RESEARCH & INNOVATION
HORIZON 2020

PERIODIC REPORT

Grant Agreement number:	688670
Project[1] acronym:	OPENCARE
Project title:	Open Participatory Engagement in Collective Awareness for REdesign of Care Services
Start date of the project:	1 January 2016
Duration of the project:	24 months
Period covered by the report:	from 1 January 2017 to 31 December 2017
Periodic report:	2nd
Date of submission of the periodic report:	19 February 2018
Version:	1
Project website[2] address:	www.opencare.cc
The report is elaborated on the basis of the:	Amended Grant Agreement through amendment n°

[1] The term 'project' used in this template equates to an 'action' in certain other Horizon 2020 documentation

[2] The home page of the website should contain the European flag which is available in electronic format at the Europa website (European flag: http://europa.eu/abc/symbols/emblem/index_en.htm) and the Horizon 2020 programme name.

1. PUBLISHABLE SUMMARY

Summary of the context and overall objectives of the project (For the final period, include the conclusions of the action)

In 2017, opencare continued to pursue its objectives. Here is what we did and learned.

-- We kept exploring the potential of communities to design and deliver care services --

Communities have great potential for providing care. We were able to witness and interact with a swarm of community initiatives, most of them small, that address health and social issues. Powered by collaboration, they achieve incredible results. People all over Europe build tens of clinics with almost no resources, develop a cheap open source device for echographies, build networks of mutual help for people with mental health issues, and so forth. Innovating communities take full advantage of small size, independence and closeness to the problem. They are decentralized systems that innovate in all directions at once. Community innovators are "crawling the solution space" in a way no larger organization could.

At the heart of this effort is the desire for autonomy, to be independent from failing systems. These initiatives want and need self-sufficiency, which they transform into power to effect change.

-- We kept exploring the implications for policy --
Failure in a formalized health care system is very expensive; in community care initiatives, it's typically low. This makes these initiatives a natural space for trying novel solutions.
However, regulation - as much as we need it - has a stifling effect on innovation. As a result, communities of care and policy makers have a problematic relationship. Better integrating open care in the European health care system requires measures that make it easier to start open care initiatives and help the successful ones to thrive. And most, do not bring open care initiatives into formal care institutions, but rather support them on their own terms.

-- We kept studying and exploiting the inner workings of collective intelligence --
We continued to explore the inner workings of collective intelligence in action. Collective intelligence has structure, and a network science approach can detect it. Studying the backbone of semantic social networks, we can assess that collective intelligence is primarily interactional. The interface between online and onsite collaboration environments however remains a challenge in terms of being able to reads and analyse collective intelligence dynamics.

Work performed from the beginning of the project to the end of the period covered by the report and main results achieved so far (For the final period please include an overview of the results and their exploitation and dissemination)

We pursued our work on engagement. In particular, we organised offline community workshops and combined their output and reported interaction with online content. Fellows were appointed by competitive selection following an open call, and tasked with connecting the opencare community with specific communities. We organised a community meeting, OpenVillage festival, which served as a powerful driver of enthusiasm and engagement, and resulted in a large expansion of the opencare corpus. We ran tens of serious playing sessions in the context of several high-profile international meetings. We involved tens of citizens and hackers in the evaluation of ideas and risks, followed up by

roundtables on medical ethics and finance. These and many other activities helped grow the opencare corpus to include 3,887 contributions by 332 individuals, for about 820,000 words in total. This is comparable to the length of Tolkien's The Lord of the Rings trilogy, plus that of Dostoyevsky's The Brothers Karamazov. It is very large as ethnographic studies go: the main journals regularly publish studies based on 6-20 informants. Year 2 also saw the launch and continued improvement of the GraphRyder dashboard, the main opencare tool to aggregate, visualize and explore semantic social networks. GraphRyder proved useful to investigate collective intelligence on a daily basis and make sense of all interactions echoed through conversations and taking place in communities.

opencare also focused on activating and deploying a development process, from conversation to piloting (“From talk to action”), around 3 main prototypes, 2 of them in synergy with the Municipality of Milan. Starting from online and offline community needs we were able to co-design, document and disseminate new bottom-up solutions within an innovative vision of community-based care system. Opencare Maker in Residence (MIR) was a special residency program which allowed to multiply the prototyping effort testing the role of Fablab as accelerating platform of new projects. These initiatives led us to shape an engaging type of awareness around technological capabilities, lowering the barriers of digital divide and opening the possibility of shaping a new generation of users.

We have engaged citizens, professional care-givers, scientists, managers, entrepreneurs, and representatives of many minorities (LGTB, familials of subjects affected by developmental disorders, musculoskeletal rare diseases, …). Simulations of practical problem-solving scenarios, and sense making sessions allowed us to evaluate their perceptions, the degree of coincidence (or lack thereof) between their predictions/expectations and the evolution of scenarios, their emotions. The resulting reflections contributed to the generation of new scenarios, identifying principles and ideas from this process of recursive experience and reflection.

opencare contributed longer term expectations for communities (and, in the opencare context, more specifically for City of Milano. One example of a wider impact although small scale experiment is the development of three prototypes selected during the "Call for solutions: open innovation for community care". The designers of these three prototypes were granted with an incubation and acceleration programme exceeding opencare timeframe (this is possible thanks to an agreement between City of Milano and local firms).

Progress beyond the state of the art, expected results until the end of the project and potential impacts (including the socio-economic impact and the wider societal implications of the project so far)

On the network science front, opencare got closer to approaches looking at how intimacy is affecting the shape of interaction networks in online communities, with potentially detrimental effects. Ongoing research in experimental psychology promises to proof a causal link between network structure and prosocial behaviour, which may put on firmer ground opencare's approach of treating online community management as social network design.

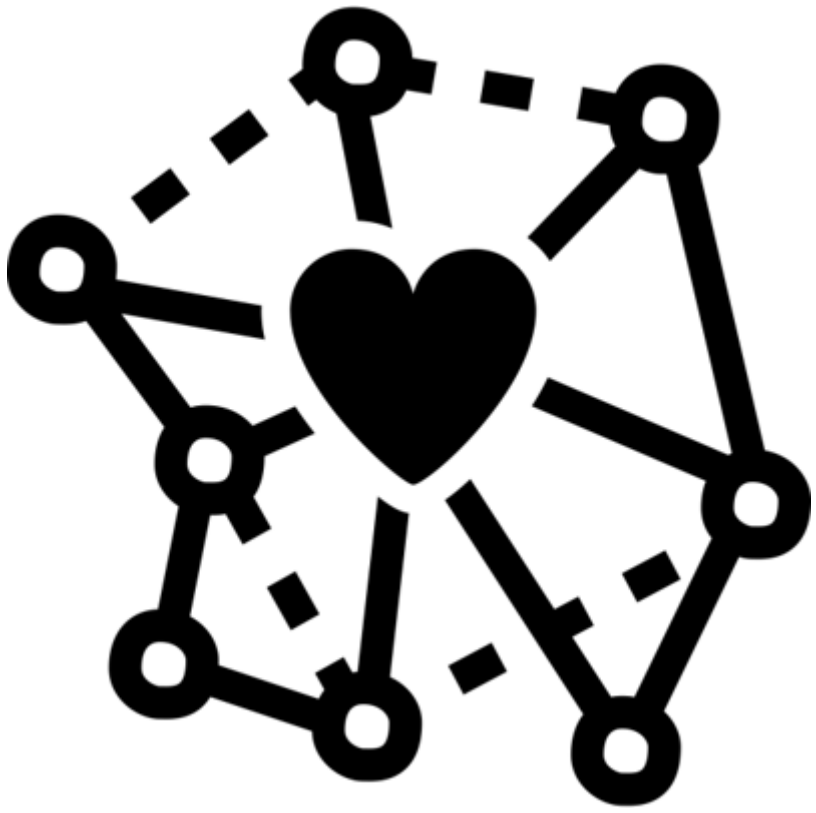
opencare attempted to take exploitation out of the participatory design picture, by underwriting an explicit social contract with the opencare community, styled as a collective author and researcher. To this end, we run a social lab to reflect on the nature of accountability, governance, and ownership in distributed participatory design in care provision. By role-playing, simulations, and storytelling, we explore the dynamics of the distributed innovation systems under a spectrum of desirable, and less so, schemes of governance, and value propositions from the community members.

Our reflections concerned with online design of community driven care contributed directly to the debate about direct opinion harvesting from citizens. By making explicit the norms of a social contract that binds online interaction in a sustainable continuing conversation about community led care, our preliminary study offers an argument to look at citizens involvement in policy making as a continuing process that should be cultured by appropriate governance and community management.

Address (URL) of the project's public website

www.opencare.cc

opencare logo (b&w)



6. Dissemination and exploitation of results

6.1 Scientific publications

Type of scientific publication	Title of the scientific publication	DOI	ISSN or eSSN	Authors	Title of the journal or equivalent	Number, date	Publisher	Place of publication	Year of publication	Relevant pages	Public & private publication[1]	Peer-review	Is/Will open access provided to this publication
Other	*Care,Commons and Entrepreneurship*	*10.13140/RG.2.2.22643.12321*		*Tino Sanandajib, Erik Lakomaa*			*Stockholm School of Economics*	*Stockholm, Sweden*	*2016*		*No*	*No*	*Yes - available in Green Open Access*
Chapter in a Book	*Testing for the signature of policy in online communities*	*10.1007/978-3-319-50901-3_4*	*978-3-319-50900-6*	*Renoust, Benjamin; Cottica, Alberto; Melançon, Guy*	*Complex Networks & Their Applications V, volume 693 of Studies in Computational Intelligence*		*Springer*	*Berlin, Germany*	*2016*	*41-54*	*No*	*Yes*	*No*
Article in Journal	*Online community management as social network design: testing for the signature of management activities in online communities*	*10.1007/s41109-017-0049-9*	*23648228*	*Alberto Cottica, Guy Melançon, Benjamin Renoust*	*Applied Network Science*	*2/1*	*Springer International Publishing*	*Berlin*	*2017*	*Springer International Publishing*	*Yes*	*Yes*	*Yes - available in Gold Open Access*
Publication in Conference proceedings/ Workshop	*Semantic social networks: a new approach to scaling digital ethnography*	*10.5281/zenodo.832464*		*Cottica, Alberto; Hassoun, Amelia; Vallet, Jason; Melançon, Guy*	*INSCI 2017: Internet Science*	*3*	*Springer, Cham*	*Thessaloniki*	*2017*	*412-420*	*Yes*	*Yes*	*Yes - available in Gold Open Access*
Other	*Community driven care. A draft social contract*	*10.5281/zenodo.1161690*		*Liebart, Deborah; Manca, Mara; Wong, Susana; Abdallah, Ali; Manca, Marco*		*1*	*Scimpulse Foundation*	*Maastricht, NL*	*2017*		*No*	*No*	*Yes - available in Green Open Access*

1 "Both the joint publications coming from academic and corporate project participants as well as joint publications of project participants with academic/corporate organisations outside the consortium (as long as they are related to the funded project) should be reported."

6.2 Dissemination and communication activities

List only activities directly linked to the project.

Type of dissemination and communication activities	Number
Organisation of a Conference	*5*
Organisation of a Workshop	*40*
Press release	*17*
Non-scientific and non-peer-reviewed publication (popularised publication)	*2*
Exhibition	*1*
Flyer	*1*
Training	
Social Media	*7*
Website	*2*
Communication Campaign (e.g. Radio, TV)	*24*
Participation to a Conference	*30*
Participation to a Workshop	*38*
Participation to an Event other than a Conference or a Workshop	*23*
Video/Film	*2*
Brokerage Event	
Pitch Event	*0*
Trade Fair	
Participation in activities organized jointly with other H2020 projects	*1*
Other	
Total funding amount	*24,000.00 €*

Type of audience reached In the context of all dissemination & communication activities (multiple choices is possible)	Estimated Number of persons reached
Scientific Community (Higher Education, Research)	*10000*
Industry	*50*
Civil Society	*20000*
General Public	*20000*
Policy Makers	*100*
Media	*100*
Investors	*110*
Customers	
Other	*330*

6.3 Intellectual property rights resulting from the project

Type of IP Rights	Application reference	Date of the application	Official title of the application	Applicant(s)	Has the IPR protection been awarded?	If available, official publication number of award of protection

6.4 Innovation

Does the project include the following activities and if so how many of each?

Activities developed within the project	Number
Prototypes	*2*
Testing activities (feasibility/demo)	*0*
Clinical trials	*0*

Will the project lead to launching one of the following into the market (several possible):

New product (good or service)	☑
New process	☐
New method	☐

How many private companies in your project have introduced or are planning to introduce innovations (within the project lifetime or 3 years thereafter):

	Total Number of companies	Number of SMEs
Prototype Companies introducing innovation(s) new to the market	*1*	*1*
Companies introducing innovation(s) only new to the company	*1*	*1*

7. Impact on SMEs

SME Name	*Turnover of the company at the beginning of the project/most recent accountability period from the beginning of the project*	*Number of employees at the beginning of the project/ most recent accountability period from the beginning of the project*	*Turnover of the company at the most recent accountability period*	*Number of employees at the most recent accountability period*
EDGERYDERS	*104,976.00 €*	*7*	*175,192.00 €*	*7*
WEMAKE S.R.L.	*124,668.00 €*	*6*	*393,353.00 €*	*7*

8. Open Research Data

More information on Data Management Plans (DMPs) in the Online Manual.

Digital Object Identifier, DOI (if available)	Title/Identifier (if no DOI available)	Is this dataset Openly accessible[1]?	Is this dataset re-usable[2]	If the dataset is linked to a publication, specify the DOI of the publication
10.5281/zenodo.164970	*opencare data*	*Yes*	*Yes*	

[1] Accessible means Open Access defined as free of charge access for anyone via Internet. Answer "yes" if the open access to the data is already established or if it will be established after an embargo period.

[2] Re-usability has 2 aspects: 1) technical: the technical standards used are compatible 2) legal: the necessary rights are in place for other users to use the dataset.

9. Gender

Gender of researchers and other workforce[1] involved in the project

Beneficiaries	Number of female researchers[2]	Number of male researchers[2]	Number of females in the workforce other than researchers	Number of males in the workforce other than researchers	Total number of females in the workforce	Total number of males in the workforce
1 - UBx	*0*	*3*	*1*	*0*	*1*	*3*
2 - edgeryders	*2*	*2*	*0*	*3*	*2*	*5*
3 - WeMake	*8*	*3*	*0*	*3*	*8*	*6*
4 - EHFF	*0*	*2*	*0*	*0*	*0*	*2*
5 - SCImPULSE	*4*	*1*	*0*	*0*	*4*	*1*
6 - City of Milano	*2*	*2*	*0*	*0*	*2*	*2*

Gender dimension in the Project

Does the project include a gender dimension in research content[3]? ☐ *Yes* ☑ *No*

1 Figures must be provided in Head Count.

2 'Researchers' are professionals engaged in the conception or creation of new knowledge. They conduct research and improve or develop concepts, theories, models, techniques instrumentation, software or operational methods. (Frascati Manual (2015): §5.35).

3 Gender dimension in research content means taking into account as relevant the biological characteristics and the social and cultural features of women and men in the content of the research itself. It does not refer to the gender balance in research team participating to the research project.

6 Critical implementation risks and mitigation actions

- **Foreseen Risks**

Risk Number	Description of Risk	Work Packages Concerned	Proposed risk-mitigation measures
1	Lack of interest: the community does not materialize. The convener may have overestimated the attractiveness or urgency of the problem she wishes to discuss.	WP3,WP2,WP4	Care is a very transversal issue and a part of the human experience: every human being will have been, by the end of her life, both a care giver and a care receiver. It is reasonable to expect that many people will feel they have something to contribute. Additionally, a carefully executed WP1 will give the consortium early and continuous feedback on community onboarding.
2	First post syndrome. Even when people sincerely want to collaborate around an issue, they prefer to join already buzzing, animated spaces for collaboration. This produces what in game theory is known as a waiting game: all parties prefer not to be early adopters of the conversation. The equilibrium of this game is no adoption at all, as parties try to wait each other out.	WP2	We have already identified an initial group of people who wish to have the OpenCare conversation. The idea for the project comes from a session held at the Living On The Edge 4 conference in October 2014.
3	Empty platform syndrome. Communities with engaged in deep, frequent, high quality exchange are relatively rare. Those that exist are typically invested in their existing platforms and communication channels and refuse to migrate to new ones. Assembling one from scratch takes a long time and significant resources.	WP2	We start from an existing online community, Edgeryders. It has existed for over three years, and has now over 2500 registered users, 650 of which actively writing. This community is quite cohesive and has spawned a not-for-profit company that funds the platform and a yearly conference, lending the community extra resilience and durability.
4	Insufficiently inclusive culture. Many online discussions end up appealing only to small, homogenous groups of people. For example, women, minorities, or people with disabilities reportedly find many participation spaces uncomfortable. As they disengage,	WP3,WP2,WP4	OpenCare benefits from the tried-and-tested (a) onboarding policy and (b) moderation policy of Edgeryders. New users are personally greeted and welcomed into the conversation by community managers connecting their interests with opportunities to join a discussion, collaborate on a project,

Risk Number	Description of Risk	Work Packages Concerned	Proposed risk-mitigation measures
	diversity is reduced and the collective intelligence of the community is reduced.		participate in a community event. In case of offending behavior, moderators have full powers to unpublish or even delete the offending content; but to-date only one (relatively minor) episode of breach has been recorded in over three years.
5	Lacking or exploitative social contract. Many online participation initiatives do not address the question of why people should participate at all. Most of the emphasis in on “generating ideas”, but that is a poor motivator because the vast majority of ideas is never deployed. Many participants report that they feel their involvement benefits only the convener, who can boast high number of participants.	WP3,WP2,WP4	OpenCare emphasizes co-design of solutions that it can prototype in the WeMake makerspace. This way, participants are able to see their inputs reflected in actual physical artefacts actually aimed to solving care problems, albeit only as prototypes. Participants who are particularly active in the online sensemaking- and design-oriented conversation are invited to travel to Milano to take part in prototyping activity. Expectations are carefully managed, and the “change the world” rhetoric of many technology-based projects is carefully avoided.
6	Fragmentation and irretrievability of the conversation. Many communities converse on a variety of online channels, including Facebook, Twitter, Linkedin, mailing lists, IRC, Skype, Slack, Trello, Loomio and others. The largest of these are proprietary, and the companies owning them restrict or block access to their data. This makes it difficult or impossible to aggregate and summarize the conversation. This, in turn, discourages new participants from joining it, and in the long run reduces both participation and its diversity. Even monitoring the conversation becomes extremely difficult.	WP5	Edgeryders has maintained a culture of keeping the conversation on its own platform, that uses free-and-open source software and releases all content under a Creative Commons license. This enabled the own development and adoption of collective intelligence tools which, although at an early stage of development, are already being used. Based on that experience, we can guarantee that the OpenCare conversation will remain centered on the platform, and be legally and technically simple to retrieve for analysis.

- **Unforeseen Risks**

Risk Number	Description of Risk	Work Packages Concerned	Proposed risk-mitigation measures
U 1	The European Commission insisted that one of the actions contained in our proposal was not an eligible cost. This action was the open competition to fund development of initiatives already identified by the online conversation, preferably in the form of assessment reports. This roadblock has the potential to affect negatively opencare's engagement engine, because it returns an image of the consortium as exploiting the community rather than supporting it. Consequently, it weakens the motivation for smart communities to participate in the exercise.	WP1,WP3	1. We launched openandchange, a collective application to a grant called 100&Change. We created a collective format for opencare initiatives to participate. This format only took up 2.5 hours of the time of each initiative that wished to participate. This time was to be spent sharing experiential data about these initiatives (which opencare needs). By "doing the heavy lifting" of compiling the grant application, we demonstrated goodwill and a non-extractive relationship with the community. 2. We maintained a good feedback and decision pipeline across the consortium. Hopefully this will allow to adapt to most pitfalls, by reinterpreting the described actions in light of the new constraints, at the sole cost of delays, without jeopardizing the project success.
U 2	Programming in "the arduino way" is still difficult for citizens because a lot of opensource products have a lack of libraries and in general most of the more complex programming task are difficult to be used in a simpler programming environment like the Arduino IDE.	WP3	Good technical documentation, libraries and examples are key for a sustainable end effective development. This is a design constraint and value to be targeted if we want to enlarge the base of engaged and active citizens. WeMake took charge of writing (from scratch or upgrading the existing one) arduino libraries in order to let the "user" program InPe using the Arduino IDE which is affordable both for the newbie and for a pro user. For future prototypes more deep in advance tool research need to be carry out in order to evaluate a product.
U 3	A nasty combination of several software bugs prevented the correct functioning of the consent funnel. This meant that the collection of the consent of some users to their content being re-used for research. This was discovered as we rolled out a new platform in the early summer of 2017.	WP1	We implemented the consent funnel on the new platform. The new implementation was bug-free, so that anyone posting after July 20th 2017 had to go through it. By November 2017, we still had 192 participants out of 337 who were affected by the bug and had not posted in opencare after the rollout of the new platform. After consulting with our ethics advisors, we contacted them one by one asking them to give consent to us re-using their consent for research. At the time of writing, 117 of them have given consent. 5 have denied it, and were excluded from the study. The remaining 70 did not reply, or their email addresses turned out to have been

Risk Number	Description of Risk	Work Packages Concerned	Proposed risk-mitigation measures
			disabled. The real-time conversation on the issue is available here https://edgeryders.eu/t/a-problem-with-the-ethical-consent-funnel-and-how-to-solve-it/6748.

