as real benefit and Facebook "likes" as relational benefit it is possible to observe the group behaviour and compare results, as already shown by the Cooperacy paper during the Collective Intelligence Conference at the NYU Stern School of Economics in 2016.

2.2 Measures to Maximize Impact

In this section, the dissemination, exploitation, and communication strategies are discussed. An important distinction will be made with respect to the different approaches to maximize impact. Indeed, through the actions outlined in the present proposal COOPERACY will "promote the research action and its results" through three distinct but complementary approaches:

- **Dissemination actions** will disclose and give public accesses to the results of the project also through a two-way-approach thanks to a final conference;
- **Exploitation**, given the high innovation potential of COOPERACY, coupled with a presence of very different actors representing the civil society at large, a preliminary business plan, costs-benefits analysis and roadmap are included as exploitation strategies;
- **Communication strategies** will make both COOPERACY actions and results publicly available in different formats and styles that will be tailored to specific audiences and aims. The communication strategies aim to raise awareness and give value to the consortium organization as well as to achievements, when they arise, through a two-way-approach, based on an interaction with users and stakeholders. COOPERACY will have a special focus on civil society engagement and involvement throughout the whole project duration, starting from the definition of needs that will lead to the requirement definition. Another important focus will be to involve and create communities of people interested in the topics addressed by the project and to generate expectations (hype) for the outcomes.

COOPERACY will be spread, other than the relevant communication targets, throughout all the social centres, commons, peer-to-peer and sharing economy sector, and also within the open source and commons based communities, activities and organizations like eco-villages and in general in anybody interested in experimenting a different economy based on having a common fund with extremely low risk subscription.

Table 2: Stakeholder relevance to COOPERACY.

Stakeholder relevance to COOPERACY	Main Institution Related
Scientific Community	
Economists	EAEPE (European Association for Evolutionary Political Economy), ESHIA (International Association for Economic Science with Heterogeneous Interacting Agents), EEA (European Economic Association), AHE (Association for Heterodox Economics), INET (Institute for New Economic Thinking)
Simulation and CSS scientists	ESSA (European Social Simulation Association), Computationa Social Science Institute - UMASS
Investigators on the Commons	IASC (International Association for the Study of the Commons)
Collective Intelligence scientists	Centre for Collective Intelligence – Massachussets Institute of Technology
Industry	
Artigianato	Confartigianato
Crowdfunders	Kickstarter, Indiegogo etc.
Cooperative people	International Cooperative Alliae
General Public (Citizens)	
LGBTQIAPK	LGBT Foundation, NOGLSTP
StartUppers	StartupFest, International Startup Competition
Makers	Roma Makers, Makers Fair Bay Area, International Fablabs Association
Social Centres people (see target)	All social Centres worldwide

2.2.1 Communication and Dissemination

2.2.1.1 Scientific dissemination

Dissemination activities is one of the most powerful tool to spread out the results emerging from the project. Since it plays a crucial role, the whole set of activities will start at the outset of the action (DAY ONE) and continue throughout its entire lifetime.

The focus of the dissemination is to increase the awareness of the project and its main results. The project, in fact, will produce results that will be of interest to many groups like: i) potential users, ii) the scientific community and iii) common citizens.

Regarding the scientific community, the dissemination will be carried out using two main tools: conferences and publications. We will develop 12 working papers out of the different investigation streams (1 Cooperation Science, 2 Macroeconomics of cooperative economy, 3 Macro-effects of a Design Democracy, 4 Macroeconomics of household innovation, 5 Game Theory Investigation, 6 Game Theory Experimentation, 7 Computational Social Science of Cooperation, 8 Bayes Artificial Intelligence applied to biofeedback, 9 Psychological analysis with biofeedback of cooperative interactions 10 Collective Intelligence of a cooperative social system 11 Sociological aspects of a Design Democracy, 12 Final COOPERACY social system paper) Each of the partner will put its effort in presenting both the idea of the project and the results by attending conferences. In this way, we spread out the information to a large audience and we will collect feedback to improve our work. Some of the conferences we could attend are:

- WEHIA (Workshop of Economic Science with Heterogeneous Interacting Agents)
- EAEPE (European Association of Evolutionary Political Economy) Conference
- CEF (Computing in Economics and Finance) Conference
- IEEE International Conference on Social Computing (SocialCom)
- International Conference on Web Intelligence
- MIT Collective Intelligence Conference
- ICCSS International Conference on Computational Social Science

Scientific publications, free-access working papers as well as 24 articles in divulgative journals (2 per working paper) will be published so to allow the dissemination of the project methodologies and results to the widest audience. Each partner will give this own contribution according to its specific objective like Game Theory,

Collective Intelligence, Macroeconomics, etc. A not exhaustive list of the international scientific journals interested to publish our results includes the following names:

- Journal of Economic Interaction and Coordination
- Journal of Economic Dynamics and Control
- Complex Systems
- International Journal of Complex Systems in Science
- International Journal of Technical Cooperation
- Journal of Internet Research
- International Journal of Artificial Intelligence

The overall project will convey into the conference in Milan about Cooperation Science in order to create the ground for a wide discussion about cooperation include the citizens and the academia in the future years.

This will be the only case in which we will use paper. We are somehow against the use of paper that is not used as a poster or as a clarifying large image. Brochures, leaflets and policy briefs are often used but are usually lost, left away or trashed.

Scientific Dissemination Partners

The identified partners of the research dissemination, other than those in the "Links with other projects" section, are: Società Italiana di Terapia Cognitiva e Comportamentale, Italia; European Association of Behavioral Cognitive Therapies, The Netherlands; Ordine degli Psicologi del Lazio, Italia; Associazione di Psicologia Cognitiva, Italia; OIDP = International observatory of Participatory Democracy (barcellona - Spain); Committe of Social Inclusion, Participatory Democracy and Human Rights (Cisp-DH) of United Cities and Local Governments (Uclg). Sed on Barcelona, Spain; International Platform of the Right to the City (located in S. PAULO, Brazil); Big Data Value Association (PPP H2020); Data Reuse (H2020 project); Institute Without Boundaries (Canada); George Brown College (Canada); Scuola di Robotica di Genova (Italia); Tangible Media Group - Massachusetts Institute of Technology (USA); P2P Foundation; Experimentia Consulting; ONB Analytics srls; The Complexity Lab in Economics

For the other dissemination activities, see Communication and General Dissemination Activities

2.2.1.1 Knowledge Management Strategy and IPR

The consortium takes the firm commitment to comply with existing laws, namely the ones concerning copyright, Intellectual Property Rights (IPR), Data Privacy and related ones.

The result of our patent search related to the technologies we plan to use confirmed the non-existence of patents that could endanger the Consortium **freedom to operate** and the development and exploitation of COOPERACY project and results. Further analysis of existing patents will be conducted during the project to avoid any infringements.

A **Consortium Agreement** will be drawn by the co-ordinator and all partners, and agreed upon by the legal departments of the partners, to define in detail their rights and obligations with respect to **IPR handling and data management**.

The Innovation and IPR Managers will be in charge of **IPR management**, leveraging on their legal expertise and insights on commons-based peer-production and decentralized architectures.

They will draw from the Consortium Agreement for any matters related to potential conflict among Partners and from the results of CNSR tasks in WP3 "Blockchain & Legal" for any matter related to the IPR management of the projects and the blueprints developed by the platform users.

Research findings will be "gold open access", that is open science available to anybody disposing of an online connection: the more we spread the concepts and results, the higher the awareness and the amount of new subsequent data. In order to do this, we will share the knowledge of the COOPERACY scientific area on the platform website and on main research portals, papers and journals.

We will just highly suggest the website registration in order to collect as much data and feedback as possible through the platform activity.

Results will be used:

- to further develop and market the COOPERACY platform
- for further internal research within each Partner
- as background of future collaborative research projects

2.2.1.2 Data Management

As regard the data (acts, information, knowledge, documents or other matters) communicated among the Partners, The Consortium Agreement will also rule the respect of **confidentiality agreements**.

As regard the personal data of third parties external to the Consortium (including but not limited to personal data of the platform users required for the registration to the website; personal data of the people involved in the research tests and investigations; personal data of the users who manage or work in a COOPERACY generated project), we will process them in compliance with **Data Protection law** and according to the Data Management Plan that will be delivered in WP1.

2.2.2 Exploitation

In this section, a preliminary ten years' business plan (2019-2029) and a first evaluation of the social impact brought by COOPERACY is identified, starting from the definition of potential business model to provide the solution to end-users and an overview of the addressed market. Moreover, a preliminary exploitation strategy and a related roadmap defining potential commercial paths is outlined.

2.2.2.1 Business Plan and Social Return on Investment Outline

In terms of business prospect, COOPERACY has a worldwide market potential. In fact, as previously mentioned in this proposal, the key concept behind the project is to create a **collective funding platform for participatory innovation and collective awareness**. This platform has been conceived for an audience as wide as possible to foster collaborative behaviours and create an impact for the society at large, from both an economic and social point of view.

Despite COOPERACY could create benefits for all citizens, a calibrated commercial effort will be necessary to make the Consortium exploitation strategy as effective as possible. In this sense, at the beginning of the solution commercialisation, the Consortium will try to reach mainly those European citizens with a certain user-experience regarding similar platforms (even if not identical) and e-commerce²¹.

Therefore, the **European crowdfunding market** has been identified as total market and main entry point for COOPERACY, at least at an initial stage of the solution adoption. Here both creators (securing funding through platforms) and funders (spending money by invest in an idea and often getting something in return in the future) can be potential first adopters of the proposed system.

Market and competitive environment assessment

Crowdfunding can be defined as an open call for the collecting of resources (funds, money, tangible goods, time) from the population at large through an internet platform. As recently demonstrated by global economic trends, financial crisis often results in declined trust in traditional financial service providers, constrained bank landing and falling interest rates. In this context, crowdfunding can play a key role in terms of new mean of funding and alternative form of finance, in particular for small and young entrepreneurs.

In general, crowdfunding market can be divided in two categories both composed by two main segments, according to the business model behind the campaign. They are:

- **Non-financial crowdfunding**: funders do not get a financial return or compensation for providing funds. Here two types of campaigns can be found: (i) **donation-based campaigns**, in which people do not receive any reward for their contributions; and (ii) **reward-based campaigns**, where people receive goods or services in exchange for their contributions. -> *Originally, donation- and reward-based transactions represented the majority of crowdfunding transactions, however this trend changed in recent years globally;*
- **Financial crowdfunding**: in return for their contributions, the funders receive a financial compensation, in the forms of: (i) **lending-based campaigns**, in which contributors receive interest payments in exchange for financing a project with an associated rate of return and maturity date; and (iii) **equity-based campaigns**, where people receive shares in the venture -> *In recent years, P2P lending has*

²¹ According to the EC study "Crowdfunding innovative ventures in Europe", for people with low familiarity and limited user experience regarding e-commerce, online transactions are uncommon and may be met with scepticism.

emerged as the by far most important crowdfunding activity on a global level, substantially ahead of non-financial and equity-based funding.

The crowdfunding market is becoming even more important not only for its role and structure, but also for its size (even if still small when compared to the overall financial sector). Globally, the total crowdfunding industry estimated fundraising volume in 2015 of c. **\$34 Billion**, of which **P2P lending consists of 71% of the total**²², representing the most relevant category, as mentioned before. In the same year, more than **1,200 platforms** have been registered, with the overall platform growth peak in 2012²³. Segmenting the market by continent, Europe is registered among the three main markets in terms of both funding volume (after North America and Asia) and annual growth rate (after Asia and Africa) in 2015. Therefore, it represents a core region in terms of potential opportunities.

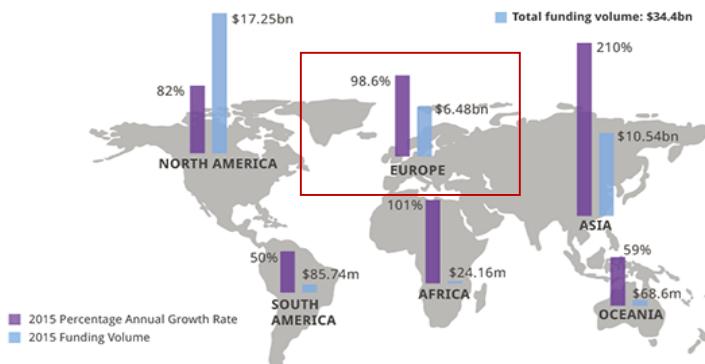


Figure 8 Crowdfunding annual growth rate and funding volume by region in 2015²⁴

In fact, according to the European Parliament, crowdfunding is a relatively “young” form of financing, especially for SMEs and start-ups, but also for not-for-profit projects, that is developing fast in the region, and in particular in some European Member States, as reported in the table below.

Table 3: Crowdfunding in EU²⁵²⁶²⁷

Preliminary market information

- **Volume:** €4.2bn successfully raised through crowdfunding platforms in 2015 across the EU, of which €4.1bn were raised through crowdfunding models entailing a financial return;
- **Platforms:**
 - o 510 live platforms as active in the EU at the beginning of 2015, of which 502 platforms were located in 22 Member States, while 8 platforms were located in other countries,
 - o 5 platforms representing over 80 % of the projects that had ended successfully in terms of monetary value.
- **Business model:** the three most common types of return offered by platforms were in the form of rewards (30%), equity (23 %) and loans (21%);
- **Projects:** a total of €2.3bn successfully raised in 2013-2014;
- **Impact on economy:**
 - o In 2012, after the 2008 financial crisis-period:
 - o Several micro companies, start-ups and SMEs have been financed through crowdfunding activities
 - o New jobs created through related projects. In Spain, for example, 7,500 new jobs were created through c. 2,800 crowdfunding projects
 - o In 2015, the overall collaborative finance platforms generated c. €250m of revenues and €5,200m of transaction values in Europe

To sum up, nowadays crowdfunding is an EU-wide phenomenon, with the potential to encourage innovation, entrepreneurship and job creation. Despite crowdfunding projects were identified in all Member States, significant differences in levels of activity are registered among them. A further in-depth analysis in terms of key geographies will be done during the project-> In fact, while coverage varies significantly between Member

²²<http://crowdexpert.com/crowdfunding-industry-statistics/>.

²³<http://www.crowdahouse.com/press/>

²⁴<http://crowdexpert.com/crowdfunding-industry-statistics/>.

