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Executive Summary

This first management report presents a snapshot of the work progress of netCommons at the end of Month 9 (September 2016). The first nine months of the project have run smoothly and the intended work has been carried out with regularity. Deliverables were completed on time and uploaded on the Grant Management system within a few days of the intended deadline (this one being the exception).

By Month 9 all WPs have started and in none of them emerged any impairment that can hamper the development in the foreseeable future. The next plenary meeting will be held in London at the end of January 2017.



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1 Explanation of the work carried out by the beneficiaries and Overview of the progress

1.1 Objectives

We report here a summary of the objectives from netCommons DoA for the sake of easy reference.

Community Networks (CNs) are bottom-up initiatives to realize communication networks with a participatory and grassroots organization that are blooming in several European Countries. Community Networks use peer-to-peer technologies to achieve an ambitious societal goal: the realization of a fairer ICT ecosystem.

The first objective of netCommons is to produce high-impact interdisciplinary research on, and together with, Community Networks, in order to resolve some of the problems that CNs face, and foster their growth and their long-term sustainability. We identify three open issues that need to be addressed to help the growth of CNs: I) their governance models, ii) their sustainability, and iii) their technical decentralization.

The second objective of netCommons is to extend the experience and the results obtained in the context of CNs to a broader research area, giving a strong contribution to the development of key themes for Internet Science and CAPS. Thus, the goal is the investigation of social, legal, political, and economic premises are needed to build a more sustainable ICT world, and how grassroots initiatives such as Community Networks can play a role to influence such process.

In the first 9 months of the project all the Work Packages started their work, and 5 deliverables were due, including this progress report. The results so far obtained in each WP are reported in the next section, broken down per WP and Task.

1.2 Explanation of the work carried per WP

1.2.1 WP1

The work of WP1 was carried on in Task 1.1, that produced the two deliverables D1.1 and D1.2: *Report on the Existing CNs and their Organization v1 and v2*. The WP leader is UPC and the two deliverables were delivered on July 1st and Oct. 12th 2016 respectively.

In WP1 only Task 1.1 has been active during the first 9 months.

Task 1.1	Title: Mapping of CNs
Leader: UPC	Contributors: CNRS, AUEB-RC
Duration: M1-M10	Output: D1.1, D1.2

Task 1.1, which is the only task already finished in netCommons, was the key task for the bootstrap of the project. Its goal was to produce a list and a preliminary analysis of the existent Community



Networks. It developed an interpretation methodology based on the concept of “Common Pool Resource” and stimulated the project to get in contact with several communities in order to understand the way they work and their achievements. The task introduced a taxonomy for the interpretation of CNs that will be useful for all the other WPs, and created stable links and contacts with CNs that will be cooperating with netCommons in the following of the project. Both deliverables of the Task have been completed and represent a staple literature which is not only used by the other netCommons WP, but are already referenced by both the scientific community and by activists and advocacy groups.

1.2.2 WP2

WP2 deals with the definition of a sustainability concept for Community Networks and for communication networks in general. It is split in 4 tasks one of which delivered D2.1 at M6. The work of each task is summarized in the following paragraphs.

Task 2.1 **Title: Defining the Politics and Sustainability of CNs.**
Leader: UOW **Contributors: UniTN, AUEB-RC**
Duration: M1-M12 **Output: D2.1**

The goal of this task is to define a usable concept of sustainability for ICT networks and CNs in general. T2.1 produced D2.1 at M6 entitled "*The Multiple Aspects of Politics of Sustainability in Community Networks: Definitions, Challenges, and Countermeasures*", version 1.

The first goal of the deliverable is to study the theoretical foundations of sustainability. D2.1 gives an overview of what sustainability is and traces the history of the concept. It then relates the concept to information technology and the information society, it identifies ecological, economic, political, and cultural dimensions of (un)sustainable information technology. Finally, it discusses (un)sustainability in the context of community networks and provides checklists that support asking sustainability questions to the members of the community.

The second goal of the deliverable is to assesses the EU approach towards telecommunications liberalization. It identifies two main eras: the initial era of the copper network and the current era of the transition to NGAs. It examines the key characteristics of each period, before proceeding to present data about the structure of the broadband markets in the EU. There follows an examination of the role of municipality and community networks within the EU's liberalization approach. Finally, the deliverable ends with some remarks about the current perception of community networks in the EU policy framework, their potential and pitfalls.