- **States of the Play for Risk Mitigation**

Risk Number	Period	Did you apply risk mitigation measures?	Did your risk materialise?	Comments
6	1	true	false	We insisted on edgeryders.eu as the community hub for opencare. This was not always smooth, because such platform does not have state-of-the-art usability; individuals used to Facebook etc. needed to make a small additional effort. We had to do some handholding. However, it worked: the conversation did not splinter. Developing online conversation for City of Milan ended up being more challenging than expected. The reason is that City of Milan - being part of an online sharing community - might be confusing for citizens, therefore inhibiting them. In fact, generally, even public consultations happen through processes which are hardly recognizable as peer to peer. To mitigate this specific risk, City of Milan opted for an alternative engagement process in two phases. First, it has monitored what initiatives in Milan were Open Care oriented and dealt with them. Second, it has introduced such initiatives to Edgeryders community as a collective space where to share and nurture their specific interests. This way City of Milan will keep linked to the community through its selected initiatives

Risk Number	Period	Did you apply risk mitigation measures?	Did your risk materialise?	Comments
				and Edgeryders will safeguards its own disintermediate way of building relationship.
1	1	true	false	We had to do considerable work in WP1, but a community did, without a doubt, rally around opencare. As of early November 2016, we have collected over 1,700 contributions by 200 unique authors.
4	1	true	false	Avoided, through deployment of community management techniques.
3	1	true	false	
5	1	true	false	Mostly avoided. However, see “unforeseen risks”.
U 2	1	true	false	Good technical documentation, libraries and examples are key for a sustainable end effective development. This is a design constraint and value to be targeted if we want to enlarge the base of engaged and active citizens. WeMake took charge of writing (from scratch or upgrading the existing one) arduino libraries in order to let the “user” program InPe using the Arduino IDE which is affordable both for the newbie and for a pro user. For future prototypes more deep in advance tool research need to be carry out in order to evaluate a product.
U 3	2	true	false	
U 1	1	true	false	1. We launched openandchange, a collective application to a grant called 100&Change. We created a collective format for opencare initiatives to participate. This format only took up 2.5 hours of the time of each initiative that wished to participate. This time was to

Risk Number	Period	Did you apply risk mitigation measures?	Did your risk materialise?	Comments
				be spent sharing experiential data about these initiatives (which opencare needs). By “doing the heavy lifting” of compiling the grant application, we demonstrated goodwill and a non-extractive relationship with the community. 2. We maintained a good feedback and decision pipeline across the consortium. Hopefully this will allow to adapt to most pitfalls, by reinterpreting the described actions in light of the new constraints, at the sole cost of delays, without jeopardizing the project success.
2	1	true	false	Our seeding strategy worked reasonably well.

3. DELIVERABLES

Del. no.	Deliverable name	WP no.	Lead beneficiary	Nature	Dissemin. level	Delivery date from Annex I (prj month)	Actual/ Forecast delivery date	Status	Comments
D1.1	Hackathon documentation	WP1	UNIVERSITE DE BORDEAUX	Report	Public	9	29 September 2016	ACCEPTED	
D1.2	Hackathon material, workshop venue and workshop post-proceedings	WP1	UNIVERSITE DE BORDEAUX	Websites, patents filling, etc.	Public	12	22 December 2016	ACCEPTED	
D1.3	Open call text	WP1	SCIMPULSE FOUNDATION	Report	Public	5	23 February 2017	ACCEPTED	
D1.4	Deep games agendas and intended audiences	WP1	SCIMPULSE FOUNDATION	Report	Public	6	12 July 2016	ACCEPTED	
D1.5	Collection of textual and visual documentation from onboarding workshops	WP1	EDGERYDERS	Websites, patents filling, etc.	Public	9	3 October 2016	ACCEPTED	
D1.6	Peer-auditing of the project, and indication on how to work-around failures and pitfalls	WP1	SCIMPULSE FOUNDATION	Report	Public	20	7 December 2017	SUBMITTED	
D1.7	Documentation from final international event	WP1	EDGERYDERS	Websites, patents filling, etc.	Public	24	27 December 2017	SUBMITTED	
D1.8	Deep games documentation	WP1	SCIMPULSE FOUNDATION	Report	Public	24	15 December 2017	SUBMITTED	
D2.1	Deployed, tested OpenCare online space on the production server	WP2	EDGERYDERS	Websites, patents filling, etc.	Public	2	18 April 2016	ACCEPTED	

Del. no.	Deliverable name	WP no.	Lead beneficiary	Nature	Dissemin. level	Delivery date from Annex I (prj month)	Actual/ Forecast delivery date	Status	Comments
D2.2	20 high-quality posts	WP2	EDGERYDERS	Websites, patents filling, etc.	Public	11	30 November 2016	ACCEPTED	
D2.3	Draft report on engaging open networks in meaningful online conversations	WP2	EDGERYDERS	Report	Public	12	19 December 2016	ACCEPTED	
D2.4	Final report on engaging open networks in meaningful online conversations	WP2	EDGERYDERS	Report	Public	22	10 November 2017	SUBMITTED	
D2.5	Ethnographic report	WP2	EDGERYDERS	Report	Public	23	15 December 2017	SUBMITTED	
D3.1	Co-designing care services: a practical guide	WP3	WEMAKE S.R.L.	Report	Public	6	12 July 2016	ACCEPTED	
D3.2	Full documentation of all prototypes	WP3	WEMAKE S.R.L.	Demonstrator	Public	20	28 December 2017	SUBMITTED	
D4.1	Review of the literature of collective intelligence in care policies	WP4	STIFTELSEN FOR EKONOMISK-HISTORIK OCH FORETAGSHISTORISK FORSKNING	Report	Public	6	13 July 2016	ACCEPTED	
D4.2	Survey design	WP4	STIFTELSEN FOR EKONOMISK-HISTORIK OCH FORETAGSHISTORISK FORSKNING	Report	Public	6	12 July 2016	REJECTED	
D4.3	Research paper. Integrating community-driven care services in European welfare states	WP4	STIFTELSEN FOR EKONOMISK-HISTORIK OCH FORETAGSHISTORISK FORSKNING	Report	Public	22	28 November 2017	SUBMITTED	
D4.4	Research paper. Accountability and ownership in	WP4	SCIMPULSE FOUNDATION	Report	Public	22	18 December 2017	SUBMITTED	

Del. no.	Deliverable name	WP no.	Lead beneficiary	Nature	Dissemin. level	Delivery date from Annex I (prj month)	Actual/ Forecast delivery date	Status	Comments
	community-led welfare innovation: its potential role in EU policies								
D4.5	Community-driven care: a draft	WP4	SCIMPULSE FOUNDATION	Report	Public	18	11 October 2017	SUBMITTED	
D4.6	Research paper: Using collective intelligence to improve care - an empirical study on best practice in the care sector	WP4	EDGERYDERS	Report	Public	24	22 December 2017	SUBMITTED	
D4.7	Research paper: Integrating community-driven care services in European welfare states.	WP4	STIFTELSEN FOR EKONOMISK-HISTORIK OCH FORETAGSHISTORISK FORSKNING	Report	Public	24	22 December 2017	SUBMITTED	
D5.1	Toolbox for developing networkbased software for collective intelligence	WP5	UNIVERSITE DE BORDEAUX	Websites, patents filling, etc.	Public	12	27 December 2016	ACCEPTED	
D5.2	White papers: user tasks and requirements; data abstractions and operations requirements	WP5	UNIVERSITE DE BORDEAUX	Report	Public	12	27 December 2016	ACCEPTED	
D5.3	Implementation and integration of the semi-automated aid to ethnographic coding prototype into the OpenCare platform	WP5	UNIVERSITE DE BORDEAUX	Websites, patents filling, etc.	Public	15	17 July 2017	SUBMITTED	
D5.4	Implementation and integration of SSNA software prototypes into a dashboard environment, incorporating the research on semantic networks	WP5	UNIVERSITE DE BORDEAUX	Websites, patents filling, etc.	Public	20	18 September 2017	SUBMITTED	

Del. no.	Deliverable name	WP no.	Lead beneficiary	Nature	Dissemin. level	Delivery date from Annex I (prj month)	Actual/ Forecast delivery date	Status	Comments
D6.1	“Consent funnel”	WP6	SCIMPULSE FOUNDATION	Websites, patents filling, etc.	Public	3	31 March 2016	ACCEPTED	
D6.2	Periodic report #1	WP6	UNIVERSITE DE BORDEAUX	Report	Public	12	22 December 2017	SUBMITTED	
D6.3	Periodic report #2	WP6	UNIVERSITE DE BORDEAUX	Report	Public	24	31 December 2017	NOT SUBMITTED	
D6.4	Final report	WP6	UNIVERSITE DE BORDEAUX	Report	Public	24	31 December 2017	NOT SUBMITTED	
D6.5	Ethics interim evaluation and guidance report	WP6	SCIMPULSE FOUNDATION	Report	Public	12	23 February 2017	ACCEPTED	
D6.6	Final ethics report	WP6	SCIMPULSE FOUNDATION	Report	Public	24	15 December 2017	SUBMITTED	
D7.1	POPD - Requirement No. 2	WP7	UNIVERSITE DE BORDEAUX	Ethics	Confidential, only for members of the consortium (including the Commission Services)	6	23 December 2016	ACCEPTED	
D7.2	POPD - Requirement No. 1	WP7	UNIVERSITE DE BORDEAUX	Ethics	Confidential, only for members of the consortium (including the	6	23 December 2016	ACCEPTED	

Del. no.	Deliverable name	WP no.	Lead beneficiary	Nature	Dissemin. level	Delivery date from Annex I (prj month)	Actual/ Forecast delivery date	Status	Comments
					Commission Services)				
D7.3	POPD - Requirement No. 4	WP7	UNIVERSITE DE BORDEAUX	Ethics	Confidential, only for members of the consortium (including the Commission Services)	6	23 December 2016	ACCEPTED	
D7.4	H - Requirement No. 3	WP7	UNIVERSITE DE BORDEAUX	Ethics	Confidential, only for members of the consortium (including the Commission Services)	6	23 December 2016	ACCEPTED	
D7.5	POPD - Requirement No. 5	WP7	UNIVERSITE DE BORDEAUX	Ethics	Confidential, only for members of the consortium (including the Commission Services)	6	23 December 2016	ACCEPTED	

General Remarks

4. MILESTONES

Mil. no.	Milestone name	WP no.	Lead beneficiary	Delivery date from Annex I	Achieved	Actual/Forecast achievement date	Comments
1	Onboarding structure up and running	WP1	EDGERYDERS	1 April 2016	Yes	18 April 2016	
2	Open competition is launched	WP1	SCIMPULSE FOUNDATION	1 June 2016	Yes	12 July 2016	
3	Diverse participation in onboarding workshops	WP1	SCIMPULSE FOUNDATION	1 October 2016	Yes	15 February 2017	
4	Community validation phase started	WP1	EDGERYDERS	1 December 2017	Yes	19 October 2017	
5	Conversation-ready online space	WP2	EDGERYDERS	1 April 2016	Yes	18 April 2016	
6	Lively, populated platform	WP2	EDGERYDERS	1 July 2016	Yes	28 June 2016	The date of completion refers to the submission of a small report we made. The platform was in fact lively well before that.
7	Ontology ready for ethnographic coding	WP2	EDGERYDERS	1 February 2017	Yes	10 January 2017	
8	Prototyping environment is functional	WP3	WEMAKE S.R.L.	1 September 2016	Yes	21 October 2016	
9	Prototype documentation is complete	WP3	WEMAKE S.R.L.	1 August 2017	Yes	2 October 2017	
10	Policy research feeding into the conversation	WP4	STIFTELSEN FOR EKONOMISK-HISTORIK OCH FORETAGSHISTORISK FORSKNING	1 November 2016	Yes	29 June 2016	
11	Draft of a social contract for care solutions & participatory design	WP4	SCIMPULSE FOUNDATION	1 August 2017	Yes	11 October 2017	
12	Semi-automated ethnographic coding implemented	WP5	UNIVERSITE DE BORDEAUX	1 March 2017	Yes	28 February 2017	
13	SSNA dashboard operational	WP5	UNIVERSITE DE BORDEAUX	1 April 2017	Yes	31 March 2017	

Mil. no.	Milestone name	WP no.	Lead beneficiary	Delivery date from Annex I	Achieved	Actual/Forecast achievement date	Comments
14	Two Ethics Advisors appointed	WP6	SCIMPULSE FOUNDATION	1 March 2016	Yes	31 March 2016	
15	Consent to participation, and use of data approved and published	WP6	SCIMPULSE FOUNDATION	1 April 2016	Yes	31 March 2016	

PROJECT PERIODIC REPORT

Grant Agreement number:	688670
Action acronym:	**opencare**
Action title:	Open Participatory Engagement in Collective Awareness for REdesign of Care Services
Type of the action:	H2020: Research & Innovation Actions (RIA)
Periodic report:	2nd Periodic Report
Period covered:	from M13 to M24 (01. January 2017 - 31. December 2017)
Start date of the action:	01.01.2016
Duration of the action:	24 months
Version No.:	
Action website address:	http://opencare.cc
Date of submission:	14.02.2018

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1.1. Objectives

Objective 1. Learn-by-doing how to deploy collective intelligence to design care services

1.1. Develop a how-to guide to convene, manage and harvest a large-scale online conversation as a care provision service design engine. The guide should be a result of learning-by-doing, building on previous experience and improving on it.

Done (EDGE). Deliverables 2.3 (2016) and 2.4 (2017) contain the main lessons learned on convening and managing a large-scale online conversation as a collective intelligence engine. Our main findings are confirmed from Year 1, and can be summarized as follows:

- The main activities required to convene a conversation are credible outreach (community engagement) and high-quality support (community management) to individuals who engage.
- Convening is based on three principles. Self-selection: make a case for joining, but then let people decide if they want to be part of the fledgling community or not. Rather than targeting well-defined groups, focus on the value and mission of the community. Social networks: use software affordances and social norms to encourage people who are interested in the same parts of the conversation to interact. Compelling social contract: refuse to be extractive ("come give me your input for free!"), and instead focus on creating (generally non-monetary) value for participation.

The harvesting activity was finished and systematized yet in Year 2. Documentation has happened in four forms: the narrative form of blog posts; presentations to the consortium meetings; a more formal deliverable (2.4); and the speculative methodological paper that we had foreseen in Year 1's report (DOI 10.5281/zenodo.832463). Our main finding: the opencare approach has the potential to take ethnography to a new level, handling consistently thousands of informants in the same study. At the moment, respectable studies are published relying on 10-20 informants; opencare has mobilized 332, and handling of 2-3,000 is within reach. However, that will require substantial methodological innovation in the coding process, ontology handling, and secondary data processing.

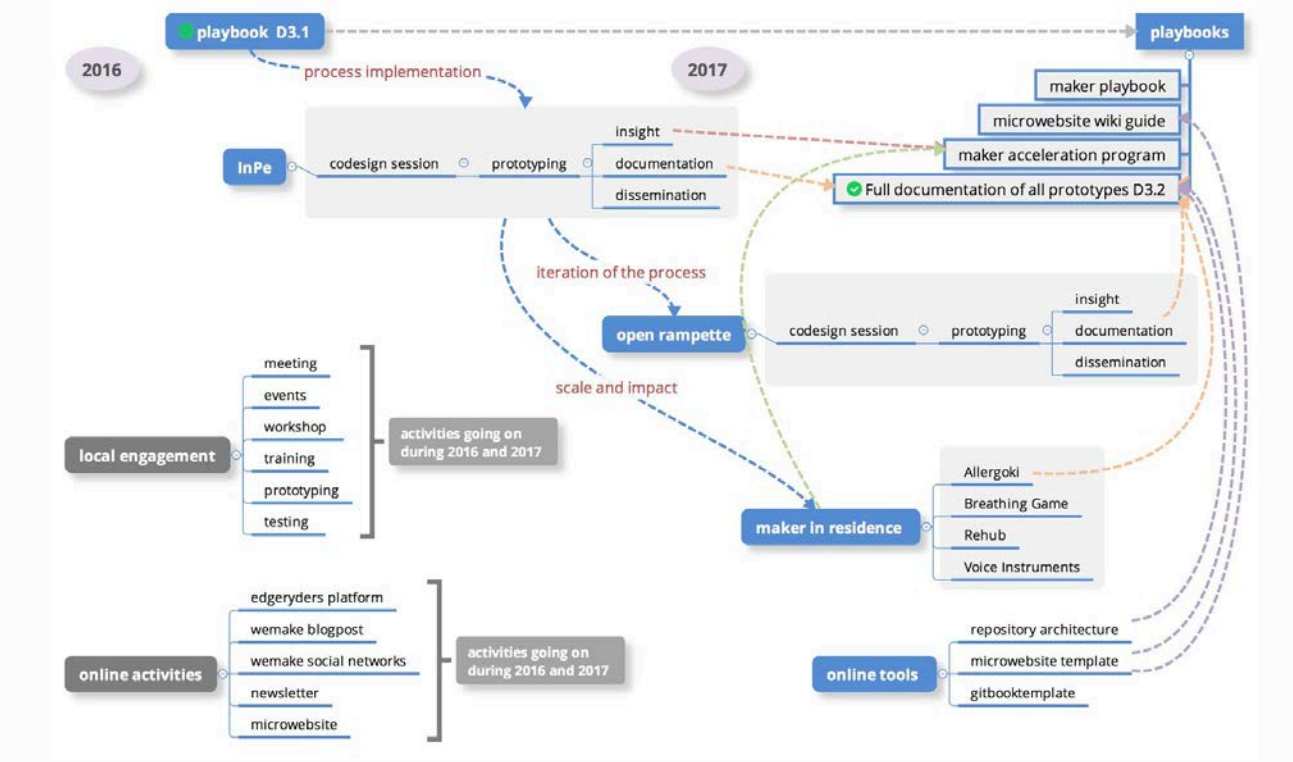
1.2. Develop a how-to guide to document testing activities in the field or in the lab/makerspace in such a way that documentation can be fed back to the online conversation. The guide should be a result of learning-by-doing, building on previous experience and improving on it.

Testing and prototyping activities went on through second half of 2016 to all 2017. One of the objective was to turn conversations into actions and feed the results of the hands-on activities back online to identify best practices.

During prototyping phases (see deliverable 3.2), we brought local conversations on ER platform to engage with online community starting from documentation and storytelling. Each prototype was documented on his own microwebsite and the content shared on various channel. Best insights from these actions were explained in the updated version of the Playbook guide (see deliverable 3.1)

released in 2016 and which became the Maker Playbook at the end of 2017.

The playbook is the result of a learning-by-doing process with the aim of scaling the impact and improving the performance of each prototype following the insights of previous iteration as illustrated in the schematic below. The final playbook is a collection composed by the Maker Playbook, the full documentation of all prototypes, a wiki-guide illustrating how to make a project's micro-website and a guide on how to accelerate projects with a bottom-up approach.



Objective 2. Produce a realistic scenario of policy for community-driven provision of care services at scale

2.1. Consider the implications of applying community-driven design and delivery of care services to the context of European welfare states. Give special attention to the issue of fairness and ownership of the input contributed to open processes.

WP 4 and 6 have seen in year 2 a convergence of conversations that is not surprising in hindsight. In facts, the discourse about ethics in opencare had already touched in year 1 on some business related issues, especially concerning IP management, and exploitation of community driven care innovations. As reported in deliverable 4.4 we find a strong will of maintaining community driven care independent from, and even competitive with public welfare or private initiatives. As reported in that deliverable, we have investigated during year 2 to aspirations and strategies of those involved in care, and in community driven care, and we have concluded that while there is room for a proficuous grassroot activation around existing welfare systems, the current mechanisms of support and regulation should change their path of evolution, to maximize their potential impact and avoid being instrumentalized in a fight of cultures.