²⁵EC working document “Crowdfunding in the EU Capital Markets Union”

²⁶PWC report “Assessing the size and presence of the collaborative economy in Europe”

²⁷[Crowdfunding for Sustainable Entrepreneurship and Innovation](#)

States, the five largest markets by total amounts raised were France, Germany, the Netherlands, Spain, and the UK²⁸. This preliminary prioritisation has been leveraged to define a preliminary COOPERACY exploitation strategy.

The relevance of crowdfunding will continue to increase in the future. The overall industry is forecasted to grow at a **CAGR of 26.9% during the period 2016-2020²⁹**, globally. -> Key drivers for this growth will be the consolidation of existing platforms, increase of financial-campaigns, institutionalisation and internationalisation of the phenomenon, the growing role of collaborative economy and blockchain methodologies. These drivers will pose important challenges in the EU, with consequent needs for users in terms of new platforms aimed even more at promoting a collaborative approach and of a specific regulatory framework for them.

Table 4: Main future trends and needs in EU³⁰

Market trends and related challenges in the EU	Needs of users and stakeholders
<ul style="list-style-type: none"> - Consolidation: consolidation of existing crowdfunding platforms - Growth: growth of the financial campaigns and of the average size of offers - Institutionalisation: institutionalisation of crowdfunding, notably in terms of the investors - New segments: Increasing activity in more “niche” segments, such as renewable energy, and attention towards - New concepts: new platforms based on the concept of circular economy and blockchain crowdfunding as the next step for start-up evolution 	<ul style="list-style-type: none"> - Regulation: New regulatory framework for crowdfunding activities - Internationalisation: internationalisation of crowdfunding platforms to increase economies of scales - New platforms: new platforms based on the concept of collaborative and share economy and able to create participatory innovation and collective awareness

To respond to these needs, new technologies will be fundamental, in particular in terms of **ICT infrastructures** to collaborate (e.g. cloud-based laboratories) and monitor many aspects (e.g. human emotion recognition). -> Here, key technology trends are represented by wireless sensor networks (WSN), Big Data analysis and the Internet of Things (IoT). In particular, **IoT applications** would create an economic impact in cities from \$930 billion to \$1.7 trillion per year globally in 2025³¹.

In line with these trends, COOPERACY has been conceived. At the moment, **no comparable platforms to the proposed one are available on the EU market.** However, analysing the competitive environment globally, some similar solutions have to be mentioned:

- [Enspiral](#): a free New Zealand collaborative platform of social enterprise ventures and social entrepreneurs working together with shared vision and values. Founded in 2010, nowadays it has c. 150+ active contributors and 10+ ventures.
- [Babele](#): a free Romanian crowdsourcing platform for business model innovation and composed by a team offering trainings and online tools to crowd-accelerate social innovation worldwide. Founded in 2011, it counted c.9,300+ members in the last years.

The overall competitor analysis will be deepened during the project, considering the fast evolutions of the market. At the moment, apart for these two platforms, mainly R&D projects aimed at developing solutions with similarities to the one proposed in this project have been identified. However, they have not yet reached the commercial phase, so they cannot be considered as real competitors. -> To conclude Enspiral can be considered the main worldwide COOPERACY competitor, at this stage of the analysis.

The proposed innovation

It is worth noting that, even if with similar concepts, both the two platforms identified above have different architectures (e.g. in terms of human emotion recognition), logics (e.g. in terms of voting) and markets (e.g. in terms of addressed geographies), when compared to COOPERACY. These differences make COOPERACY quite unique in the EU market. As widely described in previous paragraphs, the proposed collective funding platform aims at a fostering participatory innovation and collective awareness, promoting a share and collaborative

²⁸EC working document “Crowdfunding in the EU Capital Markets Union”.

²⁹<http://crowdfundbeat.com/2016/02/03/report-global-crowdfunding-market-2016-2020>.

³⁰EC working document “Crowdfunding in the EU Capital Markets Union”.

³¹MCKINSEY Global Institute “The Internet of Things: Mapping the value beyond the hype”.

economy. Therefore, COOPERACY will create benefits for its users in the sense that compared to the other solutions it will increase:

- **Accessibility:** *it will make products (e.g. financial resources) and services (e.g. support to business plan preparation) available to people who previously lacked access to them. In doing that, COOPERACY will leverage the collaboration among its users that will be based on specific (and unique) rules and algorithms;*
- **Convenience/ usability:** *it will make the platform easier (than others identified above) to use for final users.*

In doing that, the solution will create several societal benefits for all citizens, as summarised in table below.

Table 5: COOPERACY social impact

Benefit	User/ Stakeholder impacted	Relevance/ Impact
Create new job opportunities	Society as a whole	High
Support social entrepreneurship	SMEs, associations, NGOs, individuals	High
Support a collaborative and circular economy	Society as a whole	High
Share knowledge	Society as a whole	Medium
Set up more participatory democratic processes	Society as a whole	Medium
Improve quality of life	Society as a whole	Medium/ Low

The business model

Both COOPERACY value created for users and impact for society as a whole could be delivered only if an ad-hoc business model is adopted. Here, a preliminary one is provided. It is prepared leveraging the CANVAS methodology.

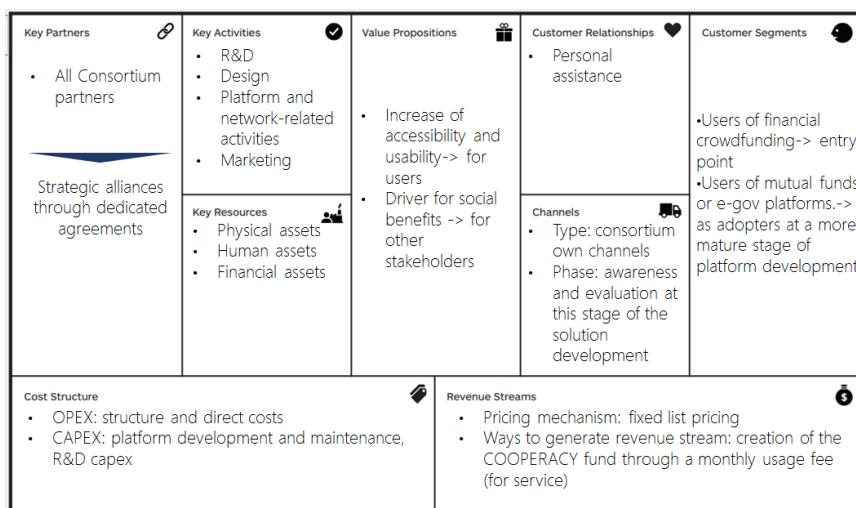


Figure 9 Preliminary CANVAS business model for COOPERACY

Starting from this general business model, a specific service provisioning chain has been elaborated. It is summarised in the figure below. It generally foresees COOPERACY directly in contact with platform users. The Association will work together with other partners in charge of different activities (i.e. big-data analysis, tests, platform analysis, dissemination and communication...). They will be supported by Alpha in the commercial exploitation and for business and marketing activities.

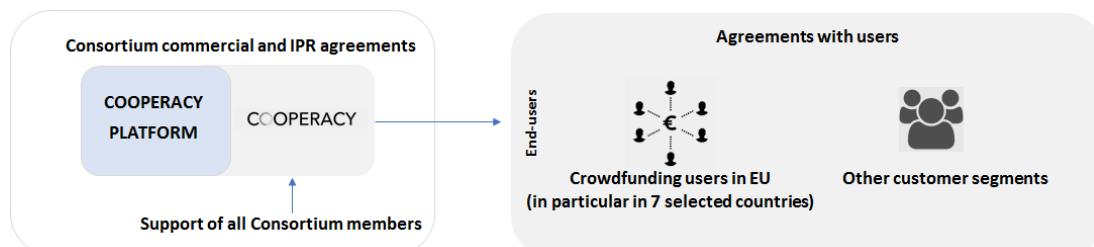


Figure 10 Preliminary provisioning chain for COOPERACY

This overall provisioning chain has been further declined, in particular in terms of pricing. Due to its uniqueness and objectives, a participant level fee/ investment has been established. It consists of **€1 per month for each participant.**

Exploitation strategy and preliminary roadmap

As mentioned before, a calibrated commercial effort will be necessary to make the Consortium exploitation strategy as effective as possible. In this sense, at the beginning of the solution commercialisation, the Consortium will focus mainly on a specific:

- Set of European countries, as reported below;
- Target audience, i.e. the current users of the main financial crowdfunding platforms.

To reach them, a four-steps approach will be adopted:

- **STEP 1 (2019-20)**: a strong effort will be focused in particular in Italy and Lithuania, as natural entry points looking at the Consortium members;
- **STEP 2 (2021-23)**: In addition to Italy and Lithuania, the team will try to reach main users of financial platforms in UK, considered a key country for crowdfunding activities;
- **STEP 3 (2024-27)**: In this period, the Consortium will increase its effort to reach main users of selected platforms also in other two countries emerged as key from the market analysis: France and Germany; and
- **STEP 4 (2028-29)**: In the last years, The Netherlands and Spain will be also addressed (also in this case as a result of the preliminary market analysis).

After 2029, the market rollout will be extended to all Europe and, then, at a worldwide level, if possible. However, here, the first ten years of commercialisation (2019-2029) are relevant, reflecting the timeframe of the first economic and social impacts proposed here below.

Preliminary business plan and social impact

Here below the main assumptions used to define the preliminary COOPERACY BP and social impact has been summarised.

Table 11: COOPERACY BP and social impact assumptions

Key item	Key figures
Addressable market	Users of main financial crowdfunding platforms in selected countries: – from 150,000 in 2019 in Italy and Lithuania – to 1.6m in 2029, considering all the addressed countries (Italy, Lithuania, UK, France, Germany, The Netherlands and Spain)
Market growth rate	5%
COOPERACY penetration	From 0.1% in 2019 to 4.5% in 2029
COOPERACY active users	80%/ year
COOPERACY passive users	20%/ year
COOPERACY drop-out rate	10% of passive users/ year
COOPERACY fee	€12/ year

Starting from these assumptions, preliminary forecasts for the period 2019-2029 have been done. In terms of users, COOPERACY will start reaching a relevant mass since 2021. In this year, the Consortium will enlarge its exploitation scope, targeting end-users not only in Italy and Lithuania and, but also UK (where a wide adoption of alternative financial platforms is registered). COOPERACY yearly expected users will be more **70k only in 2029**, as showed in the figure below, when the Consortium will target all the **7 identified countries**. Moving from yearly users to total ones, **c. 130k citizens will use COOPERACY in 2029**, considering active users, passive users and dropout rate. In total, the platform will count more than **200k active users registered and c.22% of penetration in the addressed market in the 10 years considered**.

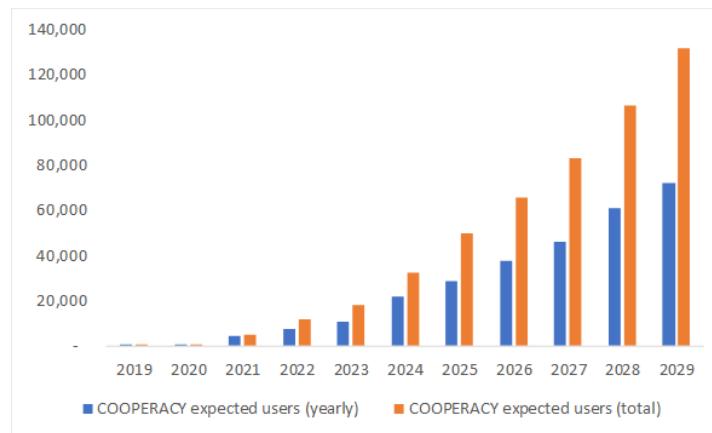


Figure 11 COOPERACY yearly and total users

COOPERACY fund (i.e. the platform potential return based on the pricing strategy defined above) will grow from **€2,000 in 2019** up to more than **€1,5m in 2029**. Looking at the collected fund³² reported in the figure below, it will reach c. **€1,8m only in 2029**. With a percentage of 50% in 2019 up to 85% in 2029 in terms of fund dedicated to new projects and ideas, c. **€5,8m could be invested to foster the overall economy growth and cooperation in 10 years**. In line with that, €1,5m will be invested only in 2029. The remaining part of the collected fund (together with a percentage of profit coming from different projects launched and owned by COOPERACY) will be dedicated to cover mainly costs.

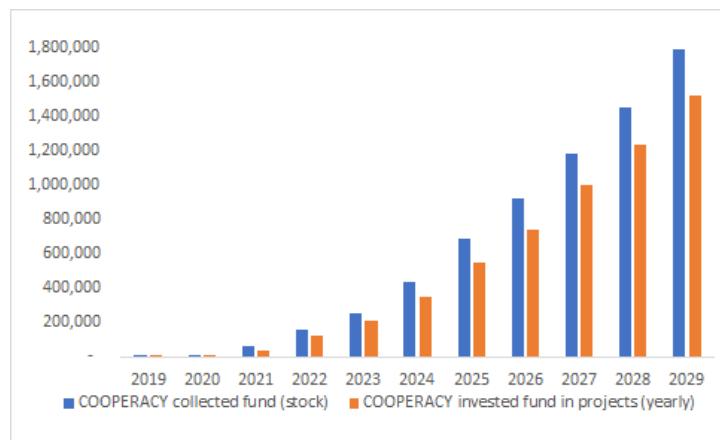


Figure 12 COOPERACY collected (stock) and invested (yearly) fund

The fund will be devoted to the platform and marketing, administration and other costs (that will be maintained as low as possible) and in particular it will be **used to create new employment**. In fact, **at least 10 new jobs** (5 junior and 5 senior profiles) are foreseen only within COOPERACY Association **in ten years considered**. Moreover, all the Consortium members could leverage the know-how produced to improve their services and products and open new positions.

