ICT - Information and Communication Technologies

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D3.9 Comparative evaluation of the MAZI pilots (version 2)

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The MAZI Consortium

Consisting of:

Organisation Name	Short Name	Country
University of Thessaly	UTH	Greece
NETHOOD	NH	Switzerland
Edinburg Napier University	NU	United Kingdom
Universitat der Kunste Berlin	UdK	Germany
The Open University	OU	United Kingdom
Slacktivist Limited	SPC	United Kingdom
INURA Zurich Institute	INURA	Switzerland
Common Grounds	CG	Germany
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History

Version	Author	Date	Status
1.0	Gareth Davies	17/01/2018	Initial Draft
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1.2	Gareth Davies, Patrick McAndrew, Ann Jones, Mark Gaved, Katalin Hausel	12/03/2018	First complete draft for review
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F.F.	Stavroula Maglavera	23/3/2018	Final

Executive Summary

This deliverable is the second of three reporting on the comparative evaluation of MAZI pilots (Deliverable 3.9).

To date, the MAZI pilots have experimented with using various interventions for engaging their publics with DIY networking and the use of the MAZI toolkit. This has involved the interdisciplinary working of research and community partners who have made a sterling effort to find effective ways of engaging publics in meaningful ways.

In this deliverable (D3.9) we define our analysis methodology. This builds on the logic set out in the previous version (Deliverable 3.8, delivered M14). A participatory action research approach helps ensure we recognise and value the impact of factors such as staggered timelines, diverse contexts and the rich variety of academic disciplines and practitioner fields. We provide an account of the analysis methodology, provide some examples of its use for evaluating the pilots' design methodology.

Completion of the analysis will be carried out in stages and then presented in version 3 (Deliverable 3.10). Further analysis across the studies will explore correlations between design choices and objectives to draw out a set of candidate best practices for inclusion in the MAZI DIY toolkit.

Table of Contents

1. Introduction

The objective of this deliverable is to outline the design of an analysis methodology for carrying out a comparative evaluation of the MAZI pilots. This builds on the preliminary methodology presented in Deliverable 3.8, based on theory and practice, and provides examples of how it will be used in Deliverable 3.10 to explore correlations between pilots' design choices and objectives for informing best practice.

The deliverable has been divided into the following sections. In section 2 we summarise our rationale for the approach we are adopting. In section 3 we provide an update to the theory underpinning the design of the analysis methodology and explains how our thinking has evolved since submitting Deliverable 3.8. In section 4 we provide an overview of the analysis methodology. In section 5 we refer to the different sources of data we are drawing upon, what they offer for the comparative evaluation, and the techniques being used for their analysis. In section 6 we offers examples of case studies developed using the analysis methodology for interrogating some of the existing data. In section 7 we explain what will be presented in D3.10.

2. Rationale for the approach adopted

The comparative evaluation of the MAZI pilots explores how different disciplines value, access and utilise knowledge. This permits us to highlight opportunities for academic and community partners to learn from each other, thereby informing the opportunities and barriers for fostering interdisciplinarity. We are using a participatory action research approach (Tandon, 2002; Rahman, 2008; Chevalier and Buckles, 2013) to help ensure we recognise and value the impact of factors such as staggered timelines (Figure 1), diverse contexts and the rich variety of academic disciplines and practitioner fields.

Figure 1 illustrates the different phases of the pilots, as described in the MAZI project Description of Work (DoW), and how the start dates are staggered, with Pilots 1 to 4 starting in Months 3, 5, 12, and 15 of the project (commenced Jan. 2016).
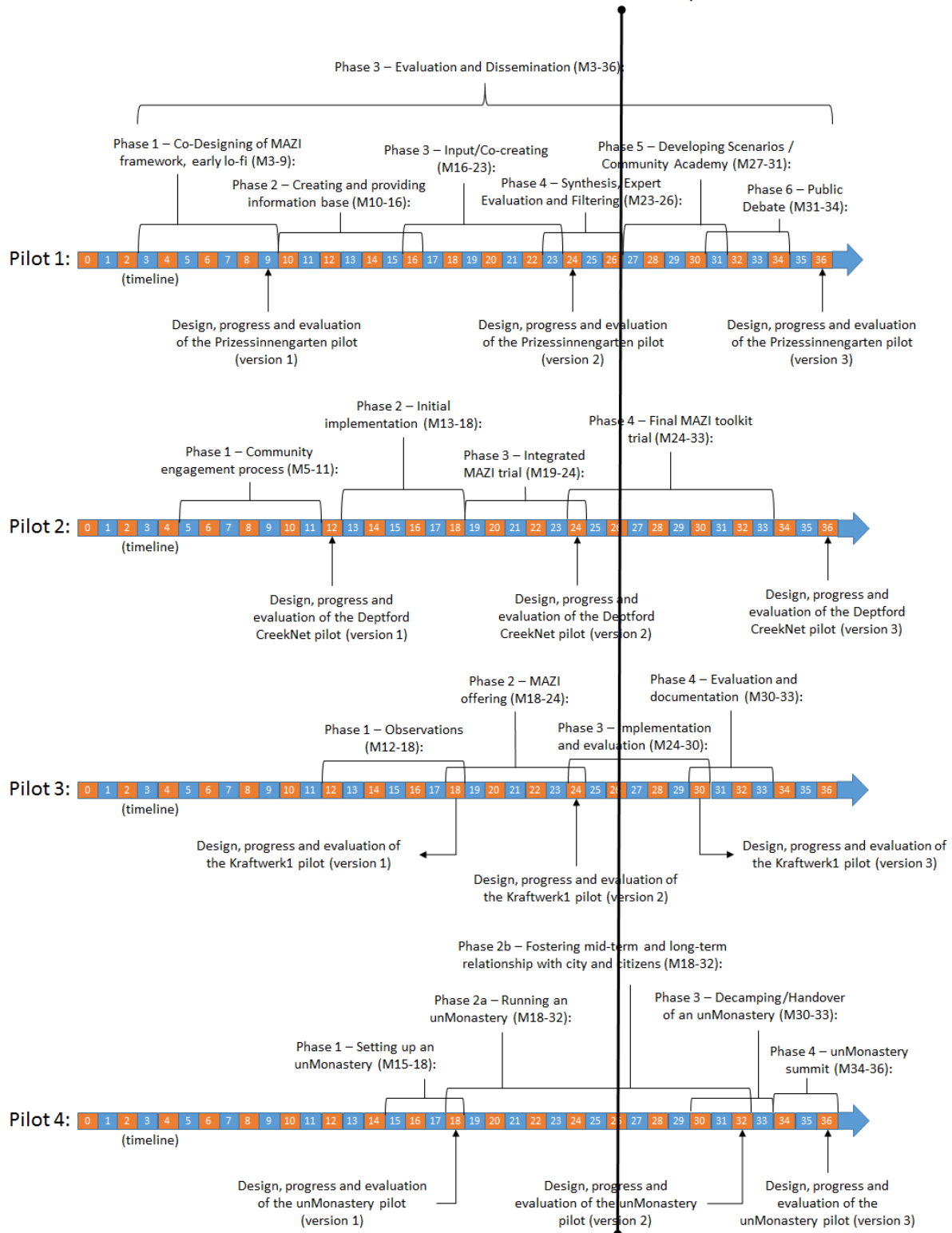
Figure 1: Illustration of how the phases of the Work Package 2 MAZI pilots' progress and evaluation coincides with the timing of Deliverable 3.9 (version 2 of the comparative evaluation of the MAZI pilots), where the vertical line through the middle of the figure represents where we are in the timeframe of MAZI.

The DoW sets out the following four "framings", which determine the context and objectives of the pilots and thereby which applications, physical elements, and customization options will be appropriate for each pilot.

- CONTACT: the facilitation of information exchanges between strangers in physical proximity toward the generation of collective awareness at the local level either over long or short time periods (e.g. through a permanent MAZI installation in a public space or a short-term experiment in a train or festival).

- INFORMATION: the sharing of information of common interest. A typical example is the dissemination of information related to socio-political negotiation processes in the city (e.g. controversial development plans), which can empower citizens to take part in these negotiations and mobilise them to take on authorship and initiate collective action.

- DISCOURSE: more elaborated public deliberations on topics of common interest and conflict resolutions. Depending on the environment a CONTACT and/or INFORMATION phase might precede a DISCOURSE phase.

- KNOWLEDGE: the construction of agreed upon perspectives and sustainable lifestyles, potentially shaping collective identity, and the possibility to share knowledge (e.g. relevant for strong communities, like cooperatives, which wish to further deepen as well as disseminate their success stories).

Table 1 illustrates how each of the pilots was set up to engage a wide range of publics with DIY networking (Table 1).

Table 1: Summary of the MAZI pilots, as set out in the project DoW.

Pilots/Variables	Pilot 1: UdK/CG Prinzessinnengaten	Pilot 2: OU/SPC Creeknet	Pilot 3: NetHood/INURA Kraftwerk1	Pilot 4: NU/UM MakeSpace
Context	Community garden at Berlin city core	Urban neighbourhood (1km radius)	Cooperative housing and living complex (~300 residents)	Residents in the village of Kokkinopilos
Framing	Information Discourse	Contact Information Discourse	Knowledge	Contact Information Discourse Knowledge
Toolkit	Content sharing	Decision making P2P Shared storage	Knowledge production	Multiple modes
Actors	Community Neighbours Activists City officials	Pioneers Community champions	Community Catalyst	Artists Citizens
Duration	Long term Continuous	Long term Continuous	Long term Continuous	Short term Continuous
Design process	Co-design workshops Iterative prototyping	Co-design workshops Liquid democracy Training	Deliberation	Critical Design Design Fictions Cultural Probes

Evaluation	Activity Content analysis Interviews	Activity Content analysis Interviews Debriefing workshop	Activity Interviews Continuous observation	Workshops Interviews
Phases	1 Framework co-design; 2 Early prototyping; 3 Information base; 4 Co-Creation of application; 5 Synthesis & filtering; 6 Public debate; 7 Evaluation and dissemination	1 Community engagement; 2 Implementation; 3 integration; 4 Final trial	1 Observation 2 MAZI offering 3 Implementation and evaluation	1 Initiation and setup 2 Relationship building 3 Final Trial

Table 1 acts as a useful reflection for understanding the differences between the MAZI pilots. Generally, the most prominent differences between the pilots are their reasons for engaging publics with the MAZI toolkit. In Pilot 1 it is for facilitating "rights to the city", Pilot 2 for helping "communities fighting for survival", in Pilot 3 for encouraging "democratic participation", and in Pilot 4 it's for creating opportunities for not-for-profit organisations to act as "helpful strangers".