In year 2 SF has spent several tens of hours advising community projects about governance strategies and IP management, trying to give back as much as possible what wisdom it has extracted from the exercise run with volunteers from communities and community initiatives.

2.2. Identify best practice in community welfare, and in general care services designed and/or delivered through collectively intelligent processes, and learn from them.

After building up momentum for the offline activities in year 1, year 2 has been focused on a discerning design of how SF participation to events would be designed to generate a flow of information and critical thinking across groups and instances. This “consciousness” that tightly connected WPs 1, 4, and 6 has been the result of hundreds of hours of exchange among our fellows, in preparation and in evaluation of the serious gaming sessions. This activity resulted in, and is well resumed by, Deliverable 4.5 that deals with the questions of feasibility and sustainability of community designed and/or delivered care by proposing the first ever (to the best of our knowledge) explicitation of the social contract of community driven care delivery and design.

Objective 3. Assemble a software stack to monitor and assist collective intelligence social dynamics in online communities

Deliverables D5.1 and D5.2 formed the starting point for year 2. A series of interviews and participatory workshops had allowed us to identify tasks performed by community managers and ethnographers that we needed to support. Data analysis were conducted using different tools, scripting and prototyping views. Deliverable D5.1 listed a series of domain questions that were formed by users and that were translated into operations to be conducted on the data (see D5.1, Table page 10). Design choices were made based on these requirements. More precisely, by month M0+12 the different views and analytical means supporting the identified tasks became definitive choices, and year 2 consisted in completing their development and integration in our dashboard GraphRyder.

Year 2 thus consisted in making definitive technological choices to support the views, and pursuing and consolidating development efforts. Deliverable 5.3 reports on those choices.

3.1 Further test, validate and if necessary extend OpenEthnographer in the context of the conversation on care (see section 1.3.5)

Tasks pertaining to the work of ethnographers and how the visual dashboard supports them are discussed in Deliverable 5.3. OpenEthnographer consists in a Drupal plug-in allowing users (with appropriate privilege) to annotate content.
The GraphRyder dashboard complements OpenEthnographer and in that it provides ethnographers with a view on their own work. They can indeed select conversations based on codes and access the conversation content from GraphRyder itself without having to go back to the Edgeryders portal. GraphRyder thus indeed offer ethnographer the possibility to validate their work.
Also, we should report here the research that was performed aside from software development, which indeed fed our thoughts and contributed to the self-reflection work on ethno-coding. See the paper presented at the INSCI conference for more details (a revised and extended version of the

paper discussing structural properties of the data and developing the ethnographic methodology is in preparation – to be submitted at the Social Sciences Computer Review journal).

3.2 Further test, validate and if necessary extend Edgesense in the context of the conversation on care (see section 1.3.5)

Strictly speaking, no work was done on the Edgesense platform (the platform was developed by Edgeryders in the context of previous research projects). Edgesense functionalities were simply rolled into GraphRyder's detangler view (see section on WP5 for details).

3.3 Build and test a prototype of a tool for semantic network analysis (see 1.4.2)

The SSNA part of the dashboard is its main component and assembles all views into a single web-based application. Deliverables 5.4 goes over the different views it offers. This SSNA tool embodies the approach developed by the consortium (and more particularly by Edgeryders and UBx). The scientific approach underlying the dashboard is sketched in a paper published at the INSCI conference.
The dashboard has been (and still is) extensively tested by EDGE and WeMake, and by individual users that took part in opencare events (Masters of Networks workshop, OpenVillage, etc.). EDGE community managers use the dashboard on a daily basis to get feedback on how conversations evolve.
Incidentally, this incremental examination of conversations and ethno-coding led to form hypothesis on the evolution of the corpus of ethno-code (its growth and topology).

1.2. Explanation of the work carried per WP

Work package no.	**WP 1**	Plan-Start:	**M01**	Plan-End:	**M24**
Lead Participant	**SCImPULSE**	Actual-Start:	**M01**	Actual-End:	**M24**
Work package title	WP1: Learn, engage and disseminate				
Activity Type	Research & Innovation				
Participant involved	**City of Milano, SCImPULSE, UBx, WeMake, Edgeryders**				

Work package summary of progress towards objectives

WP 1 aimed at providing the Learning, engagement and dissemination layer of opencare. Its function has been to reach out, and nurture the circulation of ideas, early results and evaluations within the consortium and throughout the circuits of partners and stakeholders that would be relevant to honing and/or rethinking what has been done for evolution and future replication and adoption.

An important aspect of WP1 has been the complicity of reflection about plans and experiments with the funnelling and onboarding of new participants, and new knowledge from the edges of the project. It's success has been rooted in both online and offline activities, spanning from "counseling clinics" to facilitated workshops and open online community brainstormings, all acting as reactors to generate the humus that opencare community would elaborate to a shared sense of what constitutes care in a modern, networked society. It embraced 5 goals:

1. To offer a set of tools and strategies for online and offline community conversation and users' reflection.

opencare has delivered on this with a prolific production. A playbook has been published early on (https://playbook.opencare.cc/) and kept up to date, accompanied by the rationale and documentation related to the serious playing sessions (https://drive.google.com/file/d/0B7Qizz3IKLItZGZTWDhTMWlJVFU/view). Another important element contributing to the achievement of this goal has been the realization of the "working out loud" routine, which improved significantly when the platform was moved from Drupal (https://www.drupal.org/) to Discourse (https://www.discourse.org/).

2. To promote public awareness of the proposed infection of care giving from the hackers' culture, to investigate the feeling and perceived roles of relevant stakeholders, to identify trade-offs and regulatory vacuums that might affect the future of care.

EHFF/SSE has produced an extensive survey of practices in the field our exercises with the community identified as opencare, and has emphasized for our partners and stakeholders the potential of evasive entrepreneurship http://swopec.hhs.se/haechi/papers/haechi2016_002.pdf, a concept first described by Coyne CJ and Leeson PT in 2004, and later associated to institutional innovation by Elert N and Henrekson M in 2014. The concept has strong appeal on our stakeholders, who often vented their frustration about the experience of competing against

incumbents within the limits of current regulations, and many people/hours have been invested in brainstorming with communities about how the principles could apply to their reality and context.

3. To proactively engage users and stakeholders in experimenting with the tools and platforms produced by the consortium, promoting the role of citizen experts, champions, and gathering wisdom about the ecosystem from conversations and misuse.

All the partners have contributed to reaching this goal with flying marks. A calendar of past, present, and future event by WeMake related to opencare is available here http://WeMake.cc/opencare . «Master of networks» events have been organized by Edgeryders and UBx attached to all the consortium gatherings granting, an albeit limited public, access to mentored use of GraphRyder, participation to the analyses, and sense making of the online digital ethnography of opencare.
SCImPULSE Foundation has arranged small events of simulation and self-reflection for projects and communities that aimed at having an impact on the care landscape, at various stages of maturity, and has invested a lot of time to meet the communities on their territory and during their own meetings.

4. To provide a layer of abstraction for participants and users to reflect on their goals and roles.

The online platform has served as a natural niche for exchanges of best practices and problem definition, spontaneously taking maybe even more of this role than originally envisioned. The serious playing sessions, and the mentoring offered at different stages of the project by SCImPULSE Foundation and WeMake to the projects have offered the opportunity to emphasize biases about known unknowns and the value of designing governances for the unknown unknowns as well, exercising in this sense a need creation action.

5. To maintain a direct interaction with WP2-6 in order to inform strategies and maintain feedbacks between RTD activities and community usage and piloting.

The reliance of the consortium on the platform for most synchronizations, in adherence to the “working out loud” principle, and an effective synergy of the partners in various WPs have automatically satisfied this goal, with little to no extra effort by the partners.
More can be read about these, and the rest of the goals set by the project in the Grant Agreement, on deliverable 1.6, the final peer-auditing of the project produced taking in the comments and opinions of our stakeholders.

Resources allocated / Plan vs. Actual	Plan (period)	Actual (period)	Plan (total)	Actual (total)
Please refer for resource details to use of resource reports.	**18.46**	**48.29**	**44.02**	**67.92**

Task no.	**Task 1.1**	Activity:	**Research**	Plan-Start:	**M01**	Plan-End:	**M24**
Lead Participant	**Edgeryders**			Actual-Start:	**M01**	Actual-End:	**M24**
Task title	**Task2: Outreach and on-boarding**						

Participant involved	**UBx, Edgeryders, SCImPULSE, City of Milano**

Progress of work

Along the 2 years of the project, this task aimed at engaging all partners in a discourse on the community's activity, as to develop a common, multidisciplinary view, and a shared sense-making of it.

The process has been underlying most if not all of the consortium activities, running through the veins of community management, workshop design, and serious gaming.

Notably, interim social network analyses of the opencare online conversations have been used as a center of accretion for such conversations, and along year 2, this activity has become evident through series of events open to the public and carefully prepared ahead of time to gather and make visible the various areas of expertise operating in opencare or at its edges:

- March 2017 - Participatory user testing during CERN meeting, see also CERN agenda
- June 2017 - Masters of Networks
- July 2017 - GraphRyder community calls - a few episodes
- September 2017 - OpenVillage session

During the intervals, user feedback was provided through the platform, and the serious gaming continuing implementation that contributed feedback concerned with peer auditing of the project in deliverable 1.6.

The June 2017 hackathon in Bordeaux gathered quite a number of people: UBx was able to hire a small group of interns; the consortium recruited ethnographers from an external institution, extending the use of GraphRyder and exposing our work to a larger community. Alternative visualizations were experimented following June 2017, based on specific requirements from WeMake, which later exploited the results of ethnographic analyses of the online conversations to successfully inform its strategy.

Task no.	**Task 1.2**	Activity:	**Research**	Plan-Start:	**M01**	Plan-End:	**M12**
Lead Participant	**UBx**			Actual-Start:	**M01**	Actual-End:	**M12**
Task title	**Task1: Sharing knowledge for better consortium interoperability**						
Participant involved	**UBx, Edgeryders, WeMake**						

Progress of work

Outreach happens alongside two main channels.

1. Participation in third party events around care, or social innovation with care being one of the topics. These are a chance to reach out to existing communities of caregivers and care receivers; recruit new participants into the opencare

conversation; and raise awareness around the project. (see technical report part A 6.2)
2. Social media activity. We use the corporate accounts of partners, and some personal accounts of team members, to reshare the best content coming through from the opencare conversation. About 100 members of the opencare community help with the social media outreach effort, through the CountOnMe mailing list (see technical report part A, 6.2).

Onboarding continued to happen through three channels.

By an **organic process**. People found the conversation online and decided to jump in by way of creating an account on the Edgeryders.eu platform.
Through **partnerships with design universities**. Recall that, in Year 1, we established one with Universität der Künste Berlin (partner: EDGE), and another with Domus Academy in Milan (partner: WEMAKE). In Year 2 we continued with this strategy, and partnered up with Politecnico di Milano (partners: EDGE, MILAN) for a course centered on policy and design intervention.
Through **onboarding workshops**. Recall that six were organized in Year 1 (Brussels, Thessaloniki, Brussels again, Berlin, New York City, Galway. Partner: EDGE). Two more happened in Year 2: Bordeaux and Copenhagen (partners: EDGE, UBX). Year 2 events addressed young researchers in anthropology/ethnography and network science. In Copenhagen we partnered up with the Techno-Anthropology Lab of the University of Aalborg.

Stakeholder engagement in Openrampette

Openrampette redesigned a policy collaboratively by rewiring inclusivity into it. The starting point was a tentative re-composition of the cracked relationship between the City of Milan's Administration's diverse sectors, private businesses and disadvantaged people, bringing them all on the same page and using their collective intelligence in a new setting. We imagined a three steps process such as de-constructing, designing a safe space for experimentation and reconstructing the policy.

De-constructing a policy
Listening was vital, starting from the pieces of the City Administration that were directly involved in the practice such as the Major Cabinet for Accessibility Policies, the Urbanistic Department, the Public Soil Occupation Office and lately Urban Economy and employment department. It was particularly important bringing at the same table City of Milan officers and representatives of Confcommercio, the city Association of retailers.

Designing a safe space for experimentation
The Isola District had everything it takes such as a functioning District for Urban Commerce, a civic center devoted to urban regeneration, art and crafts workshops (ADA stecca), active businesses, many local associations and a long tradition of civic participation. We have started to engage local stakeholders individually where possible, then through their representatives and lately through a public event by 11th April.

Reconstructing a policy
After the 11th April public event La Stecca, which is the community centre that help making Isola District lively and inclusive, become the centre of operation of the co-design events of Openrampette. The following five meetings gave us the opportunity to interact with the most

responsive stakeholders previously contacted. The meetings were conceived convivial and collaborative, with catering providers from the area and people invited to join even when not directly connected with accessibility issues. A constant flow of communication was given to local stakeholders through City of Milan, WeMake, ADA Stecca, Isola retail district bulletins, mailing lists, individual engagement meetings and phone calls.

Online engagement
Dealing with collective intelligence also meant to bring Openrampette to a wider audience sharing every step, intuition and piece of information with the opencare digital community on the Edgeryders digital platform.

Task no.	**Task 1.3**	Activity:	**Research**	Plan-Start:	**M19**	Plan-End:	**M19**
Lead Participant	**Edgeryders**			Actual-Start:	**M19**	Actual-End:	**M19**
Task title	**Task3: Final event as a community gathering**						
Participant involved	**Edgeryders**						

Progress of work

It was decided to split the final event into two events with different characteristics and different targets.

The first one was a community-facing event, christened Open Village Festival, was held in Brussels on 19-21 October and organized by EDGE. It purpose was to “go deep” into the main ideas generated in the course of the opencare conversation. Its contribution to the project would lie in:

1. Eliciting more online dialogue in the months preceding the Festival.
2. Validating the most important concepts generated in the course of opencare, like health autonomy and the potential of biohacking.
3. Sending a signal that opencare is fair and non-exploitative. This was accomplished by supporting poorer community members to travel to Brussels. The message was “you are donating your time and intellect to the project, we are giving you high-bandwidth access to each other”. This was non-transactional (and of course only a minority of those who participated received support), but it was a sign of goodwill.

The second event was stakeholder-facing. It took place in Milan on 22-23 November, organized by MILAN together with WeMake and christened the opencare Conference.
It was organised by the Municipality of Milan together with WeMake, in collaboration with the opencare consortium, in partnership with Fondazione Brodolini and Luiss Hub for Makers and Students and with the contribution of Avanzi, Cariplo Factory, Endevor, FabriQ, WeMake, Naba and Huntington onlus.

The event consisted of 11 sessions, 36 speakers, 3 exhibitions, and around 200 participants. It was an opportunity to bring together key international thinkers on social innovation, with the aim of sharing knowledge with policymakers, practitioners, makers, researchers and activists. The final conference on one hand (Day 1) explored the links between digital

innovation and the city, and on the other (day 2) investigated the links between the new urban economies and the systems of care.
The event included the presentation of the ten best projects from the Call for solutions: open innovation for community care launched in July in the framework of opencare. The best three prototypes have been granted with a six months incubation programme.

Task no.	**Task 1.4**	Activity:	**Research**	Plan-Start:	**M01**	Plan-End:	**M24**
Lead Participant	**SCImPULSE**			Actual-Start:	**M01**	Actual-End:	**M24**
Task title	**Task4: Deep games and simulations**						
Participant involved	**SCImPULSE**						

Progress of work

SCImPULSE Foundation has run over a hundred sessions of serious playing along the 2 years of duration of the project. As originally planned these sessions, that some stakeholders have joined in the context of Collision Events (the signature workshop format designed by SCImPULSE), have focused on hyper-local realities, and have focused on being as involving as real life experiences, sometimes imposing sensorial cancellation, or other barriers (e.g. cooperating with no verbal communication, or within very stressful environments with strict time limitations, …) to try and break through the biases that can otherwise silently accumulate in conversations that live online or in more traditional forms of meeting. While these simulations had to be designed case by case and would not be amenable to standardization, the reflection and restitution phases relied massively on LEGO serious playing strategies, as one of the tools available to break down social barriers to participation. Participants have systematically been invited to join the online conversations, and when faced with a limited turn-over a fellow was tasked with trying document and wrap the experience for the online platform.
The serious playing approach has been vital to the accomplishment of several other tasks, and its impact is well assessable in deliverables like 1.6 and 4.5.

Table 1 - Work progress description of work package WP 1

Work package no.	**WP 2**	Plan-Start:	**M01**	Plan-End:	**M24**
Lead Participant	**Edgeryders**	Actual-Start:	**M01**	Actual-End:	**M24**
Work package title	WP2: Convene, nurture, drive and monitor a large-scale online conversation on care				
Activity Type	Research & Innovation				
Participant involved	**City of Milano, WeMake, Edgeryders**				

Work package summary of progress towards objectives

WP2, "Convene, nurture, drive and monitor a large-scale online conversation on care", had three objectives. All three were achieved at the end of Year 2.

The first one is "convening an online community to imagine and design the future of health and social care, and their own role in it". This was largely achieved at the end of Year 1; in Year 2 we continued to expand it (see below, Task 2.1). We also maintained the previous focus on experiences of giving and receiving care, rather than on opinions about it. That continued to attract doers to the opencare conversation, and lend it a depth that it would not have had otherwise.

The second objective of WP2 is to "Make sense of the diversity of experiences and approaches by running ethnographic research on the Edgeryders interactive platform where the discussions take place". It is also achieved. We mounted a large-scale ethnographic study using the opencare online conversation as data.
This is "large" with respect to the standards for qualitative research. Ethnographers recommend a minimum of 6-20 "key informants"; these would be people that are interviewed repeatedly. The online forum structure of opencare primary data maps fairly onto the key informant category, because (a) long-form contributions are privileged (the average contribution is 211 words long; the average thread-initiating contribution is 643 words long) and (b) repeated contributions arise naturally from the interactive nature of the online conversation (the average community member contributed 11 times to the conversation, though variance around the mean is high).
With over 330 key informants, opencare is 15 to 20 times larger than most ethnographic studies. So large, in fact, as to put ethnography as a research method under strain: the network science-based methods for aggregating all these data (developed in WP5) have become essential for not losing sight of the big picture.

The third objective of WP2 was to "facilitate the community in selecting ideas for care services to be prototyped, and in evaluating the results of the prototyping activity". In Year 1 this objective ran into unforeseen risk R7. In Year 2, we deployed a stronger activity of documenting laboratory activity (WEMAKE), thanks also to the "Maker in Residence" program. The threads from the lab were regularly uploaded onto the platform, and commented by the (physically distant) opencare community.

Community-driven activities within opencare project of designing, prototyping and adopting in the social and urban context of Milan were somehow missing as digital discussions on opencare infrastructure, though the situation improved in Year 2. A resident ethnographer was hired so that

practices and developments were described online could be tracked, harvested and coded for the research on forms of care based on collective intelligence.

Two mainstream projects (*openrampette and MIR*) received the most attention and delivered the deepest insights about networking, discussions and decision making processes. Useful knowledge also came from studying the research and design activities within and outside the fab lab.

Resources allocated / Plan vs. Actual	Plan (period)	Actual (period)	Plan (total)	Actual (total)
Please refer for resource details to use of resource reports.	**11.129**	**8.52**	**19.40**	**19.70**

Task no.	**Task 2.1**	Activity:	**Research**	Plan-Start:	**M01**	Plan-End:	**M24**
Lead Participant	**Edgeryders**			Actual-Start:	**M01**	Actual-End:	**M24**
Task title	**Task1:Seed and drive the online conversation**						
Participant involved	**Edgeryders, WeMake**						

Progress of work

We consider to have successfully completed the seeding activity by the end of Year 1. Recall that seeding happened by:

1. 20 high quality posts commissioned to individuals who lead initiatives of community-delivered care (EDGE).
2. We used the networks of consortium partners (especially those of EDGE and WEMAKE) to find and engage initiatives of community-delivered care services.
3. The onboarding workshops. See above, Task 1.2
4. A partnership with two design universities, Universität der Künste Berlin and Domus Academy Milan.
5. Attending conferences and hackathons around health and social care, like RePublica (Berlin), Hacking Health Bordeaux, Hacking Health Milan.

In Year 2, only the two last activities continued. We partnered with a course centered on design intervention on care policies in Politecnico di Milano (EDGE, MILAN); and we continued to attend events and conferences (EDGE, WEMAKE, MILAN).

A few exceptions were continued by MILAN to increment targeted online conversations.
A challenge called Policy of care was launched and implemented throughout 2017. It showcased examples of grassroots care solutions for communities and some initiatives leveraging on the central role of the Milan administration. The challenge partially succeeded in soliciting questions, criticism, further inquiries from the platform or simply connecting to similar experiences.