Relevant results are expected not only for the Consortium but also for the society as whole, as already mentioned above. Indeed, COOPERACY investment will support the launch of **at least 100 successful projects**, with an indirect impact of a minimum of **10k for each project in the society as a whole**, as already demonstrated also by acroyoga course. These projects will create further employment, with **an average of c.3 new jobs for each project launched**. This **SROI** is of absolute relevance, in particular in this time of economic downturn and strong unemployment rates in many EU countries. Last, but not least, COOPERACY will support **those categories usually more affected by the crisis** (e.g. in particular micro, small and medium entrepreneurs, NGOs, associations and young people), in line with the ICT-11-2017 call spirit and, more in general, EU strategy (e.g. in terms of support to SMEs). Despite the significant economic and social results, they have been drafted using a **conservative approach**. COOPERACY could be used not only by financial crowdfunding users and in the seven selected countries. On the contrary, an interest is expected also by other segments (e.g. mutual fund and

³²

Sum of the yearly fund collected and the remaining part of the previous year.

e-government platform users, blockchain users...) and geographies worldwide (in particular the Anglo-Saxon countries). Therefore, final benefits can be even better than those forecasted, for both Consortium members and society as a whole. Both economic and social benefits will be further explored during the project. In particular, concrete and measurable indicators to assess the economic and social impact and the "social return of investment" of the proposed solutions will be fine-tuned using the following methodologies and through dedicated analyses (as reported in WP8).

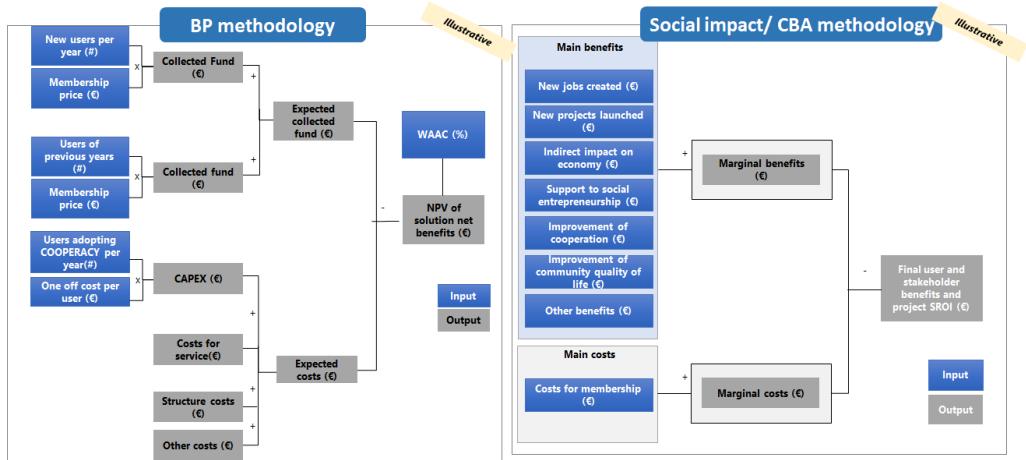


Figure 13 BP and Social Impact / CBA Methodology

2.2.3 Communication and General Dissemination Activities

All partners but ALPHA and PURPLE will be involved in our communication and dissemination activities. Our communication phase will maintain contact with the Project Officer and leverage on the European Union means of communication and dissemination shared for H2020 projects described in the communication guide: http://ec.europa.eu/research/participants/data/ref/h2020/other/gm/h2020-guide-comm_en.pdf

2.2.3.1 Communication plan - Introduction

Our communication approach will be based on the question this project asks: can we realize together a more inclusive economic social system based on cooperation?

The recipients would include universities, associations, cooperatives and the broader public according to the following target section, in the countries that have been listed in the exploitation paragraphs. The campaign would be delivered to press agencies, magazines, newspapers, blogs and web key communication actors. The social campaign would affect Facebook, Instagram, Twitter and other relevant SNs and a strong use of the influencers network. The website, a facebook page, an instagram and a twitter account, the research project, and virtual press material (e-brochures, e-newsletters, e-projects catalogue) will be our main actors enacting the communication activities.

Our communication will start from day one with the graphic and platform design and a well defined user journey in synergy with the coordination partner Cooperacy Association and the Communication partner IdLab.

2.2.3.2 Visual Identity

The visual identity development will be revised in the beginning of the project starting from our preliminary ideas. In fact, we started from day -1 and already have done some visual identity for the project. We will follow the other partners processes in order to integrate them in our communication. The overall project systemic approach will be defined at the end of the journey done together, but we need to observe and collect the different nuances from every partner.

Our logo is made of the seven conditions of cooperation correspondent to the seven colors of the rainbow, with a slight change: we removed red (that is usually magenta in the spectrum) and inserted pink to underline the absence of conflict (red is used in flags to remind the blood spent in wars for the country freedom and "pride", see Rites of Blood by Barbara Ehrenreich) and the importance of tenderness.

Orange=Equivalence; Yellow=Trust; Green=Care, Cyan=Transparency; Blue=Freedom; Indigo-violet=Understanding; Magenta-pink=Diversity

The font will be chosen between Avenir and Open Sans. Both their names and styles are coherent with the aims of the project.

2.2.3.3 Target audience

Our target audiences will be chosen also taking into consideration their possibility to produce user stories and video, the clusters we have identified so far are:

Young people = They want change and are very sensitive to co-sustainability

Elder people = In the Cooperacy Association conferences the most “touched” people were the elders, they believe in cooperation as it probably was the European style of life before the 50s

LGBTQIAPK people = They stand for diversity (see their similar colors in the visual identity)

Nerds = they will like the scientific side of the platform

Families = The concept of the family is very close to that of the cooperative

Christians = The Christian heritage is based on sharing, donating, cooperating and will feel exciting the new decentralized perspective

Associations, cooperatives, sharing economy network = They are used to the concept of a common fund or about sharing

Startuppers, HUBS, incubators = They already have the right mindset to realize effective projects. This cluster though has a set-back: this network represents a mirage and we don't aim at people seeking money, but motivated and sustainability oriented participants.

P2P = We're already in contact with the P2P foundation and its lead Michel Bauwens

Artisans and household innovators = We've even received messages of interest from them!

Students = Students could be very interested in using COOPERACY to generate courses for their favourite “subject”, including skateboard building, Angular software courses, cupcakes etc.

Makers and innovation labs = The makers community is our ideal target, especially because they might look for financing for their initiatives. They are transversal in the space and social classes, online, “nerdish”, community oriented, easily identifiable and reachable. They could even start a trend that will engage the students and the young people interests, generating awareness and participation.

Although is one of our best targets, we cannot start with the Household Innovators right away: the cluster is quite difficult to identify before the relative investigation is completed.

Social and community Centers, Indie music, hackerspaces, the underground social bars and lounges, the people attending free concerts and alternative non-mainstream events = special target, see below.

2.2.3.4 A special audience

The social and community centres and non-mainstream community represent an underground network very sensitive to our project because very prone to the change and already experimenting community approach. We will dedicate half of one human resource time to this specific network that we think could make the most impactful effect and be the drive-engine of the project dissemination. This kind of people represent another powerful transversal community that could even organize for us or independently a series of events and workshops. We don't need any traditional advertising or communication effort, we just need to talk to them.

2.2 The target approach

We will start with the target “makers” and Social Community Centers, also participating to their “Makers Fairs” (the one in Rome has 90k participants), and then refining the communication according to the results, proceeding with students, artisans, household innovators and LGBTQIAPK.

2.2.3.5 Communication Tools

Website: Cooperacy.org – App: Let's Cooperate!

The website will have three main sections for the CAP and one section dedicated to science. The three sections will be: DISCOVER - LEARN – DO. The App will reflect the main website functions and design.

The section DISCOVER will include information: about us, about you, news, fun. About you will be based on the reason why a person should be interested in joining and about the ecosystemic and sustainability change that will happen with a mass participation. Fun will be the artistic and gaming side of the website, including the instructions for Cooperacy-developed “Cooperative Monopoly” game, with which the user can transform her/his experience of the Monopoly game into a cooperative one.

The section LEARN will be based on our 7 principles of Cooperation and will represent the learning awareness side with insights from the science background. It will be refined once the investigation has been completed with documentations, courses and webinars.

The section DO will be the **social action network**, based on PROJECTS, STORIES, HOW IT WORKS. Stories, in particular, will represent an historical side of all the projects, with images, videos, and other narrative information about the Projects.

The section]SCIENCE[will be based on a sentence: A Proportional - Social System - Based on Research; and will include respectively: (i) the Game Theory and the direct online proportional governance investigations; (ii) the micro, macro and computational social science ones together with our Cooperation Context Index; (iii) the AI, IOT and all the other Open Data information.

The website will be continuously updated with news and user content. We will plan to continue for one year after the launch to supervise its communication.

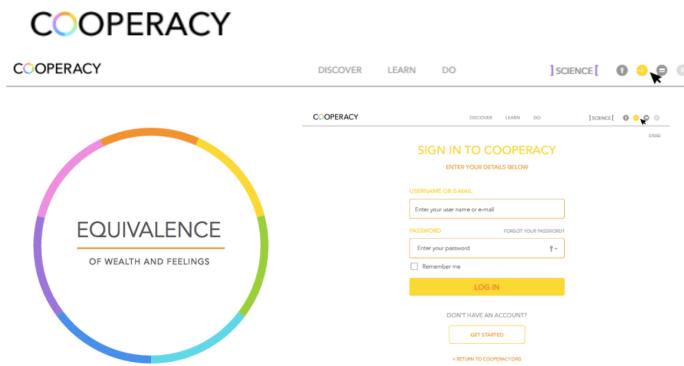


Figure 14 Visual Identity drafts

Storytelling will be centered in the user stories in the website specific area. The stories will be disseminated also in our Instagram, Facebook, Twitter and other social network segmenting the user we will reach according to the specific targets. The public will be following the stories and will be reached in a very specific way, with collective intelligence applied to the same communication. In fact, having the people to decide what to fund thanks to the votes, they will automatically and collectively select the project which will tell stories that similar audiences will love. This is another structural two-ways approach.

PRs, digital PRs and influencers impact will be strategically planned in a dynamic way, that is, while the users auto-determine it participating. In particular, we plan to contact multiple key influencers of low range impact rather than few strong influencers in order to maximize the communication budget, reaching specific targets with a less expensive effort.

Webinars: Cooperation School

A series of 12 webinars will teach Cooperation Science insights for different audiences following the exploitation plan. E-learning courses may follow according to user demand.

Newsletter: Cooperacy News

The community will receive a monthly newsletter with awareness and learning content and a selection of the best user stories.

Event: The Cooperation Day -with our Supporting Partner the Milan Municipality

We will organize an event in the City of Milan, that already demonstrated a great interest in the COOPERACY project and represents an informal part of the consortium, to officially launch the platform and organize a scientific conference. The event could be in connection with the Participatory Budgeting project Entropia (Equivalence principle) and the Ecosystem awareness Esmeralda project (Care Principle) from the H2020 programme, and with the ENSUF programme project C3Places (Freedom Principle), the last already involving Cooperacy Association and Mykolas Romeris. These connections will represent a scientific and communication clustering effort. The final conference event in Milan will be based on:

Main conference to present the results of the research and in the evening the launch of the platform.

Symposium: the representatives of the countries involved in the project that have about 20 minutes each to show and discuss their findings. Alternatively, round tables where the partners of the project discuss and present their results.

Testimonial Talk: a renewed protagonist of the international panorama, who joins and enriches the discussion with a talk on the theme of cooperation, democracy, participation or discussing the findings (1h30mins): this time could be a person from our advisory board.

Social broadcast will be used to involve followers, associations, professional organizations, academic institutions and research groups all over the world that cannot attend the event, but wish to follow and

participate with live streaming, chat and social networking – a universe of people geographically distant, but whose presence in the room takes shape and is told through a storytelling prepared by our live-editors.

Storify: to spread the meeting to social media sites and other sources, enabling an all-in-one search experience

Live Editing: live twitting and live chat. A place for people to directly share thoughts, contents, opinions and ask questions

We will follow something similar to our friends “Meet The Media Guru”:

<http://www.meetthemediaguru.org>

<https://storify.com/mmguru/live-daan-roosegaarde-mmguru-meetdaan>

Posters and artworks: the COOPERACY Pinwheel

We will create posters and in a design-based paper artwork policy brief with 7 wings like the 7 conditions of cooperation and relative colors, representing the 7 institutions that will produce the working papers and one dark gray stick with the other members of the consortium in it (Alpha, Purple, CNRS, IDL and the Milan Municipality partner won't produce working papers but only documentation). The artwork could be folded and become a pinwheel, our chosen symbol for Cooperation and Cooperation Science: when the rainbow colors spin together, they merge into a white glowing light (Check Pinwheel Logo in the Annex).

Videos: COOPERACY stories

We will develop 12 very short infographics of around one minute each that are modular and can be merged into a single one. A final 7 minutes video will be therefore resulting of the 12 modules in order to explain the values and the functioning of COOPERACY. We will also create another video editing user content generated stories and another one about the birth of COOPERACY with the consortia.

Translations

We will invest a fixed sum in the translation of the COOPERACY online awareness platform in the 24 official european languages, starting from the most diffused to the least ones, including 4 languages for extra-european large minorities (chinese, arabic, hindi, russian) and stopping when the money ends. The final part of the 24 translation will be done engaging user contribution.

2.2.3.6 Strategy/Timeline Communication towards the (external) people

Our communication will be based on different materials: the target public will be addressed with press releases and articles, external events, videos and a social networks campaign. We plan to invest in 24 divulgative articles in the different stakeholders grounds (see targets), and to develop a network of 1000 influencers starting from Italy and then including more countries according to the exploitation plan (Italy, Lithuania, UK..).

PRELIMINARY SOCIAL MEDIA CAMPAIGN SCHEME - PER YEAR

2019 IT+LT; PRIMARY: **MAKERS** SECONDARY: **STUDENTS**

2020 IT+LT (UK); PRIMARY: **STUDENTS, NERDS** SECONDARY: **LGBTQIAPK, ARTISANS, HOUSEHOLD INNOVATORS**

TOUCH POINTS	INVESTMENT YEAR / MO	INCREMENTAL	PEOPLE ENGAGED	CLICKS	MAX - MIN SUBSCRIBERS	GROWTH FROM 50
Facebook	3500 / 290	3500	1,5 millions	4500	900 - 50	550
Instagram	1500 / 125	5000	400.000	1800	350 - 50	..750..
Google Ads	1000 / 100	6000	2000 website visits	3000	300 - 50	..1000..
Influencers	6000 / 500	12000	1 million	-	3500 - 50	..2700..

Tot. Members Growth: ~5000, Budget: 12k euro/y = 24k, average cost/member: 4.8 eur.

The above campaign has not a conservative approach like the one in exploitation, so numbers may vary.