Figure 2 illustrates the focus of the three versions of the comparative evaluation. This document reports on the progress made towards meeting the objectives of version 2: to develop an analysis methodology for carrying out a comparative evaluation of the MAZI pilots.

Year 1: D3.8 (version 1)   Year 2: D3.9 (version 2)   Year 3: D3.10 (version 3)

preliminary methodology based on theory and practice

analysis methodology for a comparative evaluation

exploring correlations between design choices and objectives to inform best practice
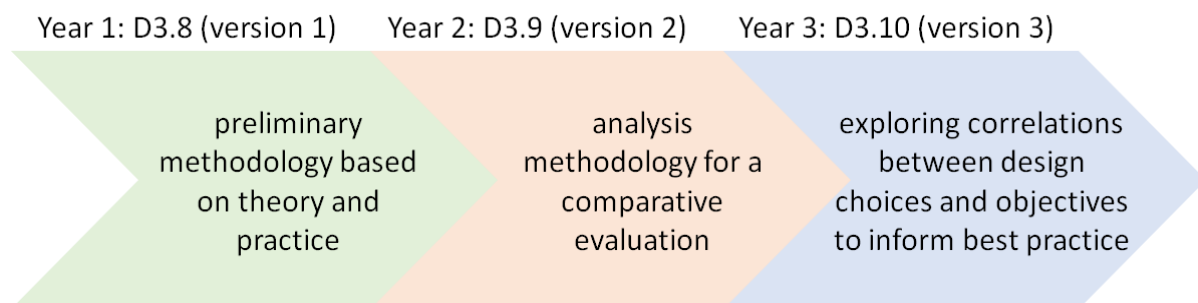
Figure 2: Illustrating the focus of the three versions of the comparative evaluation of the MAZI pilots reported on in Deliverables 3.8, 3.9 and 3.10 respectively.

We intend to explain the impacts (e.g. benefits, effects and change) happening by mapping disciplinary approaches into a complementary picture of collective activity we have undertaken, not least because of connections being made within and between pilots. We also report on the support for the development of this shared comparative meta-evaluation strategy that captures the learning from those participating in the MAZI project, moving us towards a shared understanding and commitment to possible solutions (e.g. building on works such as Conkin 2005, p17).

3. Development of the analysis methodology

In this section, we provide an update to our thinking in Deliverable 3.8 and explain how the theory has been operationalised in Deliverable 3.9 for the development of our analysis methodology.

The MAZI pilots are undertaking a series of interventions designed to introduce their publics to the concepts of DIY networking and the potential use of the MAZI toolkit. For the purposes of the comparative evaluation this entails understanding the foresight of those who instigated the interventions and determining how publics being engaged perceived the opportunities and resources being provided and whether or not publics choose to act. Understanding how the former and the latter align across the pilots is essential because interventions work in different ways for different people in different circumstances, dependent on the reasoning of those being engaged (Pawson and Tilley, 2004). To account for this we are using realistic evaluation (RE) as a framework for our analysis.

RE is *"(realistically) panacea phobic"* (Pawson and Tilley, 2004). Grounded in realism, the assumption made by RE is that transformations to perceptions, behaviours and circumstances are contingent on the social circumstances of the person(s) being engaged (Astbury and Leeuw, 2010; Best et al., 2012). Successful interventions instigated by the MAZI pilots are therefore expected to be self-transformational. That is, triggers of change (referred to as "generative mechanisms"), located in the stakeholders' reasoning, are expected to change the social reality and circumstances that caused the intervention to work in the first place (Dalkin et al., 2015). In a practical sense, this means that we cannot expect that what works for one pilot will necessarily work for another. Adopting RE as our framework for analysis, however, gives us an opportunity to generate theories of how interventions work best over time and across contexts.

RE is a theory driven approach that is as much about testing and refining the initial theory as it is about determining whether the intervention worked (or not) (Blamey and Mackenzie, 2007). It starts from a position of theory about what contextual features are required to trigger mechanisms for generating specific patterns of outcomes (i.e. contexts + mechanisms = outcomes) (Linsley et al., 2015). In the case of MAZI contextual features can be defined by determining "for whom and in what circumstances" a pilot intervention was carried out (Pawson and Tilley, 2004). What is contextually significant for generating outcomes may relate to place, systems of interpersonal and social relationships, the presence of technology, economic conditions of the publics etc. Certain contexts will support the generation of outcomes whilst others will not. The generative process by which a causal relation between context and outcome comes about is what's defined as a mechanism. Identification of mechanisms, however, is not merely a matter of establishing that a causal relationship exists, it requires an understanding of why and how that causal relationship exist (Dalkin et al., 2015). For example a situation where the MAZI toolkit acted as a "boundary object" (as defined by Star and Griesemer, 1989) could be referred to as a "generative mechanism", e.g. for facilitating negotiations between disciplines' frames and territories and creating space for the exchange of methodologies and sharing of information (see D3.2&3).

Building on previous studies we are using the logic of RE to develop a bank of case studies that reflect the context, mechanisms and outcomes characterising pilot interventions. We will use these to identify context-mechanism-outcome configurations (CMOs), which we can compare to and update the initial theory (see Appendix B, C & D for a practical walk-through of the tools being used). This bank of case studies and CMOs will become the basis of our comparative analysis, permitting us to evaluate the continuum of experiences involving different actors engaged across different contexts for different purposes. This cross-case analysis will be carried out using McAndrew's take on activity theory to uncover the contradictions between the semiotic and technological levels in the activity systems represented by subsets of these case studies (McAndrew et al., 2010; Scanlon et al., 2015). Focusing on the different activity systems will enable us to provide a greater depth of analysis for better understanding the impact of "generative mechanisms" across multiple interventions. In version 3 (D3.10), the findings will then be tested by engaging project partners in a focus group, to identify incidents that partners perceive have been critical for determining the successes and failures of their pilot interventions (e.g. using the format set out by Anastopoulou et al., 2008; Flanagan, 1954).

As we progress with our analysis the goal will be to develop 'middle range theories' (MRTs), formulated at a middle level of abstraction, generated over time and across multiple studies (Pawson and Tilley, 1997). MRTs are focused enough to generate propositions of how a local MAZI administrator, say, should engage publics with the MAZI toolkit but general enough to apply across multiple situations. Unsurprisingly, we have observed that the more refined the pilots' understanding of how an intervention is likely to work, the more effectively

they have been able to engage in upstream planning and data collection for evidencing impacts. Many of the pilot interventions, however, have needed to be informal and somewhat exploratory as they have tried to find what works best for engaging their publics. Development of MRTs from our analysis of secondary and primary data will help evidence the role mechanisms have played in generating impacts from interventions.

4. Overview of the analysis methodology

In this section, we describe the analysis methodology that has been designed for carrying out the comparative evaluation of the MAZI pilots. It provides an overview of the different sources of data we are drawing upon, explains what they offer for the comparative evaluation, which techniques are being used and steps taken to carry out the analysis.

Figure 3 illustrates how multiple sources of data are being used to inform the development of case studies, which will be used as a basis of the comparative analysis of the MAZI pilots' efforts to inform best practice.
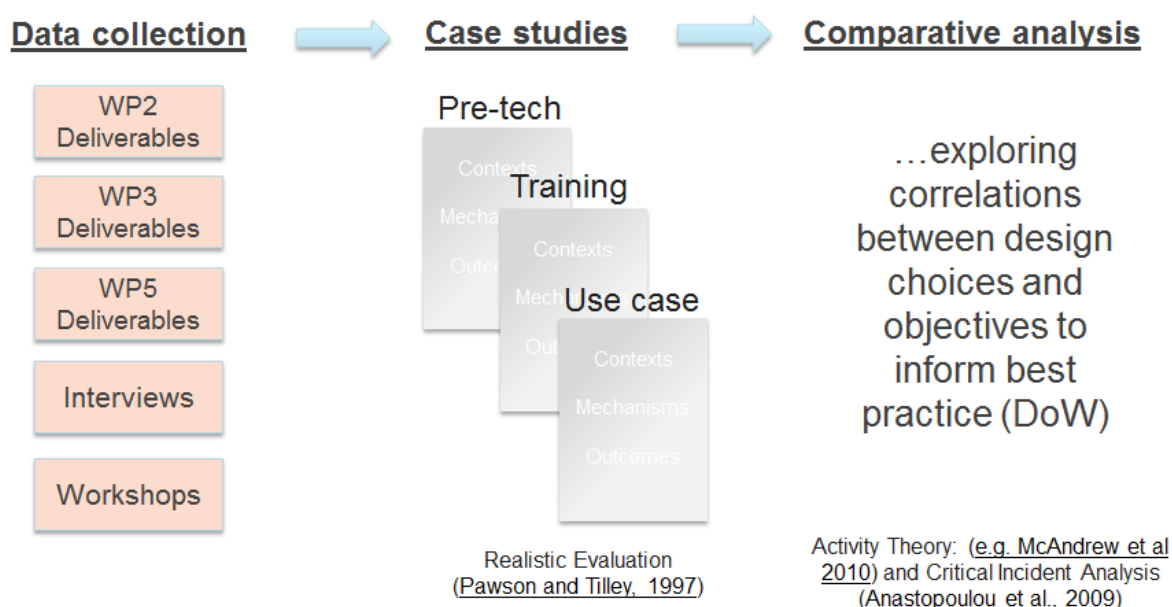

Figure 3: Flow of information within the analysis methodology for the comparative evaluation of the MAZI pilots.