A special section was dedicated to address the following question: *How can transitional communities take care of their host neighbourhood*? The hint came from a collaboration with

Milan Politecnico's course called PSSD 2017 Networks of Care Collaborative encounters in/around the Bovisa campus. Students were briefed offline and assigned with the task of designing their own community interactions based on their need for care and their willingness to provide care to somebody else. Nine groups of students nurtured their ideas on and off the platform through a cross pollinated process.

MILAN also published Enforcing a policy "collectively", an introduction to the local issues regarding the city accessibility policy that was open to contributions, feedback and lateral discussions. The conversations that it generated helped what eventually developed into the co-design process of Openrampette.

Task no.	**Task 2.2**	Activity:	**Research**	Plan-Start:	**M08**	Plan-End:	**M21**
Lead Participant	**Edgeryders**			Actual-Start:	**M08**	Actual-End:	**M21**
Task title	**Task2: Harvest the online conversation**						
Participant involved	**Edgeryders, City of Milano**						

Progress of work

This task is complete. Recall that, in Year 1, we:

1. Created APIs on the Edgeryders.eu platform
2. Improved on OpenEthnographer, the software application that allows ethnographic coding directly on the Edgeryders.eu platform.
3. Started coding the conversation.

Year 2, we ported the whole Edgeryders.eu database (including the opencare conversation, both primary and secondary data) onto a new platform, based on Discourse (http://discourse.org). This meant:

1. Rewriting the APIs. Discourse comes with standard APIs for the primary data; we wrote similarly structured ones to access secondary data (annotations and codes) and user's ethical consent (EDGE).
2. Porting OpenEthnographer onto the new platform (EDGE).
3. Porting the ethical consent funnel onto the new platform (EDGE).

These activities were not funded by the opencare budget, but rather covered by Edgeryders's own financing. We report it here as it is relevant to understanding the project's timeline.

We also finished the ethnographic coding of the opencare conversation (EDGE). By the end of 2017, we had produced almost 5,965 ethnographic annotations with 1,292 unique codes. These are stored in the Edgeryders.eu database, from where they are imported into GraphRyder's own database via API call. GraphRyder then displays these data in network form for further analysis (UBX).

With GraphRyder to help aggregate a “big picture” of the opencare conversation, we concluded this task by deliverable 2.5, an ethnography of open and community care.

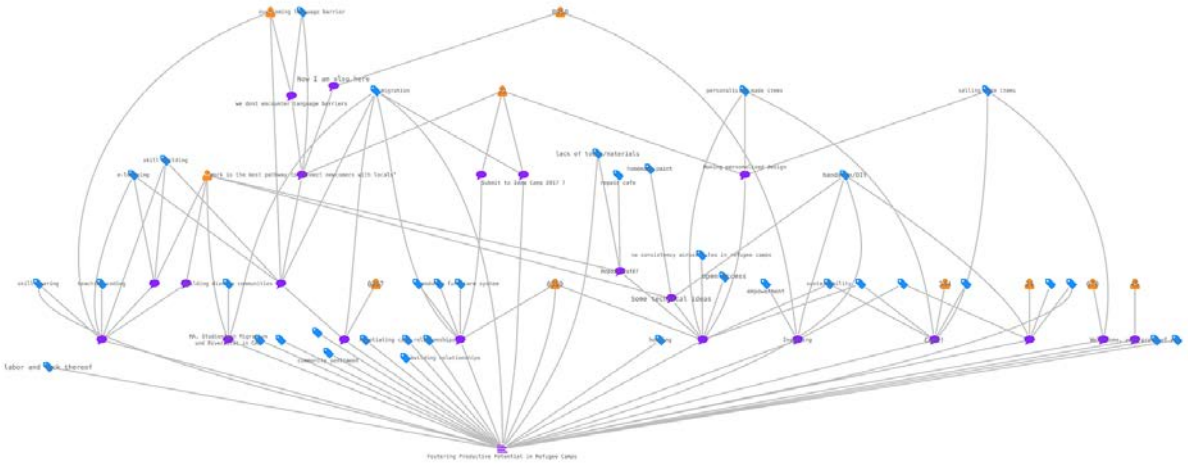


Figure 1 *showing how codes (light blue tags) are inserted into a discussion thread (purple comment icons) between users (orange icons).*

Table 2 - Work progress description of work package WP 2

Work package no.	**WP 3**	Plan-Start:	**M06**	Plan-End:	**M20**
Lead Participant	**WeMake**	Actual-Start:	**M06**	Actual-End:	**M20**
Work package title	WP3: Prototype community-driven care services				
Activity Type	Research & Innovation				
Participant involved	**City of Milano, WeMake, Edgeryders**				

Work package summary of progress towards objectives

The opencare project has supported different kind of prototypes in 2017. Starting from community needs on/off line we decided to design with citizens new solution in care system:

- ***Openrampette*** is a social impact project developed with Milan citizen to find tangible solution to the stagnating issue of accessibility in public spaces by people that require the use of a wheelchair.

- ***Maker in Residence (MIR***) is a residency program in WeMake that provided support, assistance and acceleration to Makers – from all over the world – who were interested in developing / validating / iterating an open source project in the health and care field.

Resources allocated / Plan vs. Actual	Plan (period)	Actual (period)	Plan (total)	Actual (total)
Please refer for resource details to use of resource reports.	**24.658**	**54.98**	**51**	**96.70**

Task no.	**Task 3.1**	Activity:	**Research**	Plan-Start:	**M06**	Plan-End:	**M18**
Lead Participant	**WeMake**			Actual-Start:	**M06**	Actual-End:	**M18**
Task title	**Task1: Executive design**						
Participant involved	**Edgeryders, WeMake**						

Progress of work

(openrampette)
The openrampette project started as a challenge: is it possible to give a tangible, non-bureaucratic answer to the stagnating issue of accessibility in public spaces by people with some kind of physical disabilities? More specifically those people that require the use of a wheelchair to move around?

A question organically surfaced, a bigger challenge that we set the opencare project and consortium to: can design, social involvement and makers practice find and give solutions where politics, laws and directives are failing to achieve their desired outcomes?
The way we decided to proceed was to first off ask the people that were directly involved and affected by the problem. On one hand we had people who owned shops in the city area of Milan, and on the other hand we had their clients, people with physical disabilities that wanted to access the shops.

In order to approach the issue from a design perspective, and to make the most out of the public meetings with the two groups of main actors, two things were clear from the very beginning:

- The two groups had different needs, some of which couldn't be addressed in a collective conversation in a proficient way.
- The fact that one of the two groups is generally considered to be socially disadvantaged created a bias, and a possibly destructive "us vs them" situation

For this reason we decided to come up with two stories, two characters, two scenarios depicting the issues, needs and desires of the archetypes of the two groups, *Minerva* and *Dioniso* were born.

We picked *Minerva* (roman goddess and sponsor of trade) to represent the average shop owner, and *Dioniso* (greek god and notorious wine and good life lover) to represent the average client, a client that might have special needs to enter Minerva's shop.

Soon we realized how this abstraction turned very useful to:

- Create a layer of separation between the topics and the personal stories of the people involved in the conversations
- Address and overcome a sense of isolation and impotence, by making evident how issues and needs were shared among others of the same group
- Create awareness about the size of the problems
- Talk more easily and openly about disabilities issues and needs
- Involve more people that not necessarily fit exactly into one of the two groups (caregivers, policy makers, technologists etc.) in the conversation

Within the context of the open conversations and interviews a series of needs and solutions came out that we didn't consider at all in the beginning.

(MIR)
The opencare **Maker in Residence (opencare MIR)** was the first edition of a special residency programme organized by WeMake, as part of the **opencare** European project. It provided **support, assistance and acceleration** to Makers – from all over the world – who were interested in developing / validating / iterating an **open source project in the health and care field.**

The **Call for Makers** (and further MIR information and updates) was mainly deployed on the following channels and platforms:

- Edgeryders, where part of the application process took place.

Teams interested in taking part in the programme had to publish a story (see here the stories of the applicants) and describe their project following these guidelines.
In order to complete the application an additional Google Form had to be filled, with logistics and private information.

- WeMake.cc, where two dedicated pages (ITA and ENG) have been created and updated, along with blogposts.

Six projects have been selected, out of 10 applicants, according to the following criteria:

- Completeness of data and descriptions delivered during the application process
- The project Evaluation Matrix
- Availability of space and resources

Selected participants have been notified via email, and their projects have been presented on Edgeryders and on WeMake's website / blogposts.

Projects in Residence:

ResQ is a platform that allows users to live social life experiences in the city where they live, through an exchange of information and experiences, to have social literacy where technology is just the tool to sparkle positive dynamics with the host city, turning it into a 'Welcoming City'.

Breathing Games creates educational and therapeutic games, devices to measure the breath and distributed data systems to inform public health practices, and policies.

Allergo Kì is platform and a Kit for Restaurateurs, consisting of a set of tools to enhance the customer suffering from food allergies' experience inside the restaurant.

The project **WeHandU** is an open system/service/experiment that assists in generating ideas, project-design-make and share the solution for/with people (having/not having special needs to help coping with physical coping with physical limitation/disability) that seeks to produce useful devices that facilitates physical activities of daily living in contrast to the classical healthcare mode.

reHub project is an online platform and open source kit that allows the monitoring of fingers and hand movement for athletes, rehabilitation patients and music instrument students that needs a certain and digital data to monitor the exercise.

Voice Instrument is an open source interface designed for speaking numeric values and service messages to meet the needs of blind citizens or people who are unable to read or in contexts where it is uncomfortable to use the display to read values on a monitor.

see Annex WP3 - Table 1 - MIR executive design

Task no.	**Task 3.2**	Activity:	**Research**	Plan-Start:	**M06**	Plan-End:	**M18**
Lead Participant	**WeMake**			Actual-Start:	**M06**	Actual-End:	**M18**
Task title	**Task2: Prototype development**						

Participant involved	**WeMake**

Progress of work

(openrampette)
After listening and debating, and experimenting with solutions within the context of participated co-design sessions, we came up with some proposals.

Starting from the assumption that the communication between Dioniso and Minerva should be more streamlined, we designed a platform that includes and interconnects a series of hi-tech and lo-tech tools: **the call**.

We created a wireless IoT doorbell and receiver pair for the shop. The doorbell would be easy to locate and easy to reach outside the shop, and it would give a visual feedback when the request for assistance was received and accepted. The receiver is wearable, battery powered and offers optional visual, audio and haptic feedback, in order to give privacy to the assistance request.
We created a smartphone app to consult a map, get the information about the shop and eventually communicate with the shop owner directly before heading to the shop.
Last but not least we created a set of stickers to make the accessible shop easily identifiable from the outside and recognizable as part of a bigger network of accessible public spaces.
In each folder on github you will find the material (code, graphics, cutting files) used to produce them

After noticing, quite unexpectedly, that one of the biggest blocker in the process of making the shops accessible was the bureaucratic **procedure**, we decided to re-design it from scratch.
Actually, the current procedure was “designed” in a way that fulfilled the requests from a technical and bureaucratic perspective, but resulted in a series of misleading and hard to comprehend series of requests. Questions that the know-how of the average shop owner was not able to answer to. We tried to flip the scenario instead, and put the user at the center of the process. We interviewed shop owners and people with disabilities as well, asking them to complete the current procedure with given data. We visited shops and analyzed the structural on-site issues.
Backed by all this research data, we prototyped a web app, which will guide the user step by step, asking simple questions: How tall is the obstacle? How wide is the sidewalk in front of the entrance? Does the shop have a side door? The answers to all of these one-off simple questions, coupled with algorithms working in the background to do the math, would form the data needed for the regularization procedure.
In this folder on github you will find the material used to prototype them.

A series of usability testing sessions were set up to determine the understanding and validity of the proposed solutions.

The Procedure was tested during a public meeting where we first introduced the results of the research and the main concept behind the web app. Three testing stations were also available for users to try the web app in one to one sessions where designers observed the

behaviour. Last but not least, the procedure was accessible online so we shared the link within the Edgeryders online community for further bug testing.

The Call was tested in the field. Three identical pairs of doorbell and receiver were installed for a week in shops and cafes in the Isola neighbourhood of Milan. Besides getting data and interviewing the shop owners at the end of the testing period, a special session was organized on site, inviting people with disabilities to the shops and filming video documentation of the interactions and the process.

(MIR)
This special residency programme has been organized starting from the artistic residency that has been taking place at WeMake in the previous years and developing a service blueprint that could support the management and growth of selected projects, and the scalability of the service itself. A **service blueprint** is a **complex operational tool** that provides a complete and detailed step by step description of a service, considering the customer journey, front stage touchpoints and backstage processes, and untangles the interaction among all the elements.

The service was designed for the teams to accomplish the following tasks and actions (communicated in advance with all the participants via Call for Makers and Vademecum booklet - digitally shared prior to their arrival and physically handed over together with the first day welcome kit):

- co-creating a cutting-edge project plan (through agile methodology, goals definition and strategy definition);
- being introduced to the use of fablab machines;
- being guided to use the right set of tools (for prototyping, concept creation, co-designing, exc.);
- getting feedback and testing the project (by fellow makers and designers of WeMake, partners of opencare consortium and target audience);
- creating product documentation;
- keeping a project diary on Edgeryders ;
- meeting and interacting with opencare community.

MIR Project Curators, from WeMake staff, **lead and supported teams' activities**, as well as documentation. Among the other tasks, they also updated on a daily basis the other members of the staff about projects developments, achievements and needs.

see Annex 3 - Table 2 - Task 3.2 MIR Prototype Development

Task no.	**Task 3.3**	Activity:	**Research**	Plan-Start:	**M06**	Plan-End:	**M20**
Lead Participant	**WeMake**			Actual-Start:	**M06**	Actual-End:	**M20**
Task title	**Task3: Communication and documentation**						
Participant involved	**WeMake, City of Milano**						

Progress of work

(openrampette)

All of the aforementioned solutions were documented and shared online.
The co-design and making process was shared on the Edgeryders community and on a blog (http://rampette.opencare.cc/).

The technical side of the solutions was openly shared on Github, to make it easily available to developers, makers and whoever would love to reproduce the devices and platform in their area. On Github (https://github.com/opencarecc/rampette) we collected all the working materials, including: code, 3D printing and laser cutting files, Arduino firmware, a working prototype of the procedure. Also a step by step guide is available to make it easy to reproduce the devices (https://github.com/opencarecc/rampette/wiki).

(MIR)

All the projects that participated in the opencare Maker in Residence were documented, made **public and open to collaboration.**

From June to December 2017 WeMake, supported by each team, structured a **Github microwebsite** for each opencare project, gathering and displaying content about the project itself, the team, different activities and outcomes carried out during the residency.

During the opencare Maker in Residence, furthermore, all the teams have been interviewed by WeMake, and the outcome of this meeting was published on WeMake's blog.
The interview was structured to highlight the reasons behind each group participation, the motivations of the members and their professional and personal background.

This was part of the dissemination process boosted by WeMake, which also included support to participate in other care-related events, such as opencare conference, Make to Care and Maker Faire Rome.
Some of the teams, indeed, sent applications to participate in the Call for Solutions, and exhibit their project in the final conference of opencare, that took place on 22nd and 23rd November 2017 at Milano Luiss Hub for Makers and Students.

Among these projects, four of them (*Breathing Games, reHub, Voice Instruments, Allergo Ki*) were selected by the jury to pitch at the exhibition, and one of them, *reHub*, was further selected for one of the three final prizes.

At the beginning of December 2017 WeMake attended the Maker Faire Rome, and support *reHub* and *Voice Instruments* projects within the opencare stand, using this opportunity to describe and present opencare Maker in Residence dynamics, outcomes and structure.

see Annex WP3 - Table 3 - Task 3.3 Communication and documentation (MIR)

Table 3 - Work progress description of work package WP 3

Work package no.	**WP 4**	Plan-Start:	**M01**	Plan-End:	**M24**
Lead Participant	**EHFF**	Actual-Start:	**M01**	Actual-End:	**M24**
Work package title	WP4: Design and evaluation of community-based health/social policies at scale				
Activity Type	Research & Innovation				
Participant involved	**EHFF, SCImPULSE, Edgeryders**				

Work package summary of progress towards objectives

opencare, as a concept, does not exist in previous research (other than as a synonym for "outpatient care") and therefore it is difficult to collect project information using just one search method. The first step was therefore to make a very broad an extensive literature search covering not only institutional economics but also history, sociology, medicine, public administration, legal history and organization studies.

We also organized a cross disciplinary colloquium on health economics and entrepreneurship in Stockholm, Sweden. Participants from Stockholm School of Economics, the Royal Institute of Technology, the Confederation of Swedish Regions and Municipalities (SKL, which organizes the main health care, and care providers in Sweden). At the colloquium the definitions of "care" and "opencare" were discussed as were the current state of the art in research in the field.

The literature review and the discussion of the connections previous research on commons, open source development and institutional entrepreneurship was published as Sanandaji & Lakomaa 2016 (https://swopec.hhs.se/haechi/papers/haechi2016_002.pdf)

Resources allocated / Plan vs. Actual	Plan (period)	Actual (period)	Plan (total)	Actual (total)
Please refer for resource details to use of resource reports.	**14**	**19.57**	**23.70**	**29.36**

Task no.	**Task 4.1**	Activity:	**Research**	Plan-Start:	**M01**	Plan-End:	**M06**
Lead Participant	**EHFF**			Actual-Start:	**M01**	Actual-End:	**M06**
Task title	**Task1: Literature review and pilot survey**						
Participant involved	**EHFF**						

Progress of work

Open care, as a concept, does not exist in previous research (other than as a synonym for "outpatient care") and therefore it is difficult to collect project information using just one search method. The first step was therefore to make a very broad an extensive literature search covering not only institutional economics but also history, sociology, medicine, public administration, legal history and organization studies.
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The literature review and the discussion of the connections previous research on commons, open source development and institutional entrepreneurship was published as Sanandaji & Lakomaa 2016 (https://swopec.hhs.se/haechi/papers/haechi2016_002.pdf)

Task no.	**Task 4.2**	Activity:	**Research**	Plan-Start:	**M08**	Plan-End:	**M12**
Lead Participant	**EHFF**			Actual-Start:	**M08**	Actual-End:	**M12**
Task title	**Task2: Survey design and implementation**						
Participant involved	**Edgeryders, EHFF**						

Progress of work

This step consisted primarily of what could be called a collective intelligence effort to collect collective intelligence cases. In this a plethora of tools and methods were used.

We have collected cases though blogs (readers were encouraged to submit examples of “opencare” cases), the Edgeryders forum, social media, academic networks (participants from the project have collected cases at conferences both nationally and internationally), hacker and maker fora (Chaos Communication Congress 2016 (33C3) https://events.ccc.de/category/congress/33c3/ , LOTE 2016, WeMake, Scimpulse, Internet & Society (India).

Of these the online crowdsourcing using Qualtrics gave disappointing results (only a small number of cases collected, and respondents referred to the same cases), the other methods however proved more successful than expected - during the later part of the project we therefore used these networks as the main sourcing tool and discontinued the Qualtrics survey tool. The case collection continued right until the end of the project.

Often collection was performed in combination with the presentation of preliminary results i.e, the researchers presented findings from the case collection (and the analysis) and asked the audience for more examples of, similar, opencare cases (this could be seen as a variant of chain referral sampling, Biernacki & Waldorf (1981) Salganik and Heckathorn (2004).
Some of the most interesting cases was collected using this interactive collaborative method. Also cases of opencare developed under the auspices of the opencare project has been included (http://rampette.opencare.cc/)

Task no.	**Task 4.3**	Activity:	**Research**	Plan-Start:	**M01**	Plan-End:	**M24**
Lead Participant	**EHFF**			Actual-Start:	**M01**	Actual-End:	**M24**
Task title	**Task3: Research, data analysis**						
Participant involved	**EHFF**						

Progress of work

The collected cased, stretching from the 12th century and until 2018, has been categorized according to different criteria, i.e. the type of care, the use of technology, the relation to various “open” concepts (collective intelligence, cooperatives, open innovation etc), the type of organizers. This has made it possible to create a taxonomy over open care which have been the foundation for the further analysis

.

A taxonomy of opencare

We have classified the cases found into four general groups. Open care projects are often complex and may have elements which fit several categories at once in overlapping ways, and the projects could be categorized in more than four categories using more refined definitions. This broad categorization is nevertheless useful for policy analyses.