The second year will be more oriented to more specific niche that will be enacting stronger trends, like STUDENTS, NERDS, LGBTQIAPK, ARTISANS. The students are a very interconnected community, the nerds represent a background influencing the overall online community, the LGBTQIAPK may affect different parts of the society like the fashion one, finally, the artisans spread through different layers of the social context and represent a very localized entity.

2.2.3.7 KPI for final evaluation after two years of activity

Table 12: Communication KPI

KPI description	KPI Target
Nr. people who joined the launch event in Milan	300 - 700
Nr. of Likes on Facebook page (global)	10.000 - 40.000*
Nr. of Followers on Instagram	10.000 - 40.000*
Nr. of visits to the website (per month)	3.000 - 10.000*

* These numbers are dependent of the ADV budget and campaign that will be chosen to follow for each channel during the definition of the communication project.

3 IMPLEMENTATION

3.1 Work plan

The COOPERACY platform and its services will be implemented following the guidelines, methods and activities illustrated in this package.

3.1.1 Work Plan: from tasks to work packages, deliverables and milestones

The objectives will be achieved through 39 tasks arranged in 9 work packages. Every participant will take care of one or more tasks contributing with their knowledge and experience in a cross-functional organization. The work packages will be arranged by grouping the tasks by participant specialization. The following table provides the list of tasks, while the following figure provides a GANTT Chart of the project.

Table 13: List of tasks

Task	Start Mo	End Mo	Description
1.1	1	24	Administrative Project Management
1.2	1	24	Scientific, ICT, Innovation and Ethics project management
1.3	1	24	IPR Management
1.4	1	24	Quality Assurance and Risk Management
2.1	1	3	Platform design and knowledge portal
2.2	2	4	Game theory: Knowledge portal and support to COOPERACY platform design.
2.3	2	4	Collective intelligence: Knowledge portal and support to COOPERACY platform design
2.4	3	5	Macroeconomics of a cooperative social system: Knowledge portal and support to COOPERACY platform design
2.5	3	5	Social Impact of an online proportional design democracy: Knowledge portal and support to COOPERACY design
2.6	3	6	Testing, analysis and final release of design blueprint
2.7	8	11	Science support to knowledge portal development
2.8	20	21	Design recommendations for final release
3.1	2	4	Design and Test: Blockchain and Smart Contracts Backbone
3.2	8	11	Platform Blockchain testing and bug fixes
3.3	13	18	Piloting platform blockchain and final release
3.4	1	3	Design and develop the corporate governance model of COOPERACY
4.1	1	5	Design and Test: Vocabulary, Sentiment analysis and Big Data / Machine Learning design
4.2	8	11	Vocabulary, Sentiment analysis and Big Data / Machine Learning testing and bug fixes
4.3	12	13	Source analysis
4.4	13	16	Big data clustering
4.5	17	20	Clustering testing
5.1	5	8	SW development
5.2	8	9	Integration of big data, blockchain, voting system method.
5.3	10	12	Testing and bug fixes
5.4	12	12	Release for pilot

5.5	13	20	Pilot support
5.6	21	23	Final release development and release to the public
6.1	13	20	Piloting the platform: computational social science
6.2	13	20	Piloting the platform: collective intelligence
6.3	13	20	Piloting the platform: circular economy
6.4	20	21	Science group recommendations for final release
6.5	13	13	Pilot projects organization
7.1	7	11	Biofeedback sensors system preparation
7.2	13	18	Piloting the platform: biofeedback sensors in Laboratory groups
8.1	4	24	Business Plan and Implementation roadmap
8.2	6	24	Cost benefit analysis and socio-economic impact
9.1	13	20	Video Infographics and communication materials
9.2	21	24	Dissemination and communication actions
9.3	24	24	Final event and platform launch

3.1.2 Timing of different Work Packages

The COOPERACY Gantt is shown here below. Every colour represents a separate Working Package.

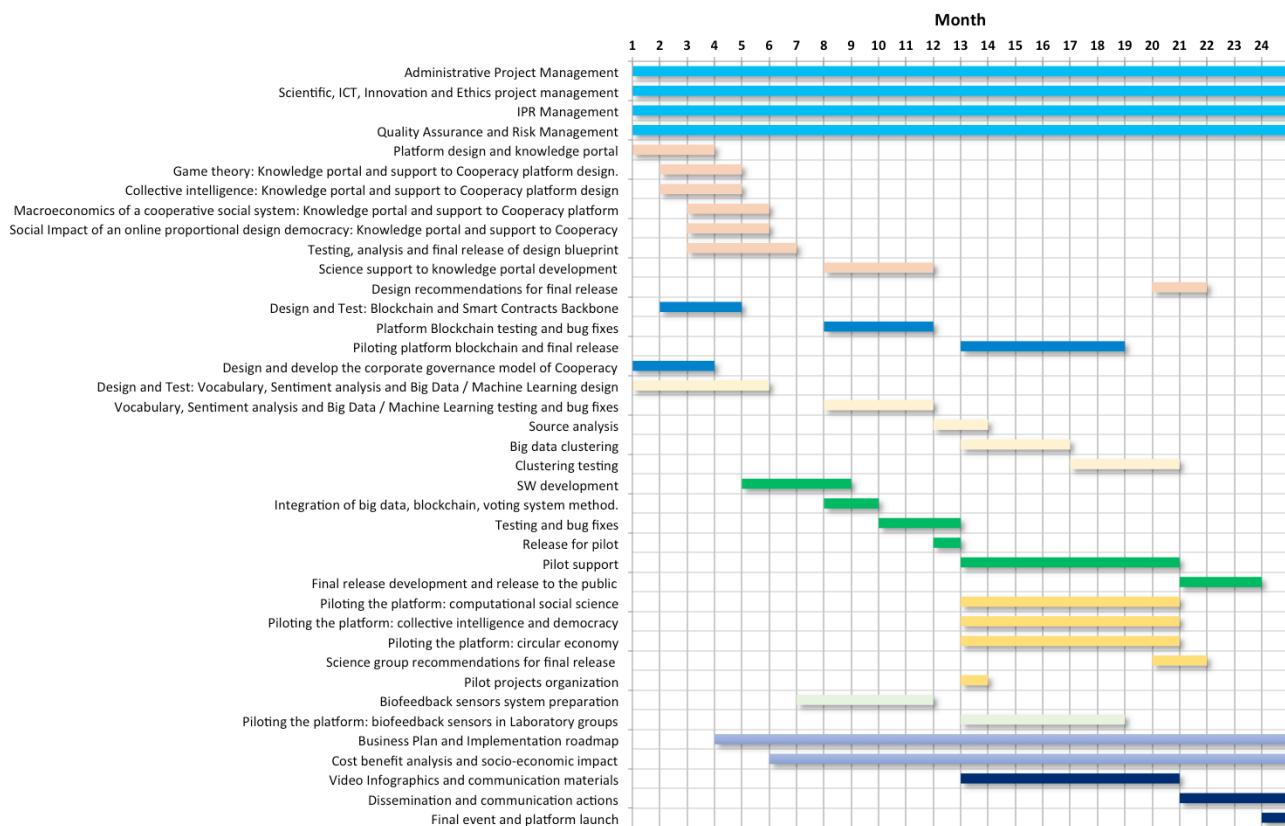


Figure 15 COOPERACY GANTT

3.1.3 List of Work Packages

The following table summarizes how the project is split into separate Work Packages in order to guarantee proper coordination and control of the advances of the project. The tasks are arranged in coherent Working Packages to ensure proper execution and control, as follows:

Table 14 WPs list

WP n.	WP Title	Lead participant n.	Lead participant short name	Person-month	Start month	End month
1	Project Management	1	COO	66	1	24
2	Collective awareness platform: knowledge and design	1	COO	41	1	21
3	Blockchain and legal	2	CNRS	20	1	18
4	Big data and Bayesian machine learning	3	UMA	29	2	20
5	SW design, development, test and release	11	PURPLE	60	5	23
6	Piloting the platform	5	MRU	36	13	21
7	Biofeedback pilot	6	SAPI	29	7	16
8	Socio-economic impact, business assessment and exploitation	7	ALPHA	24	4	24
9	Dissemination and Communication	10	IDL	67	13	24

3.1.4 WP Descriptions

3.1.4.1 WP1 Project Management

WP number	1	Start date or starting event		Month 1								
WP title	Project Management											
Participant number	1	2	3	4	5	6	7	8	9	10	11	Total
Participant short name	COO	CNRS	UMA	UJI	MRU	SAPI	ALPH A	UNIVP M	DOS	IDL	PURP LE	
Person-month	24	12	1	1	6	1	12	2	1	2	4	66

Objectives

To ensure that the results of the project are of high quality
 To coordinate technical content and cooperation within and across work packages
 To ensure the coordination of design and development sessions and phases
 To guarantee consistent and compatibility of outcomes across the project
 To maintain and stimulate communication among the partners
 To ensure the timing delivery of the platform
 To coordinate the scientific works and ensure consistency with innovation
 To manage IPR issues within the consortium and resolve potential conflicts
 The WP will produce the M1.1 Project milestone, the final design report
 The WP will produce the M1.2 Project milestone, the first year progress report in month 12
 The WP will produce the M1.3 Project milestone, the final progress report in month 24

Description of work

Task 1.1: Administrative Project Management

This activity will actively monitor progress and content of the work in each work package, to co-ordinate cross work package cooperation, and to assure high-quality project results. Developing appropriate best-practice standards for documentation, methods and tools will facilitate this objective. In addition, this activity will be responsible to stimulate internal communication. The project management will be supported by the Project Coordination team. Together with the Administration and Financial Manager they will be responsible for making formal decisions on several issues (see section 3.6.1).

Participants: All

Task 1.2: Scientific, ICT and ethics project management

This activity will coordinate cooperation on ICT, scientific and ethics level across the project in order to ensure a consistent project. It is responsible that solutions developed within the different WPs will be compatible and together realize the COOPERACY's objectives. This activity will be performed by the Project coordination team and supported by the Advisory Board (AB).

Participants: COO, MRU, CNRS, PURPLE

Task 1.3: IPR Management

This activity will consider and review IPR-related issues, as well as project-wide data management plan, and is supported by the Innovation and IPR Manager (see section 3.6.1).

Participants: COO, CNRS

Task 1.4: Quality Assurance and Risk Management

This task will take up a quality management approach, e.g. by controlling the respect of deadlines and review project results compared to the description of work reported in this proposal. Moreover, an initial risk management plan will also be implemented to identify potential mishaps during the entire project execution and prepare recovery action plan, whenever needed. The quality and risk management will be punctual and continuous, with the attitude to prevent possible failures or difficulties rather than waiting to solve them when they happen.

Participants: ALPHA, COO

Deliverables			
D1.1	Final design report	M8	R, CO
	This report will summarise project status during the design phase and will highlight the decision, meetings, documents necessary to conclude in due time the platform design. It will also report the controls done to guarantee coherence in the final design coming from different working packages.		
D1.2	First year progress report	M12	R, CO
	This report will summarise project status during its first year, presenting technical progress and achievements, while also including indicative efforts on task level as well as deliverable level. The deliverable will reflect the amount work done, delivered documents, meetings and resources utilised. It will also address deviations from the plan, changes in milestones and general issues concerning future progress. It will also deal with communication and results exploitation.		
D1.3	Final progress report	M24	R, CO
	This report will detail the final project status, presenting technical progress and achievements, while also including indicative efforts on task level as well as deliverable level. The deliverable will reflect the amount work done, delivered documents, meetings and resources utilised. It will also deal with communication and results exploitation and dissemination activities.		
D1.4	Data management plan for Open research data	M6	R, CO
	The data management plan will address the items listed below and provide details about access, interoperability, re-use, resources, security and ethical aspects. <i>What is the purpose of the data collection/generation and its relation to the objectives of the project?</i> <i>What types and formats of data will the project generate/collect?</i> <i>Will you re-use any existing data and how?</i> <i>What is the origin of the data?</i> <i>What is the expected size of the data?</i> <i>To whom might it be useful ('data utility')?</i>		
D1.5	Risk Management Plan	M2	R, CO
	It identifies potential mishaps during the execution of the project and related recovery actions. It will be issued at an early stage of the project, and then updated in the progress reports.		

3.1.4.2 WP2 Collective awareness platform: knowledge and design

WP number	2	Start date or starting event	Month 1									
WP title	Collective awareness platform: knowledge and design											
Participant number	1	2	3	4	5	6	7	8	9	10	11	
Participant short name	COO	CNRS	UMA	UJI	MRU	SAPI	ALPH A	UNIV PM	DOS	IDL	PURP LE	Total
Person-month	12	0	0	7	6	0	0	6	6	0	4	41

Objectives

To develop a knowledge network and learning portal about Cooperation Science for citizens' awareness about cooperative interactions:

- Document all the Cooperation Science in a simple and divulgative way
- A scientific side of the knowledge network, with experimentations within game theory, macroeconomics of a cooperative social system, social impact of an online design democracy and collective intelligence

- support the design of the participatory

To design a cooperative collective funding platform generating blueprints for citizens participatory innovation:

- Artificial Intelligence, biofeedback and blockchain enabled, gamified, direct Design Democracy cooperative economy lowest-risk collective funding platform
- Design the platform basing on auto-organization and emergent coordination as experienced in open space technology meetings, with a proportional vote-based allocation of the budget
- Coordinate citizens' personality and interests through decisions based on proportional integration of the results, that is through an inclusive and supportive way to read the votes with no single winners and aware minorities that know both why their influence is low and what possibilities they have to realize their demands anyways
- Dedicate a special voting to emotional and sustainable projects.
- Develop a gamification background

To define a Dual Variable Game Theory (4 different gameplay will be tested: Personal advantage rules, Competitive advantage rules, Cooperative advantage rules, Group advantage rules.)

To support ICT in the test and bug fixing

To observe and analyze platform participants in the pilot phase to amend design and release a final design blueprint.

To develop and deliver methodologies for including the same methodologies of gamification processes.