Figure 3 illustrates the flow of information within the analysis methodology for comparative evaluation; moving from: 'Data collection', to the development of 'Case studies', to a 'Comparative analysis' of the correlations between design choices and objectives of the MAZI pilots to inform best practice. The figure uses the example of how three case studies (at the 'pre-tech', 'training' and 'use case' stages) are informed by various sources of data and how developed case studies are then used to inform the comparative analysis of the MAZI pilots. The three case studies in Figure 3 were chosen as examples as these represent three stages that we have observed that publics have been engaged in as they move from being complete novices to DIY networking to proficient users of the MAZI toolkit. In practice, a bank of case studies will be generated representing many different stages and trends that can be used to compare how the different pilots contribute towards the development of the MAZI toolkit as they pass through their different phases (Figure 1, p32). In Section 6 we present two case studies as examples to illustrate the shape and focus these case studies will form.

At the data collection stage (Figure 3) the following sources are informing the comparative evaluation:

Work Package 2 (WP2) deliverables: pilots' reporting on the progress and evaluation of the pilots and the success of tools such as the six principles of engaged research (6Ps) and community mapping for the consortium partners to structure their planning and reporting of activities with publics.

- Work Package 3 (WP3) deliverables: pilots' self-reporting on their experiences of the opportunities and barriers for interdisciplinarity both within and between the pilots.

- Work Package 5 (WP5) deliverables: summaries of insights gained from project meetings.

- Semi-structured interviews: pilots reflections on their definitions and measures of success; and the success and failures of carrying out interventions to engage publics with DIY networking.
- Workshops: project partners coming together to reflect on the relative success and failures experienced using different method to engaged publics with DIY networking.

Document analysis (Bowen, 2009) and thematic analysis (Braun and Clarke, 2006) are being used to interrogate the text within the deliverables and transcripts. Insights from the data analysis are being captured as case studies of interventions that pilots have used to engage publics with DIY networking. Interventions designed to engage publics with DIY networking and the MAZI toolkit have been characterised by identifying information relating to the context, mechanisms and outcomes.

5. Data collection

In D3.8 we explained how we are using a series of strategies for gathering information from pilots and the wider consortium. We negotiated the use of a set of high level lightweight instruments to provide pilots with ways of structuring their collection of secondary and primary data, whilst maintaining local diversity. In this section, we describe the relative value of each source of data and the techniques we are employing to gather information relating to the contexts, mechanisms and outcomes for a variety of pilot interventions.

5.1 Secondary data collection

Figure 4 illustrates the points at which the secondary data collection has been carried out and how this is coinciding with the three versions of the comparative evaluation of the MAZI pilots (D3.8-10). Numbers on the horizontal timeline represent project months, from month 3 (March 2016) to month 36 (December 2018).
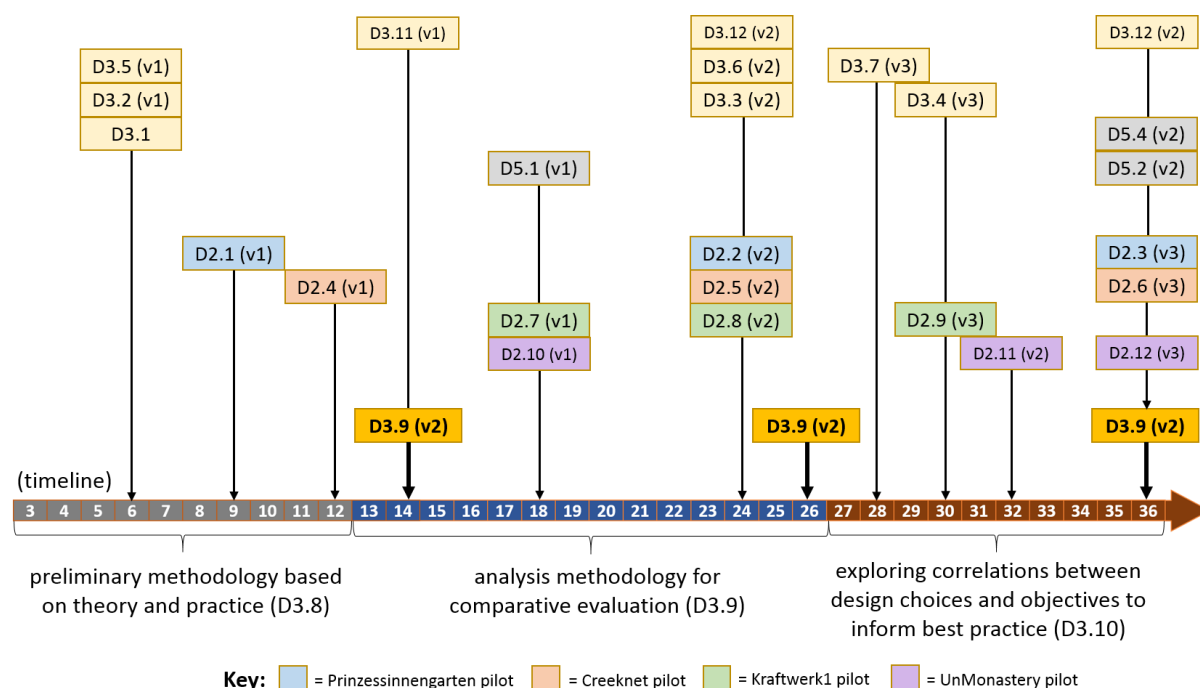

Figure 4: Timeline illustrating the schedule of deadlines for the WP2, 3 & 5 deliverables being used as secondary data for the comparative evaluation of the MAZI pilots (D3.8-10).

The following subsections describe the different secondary sources of data collection being used in the comparative evaluation.

5.1.1 Pilots' design, progress and evaluation (WP2 Deliverables)

Each of the MAZI pilots are required to submit three versions of a deliverable to report on the progress, design and evaluation of the activities they have carried out to engage publics with DIY networking, and the MAZI toolkit and its development. Figure 4 illustrates the timing of these deliverables and how they coincide with the three versions of the comparative evaluation of the MAZI pilots (D3.8-10). To date there have been two versions submitted by three of the pilots. The fourth pilot, hosted by UnMonastery, started in mid-2017 so they are not due to submit the second version of their deliverable until August 2018 (month 32 of the project).

To enable comparative evaluation of the different pilots, partners were asked to use two structuring methods to report on their activities: (1) The 6Ps (six principles of engaged research) and (2) community mapping, capturing snapshots of progress across the duration of the project.

Six principles of engaged research

To ensure pilots were reporting against similar themes, in the WP2 deliverables we requested pilots to report against the six principles of engaged research (6P's: Holliman et al. 2017; 2013), providing a useful structuring mechanism and set of prompts to ensure pilots pay due consideration towards:

1. *'Preparedness'*: identifying local contexts, understanding of the challenges to be faced, the researchers' preparations for dealing with these challenges.
2. *'Politics'*: understanding the local social and political contexts in which the research would be carried out.
3. *'People'*: identifying the people that will be involved or affected by the work: the researchers, the community partners with whom we engaged and any other participants that may be affected.
4. *'Purposes'*: clarifying the aims and objectives of the research from the perspective of MAZI, the participants involved and other stakeholders.
5. *'Processes'*: pinning down the approach and the methods of data collection and techniques of analysis used to evaluate impacts.
6. *'Performances':* considering what was found and the extent to which this met the objectives of the research.

The 6Ps has proved a valuable means of framing the the focus of the WP2 deliverables. The pilots have used these to reflect on common aspects of their progress and evaluation. Examples of such practices can be found in (Deliverables 2.1-2, 4-5, 7-8 & 10).

Community mapping

We agree with Parker (2006) who defines community mapping as "*a map produced collaboratively by residents of a particular locale, often featuring local knowledge and resources*." Community mapping has proven to be an important tool for project partners to understand the physical and social relationships characterising their pilots. Two dimensional (2D) conventional maps have helped the pilots to engage communities in conversations about the historical and cultural significance of physical and social connections. Pilots have also experimented with using mapping software enabling interactive representations (e.g. illustrated in D2.5 & 2.7), and revealing unexpected boundaries and potential bridges for furthering relationships between otherwise unrelated groups (see the community mapping case study in section 6).

5.1.2   Cross-fertilization events (WP3 Deliverables)

The cross-fertilization events (Task 3.3; DoW, p.21) are offering the pilots opportunities for coming together and engaging in workshop-type settings to share successful strategies for engaging publics with DIY networking, the MAZI DIY-networking toolkit. The processes followed by each of these events and general evaluation insights have been reported elsewhere (D3.11-D3.13). Thematic analysis is also being carried out on the interview transcripts and minutes from the project meetings, cross-fertilization events and the impact these had on the pilots' ability to better engage their publics with DIY-networking and the MAZI toolkit.

5.1.3   Project meetings and WP5 Deliverables

Attending the project meetings has provided access to updates on pilot activities, partners' approaches and their perceptions of opportunities and/or barriers to progress and evaluation. The meetings are offering insights not found in WP2 or 3 deliverables, such as factors affecting the success and challenge of deploying the MAZI toolkit and contributing towards its development. Document analysis is being used to review insights captured in WP5 deliverables, formally reporting on insights from these meetings.

5.2 Primary data collection

Figure 5 illustrates the points at which the primary data collection has been carried out and how this coincides with the three version of the comparative evaluation of the MAZI pilots (D3.8-10).
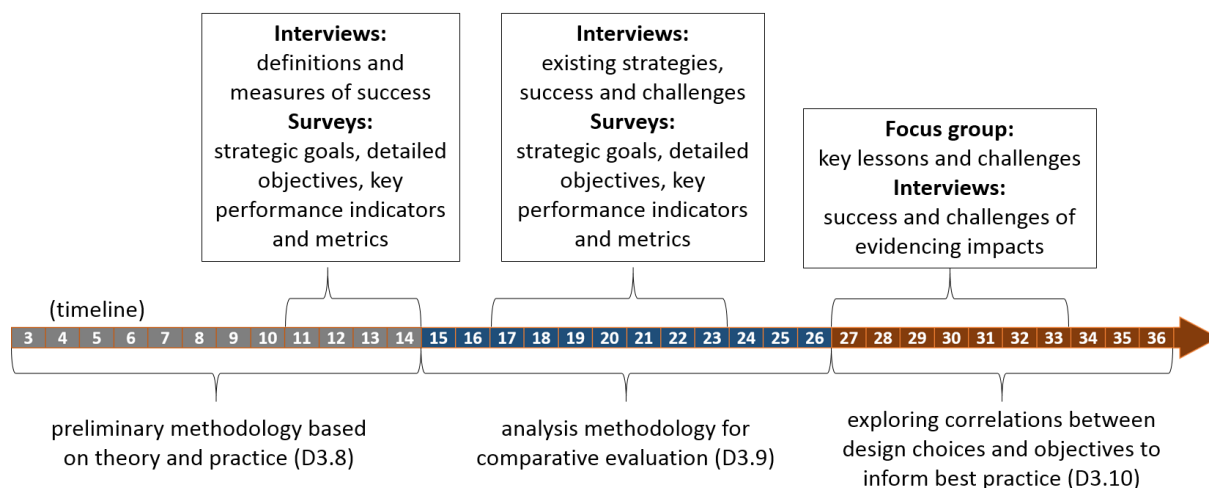

Figure 5: Purposes of the three versions of D3.8-10 along project timeline (as stated in the project DoW), with text in boxes showing the points of planned primary data collection.