1. Collective intelligence and other forms of aggregation of knowledge. These projects provide large advantages when information is widely dispersed, for example sites where patients can compare symptoms or side effect of medication. Another example is projects where individuals can voluntarily share genetic and health information for research, which is dependent on large samples that are otherwise rare or costly, and where ethical concerns prohibits mandatory collection of data. There are also successful open projects that provide value by allowing patients to rate doctors and healthcare professionals. Open care projects of this type are scalable and work well regardless of how efficient the conventional health system works. As expected, IT plays a central role in facilitating this type of open collective intelligence care.

2. Locally organized medical services. This type of activity is common when the conventional system fails but is otherwise rare. When the conventional health system functions well, community organized health is not needed. Successful collaborative projects in community provision of health care often require a strong subculture or ideology that motivate participants, and are less scalable. Nevertheless, there are many subcultures and situations where this type of health can work. There are also emergency situations where there are benefits from self-organizing care, such as examples from refugee camps where there are many idle health professionals that can be put to work. This type of project is scalable, since there are many similar situations when the conventional system does not work well, as long as there is sufficient cohesion to self-organize care.

3. Community care where participation in production itself gives health benefits. This is usually the case for mental health therapy and addiction programs. There are several highly successful such models in Europe where participants with health problems, such as disability, help in providing health with therapeutic benefits for themselves. Addiction

programs where participants both receive help and give support to others with similar experience and problems is a clear example. This type of health also tends to require strong subcultures, but works even when the conventional health system functions well. The reason is that the therapeutic effect of participation is not replicated by the conventional hospital system regardless of how efficient it is. Another conclusion is that there more examples of community-driven open care if health is defined more broadly than hospital style health care and includes health prevention, athletic programs, diet and mental care. These types of activity are less specialized and more suited to self-organized communities.

4. Open care programs not directly about health but use open solutions for the infrastructure of health care. Examples include open-source computer programs for the use of health providers that have been developed in order to reduce the often very high costs of intellectual property. This for example allows small clinics to provide cheaper health care to patients.

Potential for scalability
We have found that the scalability differs between the four groups of open care. Scalability is high in 1, fairly high in 3 and 4 but limited in 2.
We have also found that projects have higher propensity to scale when they could use existing organisational structures (this might explain why historically open care projects often have been organized by churches) or when they share the same culture or ideology, something that might help limit opportunistic behaviour (see Lakomaa 2018).

Key findings:
opencare is (despite the novel term) nothing new. Projects that could be said to meet the requirements to be considered opencare existed already during the early middle ages - at least one of them, the community based care for people with mental disabilities in Geel, Belgium - in continuous existence from the 12th century to this date.

However while the community health activity described by the concept of opencare is not new, the concept itself is novel. Conceptualizing opencare, developing a terminology and deriving the theoretical underpinning from related research and thereby tying it to other streams of literature is necessary for the concept to be discussed in an academic setting. This also increases legitimacy and easy of communication when opencare is presented in public policy settings and presented to the general public.

The reaction of the general public shows the importance of defining and framing the concept of opencare. Many of those who react are already involved in opencare projects, but lack the terminology to state this. Become aware of the long history of opencare, the theoretical and academic foundation and the various types of cases in different domains encourages participants and lends legitimacy to engagement that is already occurring.

Open care may foster innovation by means of lowering the cost of experimentation. Formal care institutions are often risk averse due to the high costs of failures; however, open projects – party as a result of their smaller scale and the low stakes – might be more prone to experimentation. This means, a few successes that could scale could then outweigh the cost.

Open care is most likely to be successful when the participants share a common culture or ideology. As most open care projects are organised as non-profits they do not have a bottom line and the efficiency of the projects is difficult to evaluate, thus, allowing room for opportunism. A strong common culture might then be the remedy.

Historically, many projects that can be defined as open care have been organised by religious organisations where a common set of values already exist – a person who is involved knows what is a good outcome. This phenomenon also increases the costs for opportunistic behaviour from outsiders.

Open care may expand access to, and/or reduce cost by providing benefits to groups that have limited access to formal care institutions or where the participation of the patients is in itself therapeutic. In both cases, open solutions might increase access to care without incurring a cost to the formal care institutions.

Open care is today often facilitated by the Internet. However, technology is more often facilitator (to get people together) than part of the care (which usually is something personal). There is however a large number of purely online open care projects, i.e. online fora for patients and e-health solutions.

The results from the project was published as a chapter in an edited volume (Lakomaa, 2018), and as three working papers: Sanandaji & Lakomaa (2016) https://swopec.hhs.se/haechi/papers/haechi2016_002.pdf , Lakomaa & Sanandaji (2017a) https://swopec.hhs.se/haechi/abs/haechi2017_003.htm and Lakomaa & Sanandaji (2017b) https://swopec.hhs.se/haechi/papers/haechi2017_005.pdf

The main results were also presented for scholars, makers, civil society organizations and politicians in Milan in November 2017 https://opencare.cc/conference/

Task no.	**Task 4.4**	Activity:	**Research**	Plan-Start:	**M13**	Plan-End:	**M23**
Lead Participant	**SCImPULSE**			Actual-Start:	**M13**	Actual-End:	**M23**
Task title	**Task4: Reinvent mass collaboration as a non-exploitative activity**						
Participant involved	**EHFF, SCImPULSE**						

Progress of work

This task has been realized in full. Building on the conversations and experiences from the serious playing sessions, SCImPULSE Foundation has eviscerated the topic in three main documents:

1) The working paper "*La finance et le soin: gouvernance, systèmes mutualistes et répartition du risqué*." (https://zenodo.org/record/1066858), in which the historical evolution of the business and management theories relevant to welfare are analysed and put in relationship with their philosophical and social roots, from the industrial revolution and anarchism till our days deindustrialization and neoliberalism. The paper presents a very

pragmatic stance towards the conclusion, offering a reflection about the feasibility of governing a system through chaos when adhering to varying degrees of centralization/decentralization. 2) Deliverable 4.4 that presents an ethnographic study of the tensions and potential role for accountability and ownership in community driven care. From hundreds of informants, visions of community driven care as a viable solution to challenges of vitality in current economic outlook, of quality guarantee through accountability instead of certification, and of competition of the commons with the public emerge starkly. Instead of participating in "responsible research and innovation" initiatives where citizens perceive important limitations to their involvement, and fear instrumentalization, as evidence starts to accumulate (http://onlinelibrary.wiley.com/doi/10.1111/hex.12668/full and http://journals.sagepub.com/doi/abs/10.1177/1355819617728530), the citizens want real impactful participation, when they feel ready to join. Many, although not most, communities have already been able to design models of participation that suit this need, and policy makers should start to catch wind of this and plan accordingly. opencare, through its online platform, might become a tool of lobbying for this in the next future. 3) Deliverable 4.5 that focuses on the social contract of community driven care, both in the phase of delivery and that of design. This is notably the first effort to turning explicit and analysing the social contract of community driven care ever, to the best of our knowledge. Identifying and making explicit the norms that constitute a social contract is an important exercise both to inform reflections from those communities that would approach such endeavour for the first time, hopefully accelerating their maturation and enhancing their chances at sustainability. But an explicit social contract is essential also to inform conversations about policy making and regulations, when exploring what's possible and how deep the consequences would run. As a first effort in this direction, others will likely produce better efforts, but it is vital to have a starting point, as our welfare systems come to terms with the struggle between universal health coverage and fiscal realism.

Table 4 - Work progress description of work package WP 4

Work package no.	**WP 5**	Plan-Start:	**M01**	Plan-End:	**M24**
Lead Participant	**UBx**	Actual-Start:	**M01**	Actual-End:	**M24**
Work package title	WP5: Data processing for aggregating collective intelligence processes				
Activity Type	Research & Innovation				
Participant involved	**UBx, Edgeryders**				

Work package summary of progress towards objectives

WP5 "Data processing for aggregating collective intelligence processes" had four objectives:

1. Support ethnographic coding with (semi) automated methods and dedicated visual interactions.
2. Support community managers in: supervising exchange dynamics, point at salient themes or issues discussed on forums, identify all involved actors and their roles.
3. Produce dedicated methods and tools, improving on the state-of-the-art where necessary.
4. Produce prototypes embodying the proposed methods, and insert these tools into an integrated working environment (for community managers and/or for ethnographers).

The first one "Support ethnographic coding with (semi) automated methods and dedicated visual interactions" led us to engage with expert users (ethnographers) design visualization to support tasks related to ethnographic coding of online conversations (see deliverable 5.1).

To fulfil our second objective "Support community managers in: supervising exchange dynamics, point at salient themes or issues discussed on forums, identify all involved actors and their roles", we similarly engaged with expert users (community managers) again to design specific visualizations. The design was elaborated in collaboration with our users, requirements resulted from participatory sessions; early prototypes relied on scripted visualization using the Tulip graph visualization environment developed by UBx.

Objectives 3 and 4 led us to build a web-based application "GraphRyder" implementing the views designed in collaboration with users. This iterative design, user-centered approach led users to adopt our platform on a daily basis. Wider adoption by a larger audience require more time; walkthrough sessions seem a good approach to widen the use of GraphRyder.

Improvement on the state-of-the-art (Obj. 3) were reported in academic publications in collaboration with Edgeryders.

Resources allocated / Plan vs. Actual	Plan (period)	Actual (period)	Plan (total)	Actual (total)
Please refer for resource details to use of resource reports.	**15.933**	**16.42**	**34.3**	**26.90**

Task no.	**Task 5.1**	Activity:	**Research**	Plan-Start:	**M01**	Plan-End:	**M18**
Lead Participant	**UBx**			Actual-Start:	**M01**	Actual-End:	**M18**

Task title	**Task1: Develop software for semi-automated aid to ethnographic coding**
Participant involved	**UBx, Edgeryders**

Progress of work

Deliverable 5.1 (and more particularly page 6) reports on user tasks in the form of domain questions including those relevant to the work of ethnographers. In terms of supporting software, before opencare started, ethnographers relied on using the Annotator Drupal plugin to annotate content.

Our efforts went on providing ethnographers with methods and methods to reflect on their work. As a result of our discussions and working session with ethnographers, it turned out that the code co-occurrence graph was helpful to them to have a closer look at how they were actually making progress, both in terms of coverage (how many posts/comments were annotated and where they were located in the overall conversation), as well as whether some codes appeared concepts being transversal to the overall conversation, or if on the contrary codes distributed heterogeneously across content.

At the end, it turned out that the views that proved helpful to ethnographers were also of interest to community managers and general users - although used differently by these different audience.

Consequently, efforts devoted to both task 5.1 and 5.2 converged towards the same software platform GraphRyder, with feature requests benefiting to all audiences.

Following the June 2017 Bordeaux meeting, and more particularly the Masters of Networks participatory workshop, ethnographers (WeMake) asked us to prototype a view allowing them to investigate how a conversation had evolved. The view was prototyped as a script used within the Graph Visualization framework Tulip. Ethnographers used it in the context of an effort to try and identify moments at which a conversation would move from online to offline context ("from talk to action").
The view did not make it to the GraphRyder platform (yet) and his part of future work. This is mainly because there are algorithmic issues in properly laying out a dynamic graph. For now, users have to manually adjust the layout, but GraphRyder does not offer support for manual editing of graph.

Task no.	**Task 5.2**	Activity:	**Research**	Plan-Start:	**M04**	Plan-End:	**M24**
Lead Participant	**UBx**			Actual-Start:	**M04**	Actual-End:	**M24**
Task title	**Task2 :Develop semantic social analysis methods and tools**						
Participant involved	**UBx, Edgeryders**						

Progress of work

At the beginning of Year 2, we had produced a corpus of primary and secondary data and a prototype dashboard. We could start developing a practice of doing Social Semantic Network Analysis as a way to scale and augment traditional ethnography.

In the first part of year 2 we focused on the semantic part of a SSN. Building on work prototyped at the Master of Networks 5 event (Milan, November 2016) we studied closely the **codes co-occurrence network (CCN)** induced from the opencare corpus. This is only one of several projections that obtain from the full SSN, but one of great practical significance as, in a way, it encodes the whole corpus. Ontologies (lists of codes) have long existed in ethnography, but the CCN adds a methodological innovation: we interpret co-occurrence as association. Two codes occur in annotations of the same contribution, and this means that the author of that contribution considered that the two codes are connected. When generalised to the whole corpus, this line of reasoning sees the CCN as the collective association pattern emerging from that conversation.

We have learned to interrogate the CCN through a form of documentation we called walkthrough. A walkthrough is a written interpretative exercise of the CCN, related with constant reference to the CCN as manipulated through the GraphRyder interface. The advantage of this method is that it is accountable. An ethnographer can verify the conclusions of another ethnographer by starting from the same data (in CCN form), following the walkthrough step by step, and – at each step – checking that the observations made by her colleague are sound.

We next proceeded to :

1. "Sit with the data" to **consolidate our understanding of how to use the CCN** to augment ethnographic analysis (EDGE, UBX).

2. **Augment the information about connections in the (semantic) CCN with information on the (social) interaction networks** underpinning a single connection (one edge in the CCN) or a set of connections (a set of edges). We looked for "line of sight" as a sign of reliability: when people who have made a certain association form a single, relatively numerous and densely connected component, we can at least conjecture that they are exposed to each other's thinking. This is the case of the association between "regulation" and "safety" in Figure 2. If the social network shows that the connection was only made by one or two disconnected individuals, we become much more wary of accepting that connection, even if there are many co-occurrences (UBX, EDGE).

3. **Experiment with different ways to filter the CCN and extract its "backbone",** the most significant codes and their strongest connections /UBX).

4. **Show the SSNA suite** (Open Ethnographer + GraphRyder) to ethnographers other than those in our research group, and observe how they interact with it (EDGE, UBX).

5. **Publish our results and present them** (http://doi.org/10.5281/zenodo.1059029). A journal-length version of the same paper is in the pipeline (EDGE, UBX).

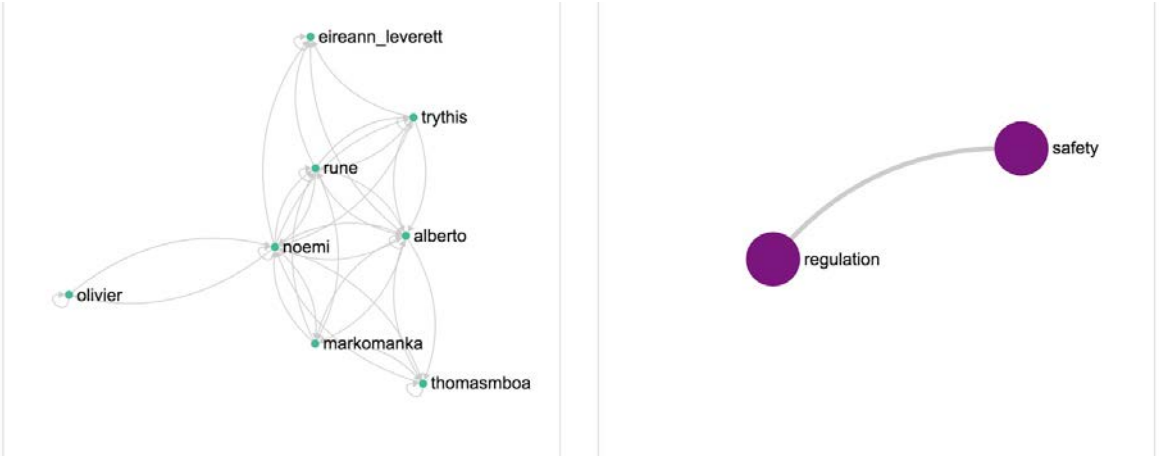

Figure 2 *On the right, the CCN connection we are examining at the moment, between "regulation" and "safety". On the left, the social network of interaction between the users who have authored both contributions coded with "regulation" and contributions coded with "safety".*

Table 5 - Work progress description of work package WP 5

Work package no.	**WP 6**	Plan-Start:	**M01**	Plan-End:	**M24**
Lead Participant	**UBx**	Actual-Start:	**M01**	Actual-End:	**M24**
Work package title	WP6: Lead, govern and manage the project				
Activity Type	Research & Innovation				
Participant involved	**SCImPULSE, UBx, Edgeryders**				

Work package summary of progress towards objectives

Over the course of 2017, project management was ensured by UBx following its usual practices, ensuring deliverables production, monitoring of the project's financial resources and overseeing project implementation, more generally.

Resources allocated / Plan vs. Actual	Plan (period)	Actual (period)	Plan (total)	Actual (total)
Please refer for resource details to use of resource reports.	**9**	**14.54**	**18**	**32.39**

Task no.	**Task 6.1**	Activity:	**Research**	Plan-Start:	**M01**	Plan-End:	**M24**
Lead Participant	**UBx**			Actual-Start:	**M01**	Actual-End:	**M24**
Task title	**Task1: Administrative and financial management**						
Participant involved	**UBx, Edgeryders**						

Progress of work

Administrative management of reporting (Jan-Feb 2017)

From January to March 2018, opencare's administrative management was dedicated to assessing the work carried out over 2016 and coherently reporting it to the funding institution. Detailed information is provided on this subject in section 6.2 of this document.

Ensuring payments delivery to the consortium

In May 2017, following the disclosure of the reviewers' report on opencare's results, the interim payment for opencare was made for the project to UBx and duly redistributed to the partners, in accordance with the financial rules set for H2020 projects and opencare's Consortium Agreement.

Project implementation and monitoring: year 2

In the meantime, project implementation was carrying on, with deliverables production monitoring being ensured by UBx, with the same attention as for the first year of the project. Scientific activities in relation to the project work plan were monitored over the year by UBx, with specific sessions scheduled to the occasion of consortium meetings, dedicated to progress and quality assessment for each WP by the consortium.

From June to July 2017, a second batch of internal reporting took place at consortium level. Following the same internal process as official financial reporting, UBx ensured guidance for each partner in their use of resources.

Task no.	**Task 6.2**	Activity:	**Research**	Plan-Start:	**M01**	Plan-End:	**M24**
Lead Participant	**UBx**			Actual-Start:	**M01**	Actual-End:	**M24**
Task title	**Task2: Quality assessment, reporting and consortium meetings**						
Participant involved	**UBx**						

Progress of work

Coordinating opencare's first reporting activities (Jan-Feb 2017)

From January to March 2018, specific project management tasks were dedicated to drafting opencare's periodic report. For the purpose of collecting all information requested for the project progress assessment and the technical reviews, the University of Bordeaux organised a series of calls to ensure that the reporting work was on track and progressing at the right pace.

The reporting work was namely taking place firstly online, relying on Google Documents. UBx took in charge to recreate the structure of the technical report (parts A and B) and provide guidance on the content of each section.
Doing so, monitoring the progress made on drafting on each section and reviewing the content for polishing was definitely facilitated. These two tasks were carried out by both the administrative and scientific coordinators of opencare all along the drafting process.

Combining all the pieces of information we had into final valid versions (both on the Sygma platform and in a pdf document ready for upload) was made through the project's CMS (EMDesk), which allowed both coherency in the documents' layout and persistence of our declarations (archive).

Preparing opencare's first technical review in March 2017 went relatively smoothly once the drafting process was over and was coordinated by both the administrative and scientific project coordination team.
Following the reviewers' feedback, the consortium thrived to apply the recommendations towards more inclusion and joint work.

Consortium meetings in 2017

Consortium meetings were held on a regular basis, taking place in March 2017 at CERN (host: Scimpulse), June 2017 in Bordeaux (host: UBx) and November in Milan (host: Comune di Milano).

To these occasions, in addition to opencare's usual practice of scientific monitoring and local outreach activities, particular attention was given to administrative and financial monitoring at beneficiary level.

Quality assessment

Accordingly with opencare's governance board, as settled in opencare's Consortium Agreement, quality assessment of deliverables was made by both the administrative and scientific coordinators, ensuring the disclosure of the project's results would meet the objectives set from the beginning of the project in opencare's Description of Action.

Project closure and final reporting

Autumn 2017 was mainly dedicated to gradually wrapping-up the work carried out over the project and ensuring the dissemination of the project results. Although UBx was participating to such activities as a project coordinator, most input for final events was provided by Edgeryders, and WeMake and the Comune di Milano, respectively.

UBx focused on preparing the administrative closure of opencare, coordinating the collection of information necessary for the draft of its final reports.

Task no.	**Task 6.3**	Activity:	**Research**	Plan-Start:	**M01**	Plan-End:	**M24**
Lead Participant	**SCImPULSE**			Actual-Start:	**M01**	Actual-End:	**M24**
Task title	**Task3: Ensure governance in ethics matters**						
Participant involved	**SCImPULSE**						

Progress of work

opencare took a very thorough and deep approach to ethics.
As it is well documented by the deliverables 1.6, 6.5, and 6.6, the consortium took care of evaluating not only that each decision within the project would adhere to the form and the logic of the proposal and of the law, but that the output of our choices would be recognized by our partners and by us as the expected result we set sail for. An approach, this one, which the Commission has announced will adopt in FP9, with a move from certification of forms, to evaluation of outputs.