Deliverable D2.2, which is the extended version of D2.1 is under development, and as of M9 its progress is regular.

Task 2.2 **Title: Incentives for Participation and Active Collaboration in CNs.**
Leader: AUEB-RC **Contributors: Nethood**
Duration: M4-M30 **Output: D2.3**



T2.2 started at M4, it is led by AUEB-RC and deals with economic (and non economic) incentives to the participation of people in CNs. The progress of the work at M9 is regular and some scientific papers have been already produced and submitted. Its progress is regular and D2.3 is foreseen in time.

Task 2.3 **Title: Economic Sustainability and Alternative Currencies**
Leader: Nethood **Contributors: AUEB-RC**
Duration: M4-M24 **Output: D2.3**

T2.3 started at M4, it is led by NetHood and deals with the economic incentives to the participation to CNs, with specific attention to the use of alternative currencies. The progress of the work at M9 is regular and some scientific papers have been already produced and submitted. Its progress is regular and D2.3 is foreseen in time.

Task 2.4 **Title; Monitoring instruments for CNs.**
Leader: UniTN **Contributors: AUEB-RC**
Duration: M4-M24 **Output: D2.4, D2.5**

T2.4 started at M4, it is led by UniTn and deals with the definition and the realization of metrics to monitor the evolution of the network and help the community to verify the technical and social sustainability of the CN. The task produced one publication to the Internet of People Workshop co-located with the IFIP Networking conference [8]. Another publication extending the work is ongoing and the source code is already partially available on-line. The task will deliver D2.5 at M12 containing all the documented source code that can be embedded in the mapping tools that the communities use to manage their networks. It will help communities to monitor the network evolution, detect single points of failure in the network topology in the social network derived from the analysis of their mailing lists.

1.2.3 WP3

WP3 deals with the creation of open-source applications for CNs. It develops and customize software, but also a participatory methodology to improve the self-production of applications by CN members themselves. The source code for the projects will be published on the official github repo for the project, available at: <http://github.com/netCommonsEU>

Task 3.1 **Title: Transdisciplinary methodology for participatory design and adoption of local applications.**
Leader: Nethood **Contributors: UniTN, UPC, AUEB-RC**
Duration: M4-M24 **Output: D3.1**

The goal of T3.1 is to build a participatory methodology to create software products that can benefit the whole network participants. The two partners that are more involved in this task are NetHood



and AUEB-RC that initiated a participation with one network that is active in the north of Greece, Sarantaporo.gr. While T3.4 is practically co-creating software with and for the Sarantaporo community, T3.1 steers and documents this process in order to make it repeatable in different situations. The task progress is regular and D3.1 is foreseen in time.

Task 3.2 **Title: Community Clouds**
Leader: UPC **Contributors: Nethood**
Duration: M4-M24 **Output: D3.2, D3.4**

T3.2 is developing a new version of the Cloudy software <http://cloudy.community>, a Linux distribution specifically designed for embedded systems to be co-located with community network nodes. Cloudy is in the process of being integrated with the docker platform, in order to be easily extended with new applications.

Task 3.3: **Title: P2P Streaming in CNs**
Leader: UniTN **Contributors: UPC**
Duration: M4-M24 **Output: D3.2, D3.4**

PeerStreamer is a peer-to-peer (P2P) live streaming open source software developed by the University of Trento. It is tailored to Internet usage and needs to be re-designed to be used in a CN. UniTn is in the process of splitting the internal logic of the P2P video distribution, that can be directly embedded into CN wireless routers from the video reproduction interface, which has been re-written to be web-based. Splitting this functionality gives the advantage of being able to install the P2P engine directly on wireless routers, so that the user does not need to install specific software to contribute to the video distribution. On the other hand, the playback function can be realized on any home device, being it a laptop, or a media center.

The development of PeerStreamer produced a scientific publication at the IFIP Networking conference 2016 [7], and another submission to the Elsevier Journal of Pervasive and Mobile applications.

1.2.4 WP4

WP4 deals with the analysis of the current law system with regards to the limitations that it may impose on the development of CNs. Task 4.1 is the task that has been running in M6-M9.