To enable smooth technology transfer

To provide the WP5 the COOPERACY platform blueprint which includes:

- general architecture of the platform
- requirements for COOPERACY platform development
- requirements for HW and SW necessary to deploy the COOPERACY platform

The WP will produce the M2.1 Project milestone, the preliminary COOPERACY platform design in Month 6

Description of work

Task 2.1: Platform design and knowledge portal

This activity will focus on the COOPERACY platform design and on the knowledge portal, essentially made of the following activities:

- Literature review and desk research, analysis of the context, identification of the main targets,
- Document all the Cooperation Science in a simple and divulgative way
- Setting up the system to provide in the future the option for virtual reality systems interaction
- Architecture design
- requirements for COOPERACY platform development
- requirements for HW and SW necessary to deploy the COOPERACY platform

Participants: **COO, PURPLE**

Task 2.2: Game theory: Knowledge portal and support to COOPERACY platform design.

This activity will focus on the development of Game theory for the knowledge portal and to support the COOPERACY platform design. New experimentations within Game theory, including expectations, inequality aversion and relational benefits.

Participants: **UJI, COO**

Task 2.3: Collective intelligence: Knowledge portal and support to COOPERACY platform design.

This activity will focus on the development of Collective intelligence theory in a cooperative social system for the knowledge portal and to support the COOPERACY platform design. It will eventually produce recommendations to improve the platform design.

Participants: **MRU, COO**

Task 2.4: Macroeconomics of a cooperative social system: Knowledge portal and support to COOPERACY platform design

This activity will focus on the analysis of the COOPERACY platform design, in particular to compare and validate the macroeconomic impacts of the COOPERACY platform from a scientific standpoint. It will eventually produce recommendations to improve the platform design.

Participants: **UNIVPM, COO**

Task 2.5: Social Impact of an online proportional design democracy: Knowledge portal and support to COOPERACY design

This activity will focus on the analysis of the social impact of a social system based on a design democracy, a proportional Open-Space based voting system that elects ideas first and people afterwards. compare and validate the collective intelligence aspects from a scientific standpoint. It will eventually produce recommendations to improve the platform design.

Participants: **DOS, COO**

Task 2.6: Testing, analysis and final release of design blueprint

This activity will focus on the COOPERACY platform design finalization. It will produce the first deliverable, necessary to WPS

following development phase.

Participants: COO, PURPLE

Task 2.7: Science support to knowledge portal development.

This activity will deal with delivering a blueprint on the knowledge portal

Participants: MUR, UNIVPM, UJI, DOS

Task 2.8: Design recommendations for final release

This activity will focus on the COOPERACY platform design finalization. It will produce the final deliverable, necessary to WP5 following development phase. It will constitute the blueprint of the COOPERACY platform ready to be published to the general public.

Participants: COO, PURPLE

Deliverables

D2.1	First COOPERACY platform blueprint and test results This deliverable will consist in a document describing the blueprint of the COOPERACY platform design. It will include the description of the following items: <ul style="list-style-type: none">● Platform mechanics● Required database● Front-end● Collective intelligence aspects● Voting system mechanisms and rules● Circular economy mechanisms and rules	M12	R, PU
D2.2	Final COOPERACY platform blueprint and pilot results This deliverable will consist in the final document describing the blueprint of the COOPERACY platform design. It will include the following items: <ul style="list-style-type: none">● Platform mechanics● Required database● Front-end● Collective intelligence aspects● Voting system mechanisms and rules● Circular economy mechanisms and rules	M21	R, PU
D2.3	Knowledge awareness platform blueprint and development This deliverable will consist in a blueprint and science documents on Cooperation Science published in a learning portal to increase awareness of people about cooperation.	M12	DEC, PU

3.1.4.3 WP3 Blockchain and legal

WP number	3	Start date or starting event						Month 1				
WP title	Blockchain and legal											
Participant number	1	2	3	4	5	6	7	8	9	10	11	Total
Participant short name	COO	CNRS	UMA	UJI	MRU	SAPI	ALPH A	UNIV PM	DOS	IDL	PUR PLE	
Person-month	1	18	0	0	0	0	0	0	0	0	1	20

Objectives

To design and test possible transparent public blockchain based ledger for all the accounting of the platform and for making transparent and public the allocation of money for every project

To determine international legal status, corporate and governance model of COOPERACY platform to comply with international and local laws also comparing the existing, (e.g.: the Mondragon Coop).

To test the Platform blockchain and support ICT in the bug fixes

To analyze the results from the pilots and review the blockchain design for final release

Description of work

Task 3.1: Design and Test: Blockchain and Smart Contracts Backbone

This activity will focus on the COOPERACY platform's blockchain design finalization. It will produce the first deliverable, necessary to WP5 following development phase.

Participants: CNRS, COO, PURPLE

Task 3.2: Platform Blockchain testing and bug fixes

This task will allow the participants to test the algorithm and their integration in the SW platform with the purpose of fixing the bugs and enabling the pilot phase.

Participants: CNRS, COO, PURPLE

Task 3.3: Piloting platform blockchain and final release

This task will test the COOPERACY platform's blockchain prototype and release the final specifications.

Participants: CNRS, COO, PURPLE

Task 3.4: Design and develop the corporate governance model of COOPERACY platform

The analysis will include:

- the legal form of the COOPERACY platform
- the legal form of the projects in case of no-profit
- the legal form of the projects in case of profit organization
- the relationship between COOPERACY platform and the projects
- the applicable laws
- the tax aspects

Participants: CNRS, COO

Deliverables

D3.1	First Blockchain COOPERACY platform blueprint and test results	M12	R, PU
This deliverable will consist in a document describing the blueprint of the blockchain for COOPERACY platform design. This report, alongside similar report from WP2 and WP4 will feed the WP5			
D3.2	Final Blockchain COOPERACY platform blueprint and pilot results	M21	R, PU
This deliverable will consist in the final document describing the blueprint of the blockchain for COOPERACY platform design. This report, alongside similar report from WP2 and WP4 will feed the WP5			
D3.3	Corporate governance model for COOPERACY	M21	R, PU
This deliverable will consist in a document highlighting the options of corporate governance for the projects started and developed in COOPERACY platform.			

3.1.4.4 WP4 Big data and machine learning

WP number	4	Start date or starting event				Month 2						
WP title	Big data and Bayesian machine learning											
Participant number	1	2	3	4	5	6	7	8	9	10	11	Total
Participant short name	COO	CNRS	UMA	UJI	MRU	SAPI	ALPH A	UNIVP M	DOS	IDL	PURP LE	
Person-month	2	0	24	0	2	0	0	0	0	0	1	29

Objectives

This WP will aim at developing sentiment analysis tasks based on the use of domain knowledge, by means of semantics. The target is to discover the sentiment of the people cooperating with respect to the cooperation and the co-operators. More specifically, it has the following objectives:

to include an algorithm to analyze data like budget, ROI, people involved, people in the leadership, business plans, people committed, people feedback and happiness

to establish a vocabulary for the discovery of entities in Cooperation activities;

to develop sentiment analysis algorithms based on such vocabulary;

to release a prototype to measure the sentiment analysis in this context;

This WP will also aim at developing, clustering and classification prediction techniques to groups of users depending on their cooperation interactions. The source of information will be the COOPERACY platform. More specifically, it has the following objectives:

to describe sources to be analysed;

to develop Big Data and Machine learning approach to Data Mining for the classification of projects;

to predict the outcomes from a project proposed on the platform.

Description of work

Task 4.1: Vocabulary, Sentiment analysis and Big Data / Machine Learning design

This task will formally define a vocabulary to detect entities in the context of cooperation activities. This will start taking into account the cooperation in a generic sense, and so existing cooperation portals and social network interactions will be analysed to extract common vocabulary used. In a second phase, this vocabulary will be extended with specific cooperation tasks grouped by domains to discover vocabulary specifically targeted to certain domains. This task will require the collaboration of other partners to formally define this vocabulary.

This task will also aim at developing semantically enabled sentiment analysis algorithms. The result would be a tool able to deal with social interactions and annotate sentiment analysis on identified entities in such interaction. This task requires the development of needed dictionaries to identify entities of interest and sentiment expressions. The development will be done using parallel solution with Apache Spark and will be based on Gate (as text mining framework) for analysing the text, SentiStrength for discovering the sentiment values (ranging from -1 to 1 indicating different values of negativity, positivity or neutrality) and Virtuoso for managing semantic annotations and enabling the access to them by means of RDF queries.

Participants: **UMA, COO, MRU, PURPLE**

Task 4.2: Vocabulary, Sentiment analysis and Big Data / Machine Learning testing and bug fixes

This task will allow the participants to test the algorithm and their integration in the SW platform with the purpose of fixing the bugs and enabling the pilot phase.

Participants: **UMA, PURPLE**

Task 4.3: Source analysis

This task will require the definition of the data structures to be analysed and the goals of the analysis procedures. This process will require the adaptation of the data to the expected format for each Machine Learning algorithm used in the analysis process.

Participants: **UMA, COO, MRU, PURPLE**

Task 4.4: Big Data Clustering

This task uses Spark MLLib as the basis for the development. This task will provide a set of algorithms ready to be applied on the data extracted from the COOPERACY Platform through a set of REST services. These services will hide the data transformation for testing different algorithms with the same data. Algorithms to be taken into account include Bayesian, K-means, Gaussian mixture, Power iteration clustering (PIC), Latent Dirichlet allocation (LDA), Bisecting k-means and Streaming k-means.

Participants: **UMA, COO, PURPLE**

Task 4.5: Clustering testing

This task will use the Hadoop Cluster available at the Ada Byron Research Building at the University of Málaga (UMA) for testing the developed algorithms. The final results will be allocated in the Cloud, so their long term maintenance will require to deal with the project exploitation after the project. In order to select the Cloud infrastructure, the Cloud services provided by Amazon EC2, Microsoft Azure, etc. will be compared with the Cloud being developed in FIWARE (FIWARE Lab instance will be used for testing if the Cloud services are not available at the moment of the testing). This task aims at testing the developed algorithms in several scenarios having into account different test cases.

Participants: **UMA, PURPLE**

Deliverables

D4.1	Vocabulary and sentiment analysis report This deliverable will consist in a document describing the identified vocabulary and a blueprint of the sentiment analysis tool which will be able to deal with social interactions and annotate sentiment analysis on identified entities in such interaction document describing the main features of the testing phase. It will be the outcome of task 4.1. This report, alongside similar report from WP2 and WP3 will feed the WP5	M9	R, PU
D4.2	Data sources report This deliverable will consist in a document describing the data structures to be analysed and the goals of the analysis procedures. It will be the outcome of task 4.3	M16	R, PU
D4.3	Big data clustering release This deliverable will consist in a set of algorithms ready to be applied on the data extracted from the COOPERACY portal. It will be delivered in the Cloud after a testing phase. It will be the outcome of tasks 4.4 and 4.5	M22	DEC, PU

3.1.4.5 WP5 Platform Software development, test and final release

WP number	5	Start date or starting event	Month 5
-----------	---	------------------------------	---------

WP title	Platform Software development, test and final release											
Participant number	1	2	3	4	5	6	7	8	9	10	11	Total
Participant short name	COO	CNRS	UMA	UJI	MRU	SAPI	ALPH A	UNIV PM	DOS	IDL	PURP LE	
Person-month	12	0	12	0	0	0	0	0	0	0	36	60

Objectives

ICT Platform Software prototyping, development and piloting:

- web COOPERACY platform
- knowledge learning portal
- mobile application platform

The outcomes from the WP2, WP3, WP4 will be used in order to start the process of SW programming, testing and bug fixing of all the SW applications and technologies necessary to the project.

The first release will be used for the pilots, while the outcomes of the pilots will be used for the second release which will be available to the general public after the project finalization.

Description of work**Task 5.1: SW Development**

This task will consist in developing the software platform, applying the blueprints designed during WP2. The development is going to follow the MVC (Model-View-Controller) architectural pattern. This pattern allows to better split complex projects into smaller tasks, delegating the development of each sub-project to a partner, thus improving the task management, speeding the development processes and set the whole platform to scalability.

From a software development perspective, the initial requirements are going to be applied and possibly fine-tuned. The development is divided into two major branches:

Server-side

- Based on Symfony2 an open source PHP framework offering several scalability and performance advantages. The framework is also based on MySQL database, allowing to store and manage huge datasets (used by the framework itself and for the big data analysis);
- Includes the Collective funding platform and the voting system;
- Learning portal;

Client-side

- Web based and mobile application to interact with the server. The solutions are going to use open source client frameworks such as AngularJS, or they will be HTML5 based;
- User Interface development;
- Widgets to interact with the voting and gamification features;

Participants: PURPLE, UMA, COO

Task 5.2: Integration of big data, blockchain, voting system method.

The task includes the development of PHP-based REST API which provides data for big data analysis.

The blockchain transactions will be implemented using the open-source PHP SDK provided by blockchain.info.

The voting system and the collective funding platform interaction are based on specifically designed controllers inside the Symfony2 framework.

Participants: PURPLE, UMA

Task 5.3: Testing and bug fixes

At this stage, a multi-user platform should be ready for testing. PURPLE will be involved for preliminary testing and bug fixing. This task consists in looking for critical issues and bugs in order to fix errors and optimize the platform before the delivery.

Participants: PURPLE, UMA, COO

Task 5.4: Release for pilot

An alpha version of the platform is released for early users and fine-tuning. The task consists in optimizing the code and producing minified version of the software for production.

Participants: PURPLE

Task 5.5: Pilot support

In this stage, the team is going to collect feedback and issues notified by early users, in order to apply patch and correct critical bugs

Participants: PURPLE

Task 5.5: Final release development and release to the public

The task consists in analysing the collected feedback and bug notifications, developing software patches and optimizing the code before production and final delivery of the platform.

Participants: **PURPLE**

Deliverables				
D5.1	COOPERACY platform and knowledge portal first release	M12		DEM, PU
	This deliverable will consist in the COOPERACY platform in its beta version ready for be used in the pilots (see WP6) and producing outputs to the WP4 for big data and machine learning.			
D5.2	COOPERACY platform and knowledge portal final release	M22		R, DEM, PU
	This deliverable will consist in the COOPERACY platform in its final version ready for the public release. Alongside the platform, the COOPERACY platform data will be made available in the framework of Open Data.			