Thanks to the serious playing sessions we could map our stakeholders' fears and tensions against the system, and analyze with them how to best invest their energies towards sustainable solutions. And we seeded ideas about how to work towards a solution of certification and quality insurance pitfalls that decentralized ecosystems are bound to encounter, both to our community stakeholders, and to notable partners like WHO, seeding the field with ideas for the realization of community continuing education programs, regulatory sandboxes for welfare innovation, and mutual insurance schemes, that we trust

we will see in the next few years.

A common concern that has been expressed by partners and community stakeholders when discussing of ethics has been GDPR. opencare is one of the least data-glutton projects that come to mind, and this sense it is an example of not trying to acquire data whose use is not clear and defined. The online conversations happen under a creative commons license agreement, and the informant can leave as little personal data as a unique-use email address and a username, with no restriction for pseudonymity.

Hence data governance has not been the most aggressive challenge for the governance of ethical matters. Except in Year 2, a specific issue prompted us to seek counsel from the opencare ethical advisors. A nasty combination of at least two software bugs prevented the correct functioning of the consent funnel.

This meant that some users would not be presented with the funnel to consent for the content they generated to be re-used for research. This was discovered as we rolled out a new platform in the early summer of 2017, and the conversation on the platform about the issue can be consulted here https://Edgeryders.eu/t/a-problem-with-the-ethical-consent-funnel-and-how-to-solve-it/6748.

We (EDGE) responded as follows.

1. We implemented the consent funnel on the new platform. The new implementation was bug-free, so that anyone posting after July 20th 2017 had to go through it.

2. By November 2017, we still had 192 participants out of 337 who were affected by the bug and had not posted in opencare after the rollout of the new platform. After consulting with our ethics advisors, we contacted them one by one asking them to give consent to us re-using their contributed content for research. At the time of writing, 117 of them have given consent. 5 have denied it, and were excluded from the study. The remaining 70 did not reply, or their email addresses turned out to have been disabled. After intense conversations with the community managers, and our ethical advisors, it was decided that their contributed content could be included in light of the following:
   - the funnel did not exist in a void, but it was accompanied by information material on the platform, by TOS documents, and by information shared at on-boarding by the offline members of opencare and by the community itself;
   - the users affected by the accident who did not react to our contact have also not requested their content to be removed, which would have been their right, upon leaving the platform;
   - the vast majority of respondents to our enquiry reacted positively, and the 5 who denied access to their content have offered replies suggesting that they understood the request as an enquiry about their availability to put in more efforts to join the research activity;
   - it is widely accepted practice in ethnography that consent, as a process, is managed through the interaction with informants by the investigators, and not relegated to box ticking in documental form at the beginning of an investigation, acknowledging that

willingness to participate can be shaped by the understanding of the purposes and the culture of the research. All this is documented in Technical Report Part A as unforeseen risk R9.

Table 6 - Work progress description of work package WP 6

Work package no.	**WP 7**	Plan-Start:	**M06**	Plan-End:	**M06**
Lead Participant	**UBx**	Actual-Start:	**M06**	Actual-End:	**M06**
Work package title	WP7: Ethics requirements				
Activity Type	Research & Innovation				
Participant involved					
Work package summary of progress towards objectives					
WP completed by the end of RP1.					

Resources allocated / Plan vs. Actual	Plan (period)	Actual (period)	Plan (total)	Actual (total)
Please refer for resource details to use of resource reports.	**0**	**0**	**0**	**0**

Task no.	**Task 7.1**	Activity:	**Research**	Plan-Start:	**M06**	Plan-End:	**M06**
Lead Participant	**UBx**			Actual-Start:	**M06**	Actual-End:	**M06**
Task title	**Produce deliverables for ethics requirements**						
Participant involved							
Progress of work Task completed by the end of RP1.							

Table 7 - Work progress description of work package WP 7

1.3. Impact

Impact in science

We claim that the impact potential claimed by opencare's proposal appears fully vindicated.

- **The role of bottom-up solutions in inventing and providing care services is indeed large**, perhaps even larger than anticipated, it is also shown that "opencare" is not a new phenomenon but something that existed already in the 12 centruy (see https://swopec.hhs.se/haechi/papers/haechi2017_005.pdf) .This goes from wellness, preventative and social care all the way to open source medical technology.

- **Participatory innovation based on open source software/hardware and open data is strongly represented** in the opencare evidence (as shown in Lakomaa 2018). We have detected several collaborations that appear to have been facilitated by opencare itself. The most spectacular one is the forming of an alliance across several biohacking spaces (in the USA, Belgium, Australia and Cameroon) around the project of producing an open source protocol for making human insulin.

- **Open culture (even more than specific licensing arrangement on IPRs) seems to be at the core of participatory innovation as seen from opencare.** This makes its methods highly transferable across fields of application, though also somewhat elusive. This is also found in the analysis of the collected cases (see https://swopec.hhs.se/haechi/papers/haechi2017_003.pdf)

- As a result of the openness we practice, **"unusual" voices are being heard in the opencare debate. These include hackers, activists, refugees etc.**

- **Quantitative knowledge is generated on the participatory process itself.** This is an artifact of opencare's graph theory approach. For example, we know that the social network of interaction across the opencare conversation is connected: there are no "islands" or singletons. So, we can at least suppose that most participants have access to the most relevant knowledge available in the network as a whole.
  Another example: the co-occurrence network described in section 5.2. A high edge weight means that many different authors have made the exact same association between the two keywords, making that association truly "collective intelligence". The number of parallel edges connecting any two keyword is an intuitive quantitative metric of agreement about that association across the group.

- **We claim we are surpassing our expectation of scientific impact in at least one dimension: the deployment of quantitative methods from graph theory, combined with the culture of open, written expression fostered by the online conversation, promise to vastly increase the reach of ethnography.** We conjecture we have the potential to completely reinvent ethnography as a collaborative, data-driven, but still qualitative research method. This claim is argued in a paper (http://doi.org/10.5281/zenodo.10590299).

- In addition, we have shown that opencare fit the theoretical frameworks of commons (Ostrom 1990) and Evasive entrepreneurship (Leeson 2003). We have also been able to add to the theory of evasive entrepreneurship by - based on the empircial findings collected during the project - extending the theory to the non-profit sector (see paper https://swopec.hhs.se/haechi/papers/haechi2017_005.pdf)

- On the IT side, opencare offered a unique opportunity to run in vivo development, test and validation of network visual analytics approaches and tools. The use of the somehow synthetic and abstract view on codes co-occurrence was confirmed as a crucial view on large scale conversations.

    - We had the opportunity (Masters of Network 6, Bordeaux) to compare the opencare human-driven annotation with off-the-shelf topic modelling tool. We concluded that, given the state-of-the-art in this domain, it is certainly worth investigating how to better support ethnographic coding than to confer annotation to automatic processes.

    - Ethnographic coding is however an activity requiring openness and flexibility. Codes do not compare to a controlled vocabulary or a domain ontology. The set of codes, and any hierarchical structure holding it cannot be imposed and needs to be adaptive. Although some thoughts were devoted to the topic during the course of the project, this certainly remains an open and much interesting question.

Impact in business

Semantic Social Network Analysis is quickly becoming Edgeryders's flagship product. In late 2017 we produced the first commercial SSNA report (client: the World Bank Group). Response from our clients and partners has been very promising. Additionally, the method and the GraphRyder dashboard can be sold in a bundle with other core skills of Edgeryders: online community engagement and management; and the provision of online community platform as a service, via white-labelling of Edgeryders.eu. Since Edgeryders.eu comes with Open Ethnographer and leadership in the methods of SSNA, our white-labelling offer becomes much more attractive. A first deal was closed in January 2018.
A spin-off into a separate company is being considered. Details are kept confidential at this stage.

Impact on society

The probably most important finding is that, historically new forms of care, and organisations of care, often first have emerged in opencare settings - and only later been adopted by formal (public) care providers. This was observed by important designer of the modern welfare state William Beveridge in the 1940s when he pointed out that health insurance was first invented by "friendly societies" and only later taken over by the public sector. In both Japan and Western Europe, many innovations in the modern health care system were first developed by self-organized communities and later adopted by the public sector, once the need and demand were identified. Similarly many innovations in the hospital sector were adopted from the voluntary hospital movement.
Today a similar process has taken place in third world countries where community health workers and self-organized health insurance plays an important role.

The reduction in costs of communication by the internet has led to a second revolution in e-health and opencare. The net allows communities to find each other in an easy way and disseminate health information and practices, for instance those who have rare diseases, addiction support groups, and mothers and pregnant women who share health information.

In some cases information is widely disseminated and not primarily in the hands of specialized health professionals, for example drug symptoms and the physical as well as mental experience of patients. A large and growing share of the public rely on the internet to acquire health knowledge. Patient organisations is a modern example of innovation in opencare, as they spearheaded the dissemination of health information and new fora to share experience and social support ahead of both the public sector and private corporations.

opencare using IT-technology allows patients with rare illnesses that generalist physicians do not tend to treat to find each other and access specialized information and has in several cases allowed for new medical research findings.

opencare is used in a variety of ways to gathering widely spread data. Examples range from the increasing use of crowdsourcing by medical researchers to collect data in high-tech western countries to utilizing community surveillance systems in rural and urban areas of Iran to track the swine flu pandemic.

Another growing area of opencare using collective intelligence in open source research and development, for instance experiments in the City of Milan to improve accessibility to stores for those in wheelchairs who need ramps and other aid to cross obstacles.
One unusual aspect is that the project is not conducted by profit firms but by the WeMake community, a technology workshop which allows inventors who engage in co-design projects. There are many other projects in health with open-source software and technology that is developed outside the traditional for-profit firms and are accessible for users.

As opencare engaged several target groups in Milan throughout its development, it contributed in creating a new approach on policy-making. Many individuals, associations, companies are now expecting a Public initiative that is keen on listening, more agile and co-design oriented.

Openrampette brought in a specific methodological shift towards a more interdisciplinary work on public issues. The opencare approach helped recomposing the fragmented relationships between sectors of City administration, retailers and end users. The Major cabinet for accessibility policies, the Urban planning department and the Urban economy department overcame their silos approach and opened a consultation phase that challenged the problematic top down policy (art.77 of the City Urban Regulation) previously approved.
Different departments of MILAN can also promote the digitalization and harmonization of Open data on accessibility enabling private citizens to create open source solutions.

Many other policies were actually influenced by the opencare approach in MILAN such as the Food policy, the *Participatory budgeting* and several actions in the *Piano periferie*, the massive rehabilitation plan for the city's deprived areas.

Another impactful outcome of opencare is the debate ignited by the final conference among several stakeholders. If care issues are discussed in the communities that prioritized it, a different

feeling for collective solutions is perceived. The City administration role is to facilitate such collective solutions. This entails a different approach on welfare and a quest for private partners' collaboration, leveraging on impact investing and impact finance.

The findings by EHFF have attracted interest from MPs as the organization and financing of care is a major topic in the upcoming election in Sweden. Business leaders and scholars also showed great interest – the presentation of a book where results from the opencare project where presented attracted about 250 attendees. Reactions from readers of a blogpost by a EHFF researcher also confirms the impact opencare had towards multiple profiles, users, stakeholders and decision makers. See section "Update of the plan for exploitation and dissemination of result" below for more details.

1.4. Project Management during the Period

This section is addressed in WP6.

1.4.1. List of Beneficiaries

Participant Number	Participant name	Participant short name	Country	Date enter project	Date exit project
1 (CO)	Université de Bordeaux	UBx	France	1	24
2	EDGERYDERS	Edgeryders	United Kingdom	1	24
3	WEMAKE S.R.L.	WeMake	Italy	1	24
4	STIFTELSEN FOR EKONOMISK-HISTORIK OCH FORETAGSHISTORISK FORSKNING	EHFF	Sweden	1	24
5	SCIMPULSE FOUNDATION	SCImPULSE	Netherlands	1	24
6	COMUNE DI MILANO	City of Milano	Italy	1	24

Table 8 - List of Beneficiaries

1.4.2. Project planning and status

	Year 1												Year 2												
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Completion
WP 1	WP1: Learn, engage and disseminate (83%)																								●●●●●●●●●●
Task 1.1	Task2: Outreach and on boarding (100%)																								●●●●●●●●●●
Task 1.2	Task1: Sharing knowledge for better consortium interoperability																								●●●●●●●●●●
Task 1.3																			Ta... (100%)						●●●●●●●●●●
Task 1.4	Task4: Deep games and simulations (100%)																								●●●●●●●●●●
WP 2	WP2: Convene, nurture, drive and monitor a large-scale online conversation on care (100%)																								●●●●●●●●●●
Task 2.1	Task1: Seed and drive the online conversation (100%)																								●●●●●●●●●●
Task 2.2							Task2: Harvest the online conversation (100%)																		●●●●●●●●●●
WP 3						WP3: Prototype community-driven care services (100%)																			●●●●●●●●●●
Task 3.1 :Executive design						Task1: Executive design (100%)																			●●●●●●●●●●
Task 3.2						Task2: Prototype development (100%)																			●●●●●●●●●●
Task 3.3						Task3: Communication and documentation (100%)																			●●●●●●●●●●
WP 4	WP4: Design and evaluation of community-based health/social policies at scale (100%)																								●●●●●●●●●●
Task 4.1	Task1: Literature review and pil... (100%)																								●●●●●●●●●●
Task 4.2							Task2: Survey design and i... (100%)																		●●●●●●●●●●
Task 4.3	Task3: Research, data analysis (100%)																								●●●●●●●●●●
Task 4.4													Task4: Reinvent mass collaboration as a non-exploitative activity (100%)												●●●●●●●●●●
WP 5	WP5: Data processing for aggregating collective intelligence processes (100%)																								●●●●●●●●●●
Task 5.1	Task1: Develop software for semi-automated aid to ethnographic coding (100%)																								●●●●●●●●●●
Task 5.2				Task2: Develop semantic social analysis methods and tools (100%)																					●●●●●●●●●●
WP 6	WP6: Lead, govern and manage the project (100%)																								●●●●●●●●●●
Task 6.1	Task1: Administrative and financial management (100%)																								●●●●●●●●●●
Task 6.2	Task2: Quality assessment, reporting and consortium meetings (100%)																								●●●●●●●●●●

Task 6.3	Task3: Ensure governance in ethics matters (100%)			●●●●●●●●●●
WP 7		WP...		●●●●●●●●●●
Task 7.1		Pr... (45%)		●●●●●●●●●●

Table 9 - Project planning and status (Gantt chart)

2. Update of the plan for exploitation and dissemination of result

Edgeryders

Exploitation proceeds as planned, except early results are exceeding expectations.

Our main strategy is to bundle the expertise required by the completion of Objective 1.1 ("Develop a how-to guide to convene, manage and harvest a large-scale online conversation as a care provision service design engine") and Objective 3 ("Assemble a software stack to monitor and assist collective intelligence social dynamics in online communities") into a single product.
That would be a collective intelligence-powered knowledge engine. It consists of (1) a white-labelled conversation platform-as-a-service, (2) with engagement/community management services, (3) which comes with Open Ethnographer for in-platform ethno coding and (4) APIs to feed a GraphRyders instance.
The first two sales have been made. A spin-off is being considered.

A second, more personal route to exploitation concerns Objective 2.2 ("Identify best practice in community welfare, and in general care services designed and/or delivered through collectively intelligent processes, and learn from them"). In May 2017, three co-founders of EDGE started an experiment of a co-living, co-working space whose inhabitants nudge each other towards preventative health care. This is in line with the findings of opencare. As we write, we are looking to expand into a larger space and considering a new one.

In Milan

MILAN has launched the **Call for solutions: open innovation for community care**, with dozens of applicants, ten project selected and three prototype awarded with a six month incubation programme at Milan specialized consulting agencies.
Between January and June 2018 the following three project will carry on working to fine tune their ideas:

- **Simpaty hands**, an assistive musical instrument that allows people with limited movement skills to express themselves using rhythmic patterns and audio sequences.
- **Fearless**, an app that combines the interface and web usability of a social network service with the features of a data center and a platform for the provision of telepsychiatry services.
- **reHub**, a glove that can easily collect data thanks to its sensors and 3D software monitoring the deployment of physiotherapy treatments

Outreach to the general public and policy-makers (EHFF)
As part of outreach to the general public and policymakers, we wrote two articles on opencare on a popular Swedish blog, each with about **seventy thousand readers**. We asked readers to send us cases of opencare, and received around **30 unique cases.**

Those who sent cases includes professors, politicians, physicians and other health-care professionals, the general public as well as several who were active in opencare project. The blog posts generated interest, with hundreds of comments and reactions in social media. This indicate a surprisingly strong interest among the general public for opencare. It was also noteworthy that this novel and somewhat abstract topic was quickly understood and tied to various project across many

domains, such as village owned health cooperatives and social media groups where mothers and pregnant women share health information.

We used our networks to in particular contact five high ranked Swedish politicians in Swedish parliament and European parliament who we believed might be interested in the topic of opencare, receiving a positive response.

That a blogpost by one researchers (T. Sanandaji) where the concept was described and where readers asked to provide additional examples similar to the ones already collected **was read over 40 000 times**, and that the Working Paper "*Integrating Community Driven Care Services in European Welfare States: Nonprofit Institutional Entrepreneurship as Driver for Expanding Access*" https://swopec.hhs.se/haechi/papers/haechi2017_005.pdf the first month after publication was **among the ten most downloaded working papers in economics in Sweden** serve as indications of the interest in the project and its findings.

The findings have also attracted interest from MPs as the organization and financing of care is a major topic in the upcoming election, and from business leaders and scholars – **the presentation of the book where results from the opencare project where presented attracted about 250 attendees** http://www.digitalchange.se/managing-digital-transformation-how-to-deal-with-the-obstacles-to-succeed/ecosystems/

3. Update of the data management plan

The plan did not need to be updated or amended.

We however kept in line with our plan and uploaded on zenodo complete datasets (as we did after year 1).

4. Follow-up of recommendations and comments from previous review(s)

Recommendations from the mid-review insisted on the need to better integrate as a consortium. A number of activities were conducted to indeed implement consortium integration, which we definitely improved over year 1. We can list a number of activities – also reported elsewhere in this document (primarily involved partners are listed in parentheses):

1. Masters of Networks 6 in Bordeaux (UBX, EDGE, WEMAKE)
2. Paper on Applied Network Science (UBX, EDGE).
3. Community meetup in Brussels (all partners)
4. Public-facing conference in Milan (all partners)
5. Paper at Internet Science Conference (UBX, EDGE)
6. Managing the opencare fellowships (SF, EDGE)
7. Use of “opencare challenges” (https://Edgeryders.eu/c/opencare/policies-of-care) community interactions as input for WP4 (Milan, EHFF)
8. Paper “From talk to action” (EDGE, WEMAKE, SF – in progress)
9. Paper “Semantic Social Networks – Journal version” (EDGE, UBX, SF – in progress)
10. Presenting the opencare methodology to the Techno-Anthropology Lab, Aalborg University (UBX, EDGE)
11. Video on GraphRyder and SSNA (EDGE, UBX)
12. Preparation of Milan final conference (Milan, EHFF)

Reviewers had also encouraged us to use the *“playbook: co-designing care services: a practical guide*” as a basis for a generalizable result and opencare methodology (a suggestion was also to implement it as a final deliverable (D3.1 b)). We unfortunately were not able to bring our initial effort to its conclusion (mainly due to lack of time and manpower).

5. Deviations from Annex 1

In year 1 one of the actions contained in the Grant Agreement has been deemed ineligible by the Commission.
Specifically the action would have granted support to community initiated project to incubate and accelerated them to a next stage in scale or sustainability. Being unable to move forward with this, our outreach and dissemination plan fell in need of major adjustments, and some dependencies in the projects got affected with some delays that reverberated to the year 2.

Consequences being restricted to delays, we would consider the mitigation measures put in place by the consortium to be a success, to the point that in a sense this failure turned out to be an opportunity, creating the momentum for an initiative such as OpenAndChange.

The accident, and our countermeasures are described in detail in Technical Report Part A, as unforeseen risk R7.

No other deviation have been recorded, as of the end of year 2.

5.1. Tasks

Not applicable to the project duration.

5.2. Use of resources

City of Milan

City of Milan in 2017 worked longer hours than predicted in the original plan. During the second year, City of Milan staff worked 29.82 PMs that added to the 12.58 PMs in 2016 totalled 42.39 PMs compared to 15.2 PMs planned for the whole project.
This was achievable mainly because of the lower cost of staff, employed through co.co.co contract, compared to the standard hourly costs used at the time of initial budget planning. It is clear that the longer hours accounted for less staff expenditure then those foreseen in the original budget (98,191.64 euro spent / 99,200.00 euro predicted).