The pilot surveys, semi-structured interviews and focus group are described in the following subsections.

5.2.1 Pilot surveys

In the project DoW strategic goals, detailed objectives, key performance indicators and metrics for each of the pilots were stated. At the end of Year 1 The OU designed and carried out a survey asking pilots to reflect if and to what changes had occurred (see D3.8). At the start of Year 3 pilots were asked to review their responses to the first survey and provide an update and a rationale for any changes. The table in Appendix A shows a table with the pilots' updated responses.

5.2.2 Semi-structured interviews

Interviews have been used to carry out periodic prompting of questions to stimulate reflections from partners on their changes from original plans relating to the design, progress and evaluation of their pilot (Figure 5).

At the start of the project it was recognised that some of the terminology (e.g. 'Key Performance Indicators', 'Metrics') used in the project's DoW to describe strategy for carrying out the comparative evaluation had created a linguistic divide between partners. To address this, semi-structured interviews were used to understand how pilots were defining success and how they intended to measure this success (see D3.8). Then towards the latter end of 2017 and early 2018 the process was repeated by asking project partners to reflect on their experiences and to explain what, how and why things changed regarding the progress, design and evaluation of their pilot. Participants were asked to describe activities that they considered to be particularly important and to explain how their experience of different interventions varied across the pilots.

Interviews were carried out at convenient points when partners met face to face at regular project meetings, cross fertilisation events etc. and remotely via Skype. Most of these interviews were held with individuals but group interviews were carried out where opportunities arose. With permission of the partners, all the interviews were audio recorded, transcribed, and thematically analysed to identify insights that could be used within the comparative evaluation of the MAZI pilots. (See Appendix B & C for an example of an interview schedule aimed at identifying an intervention's contexts, mechanisms and outcomes.)

5.2.3 Focus group

To gain the pilots feedback on the analysis of the case studies a focus group will be held in the summer of 2018 with project partners. A selection of "generative mechanisms", CMOs and MRTs related to specific case studies will be shared and participants will be asked to recall and describe the events. Participants responses will be audio recorded, transcribed and analysed to identify critical incidents associated with the success and failure of the interventions discussed. Insights from this focus group will be used to update relevant MRTs initially developed from the analysis of the case studies.

6. Case studies

This section includes two case studies as examples of some the insights being gathered through the lens of context, mechanisms and outcomes. Section 6.1 contains an overview of the pilots' experiences of using community mapping. Section 6.2 contains an example of a 'pre-tech' intervention used by the UnMonastery pilot to engage publics with DIY networking and the MAZI toolkit in spite of the technical challenges they experienced.

6.1   A community mapping case study - reflecting on the pilots' experiences

The following case study was created by reviewing the contents of the WP2 deliverables and discussions held at cross-fertilization events and project meetings.

Context

MAZI pilots initially incorporated the use of community mapping into their recording processes for identifying the geographical spread and relationship networks of participating groups and organisations in their pilot study. These have been used within workshops as engagement tools and boundary objects, and are forming a dynamic record of interactions. The pilots have also been exploring the use of the web-based relationship-mapping to enable the generation of representations using platforms, which help comparative analysis.

Mechanisms

Community mapping has acted as a tool for project partners to gain a better understanding of the social and historical lay of the land. The relevance of the different locations and the number of connections between project partners and the publics they are engaging with DIY networking (see D2.1-2, 4-5, 7-8, 10). This has involved identifying and experimenting with existing community mapping tools for recording and updating community maps. This has generally been successful at building a better understanding of the scale of the challenge faced by each pilot. For example, Figure 6 & 7 are examples of stakeholder maps developed by the Prinzessinnengarten pilot and the Creeknet pilot (respectively) to reveal the heterogeneous assemblage of actors, initiatives, ideas and processes they were working with (see D2.1 and D2.4).
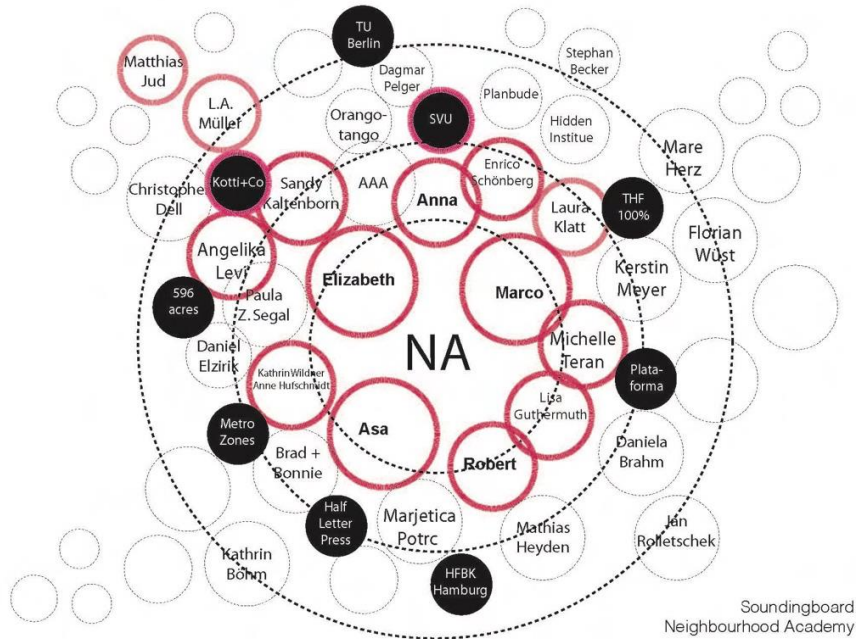
Figure 6: Map of stakeholders of the surrounding environment of NAk (D2.1).
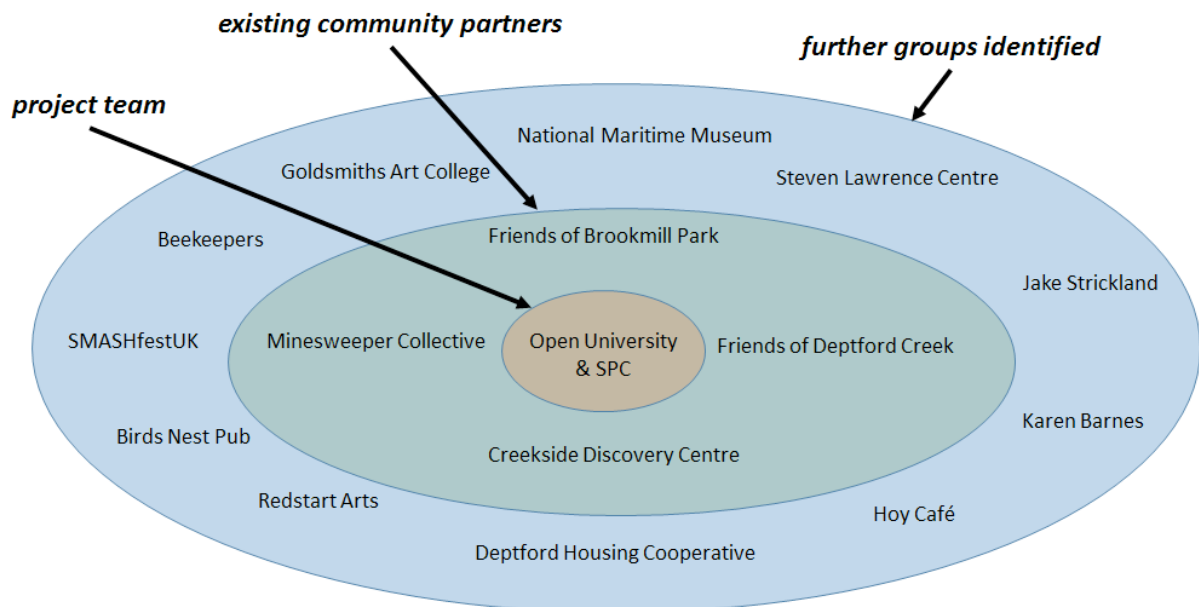

Figure 7: Map of stakeholders showing the different actors engaging in the Creeknet pilot (D2.4).

The provision of paper maps and the invitation to annotate with sites of interest, controversy, or opportunity focussed participants' conversations and stimulated storytelling: maps acted as valuable and mutable boundary objects. There has been a process of trial and error with pilots experimenting with different methods to engage members of their communities.