3.1.4.6 WP6 Piloting the platform

WP number	6	Start date or starting event	13								
WP title	Piloting the platform										
Participant number	1	2	3	4	5	6	7	8	9	10	11
Participant short name	COO	CNRS	UMA	UJI	MRU	SAPI	ALPH A	UNIV PM	DOS	IDL	PU RPL E
Person-month	4	0	0	6	12	0	0	8	0	6	0
											Total

Objectives

The COOPERACY platform will be released for pilot purpose to the communities involved in the project. The pilots will allow to achieve the following objectives:

- to understand the acceptance of the platform and get feedbacks from the communities and the end users
- to evaluate the level of Collective Intelligence produced by a social system based on a common pool resource, a cooperative structure of industries and economic interactions, a proportional Open-Space based voting system, a reallocating employment methodology;
- to analyze the macroeconomics effects of a social system based on a common pool resource, a cooperative structure of industries and economic interactions, a proportional Open-Space based voting system, a reallocating employment methodology;
- to analyze the social impact of a social system based on a design democracy, a proportional Open-Space based voting system that elects ideas first and people afterwards;
- to compare the platform with Ostrom's CPR insights, household innovation, cooperative and circular economy;
- to analyze the computational social science aspects of the COOPERACY platform;
- to produce final requirements and recommendations to be implemented in the final version of the COOPERACY platform.

Description of work

Task 6.1: Piloting the platform: computational social science

In order to verify the functioning of the platform we will initially consider a small sample of human subjects. From the empirical observation of the sample we want to infer the mathematical equation describing the emergency of the cooperation dynamics (i.e input validation). This stylized law of motion will help us in modeling a simulated game with two essential aims: i) the model has to reproduce the main characteristics observed in the sample (i.e output validation); ii) Having successfully proven our technique for input and output validation, we also test its efficiency in generating predictive output validation. This means a) to verify that the above-mentioned mechanism also forecasts future scenarios (i.e out-of-sample validation) b) to identify at least one incentive scheme able to increase the emergency of the cooperation dynamics (see Recchioni et al, 2015; Colasante, 2017).

Participants: UJI

Task 6.2: Piloting the platform: collective intelligence and democracy

This task will test the COOPERACY platform prototype comparing the collective intelligence mechanics related to OST and Ideas Market. It will also deliver the testing results and suggestions for the gamification and corrections to the prototype.

Participants: MRU, DOS

Task 6.3: Piloting the platform: circular economy

This task will test the COOPERACY Platform and compare the platform with Ostrom's CPR insights, household innovation, cooperative and circular economy. It will also deliver the testing results and suggestions for their gamification and corrections to the prototype.

Participants: UNIVPM

Task 6.4: Science group recommendations for final release

This task will finalize the previous effort under the coordination of MRU in order to produce a list of requirements and recommendations to be implemented in the final version of the COOPERACY platform.

Participants: MRU, UNIVPM, COO, DOS

Task 6.5: Pilot projects organization and mobilization

This task will provide organization and mobilization of the resources and people necessary to run the pilot projects. It will also draw the guidelines and the objectives of the pilot phase.

Participants: COO, UNIVPM, MRU, DOS

Deliverables

D6.1	Requirements and recommendations for final release.						M21	R, PU			
This deliverable will consist in the COOPERACY platform final specifications.											
D6.2	Pilot projects organization.						M13	R, PU			
This deliverable will consist in the schedule of activities, communities and people involved for the pilot phase.											

3.1.4.7 WP7 Biofeedback pilot

WP number	7	Start date or starting event						7				
WP title	Biofeedback pilot											
Participant number	1	2	3	4	5	6	7	8	9	10	11	To tal
Participant short name	COO	CNRS	UMA	UJI	MRU	SAPI	ALP HA	UNIV PM	DOS	IDL	PUR PLE	
Person-month	1	0	0	8	0	19	0	0	0	0	1	29

Objectives

We will apply special sensors in order to investigate the emotions of groups while they use the platform and while they play the game theory lab experiments. They will finally give some relational rewards at the end of the interactions. Then they will be presented the online platform and the sensors will measure their interaction with it. This could even produce the possibility to have biofeedback sensors to send online information about the user happiness in realtime.

Description of work

Task 7.1: Biofeedback sensors system preparation

Prepare biofeedback sensors analysis on groups with the collaboration of PURPLE.

Participants: SAPI, COO, PURPLE

Task 7.2: Piloting the platform: biofeedback sensors in Laboratory groups

While analysing the game theory with biofeedback, the participants of the experimentation will also try a simplified rendition of the platform while having sensors able to evaluate stress and happiness, heart rate, and other biofeedback data. This will show the most difficult moment -and the brightest ones- in the participants' activity.

Participants: SAPI, UJI, COO, PURPLE

Deliverables

D7.1	Biofeedback sensors system						M12	DEM, PU			
This deliverable will consist in the COOPERACY platform biofeedback system with sensors to measure the reaction of individuals and groups to the use of the COOPERACY platform											
D7.2	Biofeedback test report						M18	R, PU			
This deliverable will consist in the report about the biofeedback tests											

3.1.4.8 WP8 Socio-Economic Impact, Business Assessment and Exploitation

WP number	8	Start date or starting event						4				
WP title	Socio-Economic Impact, Business Assessment and Exploitation											
Participant number	1	2	3	4	5	6	7	8	9	10	11	To tal
Participant short name	COO	CNRS	UMA	UJI	MRU	SAPI	ALPH A	UNIV PM	DOS	IDL	PUR PLE	
Person-month	2	0	0	0	0	0	22	0	0	0	0	24

Objectives

Key outcomes from other WPs will be obtained and used as basis for the preparation of a sound socio-economic analysis, a business case, and an exploitation strategy. In fact, this WP aims at commercial exploitation of the project results in a pan European scale and at the preparation for a realistic business plan.

Description of work**T8.1 - Business Plan and Implementation Roadmap**

This Task aims at fostering COOPERACY adoption in the market, identifying the key elements to prepare a realistic business plan for the further solution uptake and commercialisation. To this extent, the following actions are envisaged:

- Market analysis and competitive environment assessment to identify market segmentation, market trends (both historical and expected), as well as key opportunities and threats for the COOPERACY solution. The market analysis will be coupled with an environment assessment, a value chain analysis and a preliminary pricing strategy definition to support an effective go-to-market strategy
- Risk analysis to map the main economic and non-economic risks linked to COOPERACY and identify main actions to avoid/ mitigate them
- Overall business model and business plan definition quantifying key assumptions, over a 5 to 10 years period, to obtain a long-term cash-flow prediction and the social return on investment;
- Identification of an implementation roadmap aimed at defining key strategies and drivers for the exploitation activities and solution adoption.

Participants: **ALPHA, COO**

Task 8.2: Costs-Benefits Analysis and Socio-Economic Impact

A CBA is a systematic methodology to identify and quantify in monetary terms costs and benefits of a solution in a specific context, including items for which the market does not provide a satisfactory measure of economic value (e.g., impacts on the society at large). In this context, this task will evaluate key benefits (both economic and social), running costs (Opex) and investments (Capex) of the technological solution elaborated in COOPERACY versus existing solutions. The main objective is the development of a comprehensive CBA aiming to identify key value added of the solution proposed over the currently available technology. The following activities will be undertaken:

- Definition of a concrete and significant case (e.g. Milan Municipality) for the CBA;
- Costs analysis, identifying the main social costs (e.g loss of opportunities due to non-cooperation) among users and defining additional running costs (Opex) and investments (Capex) related to system adoption by the users;
- Benefits analysis (both economic and social) brought by COOPERACY in the market addressed and in particular for the selected case.
- Assessment of the financial constraints from users' and stakeholders' side as starting point to define the pricing strategy.

Participants: **ALPHA, COO.**

Deliverables

D8.1	Business Plan (Issue 1) This deliverable will present the preliminary results of the market and risk analysis.	M12	CO
D8.2	Business Plan (Issue 2) This deliverable will present the final results of the market and risk analysis, the BP and exploitation strategy.	M24	CO
D8.3	Report on Costs-Benefits Analysis and Social Impact This deliverable will present the project CBA and it will aim at defining concrete and measurable indicators to assess the overall solution social impact.	M24	CO

3.1.4.9 WP9 Dissemination and communication

WP number	9	Start date or starting event	13									
WP title	Dissemination and communication											
Participant number	1	2	3	4	5	6	7	8	9	10	11	To tal
Participant short name	COO	CNRS	UMA	UJI	MRU	SAPI	ALPH A	UNIV PM	DOS	IDL	PUR PLE	
Person-month	2	2	2	2	2	2	0	8	2	45	0	61

Objectives

To communicate and disseminate the pilot platform go-live and further news through an event in the city of Milan, the testing and research outcomes and the derived methodologies to the relevant targets, the scientific community and the social networks with a dedicated campaign and other standard means of communication.

To make a video about all the process in order to show how we developed the COOPERACY platform and a motion infographic video explaining the functioning of the platform.

The communication phase will be crucial for the success of the platform, the innovation action and the project impact.

Description of work**Task 9.1: Video Infographics and communication materials**

Infographic videos, apps, websites, posters, artworks and other materials will be produced in order to simplify the dissemination and communication phase.

Participants: **IDL, COO**

Task 9.2: Dissemination and communication actions

This task aims at implementing a communication plan which would use print, online, social and standard means of communications realized in task 9.1. Disseminate through a dedicated campaign the testing and research outcomes and the derived methodologies throughout all the targets identified, the scientific community and the social networks with and other standard means of communication. The recipients would include institutions, companies, industries, universities, associations, cooperatives and the public sector. The print campaign would be delivered to press agencies, magazines, newspapers, blogs and web key communication actors. The social campaign would affect Facebook, Twitter and other relevant Social Networks. The website, the apps, a facebook page, a twitter account, the research project, and the press material will be our communication actors. It will also include dedicated presentations in institutions, companies, industries, universities, associations, cooperatives and the public sector in all the participating countries. In some cases it will include artworks like the "Cooperacy Pinwheel" Participants: COO, CNRS, UMA, UJI, MRU, SAPI, **IDL, UNIVPM, DOS, PURPLE**

Task 9.3: Final event and platform launch

The task will launch the platform and inform all the stakeholders concerning the ongoing project. The portal will be updated every time with news and feeds from the project and from the world of cooperation science. End the communication phase with a transversal campaign based on influencers motivational diffusion.

Participants: COO, CNRS, UMA, UJI, MRU, SAPI, **IDL, UNIVPM, DOS, PURPLE**

Deliverables

D9.1	Website, Apps, Video infographics, and other communication tools	M20	DEC, PU
This deliverable will consist in a set of tools including the video infographics published in the website. It will be the outcome of task 9.1			
D9.2	Communication actions report	M24	DEC, PU
This deliverable will consist in a report describing the communication activities. It will be the outcome of task 8.2.			
D9.3	Final event and platform launch	M24	DEC, PU
This deliverable will consist in the launch of the platform and providing news or useful updates. It will be the outcome of the task 9.3.			

3.1.5 List of Milestones

Milestone have been identified in order to guarantee control points to check the project is properly running towards the objectives.

Table 15: List of relevant milestones

#	Milestone/Meeting Name	Related WPs	Date	Scope/Means of verification
M1.1	Final design	WP1	M8	To ensure coordination of platform design and proper final consolidation of technical requirements. / D1.1
M1.2	First year progress	WP1	M12	To ensure timing and control of the project / D1.2
M1.3	Final progress	WP1	M24	To ensure timing and control of the project / D1.3
M2.1	Prototype design blueprint	WP2	M12	To ensure results of design test are shared with the stakeholders and the developers / D2.1
M6.1	Pilot go-live	WP6	M13	To start the pilot activities / D6.2
M5.1	Platform release	WP5	M22	To monitor the release of the platform to the general public /

				D5.2		
M9.1	Final event	WP9	M23	To start the communication activities of the platform / D9.3		

3.1.6 List of Deliverables

Table 16: List of COOPERACY deliverables

Deliverable n.	Deliverable name	WP n.	Lead participant short name	Type	Dissemination level	Delivery date
D1.1	Final design report	1	COO	R	CO	M8
D1.2	First year progress report	1	COO	R	CO	M12
D1.3	Final progress report	1	COO	R	CO	M24
D1.4	Data management plan for open research data	1	COO	R	CO	M6
D1.5	Risk management plan	1	ALPHA	R	CO	M2
D2.1	First COOPERACY platform blueprint and test results	2	COO	R	PU	M12
D2.2	Final COOPERACY platform blueprint and pilot results	2	COO	R	PU	M21
D2.3	Knowledge awareness platform blueprint and development	2	MRU	DEC	PU	M12
D3.1	First Blockchain COOPERACY platform blueprint and test results	3	CNRS	R	PU	M12
D3.2	Final Blockchain COOPERACY platform blueprint and pilot results	3	CNRS	R	PU	M21
D3.3	Corporate governance model for COOPERACY	3	CNRS	R	PU	M21
D4.1	Vocabulary and sentiment analysis report	4	UMA	R	PU	M9
D4.2	Data sources report	4	UMA	R	PU	M16
D4.3	Big data clustering release	4	UMA	DEC	PU	M22
D5.1	COOPERACY platform and knowledge portal first release	5	PURPLE	DEM	PU	M12
D5.2	COOPERACY platform and knowledge portal final	5	PURPLE	DEM	PU	M22
D6.1	Requirements and recommendations for final release.	6	MRU	R	PU	M21
D6.2	Pilot projects organization	6	MRU	R	PU	M13
D7.1	Biofeedback sensors system	7	SAPI	DEM	PU	M12
D7.2	Biofeedback test report	7	SAPI	R	PU	M18
D8.1	Business plan (Issue 1)	8	ALPHA	R	CO	M12
D8.2	Business Plan (Issue 2)	8	ALPHA	R	CO	M24
D8.3	Report on Costs-Benefits Analysis and Social Impact	8	ALPHA	R	CO	M24
D9.1	Website, Apps, Video infographics, and other communication tools	9	WE	DEC	PU	M20
D9.2	Communication actions report	9	WE	DEC	PU	M24
D9.3	Final event and platform launch	9	WE	DEC	PU	M24

3.2 Management Structure and Procedures

In this section it is described the management structure and procedures of the COOPERACY platform project. We preferred to have a high number of participants in the consortium in order to be coherent with the diversity concept in the collective intelligence model. We're confident with the management process as we are used to work with high complexity standards coming from our presidents' expertise in the video advertising production processes and those typical of big international energy companies. It is clear for us that merging the different European cultures and experiences would result into a real European spirit, with the participation of the friendly Argentinian partner. The motivation for us is essential, and in the choice of a big consortium we see a potential and a pride, not a problem. The same cooperation model will be applied to the consortium as well: we will practice what we preach.