During 2017, City of Milan used the extra time it has gained through favourable job cost conditions carrying on more activities and maintaining the quality expected.

This regarded WP1, WP2 and WP3. In WP1, *Outreach and on-boarding*, included CAPS events, Public administration policy planning events, Knowledge sharing events as well as research workshops.
Final event as a community gathering was split in two and a stakeholder-facing event was organised independently in Milan after the community-facing event in Brussels. The event also included the final selection of the three months lasting Call for solutions: open innovation for community care.
In WP2, *Seed and drive the online conversation*, included the CdM promoted challenge **Policy of Care** that channelled many experiences from Milan and funnelled dozens of conversations on the topic. CdM also launched *How can transitional communities take care of their host neighbourhood*, a topic that included several international teams of students from Milan Polytechnic University to engage online activists on their vision of community support.
In WP3, *Prototype development, Communication and documentation*, was shaped around *openrampette*, the multi-stakeholder project that connected civil servants, makers, social innovators, businesses, associations, final users and active citizens in a co-design process to ease access barriers in shops.

EHFF

EHFF has as a result of the choice of doing more of the case collection work in-house (instead of using an outside survey company to collect cases as initially planned) been able to increase the quality of the collection and also to include more historical cases (which likely had been overlooked by a survey aimed at active participants in open care projects). As a number of the most interesting cases were historical this choice has been beneficial for the project. The decision have had the impact the amount spent on direct costs is less than initially budgeted – this holds even after the larger amount spent on travel (due to the inclusion of two instead of one researchers in the project) is taken into consideration. The amount on staff cost is correspondingly larger.

University of Bordeaux - WP5
Due to difficulties in hiring an engineer to contribute to opencare (as foreseen in UBx' initial budget) over the course of Year 1, subsequent effort was provided by UBx' permanent staff to cope over WP5 for providing effort in PMs towards the effort expected in the initial work plan (read opencare's periodic report for RP1).
The recruitment of an engineer was then finalised in January 2018, which allowed him to fully contribute to research activities on SSNA for the second year of the project. For this reason, while year 1 saw an increase in the use of resources for its activity over WP5, year 2 on the same WP was characterized by an increase in activity for a lesser use of resources, therefore balancing activity and use of resources over the project life.

WeMake
WeMake staff cost for 2017 was 133.342,99 € out of 260.200,00 € (126.634,30 during 2016).
We're in line with the expenses. WeMake is declaring PM higher than planned for the period (WP3 47,57) due to lower hourly costs of personnel than initially estimated and as stated in the previews report.

5.2.1. Unforeseen subcontracting

Not applicable to the project duration.

5.2.2. Unforeseen use of in kind contribution from third party against payment or free of charges

Not applicable to the project duration.

Annexes

Annex 1: Table 1 - Task 3.1 MIR Executive design

Project	Number of people	Residency period	Project description	Development status	Need identified	Need detected
			Synthesis		*Description*	
ResQ	4 (+1)	12/06 - 25/06	ResQ is a platform that allows users to live social life experiences in the city where they live, through an exchange of information and experiences, to have social literacy where technology is just the tool to sparkle positive dynamics with the host city, turing it into a 'Welcoming City'.	idea	The way helpful advices or information are shared with refugees is often not effective, and can cause confusion and isolation.	Refugees Community
Breathing Games	3	21/06 - 08/07	Breathing Games creates educational and therapeutic games, devices to measure the breath and distributed data systems to inform public health practices, and policies.	prototype	Breathing Games is addressing the need to promote respiratory health, allowing everyone to access, use and reproduce a pool of resources.	Community of patients with respiratory disease
Allergo Kì	2	03/07 - 17/07	Allergo Kì is platform and a Kit for Restaurateurs, consisting of a set of tools to enhance the customer suffering from food allergies' experience inside the restaurant.	concept	People like Monica, suffering from food intolerances or allergies often have to explain in details their health conditions when going out for a meal, affecting negatively the overall experience.	Community of people with food intolerances or allergies

WeHandU	2 (+1)	12/06 - 26/07	The project WeHandU is an open system/service/experiment that assists in generating ideas, project-design-make and share the solution for/with people (having/not having special needs to help coping with physical limitation/disability) that seeks to produce useful devices that facilitates physical activities of daily living in contrast to the classical healthcare model.	idea	In the healthcare field most of concepts and prototypes can't make it to the market because complex procedures require long testing periods and certifications (valley of death). WeHandU wants to fill this gap.	Professional needs to take care of people with customized solutions
reHub	2	14/06 - 06/09	reHub project is an online platform and open source kit that allows the monitoring of fingers and hand movement for athletes, rehabilitation patients and music instrument students that needs a certain and digital data to monitor the exercise.	prototype	reHub was born during an Arduino User Group, and was originally addressing the need to monitor hand movements for physiotherapeutic reasons, in a digital way.	Professional needs to take car e of people with customized solutions
Voice Instruments	1	01/09 - 09/09	Voice Instrument is an open source interface designed for speaking numeric values and service messages to meet the needs of blind citizens or people who are unable to read or in contexts where it is uncomfortable to use the display to read values on a monitor.	prototipo	Giulio, working in a chemistry lab, felt the need to build a talking pH-meter that he could adopt for his experiments, without requiring the use of sight.	Personal needs

Annex 2: Table 2 - Task 3.2 MIR Prototype Development

Project	What has been done at WeMake	Final development status
	Description	
ResQ **Release 0.3**	***Sprint goal:*** - Benchmark research - Interviews with Doctors, Volunteers, Refugees centers - Context observation - UX research - Function definition - Prototyping and testing ***Sprint output:*** **Training**: - Lasercut - GitHub - Co-design tools **Planning**: - Agile Development - Brainstorming for Jam session **Ethnography and concept definition**: - Interviews at refugee centers - Jam/co-design session with refugees **Wrapping up**: - Public presentation @WeMake	concept

Breathing Games **Release 0.1**	***Sprint goal:*** - Develop a prototype (electronics + digital fabrication tools) - Write the code - Design the Experience of use (user journey, use case scenarios...) - Usability testing with the reference target - Write project documentation ***Sprint output:*** **Training:** - 3D printing **Reaching out:** - Meeting with Helder Santos, Marco Manca, Olivier De Fresnoye **Documenting:** - Creation of repository and update of main document - Literature review **Prototyping and developing:** - Sensors to measure flow and pressure - Modular test bed - 3liter pump for volume calibration **Wrapping up:** - Public presentation @WeMake	test
Allergo Kì **Release 0.2**	***Sprint goal***: - Create illustrations - Carry out User Research - Develop a prototype - Usability testing with the reference target ***Sprint output:*** **Training:** - Lasercut - GitHub - Ethnographic tools **Planning:** - Agile development - Brainstorming for interviews and kit **Ethnography and concept definition:** - Interviews with restaurant owners - Customer Journey Map creation **Documenting**: - Set up of Microwebsite **Prototyping and developing:** - Prototype of kit for restaurants - Testing new icon set - Testing concept with restaurant owners **Wrapping up:** - Public presentation @WeMake	prototype

WeHandU **Release 0.1**	***Sprint goal:*** - Find the tools to manage an open source coworking/codesign project - Carry out User Testing - Complete a concrete prototyping project - Harvest data from the prototyping experience - Consolidate workflow ***Sprint output:*** **Training**: - 3D print - GitHub **Planning**: - Agile development - Brainstorming for roadmap **Documenting**: - Scientific article draft **Reaching out**: - Meeting with test user **Prototyping and developing**: - 3D printed prototype development - User testing with test user	concept
reHub **Release 0.2**	***Sprint goal:*** - Test new electronic components and PCB - Meet with physiotherapist and patients - Verify needs and improvements - Prepare business plan and project plan - Test new textile materials - Verify glove ergonomy - Test new sensors (pressure and flex) - Update glove firmware ***Sprint output:*** **Training**: - GitHub - Benchmarking tools **Planning**: - Agile development - Brainstorming for value proposition **Concept definition:** - Benchmarking activity **Documenting**: - Pictures, hardware and software documentation **Prototyping and developing**: - New textile and pattern testing - New components and PCB development	prototype

Voice Instruments **Release 0.2**	***Sprint goal:*** - Formalize BOM and design PCB - Update library for WTV020 module - Write library for MINI DF Player - Write guidelines about the voice interface's use - Design and produce the case - Create audio files for both modules - Test library functionalities ***Sprint output:*** **Planning**: - Agile development - Brainstorming for value proposition **Concept definition**: - Market research **Documenting**: - Guidelines development **Prototyping and developing**: - New materials testing - New PCB specification definition - Case design - Library development	documentation

Annex 3: Table 3 - Task 3.3 MIR Communication and documentation

Project	Microwebsite	Dissemination
	Link	*Link to articles, opencare conference, Maker Faire Rome*
ResQ	http://resq.opencare.cc/	**Microwebsite**: http://resq.opencare.cc/blog/ **Interview**: http://WeMake.cc/2017/06/21/il-team-resq-al-lavoro-lintegrazione-dei-migranti/ **Maker Faire Rome**: http://WeMake.cc/2017/11/29/make-to-care-e-maker-faire-here-we-are/
Breathing Games	http://breathinggames.opencare.cc/	**Microwebsite**: http://breathinggames.opencare.cc/blog/ **Interview**: http://WeMake.cc/2017/07/17/WeMake-stories-breathing-games-and-their-free-software-project/ **opencare conference**: http://WeMake.cc/2017/11/21/vieni-a-conoscere-i-maker-alla-conferenza-di-opencare/
Allergo Kì	http://allergoki.opencare.cc/	**Microwebsite**: http://allergoki.opencare.cc/blog/ **Interview**: http://WeMake.cc/2017/08/31/WeMake-stories-allergo-ki-un-progetto-per-allergie-e-intolleranze-alimentari/ **opencare conference**: http://WeMake.cc/2017/11/21/vieni-a-conoscere-i-maker-alla-conferenza-di-opencare/
WeHandU	http://wehandu.opencare.cc/	**Interview**: http://WeMake.cc/2017/11/20/WeMakestories-wehandu-la-community-di-co-design-di-ausili/

reHub	http://rehub.opencare.cc/	**Microwebsite**: http://rehub.opencare.cc/blog/ **Interview:** http://WeMake.cc/2017/11/21/WeMake-stories-il-guanto-rehub-tecnologia-wearable-oltre-al-care/ **opencare conference**: http://WeMake.cc/2017/11/21/vieni-a-conoscere-i-maker-alla-conferenza-di-opencare/ **Maker Faire Rome / Make to Care**: http://WeMake.cc/2017/11/29/make-to-care-e-maker-faire-here-we-are/
Voice Instruments	http://voiceinstruments.opencare.cc/	**Microwebsite**: http://voiceinstruments.opencare.cc/blog/ **Interview**: http://WeMake.cc/2017/10/31/WeMake-stories-voice-instruments-lo-strumento-per-i-maker-non-vedenti/ **opencare conference**: http://WeMake.cc/2017/11/21/vieni-a-conoscere-i-maker-alla-conferenza-di-opencare/ **Maker Faire Rome**: http://WeMake.cc/2017/11/29/make-to-care-e-maker-faire-here-we-are/

Annex 4: Final publishable summary

FINAL REPORT - Final publishable summary

Grant Agreement number:	688670
Action acronym:	**opencare**
Action title:	Open Participatory Engagement in Collective Awareness for REdesign of Care Services
Type of the action:	H2020: Research & Innovation Actions (RIA)
Periodic report:	2nd Periodic Report
Period covered:	from M13 to M24 (01. January 2017 - 31. December 2017)
Start date of the action:	01.01.2016
Duration of the action:	24 months
Action website address:	http://opencare.cc
Date of submission:	15.02.2018
Project co-ordinator name:	Guy Melançon
Project co-ordinator organisation:	Université de Bordeaux, FR
E-mail:	Guy.Melancon@u-bordeaux.fr

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1. Final summary for publication

1.1. Our conclusions at the end of implementing opencare

In 2017, opencare continued to pursue its three objectives.

The first: explore the potential of communities to design and deliver care services.

The second: explore the implications of all this for policy.

The third: generalize from the provision of care services to the provision of anything.

Here is what we did and learned.

The potential of communities to design and deliver care services

Communities have great potential for providing care. We knew this from year 1, and year 2 only reinforced it. A swarm of community initiatives, most of them small, addresses health and social issues. Powered by collaboration, they achieve incredible results.

In Greece, they build tens of clinics with no money, no staff and no legal existence to treat, for free, anybody who has lost their right to public health care. In France, they develop a cheap, open source device for echography. In Ireland and Kenya, they build networks of mutual help for people with mental health issues or traumas.

Many of them – most, even – contain elements of innovation. Innovating communities take full advantage of small size, independence and closeness to the problem. Taken together, you can see them as a decentralized system that innovates in all directions at once. A bus kitted as a mobile studio for trauma counselling. An ultra-cheap modular system for people in refugee camps to build their own furniture. The list goes on and on. Community innovators are "crawling the solution space" in a way no organization could.

At the heart of this effort is the desire for autonomy. The protagonists of opencare want to be independent from failing systems. They want care services to treat them like adults. They want self-sufficiency, and the power to effect change. As a result, many initiatives address mobility issues, or skill sharing and education. The goal is always to empower the individual, through a community effort.

Implications for policy

Care by communities can be the R&D lab of care provision. Failure in a formalized health care system is very expensive; in community care initiatives, it’s typically low. This makes these initiatives a natural space for trying novel solutions.

However, regulation – as much as we need it – has a stifling effect on innovation. As a result, communities of care and policy makers have a problematic relationship. The former try to build things that are clearly benevolent, but not always legit. The latter are unsure whether to repress, to turn a blind eye, or to unofficially cooperate.

Cooperation between communities of care and public sector actors is far from the norm. But it does happen in the wild, and we were able to replicate it in the course of opencare (the City of Milan is a partner in the project).

We have advice for policy makers wishing to integrate open care in the European health care system.

It boils down to:

1. Measures that make it easier to start open care initiatives.
2. Measures to help the successful ones to thrive.

The first item include tax deductions for private contributions to NGOs in care; creating business labs and incubators for non-profits; extending the liability insurance of care professionals to when they operate outside of their workplace.

The second item can be summarised as ***"cooperate, don't co-opt."***

Do not try to bring open care initiatives into formal care institutions. Rather, support them on their own terms.

The inner workings of collective intelligence

In year 2, we continued to explore the inner workings of collective intelligence in action. Year 1 had left us with four conclusions:

1. Collective intelligence has structure, and a network science approach can detect it. In opencare, we represent it as semantic social networks. These are a special kind of network, which encode information about both social interaction across people and semantic interaction across keywords, or "codes". In year 2, we discovered that the SSNA method is fairly scalable. This is because we can describe even a very large conversation with a limited number of codes. The strongest connections (those that keep resurfacing) form a "backbone" of the conversation. We explored techniques to filter semantic social networks, to get to that backbone.
2. It's all about humans. Collective intelligence is interactional. So, the highest-impact technologies are those that help bring people together, share knowledge, and distribute human resources across different contexts.
3. Collective intelligence dynamics can be encouraged with (some) success. opencare was able to start and steward a large scale conversation from scratch. The online conversation alone has over 330 participants, almost 4,000 contributions and over 800,000 words. Coding it required almost 6,000 annotations and 1,250 codes. This makes opencare one of the largest ethnographic studies ever. In year 2, we introduced new ways to engage participants and systematised our engagement strategy. Much of our effort went into making sure that we were being fair to participants. We concluded that many participatory processes are extractive.
4. The interface between online and onsite collaboration environments is a single point of failure. Both all-online (opencare web platform) and all-onsite (lab, workshops) collaboration develop naturally enough. In contrast, we found it difficult to cross the online-onsite barrier. In year 2, we realised that this interface is also critical for innovation. We discovered that, by participating in (often online) communities of interest, people come up with new ideas. At times, they form result-oriented communities to execute them. This happened several times in opencare. For example, when a biohacking lab in the USA posted about its efforts to

produce an open source protocol for making insulin, other labs in Belgium and Cameroun offered to help. This resulted in a global collaborative effort.

Things we did along the way, which contribute to ensuring opencare's legacy

This journey took us through interesting waypoints. Among them:

- Build an interactive dashboard for exploring semantic social networks (University of Bordeaux, Edgeryders).
- Provide expertise and facilities to develop and prototype several devices to help mobility-challenged individuals. A wearable device that calls for help (InPe); a mobile ramp for wheelchairs to access shops (OpenRampette); and many others (WeMake, City of Milan).
- Co-teach three design courses in Berlin (Edgeryders) and Milan (WeMake, Edgeryders).
- Organise community events. In year 2 we organised a community festival in Brussels and a final conference in Milan. All partners were involved.
- Published a template of a fair social contract for participatory projects (ScImpulse, Edgeryders).
- Contribute to defining good practice for publishing ethnographic data as open data. As far as we know, no one has ever published open data of this kind before. In year 2 we published a much enlarged and improved dataset (Edgeryders, University of Bordeaux).
- Publish several papers: one journal article (Edgeryders, University of Bordeaux); two published conference papers (Edgeryders, University of Bordeaux); four working papers (Institute for Economic and Business History Research, ScImpulse). More publications are under way.

Be ourselves open. Our main coordination channel is accessible to all on the open web. We published the opencare proposal with an open license.

1.2. opencare's project results

Engaging communities, disseminating the ideas of opencare

WP1 saw a continued work on engagement. In particular, we:

- Organised offline community workshops (EDGE). Carefully promoted with the community, and reported after the fact on the opencare platform, they were an important engagement engine in year 1. We relied on especially active community members as conveners, and helped us get a deeper reach in areas that we saw as a hotbed for care-related innovation. They took place in autumn 2016 in Thessaloniki, Berlin, Brussels, and Galway.
- Co-ordinated a large (100 million USD) grant application for innovative solutions in the field of care (Edgeryders). This application federated 24 projects, led by both formal and informal groups, which had met and connected through the opencare platform. We used this move to signal commitment and fairness: we benefit from community participation in opencare, and we want to create opportunities for them in return (more information). This was complete in September 2016.
- Rolled out opencare fellowships (SF, EDGE). Three fellows were appointed by competitive selection following an open call, and tasked with connecting the opencare community with specific communities, involving them with the existing conversation both online and offline. They have been selected according to the process described here (https://edgeryders.eu/t/the-opencare-community-fellowship-program/5296) and they are: Winnie Poncelet, for biohackers and care; Gehan McLeod, for new care policies; and Francis Coughlin, for health autonomy in communities. Both the competition for the appointment and the excellent work of the appointees worked very well to drive engagement and generate high-quality content, in turn adding to the corpus for the ethnography in WP2. Fellowships were rolled out in the spring of 2017.
- Organised a community meeting, OpenVillage festival (EDGE, other partners). It, too, served as a powerful driver of enthusiasm and engagement, and resulted in a large expansion of the opencare corpus. It took place in October 2017.
- Continued using social media to support recruitment of new voices into the opencare conversation, and to raise awareness of what opencare is doing (Edgeryders, other partners).
- Moved the conversation onto a new platform (EDGE). All content previously generated was migrated onto its database. While this was not strictly an opencare activity (and was not paid for by the opencare budget), it vastly improved the experience of participating to the opencare conversation. The move took place in late July 2017.
- Arranged tens of serious playing sessions (SF) in the context of several high-profile international meetings in Switzerland (with a fundamentally international participation) and in Italy.
- Delivered over a hundred serious playing sessions (SF) in the context of small hyperlocal meetings (district conferences, didactical laboratories, unions' camps)
- Involved tens of citizens and hackers in the evaluation of ideas and risks (SF), followed up by roundtables on medical ethics and finance.
- In cooperation with the activities of WP4, established a recursive mechanism of experiences (largely based on serious playing) and reflections that has been vital to the

process of peer-auditing
(D1.6 https://drive.google.com/file/d/0B0v8cX0WO05zQzdxNTQybi1RMEU/view)

- Participated in various events like Maker Faire Rome 2016 and 2017 with a booth and presentation where over 100.000 people participated (WeMake)
- Organized monthly community nights to share with citizens the output and work in progress of WP3 (WeMake)

As a result of this work, **the opencare corpus has grown to include 3,887 contributions by 332 individuals, for about 820,000 words in total.** This is comparable to the length of Tolkien's *The Lord of the Rings* trilogy, plus that of Dostoyevsky's *The Brothers Karamazo*v.

It is very large as ethnographic studies go: the main journals regularly publish studies based on 6-20 informants.

Fostering, nurturing collective intelligence

WP2 provided support and feedback to participants in the opencare online conversation (Edgeryders).