In the Creeknet pilot, for example, official maps were found to be inadequate descriptions of the area, which led to discussions both in the research team and with community participants about what representations showed sufficient detail, and how visualisations needed to be improved through annotations. For example, the

UK standard Ordnance Survey map of the Deptford Creek area foregrounds roads and urban features and minimises the presence of the Creek, which is central to the Creeknet pilot's narrative and practical focus. The Port of London Authority (responsible for water courses in the London area), on the other hand, publish a map that while providing great detail of the Creek itself, sketches only the immediate surrounding streets and crucially, only covers the Creek as far south as it is navigable by boats, and hence does not describe all of the area where this pilot is seeking to collaborate. Annotation of existing maps provided insights and a focus for conversations around community stories and challenges: see Figure 8 for an example.
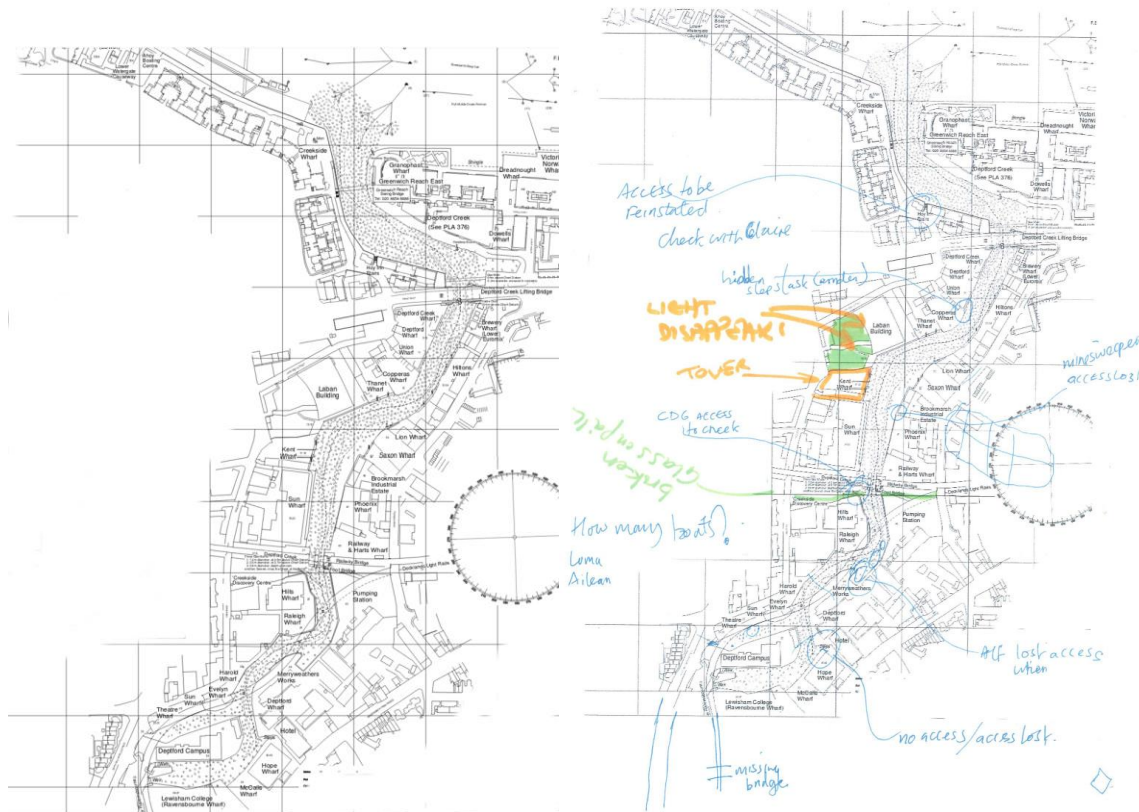

Figure 8: Port of London Authority Map of Navigable reach of Deptford Creek (right) and a community annotated map of Deptford Creek (left).

In addition to the value offered by engaging local participants in community mapping activities, this approach also acted as a boundary object between the research partners (OU and SPC). Annotation of maps enabled a better understanding of challenges identified by SPC that might affect the success of the MAZI work, and helped give the OU a better understanding of SPC's perspective on the work (hence supporting interdisciplinary working between the two partners). For example, responding to the MAZI aim of reinvigorating the OWN Wi-Fi infrastructure to support community networking across Deptford, James Stevens sketched the current reach of the network and identified corridors of potential reach of radio transmissions from SPC's office (Figure 9, left).
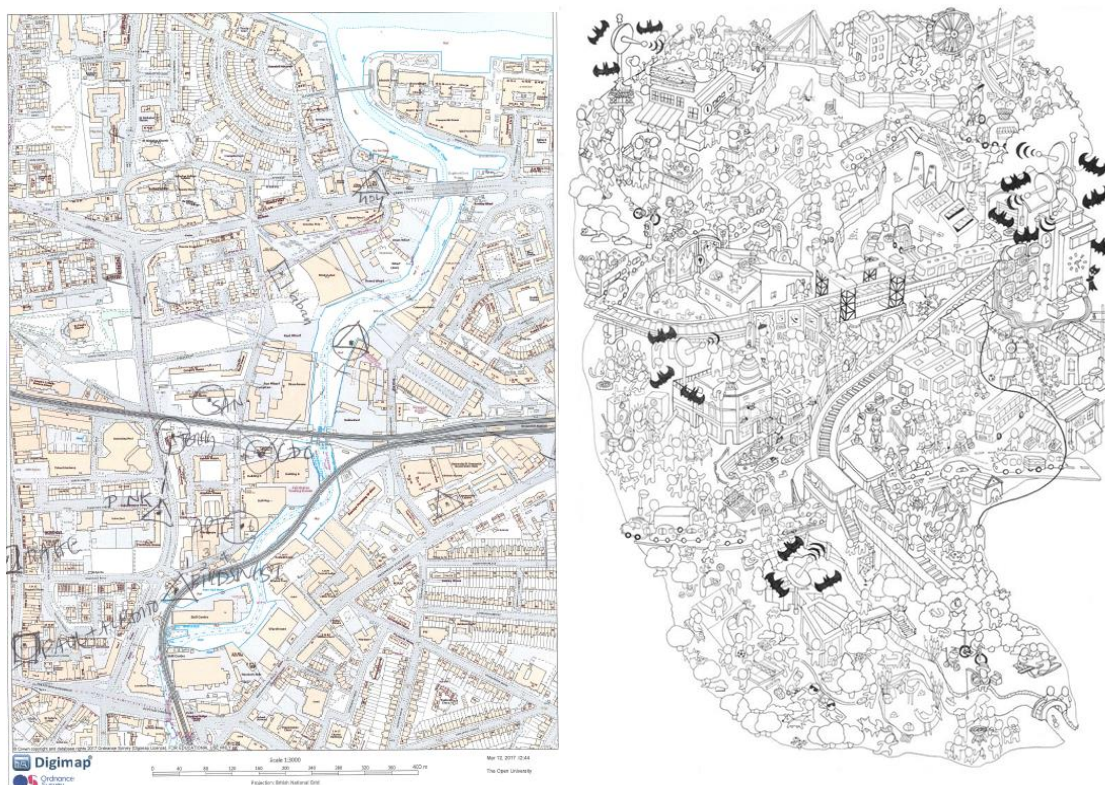
Figure 9: SPC's annotated map showing current and prospective nodes across Deptford of the Open Wireless Network (OWN), highlighting challenges of new high rise apartment blocks (left) and artists' representation of the Creekside area and MAZI DIY networking activity, with bats used as symbols of nodes (right).

In Figure 8 (left) the 'funnel' of diverging lines from centre right of the map shows the radio visibility from SPC's office: the locations that can be directly connected and Figure 9 (right) shows an artist's impression of the same relationship, which was created in support of the Creeknet cross-fertilization event.

2D maps were valuable boundary objects for facilitating conversations but in the case of Creeknet, for example, they did not show the height of buildings that may block radio signals. As urban developments continue and more high-rise apartment blocks are built, the funnel narrows and SPC have to think creatively about how to hop between current or planned wireless nodes avoiding shadowing buildings to ensure connections can be maintained across the locality. Moreover, in a practical sense the benefit of 'community generated maps' over 'official representations' was something that pilots experienced. The UnMonastery team, for example, reported successfully engaging residents in the Kokkinopilos village by painting a map of the village and the surrounding areas on a large board, and inviting residents to add notes and illustrations to make reference to points of interest at different locations.

In an attempt to address the limitations of 2D maps and the limitations of having to use 'official representations' of physical representations the MAZI pilots also explored the use of digital community relationship maps. In Year 1 pilots explored the use of Kumu (http://www.kumu.io) (e.g. Figure 10)
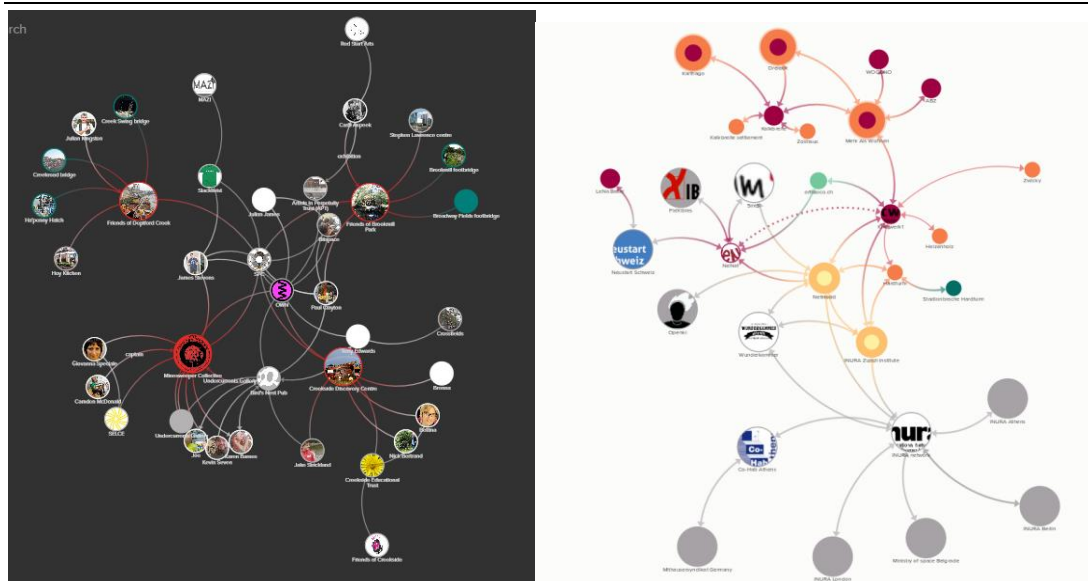
Figure 10: Illustrating the use of Kumu for mapping out the relationships formed by the Creeknet pilot (left) and the Kraftwerk1 pilot (right).