Task 4.1 **Title: Legal Framework of CNs**
Leader: CNRS **Contributors: UniTN**
Duration: M7-M30 **Output: D4.1**

T4.1 is concentrating in the legal analysis of three areas that can mostly influence CNs' development, namely: telecommunications policy, privacy and personal data protection, and civil



liability. For each of them, the analysis overviews the European legal framework and then it considers some Member States' legislation. The deliverable is due at M12, and it is already under development and shared among partners for comments and improvement.

1.2.5 WP5

This WP provides a strong interdisciplinary contribution to some key themes of Internet Science revolving around the topic of Alternative Internet/s. Its goal is to discuss the premises on which we can build an alternative, more sustainable model for the Internet, starting from experiences of existing "Alternative Internets", such as CNs.

Task 5.1 **Title: History of Alternative Internets.**
Leader: CNRS **Contributors: UOW**
Duration M4-M11 **Output: D5.1.**

T5.1 is in the process (at M11) of releasing the D5.1 that explores the history of alternative communication technologies and networks ("altnets"). It focuses on three historic formations of altnets: 1) the community telephone networks of the late 19th and early 20th century, 2) the Free Radio movement of the 1960's and 1970's, and 3) the first generation of community networks providing Internet access in the 1990's. For each of these movements, the deliverable offers case studies of specific altnets in various countries, mostly in Europe but also in North America. The goal is to focus on issues that are key for the development of modern CNs such as the governance of networks, their long-term sustainability and technological aspects, as well as the political and legal hurdles previous initiatives faced.

1.2.6 WP6

WP6 started at M7 (5 for Task 6.1), starting to collect the scientific work done so far and reasoning on the best strategies to disseminate and advocate for the global, strategic vision of netCommons. So far, the WP collected the material and the talks, presentations, public participations of netCommons people on an internal etherpad repository and nethood is working to give this material a more formal layout for the first Deliverable foreseen at M12.

In parallel the web site of netcommons (netCommons.eu), active from the very beginning of the project, has been used to disseminate the activities and to collect the most relevant venues where netCommons in some sense "exited" from the scientific community to reach to civil society, as the "Workshop on community networking infrastructures" held in Barcelona <http://netcommons.eu/?q=content/workshop-community-networking-infrastructures-barcelona> and the "Techno-legal" "Workshop on Community Networks in Trento" held at the University of Trento at the end of M9 <http://netcommons.eu/?q=content/workshop-community-networks-trento>

Given the nature of WP6 we do not deem worth splitting the description of action into the single tasks, as the explanation above is valid for all three of them and the deliverable is in common across the three tasks reported below.



- Task 6.1:** **Title: Proactive dissemination towards CN**
Leader, UPC **Contributors: All**
- Task 6.2:** **Title: Outreach to authorities, stakeholders, institutions, and the**
Leader: Nethood **academic community**
Contributors: All.
- Task 6.3:** **Title: Outreach to media and general publi**
Leader: Nethood **Contributors: All.**

1.2.7 WP7

The management of the project is regular and no partner asked for specific interventions so far. Deliverables due in June were delayed because of technical problems on ECAS portal, while Deliverable D1.2 due on Sept. 30 has been delayed with the approval of the Project Coordinator to finalize the description of Cooperative ISP in France and to improve harmonization of the content.

- Task 7.1:** **Title: Administrative and Scientific Management**
Leader: UniTN **Contributors: All**
Duration: M1-M36

The management of the project is regular and no partner asked for specific interventions so far.

- Task 7.2:** **Title: Open Access Management**
Leader: UniTN **Contributors: All**
Duration: M1-M36 **Output: D7.1, D7.3**

The first goal of T7.2 was the preparation of the Data management Plan released at M6. Furthermore, within this task, all the steps necessary to guarantee that all publications are available in Open Access have been taken. The project considers that Green Open Access is so far the most sustainable way of guaranteeing proper dissemination without jeopardizing the quality of publications, and avoiding the use of publishers and venues that hide “pay-to-publish” improper behaviors under the appearance of Golden Open Access.

All partners upload their publications either on institution repositories connected to OpenAire or to zenodo.

1.3 Impact

As of September 2016 the following publications have been produced with the support of netCommons. Several other works have been submitted or are in the process of being submitted for publication. netCommons has been also active within Communities as will be documented in more detail in D6.1.