It also enriched it with ethnographic coding (EDGE), readying it for export in graph form.

Community management in opencare was aimed at making sure that the conversation would not splinter out into small groups unwilling or unable to share information with each other. We seem to have been successful: the social network of interaction on the opencare platform is dense, with practically every participant connected to the giant component. This remains true even if we discard the community managers from the graph.

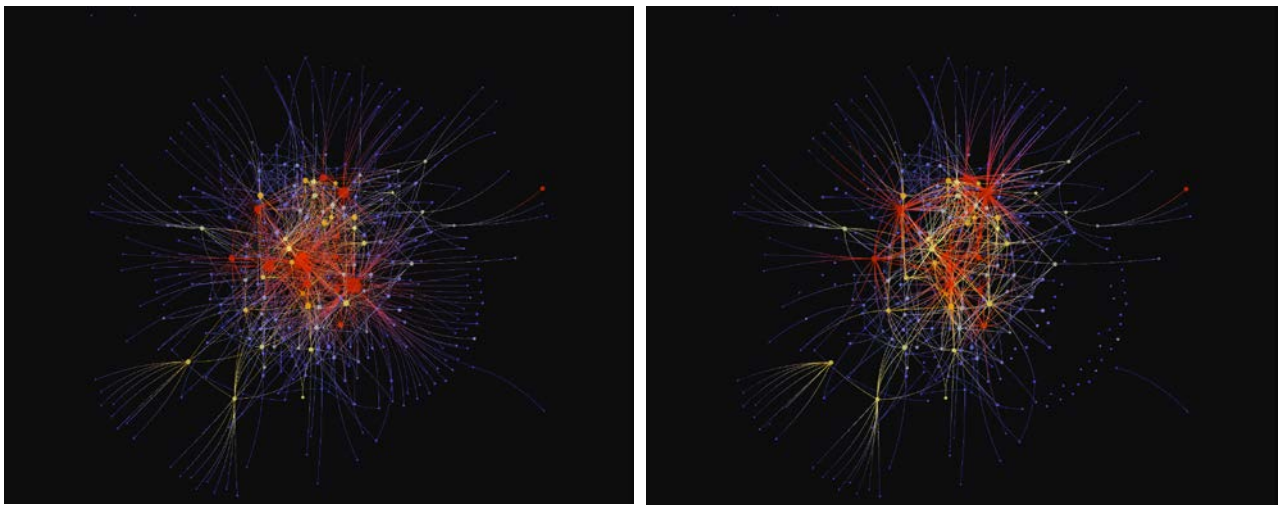

Fig. 1. Left: the opencare interaction network at the end of the project. Right: the same, but discarding the online community managers.

The coding activity resulted in 5,965 ethnographic annotations. Overall, we used 1,292 codes to describe the opencare corpus. Based on this activity, we were able to produce a very robust ethnography of open care, i.e. health and social care provided by and for communities and that uses cheap, open source knowledge and technology [Edgeryders].

Prototyping activities catering to the needs of local communities, for a virtuous ecosystem

WP3 -- In the 2-year project WP3 activated and deployed a development process, from conversation to piloting, around 3 main prototypes, 2 of them in synergy with the Municipality of Milan.

Starting from online and offline community needs we were able to co-design, document and disseminate new bottom-up solutions within an innovative vision of community-based care system:

- **"InPe"** is a device designed as a wearable that calls the caregiver and sends sms with coordinates, in order for them to come and help the person who accidentally fell. Inspired by true stories, InPe, serves different needs such as elderly parents living by themselves, or helping a caregiver in a community center. It's an open source solution which can be customised with or without the support of a community makerspace depending on the skills of the stakeholder. The activity not only achieved the publication of an accessible prototype but created an environment in which citizens, patients and care-givers felt of taking control of tools and technologies which could scale their contribution to a whole new community of care (2016)
- **"OpenRampette"** is a social impact project developed to gather on the same path milanese citizens, municipality and shop owners to identify a tangible solution to the stagnating issue of accessibility in public spaces by people that require the use of a wheelchair. The activity not only achieved the becoming transparent of a process of finding a solution but changed the perception and closeness of all the stakeholders involved, de facto making it a community (2017)

opencare Maker in Residence (MIR) was a special residency program taking place at WeMake which provided support, assistance and acceleration to 6 teams of Makers (16 people directly involved from all over the world) – who were interested in developing / validating / iterating an existing open source project in the health and care field. The output of opencare Maker In Residence allowed to multiply the prototyping effort testing the role of Fablab as accelerating platform of new projects (2017).

The whole process was supported by the **Maker Playbook "*Co-designing care services: a practical guide*"** which shares to a wider public the how-to of the engagement processes, the co-design sessions, the prototyping and sharing documentation approach. Making the process transparent, we fostered collaboration using open-source technologies allowing the growth of a new and powerful wave of community action, peer learning, and meaningful citizenship.

On top of that, we were able to shape an engaging type of awareness around technological capabilities, lowering the barriers of digital divide and opening the possibility of shaping a new generation of users.

Deliverable 3.1, Maker playbook: http://makerplaybook.opencare.cc

Advances in collective intelligence research and empowerment meant for WP3 owner, WeMake, to focus not only on direct deliverables but to disseminate the learning-by-doing culture on topics at the crossing between open source technologies and digital fabrication in care, during actions performed in meetings, courses and learning paths hosted by educational institutions and at the Fablabs as part of everyday activities.

In particular we created a local ecosystem of project-based activities which engaged different stakeholders as you can explore in the following infographics showing the broader perspective of community-based care within the local community:

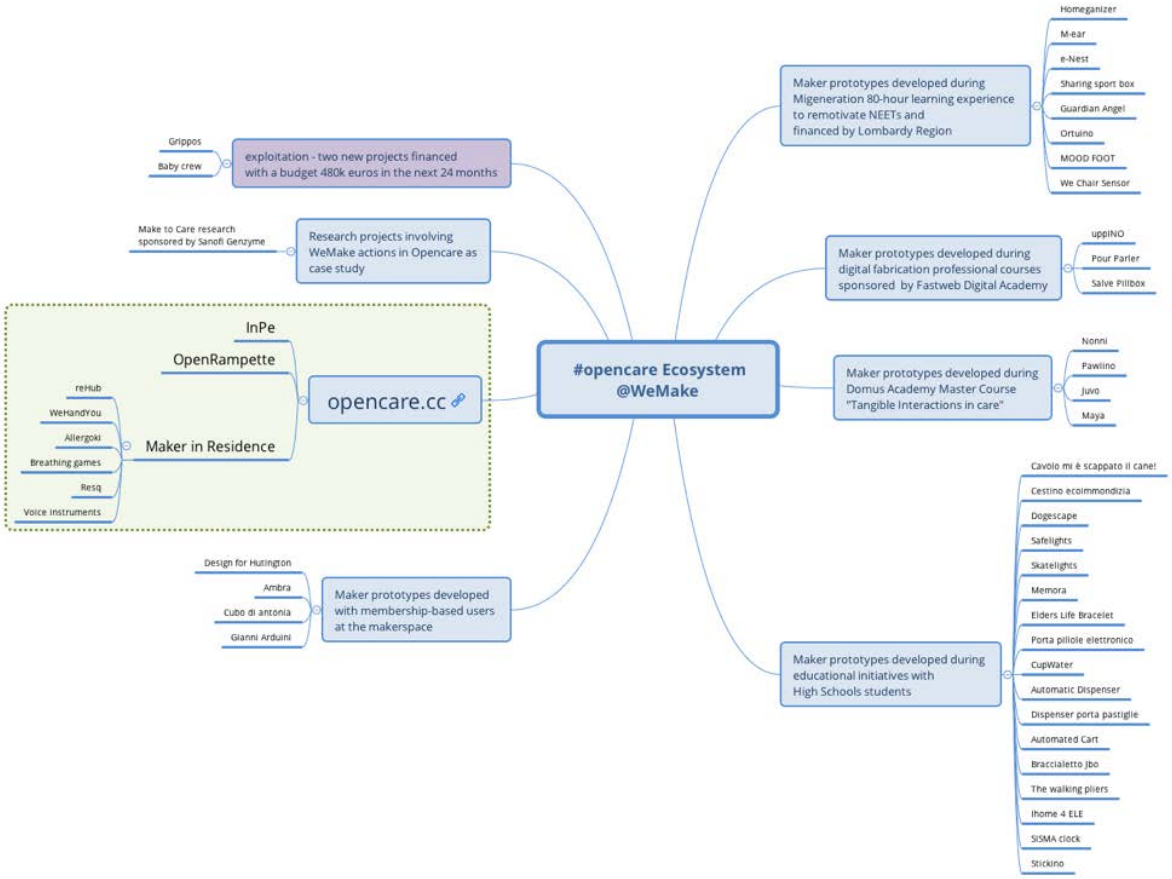

Figure 2: WeMake's ecosystem in relation to opencare

Implementing bottom-up policy-making

WP4 - In strong symbiosis with WP1, we have engaged citizens, professional care-givers, scientists, managers, entrepreneurs, and representatives of many minorities (LGBT, familiars of subjects affected by developmental disorders, musculoskeletal rare diseases, …) in simulations of practical problem solving scenarios, and following sense making sessions to evaluate their perceptions, the degree of coincidence (or lack thereof) between their predictions/expectations and the evolution of scenarios, their emotions.

The resulting reflections contributed to the generation of new scenarios that some of them, and new volunteers would clear in following sessions, and from this process of recursive experience and reflection we have ultimately extracted the principles and ideas that would converge in D4.5 (https://zenodo.org/record/1161691) and the above mentioned D1.6 (https://drive.google.com/file/d/0B0v8cX0WO05zQzdxNTQybi1RMEU/view)

GraphRyder, the opencare tool designed for Semantic Social Network Analysis

WP5 saw the launch and continued improvement of the GraphRyder dashboard, the main opencare tool to aggregate, visualize and explore semantic social networks.

- Improved the dashboard by consolidating the views already prototyped in year 1.
- Extending our work in the direction of multilayer network visual analytics, we implemented a new threefold view combining and synchronizing: the co-occurrence network of codes, the social network of users, conversation fragments (related with content selected in the other views).
- Tested our software against ethnography practitioners, during three workshops in Bordeaux (June), Brussels (October) and Copenhagen (November).
- Wrote experimental “walkthroughs”, stories that we can tell with ethnographic data in the forms of semantic social networks. These cast light on the emerging use of GraphRyder and the SSN concept itself.

1.3. opencare's socio-economic impact and connection to society

opencare left small scale direct consequences, as well as long terms expectations for MILAN.

One example of small scale progresses is the development of three prototypes selected during the ***Call for solutions: open innovation for community care***.

- **ReHub** is the glove that can easily collect data thanks to its sensors system and 3D software
- **Simpaty hands** is an assistive musical instrument that allows users with limited movement skills to express themselves using rhythmic patterns and audio sequences;
- **Fearless** is an app that combines the interface and web usability of a social network with the functionality of a data center and a platform for the provision of telepsychiatry services.

The designers of these three prototypes are granted with an incubation and acceleration programme exceeding Open care timeframe (January to June 2018).

This is possible thanks to an agreement between MILAN and local firms specialized in startups and innovation such as Avanzi, Cariplo factory, FabriQ and WeMake, who will be actually delivering the services.

This action is not only beneficial to the designers that will increase their chances to bring their inventions to the market, but also to a vast number of users that will be allowed to access them Open sources via GitHub.

Some long term expectations are linked to the vision of MILAN as a catalyst for city resources addressed to successful community practices. Under this perspectives initiatives like Civic crowdfunding or the Participatory budgeting make use of MILAN digital facilities to direct resources where is more significant and impactful.

Network science for online deliberation and community management:

State of the art

We are not aware of any change in the state of the art in 2016 and 2017 that would demand a correction of opencare's research programme around network science for online deliberation and community management. We do note interesting work being done on intimacy as affecting the shape of interaction networks in online communities, with potentially detrimental effects [Kim et al. 2015].

Ongoing research in experimental psychology promises to proof a causal link between network structure and prosocial behaviour [Melamed et al. 2017]; this would put on firmer ground opencare's approach of treating online community management as social network design [Cottica et al. 2017], i.e. orienting the community managers' activities to obtain a desired structure of the interaction network.

We should mention here work being done in the area of visual analytics of multilayer networks. To our knowledge, this area is still relatively new (UBx is involved in the organization of a future Dagstuhl seminar on this topic).

It can be argued that GraphRyder indeed deals with a multilayer network, mixing different types of nodes (users, content, codes) and types of links, some seminal in that they are captured from user

activities (authorship, reply_to) or inserted by ethnographers (annotations) and some derived from these seminal links (social links, code co-occurrences).

The definition of what may be considered a multilayer network varies in the literature [Dickison et al. 2016] with emphasis often put on computational aspects [Kivela et al. 2014] [De Domenico et al. 2013] [Renoust et al. 2014]. GraphRyder however takes a visual analytics perspective, putting forward a user-centered approach where layers (types of links) are defined from domain questions, and views are designed to support user tasks (see deliverables D5.1 and D5.2).

References in section:

- Kim, Kibum, Woo Seong Jo, and Beom Jun Kim (2015). "Group Intimacy and Network Formation." IEEE 11th International Conference on Signal-Image Technology & Internet-Based Systems (SITIS), p. 366-370.
- David Melamed, Brent Simpson and Ashley Harrell (2017). Prosocial Orientation Alters Network Dynamics and Fosters Cooperation. Nature - Scientific Reports 7:357 doi:10.1038/s41598-017-00265-x
- Cottica, A., Melançon, G., & Renoust, B. (2017). Online community management as social network design: testing for the signature of management activities in online communities. Applied Network Science, 2(1), 30.
- Dickison, M. E., Magnani, M., & Rossi, L. (2016). Multilayer social networks. Cambridge University Press.
- Kivelä, M., Arenas, A., Barthelemy, M., Gleeson, J. P., Moreno, Y., & Porter, M. A. (2014). Multilayer networks. Journal of complex networks, 2(3), 203-271.

Own contribution

What we set out to do	*What we did*
Convening and curating an online conversation about care, whose complexity and scale emerges from its evolving nature, with issues being discussed in parallel by hundreds of participants over several months.	Done (EDGE). The conversation is alive and well. As the project ends, it has 332 contributors and 3,387 contributions with over 820,000 words.
Performing ethnographic coding on it. Ethnographic codes are stored in our platform database as Linked Open Data, in RDFa format.	Done (EDGE). We have coded 100% of the conversation, producing 5,965 ethnographic annotations that use 1,292 codes. The RDFa format has been abandoned in favour of an approach based on APIs serving JSON files. See the Data management strategy for full documentations.
Building the semantic social networks (SSN) based on these data.	Done (UBX and EDGE). The SSN was initially drafted by processing data in batch mode in September 2016; later, we built a fully interactive prototype dashboard called GraphRyder. It is visible at graphryder.opencare.cc.
Analysing the SSN and using the result of such analysis as intelligence to inform the action of the community management team. Community management goals can now be specified using the language of networks: for	Done (UBX and EDGE). In November 2016 we ran an event with ethnographers and network scientists to propose appropriate network metrics to analyse ethnographic data. This required producing a data model compatible with our

example "get the three groups discussing social care to recent migrant to merge into a single sub-community".	methodology and with our intent of sharing our data in open format (https://github.com/opencarecc/opencare-data-documentation). We are not aware of any other examples of open ethnographic data. Documentation available here: https://github.com/opencarecc/Masters-of-Networks-5 In 2017, we added a new view to GraphRyder. It allows users to select a group of ethnographic codes and visualise the social network around those codes. Conversely, it allows to select a group of users and see what they have been discussing.
Iterating, checking at each step that the community management goals formulated in one cycle are reached in the next. If this happens regularly, we will have indication that semantic social networks are not only a powerful analytical tool, but a policy-relevant one: that is, they produce actionable goals that community managers can deliver upon.	Done (UBX and EDGE). We organised a second Masters of Networks event in Bordeaux in 2017; and we verified (1) that the interaction network remained highly cohesive throughout opencare; and (2) that the (semantic) codes co-occurrence network also became more cohesive as we went, with the strongest connections forming a connected graph.

Design for participation and collective intelligence:

State of the art

We are not aware of any ground-breaking change in the state of the art in 2016 and 2017. We do note a growing scepticism on the role of Internet tools in participation, in the wake of vicious political campaigning and the spread of "post truth" politics and the weaponized of clickbait and false news. The literature is in the process of catching up. In 2017, an interesting proposal was put forward that citizen lobbying can be an impactful, rewarding form of participation. Trainings for citizen lobbyists are being rolled out all around Europe, but it's still early days.

Own contribution

What we set out to do: *Focus on execution and so provide a detailed case study of designing for collaboration. We instantiate a large-scale collaboration experiment and document our trials, errors and successes*

Attempt to take out exploitation out of the participatory design picture. This is done by underwriting an explicit social contract with the opencare community, styled as a collective author and researcher. to this end, we run a social lab to reflect on the nature of accountability, governance, and ownership in distributed participatory design in care provision. By role-playing, simulations, and storytelling, we explore the dynamics of the distributed innovation systems under a spectrum of desirable, and less so, schemes of governance, and value propositions from the community members.

Care policy making

State of the art

Policy making is a field often stormed by fierce criticism, and witness to very heterogeneous practices, which suggest to cautiously avoid declaring any model a gold standard.

Currently, policy making in EU is largely informed by lobbying from groups of interest and stakeholders, with a growing emphasis on evidence-based arguments aimed at balancing out conflicts of interest, and at dampening criticism, although both goals might be ill informed according to a part of literature [e.g. Greenhalgh et al. 2009].

A third component of contemporary policy making is represented by direct citizens' opinion harvesting, with online surveys being the principal tool adopted in EU. Most such surveys have very poor turnovers (with participants counts in the few hundreds in the best evidences), which constitutes a serious methodological pitfall.

Reference in section:

- Greenhalgh T, Russell J. Evidence-based policymaking: a critique. Perspect Biol Med. 2009;52(2):304-18. doi: 10.1353/pbm.0.0085

Own contribution

The reflections recapitulated in the second part of the D4.5, which is dedicated to online design of community driven care [https://zenodo.org/record/1161691], contribute directly to the debate about direct opinion harvesting from citizens.

In fact, by making explicit the norms of a social contract that binds online interaction in a sustainable continuing conversation about community led care, our preliminary study offers an argument to look at citizen involvement in policy-making as a continuing process that should be cultured by appropriate governance and community management.

Far from the weak and biased signals surveys seem to lock on, conversations in appropriate ecosystems can offer deep analytical insights into problems, and the changes that a new policy would entail, with a healthy representation of divergent views.

It will take further maturation of the online toolkit to fully exploit the information that can be made available, and a slow work of building confidence in the approach by policy makers, but experiences like openrampette in the city of Milan, or the adoption of our serious playing by a large group of managers of the Italian NHS during the forum for the sustainability and development of healthcare in September 2017, hold promises that impact is within reach.

2. Two years of opencare: general impact assessment

In network science we developed a new quali-quantitative research method (UBX, EDGE). It combines ethnography and network science: we call it ***Social Semantic Network Analysis (SSNA)***.

Its main advantage over traditional ethnography is twofold. First, it is way more scalable, because encoding an ethnographic corpus as a graph allows main regularities to come to the surface without discarding any information. This is proven by opencare itself, which is a very large study by

ethnographic standards. Second, it augments the qualitative information with quantitative metrics borrowed from the network science toolbox.

SSNA makes possible research projects that had previously been too hard or too expensive.

We expect to see it expand in fields like analysis support to political campaigning and policy assessment (think, for example, of a conversation on the state and perspective of the European Union the size of Eurobarometer).

A spin-off based on SSNA is being considered (EDGE). Details are confidential at the time of writing.

A technology based spin-off, inspired by work in opencare and other research projects run at UBx, aiming at a general approach encompassing SSNA **is being considered** (UBx). Details are confidential at the time of writing.

In design for participation we have successfully prototyped a policy at the local scale involving makers in the lab and smart online communities connected by digital platforms (MILAN, WEMAKE, EDGE). We expect this prototype to reverberate in future policies at the city scale, as it constitutes a solid base for cities to move beyond solutionism and "***if we build it, they will come".***

3. Concluding opencare: dissemination kit

The opencare website is designed for visitors wishing to learn more about the project, fork it or adapt the project for tailored implementation to the concerned communities.

For this reason, the project deliverables, as well as documentation material from the final events organised by opencare in Milan and Brussels has been made available to the public.

Retrieve our work on the **opencare.cc** website:

- Final conference in Milan
- Final community event in Brussels
- Projects prototypes
- The playbook
- Deliverables