3.2.1 Project Organization

The proposed structure and decision process ensures the proper level of coordination and cooperation amongst the project consortium members. Furthermore, it has to ensure effective project administration, project organisation, risk mitigation, management of the technical progress of the project and coordination of other interested parties.

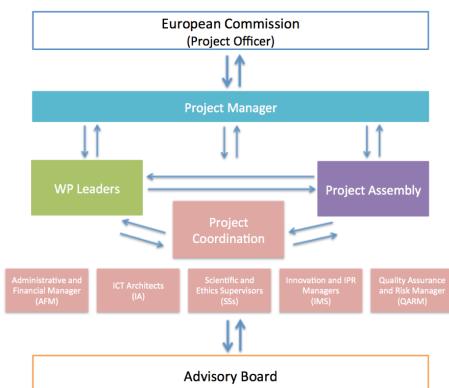


Figure 16 COOPERACY Project Organization

communicated to them as confidential.

A Consortium Agreement will be drawn by the co-ordinator and all partners, and agreed upon by the legal departments of the partners, to define in detail their rights and obligations with respect to the carrying out of the COOPERACY Platform, project plan with specific regard to confidentiality and IPR handling. In order to fully achieve the project's goals, a productive and effective management structure, with a qualified staff and a clear delegation of tasks is required. Following COOPERACY governance model, some of the roles will have a dual leadership.

The management of an international consortium requires an efficient organisation of communication procedures, as well as structured decision-making processes. The figure illustrates the organisational structure for the COOPERACY Platform project, conceived to ensure its efficient management.

Table 17: COOPERACY key management roles and actors

The Consortium	All
The Consortium consists of all legal entities that sign the Grant Agreement to work on the various Work Packages and fulfil their assigned tasks that make up the joint activities of the COOPERACY Platform. Each participant of the Consortium will have the rights and obligations as will be outlined in the Grant and Consortium Agreement.	
Project Manager (PM)	Alessandro Merletti De Palo (COO)
The project manager will serve as the main contact point for the EC project officer, especially regarding the submission of deliverables, reports, aspects related to third-parties and the consortium. He will be responsible for the monitoring of the timely report of the project progress, and for the maintenance of the communication flow within the Consortium. He will collect and consider the recommendations and the advises of the Advisory Board. In close collaboration with the ICT Architect, he will govern the quality procedures of the software development, integration, test and validation.	
The project manager will preside over all project meetings and is bound by the decisions of the General Assembly. He will chair the Project Coordination. The main interfaces of the project managers are: (i) EC (Project Officer), extensively working by mail and audio/video conference calls, physical meeting in case of planned events; (ii) the Project Coordination and the Experts Panels; WP Leaders, extensively working by mail and audio/video conference calls (both on a periodic basis, e.g. weekly, and in case of need), physical meeting in case of planned events; (iii) the Project Assembly, in meetings held by audio/video conference call.	
Project Coordination (PC)	Board
The project coordination will be the board chaired by the project manager with the specific task of running the day-to-day activities of the project. It will be composed of the following coordinators:	
<ul style="list-style-type: none"> • Administrative and Financial Manager • ICT Architects 	

- Innovation and IPR Managers
- Scientific Supervisors
- Quality Manager

PC - Administrative and Financial Manager (AFM)

Ilario Tito (COO)

The Administrative and Financial Manager (AFM) will be responsible for the administration of the internal Consortium structure and the financial administration of the project, including ensuring the proper completion and consolidation of the cost claims for partners. The AFM will act as a support to the Project Assembly and will attend its meetings when required.

A special emphasis within its responsibilities is given to reporting, organization of meetings and following reports and deliverables schedules.

PC - ICT Architects (IAs)

Mauro Mazzei (PURPLE) - Enea Barbetta (COO)

The ICT Architects will have the responsibility of the overall coordination of the project's ICT progress. In collaboration with the WP Leaders they will define, maintain and improve the ICT Architecture and coordinate the action for the delivery of both back-end and front-end of the application portal. The main tasks of the IA will be to secure the continuous alignment of commonly understood and agreed project results with the projects vision and the overall technical objectives. The IA will report to the Project Manager, supported by the Work Package Leaders.

PC - Scientific and Ethics Supervisor (SS)

Aelita Skaržauskienė (MRU) and Annarita Colasante (UJI)

The Scientific Supervisors (SSs) will have the responsibility to supervise, coordinate and administrate the social science and cooperation science studies with the objective of checking their coherence with current state-of-the art international research streams. The SSs will work closely with the PM in order to seamlessly integrate the experiments and studies into the general framework of the project supporting the delivery and test of the portal. A special emphasis within its responsibilities is to assure, in accordance with the other work packages leaders, the architecture, methodology and ethical/legal compliance, and monitor the quality assurance process;

PC - Innovation and IPR Manager (IM)

Aelita Skaržauskienė (MRU) and Primavera De Filippi (CNRS)

The IM will have the responsibility of governing the innovation management process that will be implemented by adopting a hybrid research and innovation methodology.

They will be responsible for:

- Screening of dissemination material for potential IPR infringement
- Support of IPR and Innovation measures and potential patenting procedures
- Support of commercialisation within the COOPERACY partners structure

They will also focus on the various aspects of the ethics issues within the project.

The IMs will be appointed by CNRS

Quality Assurance and Risk Manager (QARM)

Claudia Maltoni (ALPHA)

The Quality Assurance and Risk Manager (QARM) will be in charge of the overall quality management of the COOPERACY project and of the project risk assessment, plan and control (as described in the dedicated Task 1.4). The quality and risk management will be punctual and continuous, with the attitude to prevent possible failures or difficulties rather than waiting to solve them when they happen.

Work Package Leader

Finalized during the Kick Off meeting

Each WP Leader is responsible for coordinating, monitoring and assessing the progress of the work package to ensure that output performance, budget and timelines are met. Every WP leader will define in advance the proper KPI (key performance indicators) to monitor the progress of each task.

The WP Leader is also responsible for the circulation of progress information among the Consortium. In particular, the WP Leader will:

- Coordinate the technical activities of the involved partners and check intermediate work progress;
- Organize, when necessary, meetings with the participation of involved partners;
- Keep the Project Manager informed on the status of activities and suggest any corrective action to be taken.

Project Assembly - PA

One person with executive authority from each consortium partner. The project assembly will be chaired by the project manager

The Project assembly will be the executive authority for the overall management and running of the project, the resolution of any major problems that may arise and will decide on the use of the common knowledge resulting from the project. It will have the overall responsibility of all technical, financial, legal, administrative, ethics and dissemination issues of the project. For this reason, the general assembly will monitor and assess the actual progress of the project and make amendments, if necessary.

It will comprise one executive member from each partner. The Project Assembly will be as well the executive authority for scientific and technical management of the project and resolution of any major scientific and technical issues that need cross-project resolutions. This will secure that technical solutions developed in the project support the project's vision and the scientific and technological objectives in all aspects and in all of the involved areas of research.

Advisory Board - AB Board

The COOPERACY Platform Consortium has invited external and independent scientific and ethics experts, free from any conflict of interest, to monitor project progress and provide external objective advice on its scientific progress and ethics implications. The AB will be informed about the project activities via receipt of the quarterly internal report and the EC periodic reports. The AB could also be invited to Consortium meetings and receive the reports of the meetings. The AB will support the activity of the project coordinator in interpreting the outcomes from the research streams, in applying the model to real contexts and evaluating the ethics and will also be directly involved in the dissemination activities.

The AB are representatives of different cultures or perspectives. Some of them come from abroad countries that could not be included in the consortium due to the Horizon 2020 programme regulations. They represent a final missing diversity value we wanted to integrate in our project:

Luigi Ferrara, George Brown College, CA

Eric S. Raymond, Thrysus Enterprises, USA

Riane Eisler, Center For Partnership Studies, USA

Harrison Owen, Open Space Technology, USA

Cristina Tajani, Milan Municipality, IT

3.2.2 Innovation Management

The innovation management process will be implemented by adopting a hybrid research and innovation methodology. The Innovation and IPR Managers will iteratively consider the evolution of products and market demands in the emergency sector, the business strategies of the enterprises present in the consortium, and the results achieved in order to adjust project objectives and requirements, specifying the innovations on which the project should focus more and identifying exploitation potentials.

They will leverage on the following instruments of their task: knowledge mapping; e-learning; brain-storming; mental maps; lateral thinking methodologies and of course we as a Consortium will leverage on the Open Space Technology and Collective Intelligence methodologies.

Open Innovation will be finally leveraged through participants and citizens engagement in the innovation process. From a certain perspective, the platform itself represents an Innovation Management tool.

3.2.3 Quality procedures

Standard quality procedures will be used by the PA to ensure smooth management and monitoring of project progress. These procedures will include:

- Establishing communication and meeting procedures;
- Using an extranet-based tracking system for monitoring project aims, deliverables and milestones;
- Preparing a guide/manual on communication procedures, reporting procedures, their frequency and format and the contacts of all members (on the extranet);
- The advising of EC payment schedules, distribution and financial obligations, such as audit reports;
- Mediating conflict resolution, corrective actions and remedies.

In order to ensure the highest quality of all project documentation, mainly deliverables, a clearly structured deliverable process will be established as depicted in the following figure. For quality assurance, this will include two peer review steps, first involving an internal peer reviewer who is not involved in the respective WP and second a formal approval from a PA member.



Figure 17 Document quality assurance process

3.2.4 Information flow and communication process

Efficient communication and collaboration structures are one of the essentials for the success of the project. Since all project partners are distributed across European member states, the centrepiece of the overall project communication guaranteeing efficient communication will be a protected online collaboration platform. The Consortium will be granted access to a secure internet-based communication platform that will serve as a storage centre for project information and will allow for the Consortium to collaboratively work on joint project documents such as internal and official reports. The type of information hosted will include a project calendar, meeting agendas, official project documents and project reports. In addition to the meetings and the platform, general communication will be maintained by e-mail and through telephone calls as needed.

To the European Commission the COOPERACY Platform project will provide the Annual Project Review Reports and the Final Report at the end of the project. The project coordinator is responsible for compiling the information required for these reports and submit them to the EC.

The project coordinator, in cooperation with the Project Coordination Team, will prepare Quarterly Management Reports (QMR) that will include the status of each WP and task, deliverables and milestones, and details of achievements, issues occurred, delays and changes to the plan, and resources used. The QMRs will be based on progress reports provided by WP leaders. The QMR will provide a suitable framework for scientific and technical progress evaluation and facilitates the compilation of the Annual Project Review Reports and the Final Report by the project coordinator.

Twice a year the Project Assembly (PA) face-to-face project meetings will be organised and chaired by the Project Coordinator. These meetings will ensure scientific and technical exchange between the project partners and ensure information exchange on work progress of the various decision making and scientific and ethics advisory bodies. The PA face-to-face meetings will be divided in separate sessions accordingly (scientific and technical session, Project Assembly meeting, etc.). At these meetings, all consortium members will present the progress and future plans for the WP that they are involved with. Ample time will also be given for informal scientific discussions. In addition to the scientific programme, administrative and financial issues will be dealt with and decisions for the forthcoming period will be taken at the Project Assembly meeting. Regular call conference meetings will also be scheduled between consortium members to improve coordination of project activities.

For all project meetings (face-to-face and call conferences) meetings minutes will be produced and shared among all partners. Overall project progress and project management will be critically assessed by the Advisory Board through the participation in some of the project meetings and/or through the evaluation of the meetings minutes. Following table presents the expected meetings required for the project.

Table 18: Expected meetings

Meeting	Responsible	Frequency
GA face-to-face	Project Coordinator	Twice a year
GA conference call	Project Coordinator	Monthly
Project coordination call	Project Coordination team	Bi-weekly
WP conference call	WP Leader	On demand
Task conference call	Task Leader	On demand

Most importantly, project meetings will provide an interface for the EC to meet the entire Consortium and get first-hand information about the project partners and their progress. The scheduling of the meetings is the responsibility of the Project Coordinator with the support of the Project Coordination team, with the exception of individual WP meetings, which will be the responsibility of the WP Leaders. This involves organizing meetings, interactively generating and distributing appropriate meeting agendas, drafting minutes, the distribution of these minutes and monitoring the implementation of action points taken at meetings.

3.2.1 Decision-making process and conflict resolution

The ambitious goals of the COOPERACY Platform Project will require a continuous and coordinated progress towards its objectives. The project therefore combines effective, precise decision-making structures and processes with the efficient and timely planning in important areas where decisions will need to be taken. From the organizational structure presented in the previous section it is possible to identify that the main decision body is the PA.

Decisions of the PA require majority to be binding and a minimum of 2/3 of the legal entities participating in the project are required to be present. Each legal entity is entitled to one vote. These decisions are executed by the Project Coordination and each WP Leader. Proposals for decision will be submitted by the Project Coordination team (can be triggered by the WP Leaders or specific project partners), by the Project Manager, by the Innovation & IPR Management or the Advisory Board.

Issues leading to a contractual change will be forwarded to the EU (the highest decision level) by the Project Coordinator.

In dealing with conflict, we will leverage on the seven methodologies of conflict resolution that Cooperacy Association developed:

- Turns or testing (Equivalence): two or more ideas are tested and compared together.
- Waiting to judge (Trust): results of current solution are awaited and evaluated together according to objective criteria (chosen by everyone).
- Values (Care): principles are taken into account in order to decide, like group benefit over individual one, safety over innovation or happiness over safety.
- Truth (Transparency): participants express in a very direct way their desires and knowledge: a hidden common truth is acknowledged and taken as a base.
- Space (Freedom): sometimes separation brings good benefits: separating tasks into smaller areas work better.
- Combos (Understanding): apparent conflicts may be part of a better and more efficient solution when joined together: a combination of the different solution is tried.
- Roles (Diversity): the different ideas are seen as part of a system, and used together in a larger frame.

3.2.2 Risk management

During the project lifetime, management risks and technical risks may be identified, and dealt with by the Project Coordination team and the Project Assembly. In following table a list of the initial risks that have been identified, their probability and how they can be mitigated is provided. This table will be constantly updated by the Project Coordinator and the Quality Assurance and Risk Manager (QARM), and will be included in the QMR of the project by the Project Coordinator.