Journals

- [1] Fuchs, Christian. (2017). Sustainability and community networks. *Telematics and*



Informatics, 34 (2): 628-639. Available at: <https://zenodo.org/record/163751>

- [2] Tréguer, Felix, Panayotis Antoniadis, and Johan Söderberg. (2016). Alt. vs. Ctrl.: Editorial notes for the JoPP issue on Alternative Internets, *Journal of Peer Production*, Special issue on Alternative Internets. Available at: <http://peerproduction.net/issues/issue-9-alternative-internets/editorial-notes/>
- [3] Crabu, Stefano, Federica Giovanella, Leonardo Maccari, and Paolo Magaudda. (2016). Hacktivism, Infrastructures and Legal Frameworks in Community Networks: The Italian Case of Ninux.org, *Journal of Peer Production*, Special issue on Alternative Internets. Available at: <http://peerproduction.net/issues/issue-9-alternative-internets/peer-reviewed-papers/ninux-org/>
- [4] Dulong de Rosnay, Melanie. (2016). Alternative Policies for Alternative Internets, *Journal of Peer Production*, Special issue on Alternative Internets, Experimental format. Available at: <http://peerproduction.net/issues/issue-9-alternative-internets/experimental-format/alternative-policies-for-alternative-internets>

Conferences/workshops

- [5] Micholia, Panagiota, Merkouris Karaliopoulos, Iordanis Koutsopoulos. (2016). Mobile Crowdsensing Incentives under Participation Uncertainty. ACM Mobihoc 2016, MSCC workshop, July '16. Available at: <http://dl.acm.org/citation.cfm?id=2940357>
- [6] Karaliopoulos, Merkouris, Michalis Titsias, Iordanis Koutsopoulos. (2016). First learn then earn: Optimizing Mobile Crowdsensing Campaigns through Data-driven User Profiling. In *Proc. ACM Mobihoc 2016*, July '16. Available at: <http://dl.acm.org/citation.cfm?id=2942369>
- [7] Baldesi, Luca, Leonardo Maccari, and Renato Lo Cigno. (2016). Optimized Cooperative Streaming in Wireless Mesh Networks. In *Proc. of the 15th IFIP Networking Conference (NETWORKING)*, 2016.
- [8] Maccari, L. (2016). On the Technical and Social Structure of Community Networks. In *Proc. of the First IFIP Internet of People Workshop, IoP*. May 20, 2016, Vienna, Austria. Available at <http://dl.ifip.org/db/conf/networking/networking2016iop/IoP-10.pdf>
- [9] Selimi, Mennan, Davide Vega, Felix Freitag, Luís Veiga. (2016). Towards Network-Aware Service Placement in Community Network Micro-Clouds. In *Proc. of Euro-Par 2016*. Available at: http://link.springer.com/chapter/10.1007%2F978-3-319-43659-3_28
- [10] Baig, Roger, Lluís Dalmau, Ramon Roca, Leandro Navarro, Felix Freitag, Arjuna Sathiseelan. (2016). ACM SIGCOMM Global Access to the Internet for All (GAIA) Workshop. Available at: <http://dl.acm.org/citation.cfm?id=2940163>
- [11] Selimi, Mennan, Llorenç Cerdà-Alabern, Liang Wang, Arjuna Sathiseelan, Luis Veiga, and Felix Freitag. (2016). Bandwidth-aware Service Placement in Community Network Clouds. In *Proc. of 41st Annual IEEE Conference on Local Computer Networks (LCN 2016)*.

Demos

- [12] Freitag, Felix and Mennan Selimi. (2016). CLOUDY: Community Cloud Edge Distribution in Guifi.net. *41st Annual IEEE Conference on Local Computer Networks (LCN 2016)*.



2 Update of the plan for exploitation and dissemination of result

No changes in exploitation and dissemination are foreseen at this point of the project.

3 Update of the data management plan

The DMP as described in D7.1 is still valid, we do not foresee updates until D7.3 is due at Mo. 18.

4 Conclusion

The progress of the project at the end of Month 9 has been regular and the analysis presented in this report does not identify any major deviation from the intended original DoA, nor any obstacle that hampers the future development of the project. All the partners are cooperating actively to the project and the interdisciplinary interaction is very fruitful and it is already generating very innovative and fresh perspectives on the subject of netCommons.





The netCommons project

December 7, 2016

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