Email invitations were circulated as well as requests at MAZI meetups for direct contributions, but the pilot teams reported only receiving additions during meetings where the map was being displayed. To encourage further participation, the Creeknet pilot team, for example, explored using an email triggered web tool, sumApp (http://greaterthanthesum.com/sumapp/) that enabled the construction of a customisable web based template, inviting recipients to identify who they knew, and why. From this linked data the software could generate linked data that would create or extend a Kumu social relationship map (described in D2.4, section 6.1). A training workshop was attended and an invitation to contribute to a relationship map was circulated to members of the community. However, there was little community response to the invitation. This work of finding ways of engaging communities in the co-creation of these maps will continue in the final phases of the pilots.

The Creeknet pilot has also explored the conversion of the existing Kumu map to an Onodo map (https://onodo.org/) (Figure 11), a relationship mapping tool developed by an EU FP7 funded project that SPC made contact with at the Digital Social Innovation Fair, Rome in February 2017 (https://dsifair.eu/). The rationale for the Creeknet pilot switching from the Onodo to the Kumu mapping software was that the former is proprietary and the latter is open source. Using the Onodo mapping software was also a good opportunity to interact with and learn from another EU CAPS project.
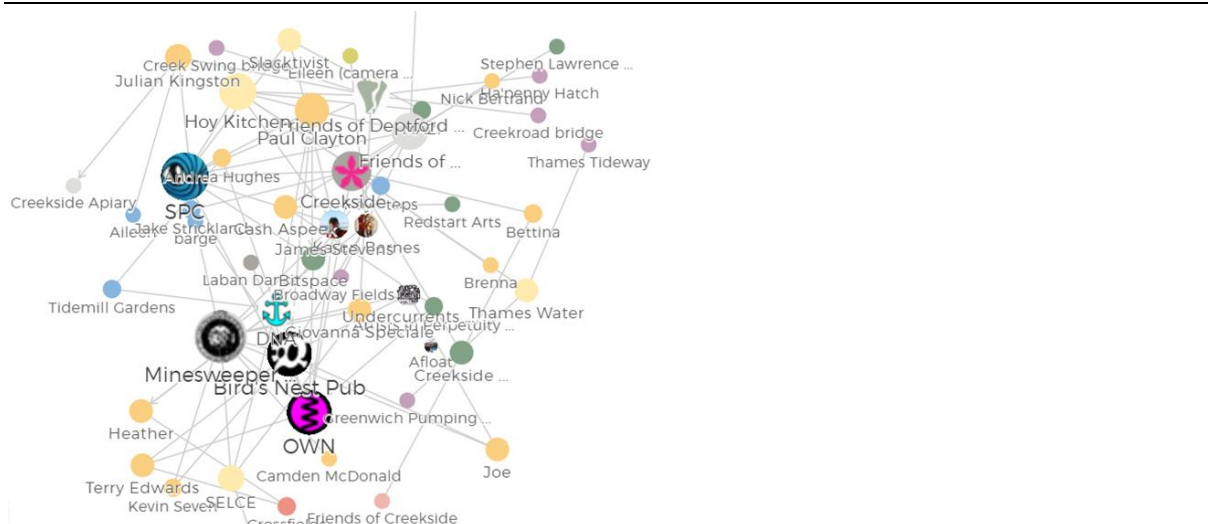
Figure 11: Illustrating the use of Onodo for mapping out the relationships formed by the Creeknet pilot.

Additional methods that have been explored include photogrammetry. A research group at Central St. Martin's School of Art contacted SPC's with an offer of exploring opportunities to create 3D visualisations of the Deptford Creek area, an alternative approach to enriching community generated mappings of local areas, and the potential for this will be explored in Phase 4 of the pilot.

Outcomes

As a project MAZI is explicitly seeking to support collective awareness. Community mapping has taken on a number of forms for the MAZI pilots. Stakeholder maps have helped pilots reveal heterogeneous assemblages of actors, initiatives, ideas and processes characterising their activity. 2D conventional maps portraying official representations have been found to be lacking relevant pilot level information but they have acted as effective 'boundary objects' helping pilots and their publics to overcome differences in understandings; creating trust and acting as a focus point for opening up conversations and opportunities for generating collaborative thinking and solutions. During the course of the project the focus has shifted towards the use of software. This is proving attractive because it offers scope to make figurative and literal boundaries visible, and enabling multi-layered representations that reveal unexpected boundaries and potential bridges for furthering relationships between otherwise unrelated groups. This also shows potential for empowering local groups to use such platforms for fighting neighbourhood causes, for example to purposefully engage in planning decisions having an impact on their rights of residency, and to better understand how financial community contributions by developers (e.g. UK planning 'S106 agreements') is being spent.

A key challenge, however, continues to be an ongoing process of encouraging community participation in this activity, which requires a learning curve and investment of time, through building trust and confidence in our activities. In Year 3 of the pilots will be continuing to explore different ways of updating community mapping, with the intention of eventually handing over control of these maps to members of the communities being engaged, so the maps become a local resource.

6.2 A 'pre-tech' case study - turning the MAZI toolkit inside out

The following case study was created by reviewing D2.10 and transcripts of interviews carried out with members of the UnMonastery pilot. The final text was co-authored with a key member of the UnMonastery team that lead the Kokkinopilos Testlab.

Context

It's important to recognise that UnMonastery were not in Kokkinopilos primarily to carry out the MAZI project. In exchange for the use of a local building UnMonastery had agreed to help the village collect local knowledge and points of interest to build an accessible information structure that would attract more visitors, but at the same time keep the spirit and mystery of the village. The idea was to have most of the information UnMonastery could find to be collected on a local MAZIzone, have some information available on the local community network (covering 13 villages) and selected information posted on a website dedicated to the village, in Greek and English.

In the spring of 2017, UnMonastery (as a group) learned how the toolkit worked, and generally about networking. They set up a MAZIzone and used it for various purposes but most importantly for keeping a diary. In the summer of 2017, there were two phases of the work. In July, UnMonastery a number of issues setting up and running the space. However, a MAZIzone was set up and a diary was started. For example, one member started the Herbarium project (a WordPress site featuring local plants and their healing and nutritional qualities) and another set up a map of the area also using WordPress.

When UnMonastery returned to Kokkinopilos on the 1st of August, they found that the two Raspberry Pi's that hosted MAZIzones were not accessible. There was an almost complete change of personnel from July to August, so there was an inevitable loss of some of the tacit knowledge. It appeared however that the challenge was that something was wrong with the SD cards being used in the Raspberry Pis. UnMonastery was able to retrieve the data from the damaged SD cards and there was an attempt to reinstate these zones again several times, but each time the cards got corrupted within a couple of days. They set up a whole new MAZIzone and taught the newcomers how to use the Etherpad and the interview tool, which was really well-suited for the work UnMonastery were doing. But none of these turned out to be reliable and easy to use. UnMonastery spent days just struggling with the technology, and in the end, they had to accept they didn't have the time or resources to resolve the issues: "[*the*] *administration panel [on the toolkit] page would just keep reloading, reloading, reloading, so it would never settle. So it was impossible to do anything with it. And it became a major, major source of frustration*.".

After concluding they had done all they could to resolve the technical issues the UnMonastery team unplugged the Raspberry Pis and decided to experiment with setting up a walk-in MAZIzone ("*I unplugged everything and I proposed that we make a MAZI, a working MAZIzone. We had a room they used for working.*"), described in the following section. At about the same time they were joined by two native Greek speakers, which meant that they could progress their plans for engaging residents in the village. The UnMonastery team were confident they knew what types of information residents were interested in sharing because by this point they had been talking to the residents since the summer of 2016. Most of the information they set out to capture was analog but there was also some digital information in the form of pictures, audio files from the interviews and GPS points taken to represent the locations UnMonastery had visited.

Mechanisms

Essentially the walk-in MAZIzone was the primary mechanism, not just part of the context. UnMonastery had to make an exerted effort to make the MAZIzone work tangible both for the 'ethnographers' and the village people. Translating what had been found to an analog archive first, and then into an analog book (also a mechanism, kind of the 'local' aspect of the MAZIzone archives) and a website (the networked aspect of the MAZIzone).

The analog nature of the walk-in MAZIzone and the dedication of the UnMonastery pilot to "offering analog alternatives"; the creation of something novel that succeeded at bridging representation. This created opportunities for publics who perceived the technology to be a barrier to interact and engage with the tools in the toolkit. For example, recordings and documents from the interviews carried out with local residents were put on a wall in the room. The Guest Book was replicated by positioning a green board in front of the building with a message in Greek that read: "*If we are not here, we would still like to take the interview with you so please leave your name and phone number or your address so we can just come by when we are back.*". Hence, the walk-in MAZIzone made the affordances offered by the toolkit more tangible ("*it became visible what we are doing and it became much more tangible for ourselves [...] it was much more intuitive than struggling with the technology*"). The analog nature also acted as a safe space to play *"...it made us more careful about thinking ... about what to put online, what not to put online, how to protect the village or these experiences"*.

Key individuals and their expertise also acted as a mechanism. Cross-fertilization between pilots also played an important role. One of the inspirations for the walk-in MAZIzone came from a previous visit from a member of the Creeknet pilot who introduced them to the notion of "pretotyping". Also a visit from the Creeknet pilot after the walk-in MAZIzone had been set up was instrumental for creating a website for the village where some of the content from the walk-in MAZIzone could be uploaded. The arrival of two Greek speaking UnMonastery colleagues was essential for inviting residents in the local tavernas and creating signs in Greek to guide visitors around the contents of the walk-in MAZIzone. Finally, the walk-in MAZIzone would not have become a reality if it had not been for the initiative, tenacity and creativity of the UnMonastery team. In the end UnMonastery used their skills as artists to collect everything analog into book and everything digital onto a memory stick. At the end of their visit they held a mini ceremony and left the village with a cardboard box containing all the outputs from the walk-in MAZIzone.