Table 19. Preliminary risk assessment for COOPERACY project implementation

WP	Risk description	Probability	Criticality	Contingency plan	
				Preventive actions	Corrective actions
ALL	Delay in the implementation and availability of the design results for portal implementation	High Despite the expertise and commitment of the researcher partners unforeseen challenges may arise that delays the development activities.	Delay in dissemination and game implementation	Additional partners or effort should be put in these tasks. Testing phase may be shortened in order to cover for the delay period.	Replan the development phase and shorten the Pilot phase to meet the final release deadline.
WP6	Failures during the testing phase	Medium The piloting of the COOPERACY Platform on real contexts may trigger controversial results in some cases.	Poor content	Piloting coordination will check the progress of the pilots every month.	Best estimate through round tables/ workshops with Consortium members and key experts to identify possible

					improvement.
WP2	Gap between model and architecture with the user requirements	Medium Despite the complementary expertise of the involved partners the requirement gathering work may not achieve the expected goal.	Missed/wrong requirements	Revise and improve requirements and architecture. Increase advisory board involvement in requirement capture and specification activities.	Replan a second phase testing before the go-live.
ALL	Underestimation of resources required	Medium Despite the expertise of the partners unforeseen requirement and/or challenges may require additional resources than planned.	Not all objectives may be achieved	Cross collaboration is highly envisaged during this project considering the broad range of expertise of each partner.	Reschedule the activities to make them implementable and inform the EC about the delays.
ALL	Conflicts among partners	Medium Despite the existing synergy between partners, due to the multi-disciplinary nature of the consortium sometimes conflicts may arise.	Misunderstandings and difficulty to achieve consensus	Clear decision making in place. We will use common codes to facilitate communication between diverse partners.	Application of decision making process to sort conflicts and re-establish cooperation.
WP5	Low quality of the developed software	Medium-Low Despite the expertise of the ICT subcontractors the development activities may not result in quality software components.	Platform cannot be used by pilots	Implementation of software quality control and tests procedures.	Provides a change request to be sorted out during the pilot phase.
All	Partner leaves the consortium	Low Despite the commitment of partners unforeseen reasons may force partners to leave the consortium.	Loss of know-how	-	Due to the complementary competences of each partner a replacement partner with equivalent competences needs to be integrated in the project.
All	Loss of partners experts in Research and/or ICT	Low All partners include several experts in the areas of their expected contributions to the project. Despite this partners cannot guarantee that their personal will not leave.	Loss of know-how	Each partner is responsible for ensuring their expected know-how and contributions.	Partners can hire alternative experts.
WP5	Inadequate dissemination	Low Despite the effort dedicated to the dissemination WP and the commitment of external AB organizations and experts the dissemination effort may be inappropriate.	Lower exploitation potential	AB support in dissemination activities.	Revise and improve dissemination plans and activities. Increase
ALL	Low support from AB members	Low Despite the number of AB members their collective support to the project may be inappropriate.	Loss of expert feedback in the project activities	Adopt strategies for stronger engagement of key AB members.	
WP 8	Incompleteness of the data retrieved to perform the costs- benefits	Low	Medium	Use several data sources: Consortium expertise, experts and end users interviews, if necessary,	Best estimate through round tables/ workshops with Consortium members and key

	analysis			several secondary sources (market reports, company statements, online DBs, specialized magazines)	experts to reach a consensus on key variables
WP 8	Costs-benefits analysis does not incorporate key elements brought by the project	Low	Medium	Use several data sources: Consortium expertise, experts and end users interviews, if necessary, several secondary sources (market reports, company statements, online DBs, specialized magazines)	Improve estimate through round tables/ workshops with Consortium members and end users to reach a consensus on key variables
WP 8	Commercial roadmap reveals failure of market potential retrieved to perform the costs-benefits analysis	Low	Low	Address market potential and road to market (incl. societal benefits) with strong interaction with end-users	Re-define exploitation/ dissemination strategy during the course of the project

3.3 Consortium as a Whole

3.3.1 Operational Capacity and Multidisciplinary

To achieve the ambitious objectives of the COOPERACY project it is necessary the cooperation of partners combining skills and expertise in Cooperation Science, Participatory innovation, Collective intelligence, Open data, Internet of Things, Digital social innovation, Mass adoption, Open space technology, Blockchain, Cooperative and circular economy, Active citizenship, SROI, Big data, Crowdfunding, Artificial Intelligence, Biofeedback, Game Theory as well as experts that will serve to validate the project results, and to carry out a well-grounded exploitation and dissemination plan. In this regard, creating a consortium able of coping with all these requirements entails a significant effort that is beyond the scope of a national project. With this purpose, a *multidisciplinary* consortium of partners from different European countries is constituted comprising four complementary sets or partners:

- **Academic partners from EU Member States** providing European scientific expertise and knowledge for the project (COO; CNRS; UMA; UJI; MRU; SAPI; UNIVPM)
- **Technology providers** contributing with relevant know-how and technologies to the project will participate as partners (PURPLE) and subcontractors in the relevant Working Packages of the project.
- **Innovative parties** active in Cooperation Science, Participatory innovation, Collective intelligence, Biofeedback and IoT of emotions, Digital social innovation , Blockchain, Cooperative and circular economy, Artificial Intelligence, Game Theory (COO, DOS, UMA, CNRS, MRU, SAPI, PURPLE).
- **SMEs** with a strong expertise of citizenship involvement for mass adoption, exploitation and roadmaps of innovative solutions (ALPHA, IDL, PURPLE).

The COOPERACY Platform consortium is based upon collaboration between academic, SME and social activity partners which will contribute collectively with their experience and expertise. There are 11 partners, 10 from 4 Member States (Italy, Spain, France, Lithuania), and 1 from Argentina. All members in this consortium meet the expertise in their own disciplines, as well as in the participation on innovation actions and research European actions. Therefore, the consortium of the COOPERACY Platform project incorporates a well-structured and balanced set of partners that can deal in a satisfactory way with the requirements to successfully carry out the project objectives. We chose to include three Italian partners for communication, exploitation and ICT development resident in Milan for easier project management and development.

Table 20: Multidisciplinary and complementarity of competences

Competences	COO	CNRS	UMA	UJI	MRU	SAPI	ALPHA	UNIVPM	DOS	IDL	PURPLE
Cooperation Science	✓										
Participatory innovation	✓				✓						

Competences	COO	CNRS	UMA	UJI	MRU	SAPI	ALPHA	UNIVPM	DOS	IDL	PURPLE
Collective intelligence	✓				✓						
Open data		✓	✓								✓
Internet of things						✓					✓
Digital social innovation	✓					✓			✓		✓
Mass adoption						✓			✓		
Open space technology	✓					✓					
Blockchain		✓									✓
Cooperative and circular economy	✓			✓				✓			
Active citizenship	✓					✓			✓		
SROI						✓					
Big data				✓							
Crowdfunding						✓			✓		
Artificial Intelligence			✓								
Biofeedback						✓					✓
Game Theory	✓		✓								

Taking into account their specific expertise, the leadership of the project WPs and tasks has been carefully balanced among all the partners, as well as the overall effort.

3.4 Resources to be Committed

For carrying out all the activities addressed in the COOPERACY project, a total budget of **1.995.168 €** is estimated for the **24 months** duration of the project.

3.4.1 Personnel

Personnel is the most important resources that will be used on the project, altogether employing almost **372** person-months with an overall cost amounting to **1.595.069 €**.

In fact, the COOPERACY Platform costs are primarily the cost of labour, that is, of personnel working on the project. The effort for the 24 months of the project has been calculated in detail, analysing each task of each work package in order to build up a complete comprehensive picture of the project and its estimated costs. This has been done taking into account the length of the task, its complexity and who will be involved.

The table below indicates the number of person/months over the whole duration of the planned work, for each work package, for each participant. The work package leader for each WP is identified with its person month figure in bold.

Participant	WP1	WP2	WP3	WP4	WP5	WP6	WP7	WP8	WP9	PM
1 Cooperacy (Association)	24	12	1	2	12	4	1	2	2	60
2 Centre National de Recherche	12	0	18	0	0	0	0	0	2	32
3 Universidad de Malaga	1	0	0	24	12	0	0	0	2	39
4 Universitat Jaume I	1	7	0	0	0	6	8	0	2	24
5 Mykolas Romeris University	6	6	0	2	0	12	0	0	2	28
6 Universita degli Studi di Roma La Sapienza	1	0	0	0	0	0	19	0	2	22
7 ALPHA	12	0	0	0	0	0	0	22	0	34
8 Università Politecnica delle Marche	2	6	0	0	0	8	0	0	8	24
9 Fundación Hormigas Argentinas	1	6	0	0	0	6	0	0	2	15
10 IDLab	2	0	0	0	0	0	0	0	45	47
11 Purple Network	4	4	1	1	36	0	1	0	0	47
Total	66	41	20	29	60	36	29	24	67	372
%	18	10	5	8	16	10	8	10	18	100

Table 6: Summary of personnel effort, in terms of person months.**3.4.2 Other direct costs**

The tables below show each participant for which the costs of 'travel', 'equipment', and 'goods and services' exceeds 15% of the personnel costs.

UJI	Cost (€)	Justification
Travel	18.000	The travel commitment is similar to that of the other partners, but since UJI personnel cost is lower the ratio results higher.
Other goods and services	600	
Total	18.600	29 % of personnel cost
UNIVPM	Cost (€)	Justification
Travel	16.000	The travel commitment is similar to that of the other partners, but since UNIVPM personnel cost is lower than the average, the ratio results higher.
Other goods and services	10.000	UNIVPM is in charge of the scientific dissemination and the cost is related to the publication of scientific articles
Total	26.000	36 % of personnel cost
DOS	Cost (€)	Justification
Travel	18.000	The travel commitment is similar to that of the other partners, but since DOS personnel cost is lower than the average, the ratio results higher.
Other goods and services		
Total	18.000	34 % of personnel cost

3.4.3 Sub-contracting

Direct costs for sub-contracting in COOPERACY amount to **120.000 €**, slightly less than **7,5%** of the personnel costs. No research and development activities are performed by sub-contractors, since they are intended only to supplement the consortium with specific expertise outside the core of the project.

Works and services purchases will be based either on the best value for money (considering the quality of the service, good or work proposed, i.e. the best price-quality ratio) or on the lowest cost.

The best value for money principle will be achieved by comparing at least three offers from relevant companies in the sector. Offers meeting the quality condition will be qualified for price comparisons and final award.

The Commission/Agency, the European Court of Auditors (ECA) and the European Anti-Fraud Office (OLAF) will have the right to carry out checks, reviews, audits and investigations on the contractor. The Commission/Agency will have also the right to make an evaluation of the impact of the action.

(More details on sub-contracts are reported in section 4-5 of the COOPERACY proposal.)

THANKS FOR READING AND..
JOIN COOPERACY.ORG!

<http://cooperacy.org>

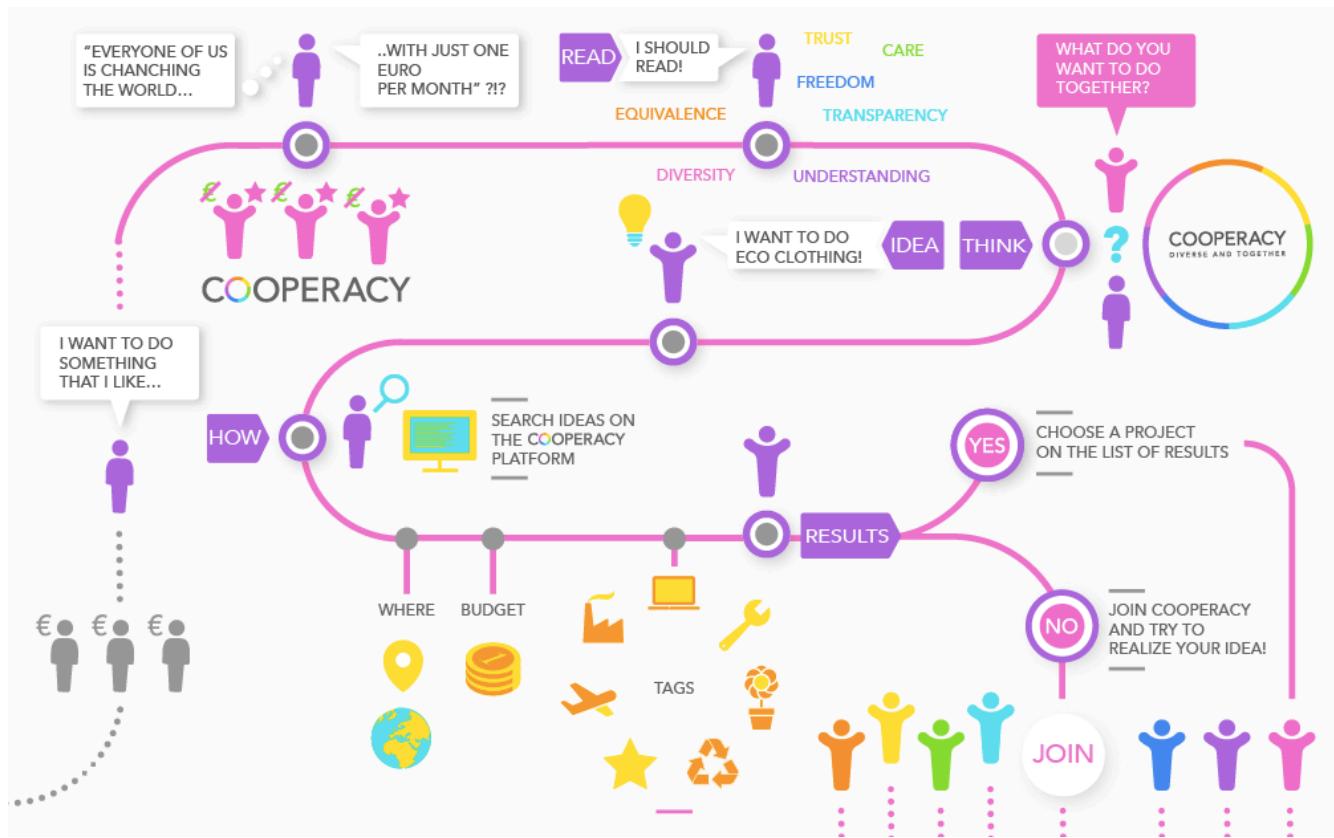


Figure 18 The COOPERACY User Journey