Outcomes

The walk-in MAZIzone was well-received. In-house it was also well-attended - everyone started to use it actively for their work. Even among the 'unMonastery people' there were many who initially were not at all interested or inclined to use the conventional MAZIzone. The walk-in MAZIzone, however, permitted UnMonastery and the residents to play with the components of a MAZI toolkit as they would a physical toolkit; removing the technical barrier, making it easy to explore the function of each of the tools. It made the experience more enjoyable for the UnMonastery team and created an easier way of gaining buy-in from their publics: "*I loved it. I really enjoyed. I think we all really enjoyed this pre-tech part of it. I think it's much, much easier to involve the kind of diverse groups that the MAZIzone is supposed to keep. For people who are really non-tech. I say it's a very, very easy kind of buy-in. If it's in the community, I think this is ... I mean I definitely recommend for any Mazi project to start it like that.*"

In the end, even the sceptical members of UnMonastery decided the MAZI toolkit was useful, even in the analog format. The offline and analog nature of the walk-in MAZIzone created a safe space for UnMonastery to explore the types of data they could expect to receive from residents and to consider what would and wouldn't be appropriate to share with a wider audience. Moreover, the UnMonastery team felt that had the hardware been more stable, they were certain that they would have used it. They particularly engaged with the Interview tool, for example.

With the village, the walk-in MAZIzone was more like a display of UnMonastery's work, but because the Greek speaking colleagues were enthusiastic, they could use it as a backdrop for their interviews. UnMonastery did in the end build the first version of the website using the information gathered into WordPress (within a MAZIzone), and then after discussion with the village, put some of the information online. This continues to grow, after getting in touch with Kokkinopilos people who don't live in the village anymore and have lots to say.

The test lab was a success because the residents in the village invited UnMonastery to come back to the village and continue with the work they had started: "*it was really successful because we are invited back. If we wanted to go back, we could [...] They were very happy with what we did [...] It's much more successful than [a previous study] because [the residents] never wanted us back ever. And here they do*"

7. Comparative analysis

D3.10 (version 3 of the comparative evaluation of the MAZI pilots) will report on the results of the comparative analysis using the approach outlined section 4-6 in this deliverable. This will involve a full blown comparative analysis to explore correlations between design choices and objectives and this will be used to inform a set of best practices to be included in the MAZI DIY toolkit (Task 1.5).

A bank of case studies and CMOs will form the basis of a cross-case analysis. Subsets of case studies representing activity systems will be analysed using activity theory to reveal conflicts and contradictions between the semiotic and technological levels of activity systems (Figure 12) (e.g. McAndrew et al., 2010; Scanlon et al., 2015).
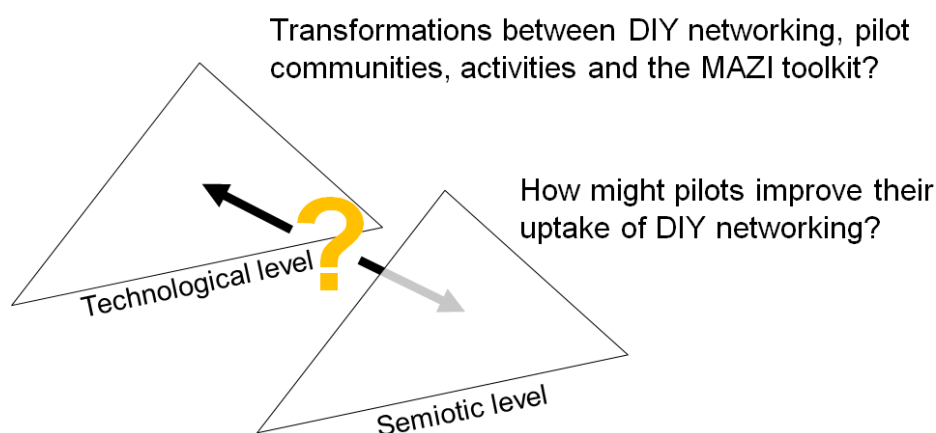

Figure 12: Illustration of using activity theory to identify contradictions between technological and semiotic aspects of an activity system.

As we progress with our analysis insights will be used to develop MRTs that enable the generation of propositions about how a local MAZI administrator, say, should engage publics with the MAZI toolkit across different contexts.

To verify the findings of the comparative analysis representatives from the different MAZI pilots will be invited to take part in a focus group. For example "generative mechanisms", CMOs and MRTs will be presented to the pilots and they will be asked to identify incidences that reflected learning breakthroughs and breakdowns (e.g. following the methodology described by Sharples, 1993 and Anastopoulou et al., 2008). This will help us represent the successes and failures of the interventions respectively. Analysis of participants' responses will also be used for updating relevant MRTs.

8. References

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MAZI ■ Grant Agreement 687983   Page **28** of **35**

D3.9 Comparative evaluation of the MAZI pilots (version 2) ■ March 2018
H2020 ■ Research and Innovation project
H2020-ICT-2015-10 ■ Collective Awareness Platforms for Sustainability and Social Innovation ■

9. Appendix A: Results of survey on objectives and measures

Table 3: Partners response to a survey administered at the beginning of Year 3 asking pilots to confirm the status of their strategic goals, detailed objectives, key performance indicators, metrics, examples of positive outcomes, and examples of useful ways of measuring success.

	Neighbourhood Academy (UdK /CG)	CreekNet (OU/SPC)	Kraftwerk1 (NH/INURA)	UnMonastery (NU/UM)
Strategic goals	G1: Piloting MAZI in the bottom-up development of community-oriented spaces that link together social, cultural and ecological aspects of our urban life. G2: Explore how MAZI can foster the cross-fertilization of local initiatives G3: Locating local engagement and activism as spaces of learning G4: Explore how the use of DIY networks can trigger a discussion on Digital Rights to the City	G1:Enabling community groups along Deptford Creek to capture and share information about activities, local challenges, and generate discourse G2: Exploring the extent to which DIY networking technologies can facilitate this communication process G3: Investigating the value of adding local web based services to the existing SPC wireless network G4: Playful exploration of current state of DIY networking tools and services currently available to understand potentials for implementation	G1: Support existing participatory process in Kraftwerk1/NeNa1 G2: Act as triangulators/ facilitators/ catalysts in collective awareness processes in Kraftwerk1 G3: Develop rules and guidelines for the use of the MAZI toolkit in social processes G4: Collectively produce knowledge on lessons learned from 20 years of Kraftwerk1 and from the first steps of NeNa1, to be used in different environments outside Switzerland. G5: Participate in the current development of an operational concept for future cooperative housing projects (NeNa1), including network and social infrastructures	G1: Exploring the extent to which DIY networking technologies can be relevant and useful to the work of unMonastery, particularly the contexts of "temporary communities", and working "alongside local communities to contribute towards the identification and dissolution of local social challenges". G2: Exploring the use and design of DIY technology toolkits, with a particular focus on collective and participatory activities. G3: Supporting the work of unMonastery in accordance with the unMonastery aims, in order to contribute to knowledge and understanding of this practice.
Detailed objectives	O1 (G1): Test how MAZI can be used to make information, networks and experiences of the Neighborhood Academy accessible to a broader audience in the garden and neighbourhood. O2 (G1): How can MAZI foster communication between different actors concerning specific spaces or neighbourhoods. O3 (G2): Other local initiatives become interested in MAZI and local DIY networks. 05 (G4): Initiatives cooperating in the project gain interest in the relationship between rights to the city and digital ownership.	O1: To see the extent to which information exchange is facilitated by groups self-publishing using the MAZI toolkit O2: To work with an environmental organisation to see how DIY tools can improve their collection of data and engagement with local schools O3: To understand the take-up and use of MAZI tools when incorporated into neighbourhood locations	O1: Engage residents in interactions through the MAZI toolkit both inwardly (sharing information between residents) and outwardly (sharing knowledge with outsiders building new similar projects) O2: Organize events that bring together experts in cooperative housing projects with those interested in creating new projects in different contexts O3: Bootstrap the creation of a network of experts for translating Zurich's cooperative housing models for the Greek reality. O4: Include knowledge developed in MAZI at NeNa1's "operational concept" documents on technology for sustainable urban living	O1: To develop, through co-creation, scenarios of possible and potential use of DIY networking technologies within the unMonastery context. These scenarios are intended to reveal themes and understandings, rather than necessarily being practical or functionally realistic i.e. using critical/speculative design methodology. O2: To understand and articulate good practice and design recommendations for the development of participatory DIY technology toolkits. O3: To understand and articulate the potential role of DIY networking for unMonastery, particularly in addressing local challenges.
Key performance indicators	KPI01 (O1): How often and how is the NAk MAZI used within the NAk KPI02 (O1): Do people outside the NAk-core (i.e. teachers, residencies, public) use or want to use the MAZI to collect/archive information?	KPI1: How often do groups use the MAZI publishing tools? KPI2: What do visitors to the environmental centre think about being able to take a live digital record of the species they've	KPI1: Participation of people in organized events and further engagement in related activities KPI2: Engagement of Kraftwerk1 residents in the MAZI zones deployed on the premises	KPI1: Publishing and presenting, through appropriate outlets (e.g. website, exhibition), clearly articulated and understandable scenarios that generate useful feedback.

	KPI03 (O1): Is the NAk MAZI being used as a tool for learning? KPI04 (O1): What do visitors of the Laube/ Prinzessinnengarden think about the presentation of Information from the MAZI? KPI05 (O2): What types of applications have been deployed? KPI06 (O3): Do other initiatives show an interest in MAZI? KPI07 (O3): Do other initiatives decide to deploy own MAZIs? KPI08: (O5): Are topics of digital rights to the city being discussed in cooperating initiatives?	seen when they are out and about? KPI3: What do local history groups think about being able to add their information to a DIY network based tourist trail around Deptford Creek?	KPI3: Diversity and richness of information shared through hybrid interactions around the MAZI Zones. KPI4: Impact of MAZI activities in the overall quality of participatory processes KPI5: MAZI team's participation in related initiatives and working groups outside our project KPI6: Successful integration of MAZI concepts in NeNa1's operational concept documents. KPI7: Actions and events demonstrating the creation of a network of experts participating in the Greek project. KPI 8: Exploring the use of MAZIzones at INURA conferences in Bucharest, Havana and Warsaw including outreach to communities and groups.	KPI2: Production and dissemination of knowledge on good practice in DIY technology toolkit design and participatory use. KPI3: Production of knowledge that is considered relevant and useful to the unMonastery communities.
Metrics	M1 (KPI01): How many interviews have been made in the NAk MAZI? M2 (KPI01): How many interviewers/administrators? M3 (KPI01): How many receivers of the NAk-MAZI? (guests logging on) M4(KPI01): What uses of NAk-MAZI have been recorder? (listening to interviews, reading synopsis, looking at attached files etc.) M5(KPI02): Number and role of different 'interviewers' M6(KPI02): Number of contributors of information (can also be just texts, photos etc.) M7 (KPI06): How many interested initiatives have contacted pilot-team for more information? M8 (KPI06): How many initiatives/org have participated in hands-on activities? M9 (KPI06): Number of people/initiatives taking part in WS M10 (KPI07): How many initiatives deploy own MAZIs	M1: How many people are downloading the MAZI toolkit? M2:How satisfied are people with the environmental data they are getting from the MAZI toolkit (could be either a number on a scale, or interpreting their response in an interview) M3: Would people recommend the tourist trail to other people?	M1: Number of participants in events M2: Engagement ratio (how many people from those interacting with the pilot keep participating in similar actions and related communications) M3: Number of interactions during the MAZI Zone deployments (e.g., letterbox cards) M4: Survey the social acceptance of the MAZI technology and its role toward our strategic goals (participation and collective awareness) M5: Number of related events, working groups, networking activities outside the project, in which MAZI team organized or invited to participate M6: Dissemination activities (blog posts, tweets, articles, working documents) and their corresponding impact M7: The size and diversity of the network of experts being created around the knowledge transfer project.	M1: The quality of feedback that is recorded in response to the developed scenarios. M2: Measurements of "reach" of published resources on toolkit design. M3: Qualitative feedback from (unMonastery) individuals, gathered through interview and/or other methods.
Examples of positive outcomes	The NAk MAZI is an integral part of the NAk infrastructure. Coordinating team as well as "teachers" of the academy use it as a tool in their work. Another initiative deploys a MAZI and uses it to communicate with the residents around their space. They use it as an information-tool and a broadcaster for their political struggle.	1. MAZIzones deployed on OWN nodes in the Deptford Creek area 2. Self-sustaining network of MAZI-toolkit users (e.g. shown by ongoing attendance at SPC Wireless-Wednesday tech drop-in meetings and evidence that members are both continuing to use MAZI-toolkits in their practices and peer-resolving issues)	A MAZI Zone deployed at Kraftwerk1's "Pantoffelbar" attracts the attention of more than 20 residents whose contributions go beyond impersonal statements and generate dialogue and playful interactions. That is to be measured during the implementation between March-May 2018. . The concept of DIY networking becomes part of the narrative on NeNa1's visions of the use	1. Internal to the project: Indicators and feedback from the unMonastery community that the pilot study work had value. 2. Internal to the project: Reflections on what was learned, and what could be changed or improved for the future, in order to build on the work. (A new BoM; use of the workbooks, revision of unMon toolkit)

		3. Evidence of use of MAZI toolkit extending capacity of one or more groups who have participated in field trials, e.g. ability to self-publish, reaching out to new audiences, engaging new stakeholders/ policy-makers in debate around their challenges.	of technology. Until now, in the 'Koch mit' application booklet (2017 p.19) NeNa1 added the concept of cooperative use of IT, also in terms of shared software and storage space. Currently NetHood is promoting the use of the MAZI zones in the neighborhood for networking small shops. A number of events are organized in Greece toward creating new groups and initiatives that wish to develop a novel cooperative housing model. The monthly meetings of the CoHab and Exarcheia Neighborhood Association. Knowledge transfer on activities of the communities in workshops at INURA conferences. Deployment of the MAZI zones. Successful use of Etherpad in organising workshops, presentations and discussions in remote places of Romania and Cuba. Enhanced access to and use of documents, programme and photos in internet free environments.	3. External to the project: Published contributions to academic conferences and journals. 4. External to the project: Producing/publishing practical and theoretical resources based on the experiences and findings of the pilot study such as good practice guidelines, sets of principles, accessible case study reports, manifestos. Examples: http://urbanixd.eu/documents-publications/
Examples of useful ways of measuring success	(none noted)		See metric, also (from NH notes) - number of citizens engaged in participatory events, in a sustainable way - interest, invitations, similar initiatives both in the local residents' community and in the research networks -research projects, pedagogical dimension of NetHood - collaborations with citizens' initiatives, similar non-profit organizations - successful funding, long- term and growing networks - take up of our ideas/ concepts (e.g., the term DIY networking, right to the hybrid city): scaling through replication - diversity instead of volume - connecting people, networking, bridging research and action - addressing real needs, real life - good people accepting invitations, "endorsement" - sustainability, projects active for a long time - trust (not measurable, but "obvious")	1 & 2. Qualitative and quantitative feedback using interviews and questionnaires. 3. Academic acceptance and citations. 4. Success can be measured by quantifiable measurements of reach, such as downloads, viewing figures, sharing on social media etc. Qualitative measures include positive indicators of influence and use in practice in other situations.

10. Appendix B: Template for a form that can be used for gathering informed consent from interviewees

The following is an example of a template of the consent form that MAZI pilots have used to gain their participants consent to take part in an audio-recorded semi-structured interview.

This was developed in consultation with The Open University's ethics committee.

Dear Participant,

The MAZI project (www.mazizone.eu) is researching the role DIY networking can have for helping communities to foster social cohesion, conviviality, knowledge sharing, and sustainable living. The research activities of the MAZI project include collecting data from participants engaging in each of our four pilots located in Berlin, Zurich, Greece and Deptford.

The core aims of the Creeknet pilot is to "*explore how the MAZI approach and toolkit might support the resolution of local sustainability challenges encountered by groups and individuals working and living in and around the Deptford Creek area*".

The [NAME OF INSTITUTION] is seeking to evaluate the [NAME OF PILOT] through a series of audio recorded interviews and workshops so that benefits and challenges of DIY networking can be identified and built upon in the future.

We would like to seek your permission to include you in this evaluation. Participation is on an entirely voluntary basis, all contributions will be made anonymously, the data will only be kept long enough to allow for final publications (around 2 years after the end of the project), and you can refuse consent or withdraw at any time.

If you have any questions about the [NAME OF PILOT] or the evaluation please contact [CONTACT DETAILS OF INTERVIEWER]. To find out more about the project visit www.mazizone.eu.

Yours faithfully,

[INTERVIEWER'S NAME]

[INTERVIEWER'S NAME]
[INTERVIEWER'S ROLE]
[INTERVIEWER'S EMAIL]
[INTERVIEWER'S ONLINE PROFILE]

Please indicate if you are willing to take part in this evaluation of the [NAME OF PILOT]:

a) I agree to participate in the evaluation research. YES / NO

If you would like us to contact you when the findings from this evaluation are published please leave your contact details below.

Preferred contact: …………………………………………………..

Name: …………………………………………………

Date: …………………………………………………….

Signed: …………………………………………………….

11. Appendix C: Example of a schedule for a semi-structured interview aimed at identifying an intervention CMO

Questions that can be ask in a semi-structured interview to help identify insights that can help identify context mechanisms outcomes configuration (CMOs) that characterise a pilots' involvement in an intervention.

Step 1: Understanding the context that set the scene for the intervention

1. How did Creeknet get invited to participate in the [NAME] event?

2. What was the main theme of the [NAME] event?

3. What was Creeknet's contribution to the [NAME] event?

4. What different publics did you see engage with [NAME] and Creeknet during the course of the day?

NB: The assumption underpinning realistic evaluation is that interventions generate opportunities and/or resources for publics to engage with. We need to capture a picture of what happened prior to the intervention taking place, e.g. the framing of the event, reasons we were there in the first place, who attended etc. This is important to capture because it's these contextual factors that can set the scene and causes particular mechanisms to lead to outcomes (or not).

Step 2: Understanding the procedure for carrying out the intervention

5. What happened, how was it carried out, by whom and who was involved?

NB: We are interested in capturing the mechanisms that are related to the mundane chronological account of what stuff happened, how it was carried out, by whom and who was involved. The interviewee will have just explained the context that led up to the intervention taking place so it shouldn't be difficult for them to talk you through what actually happened on the day of the intervention. This of course assumes they were there on the day. If they weren't or they can't recollect what happened then this is a good opportunity to get the name of the person(s) who should also be interviewed. Ideally we are looking for a chronological account of the different events that took place during the intervention.

Step 3: Understanding the outcomes resulting from the intervention

6. What were the outcomes resulting from Creeknet attending the [NAME OF EVENT] event?

7. Do you perceive there were any outcomes for (A) [NAME OF EVENT], (B) the different publics attending the event, (C) the MAZI project], (D) you, (E) anyone else?

NB: It might be helpful to prompt the interviewee to refer to the cognitive, relational, normative and operational outcomes. We are interested in both the positive outcomes (e.g. benefits, effects and/or changes) and unintended negative outcomes.

Step 4: Identifying 'generative mechanisms' that likely lead to outcomes

8. Do you think there were critical incidences (or forcing mechanisms) that led to these outcomes? (What combination of contextual and/or personal factors led to these outcomes?)

9. Overall, do you think the intervention was as a success and/or a failure? (…why?)

10. Do you have anything else you would like to add?

NB: These final questions are asking the interviewee to reflect on the possible reasons why the outcomes they mentioned came to pass. During the analyses the response to these questions will inform the "Mechanism" responsible for particular outcomes, so called 'generative mechanisms'. For example, the presence of a boundary object that helps bridge disciplinary boundaries, generates conversations and leads to learning outcomes would be thought of a generative mechanism. Hence, generative mechanisms are more than the mere the presence of an object, a participants, or a facilitator, it's an explanation of the critical incident during the intervention where all of the necessary elements were present in a setting that was conducive for the generation of an outcome (or pattern of outcomes).

12. Appendix D: Example of a guide for identifying context - mechanism - outcome configurations (CMOs)

Table showing an example of a table that can be used to aid in the identification of context - mechanism - outcome configurations (CMOs) (adapted from Davies et al., 2017).

CONTEXT	+	MECHANISM		=	OUTCOME
		RESOURCES	OPPORTUNITY		