COMMUNITY SERVERS: BRINGING COMMUNITY NETWORKS TO THE GROUND

A methodology under construction for the participatory design of local applications in Community Networks

INTRO

LOCAL
PHYSICAL
TECHNOLOGY
EFFICIENCY

GLOBAL
DIGITAL
COMMUNITY
SPECIFICITY

"Local applications for Community Networks is a myth"

JUERGEN NEUMANN,
OFF-THE-CLOUD ZONE
@TRANSMEDIALE 2016

INTRO

The idea that Community Networks (CNs) can become hosts of a wide variety of local applications and services has been always behind the vision of an Internet built by the people for the people.

In reality, when Internet access is available, local applications tend to atrophite. This means that successful Community Networks today serve mostly as affordable Internet access of good quality. That is they are helping more to connect people to the existing servers of big Internet corporations than co-creating alternative Community Servers.

There are many reasons for this:

- Self-hosted software applications cannot easily compete in terms of usability with their commercial counterparts.

- Servers require maintenance and applications careful design, which both require significant human resources, often not available locally.

- In a fully connected world locality is losing its importance and the notion of a community itself is becoming more and more blurry.

"A society of simple tools that allows men to achieve purposes with energy fully under their own control is now difficult to imagine"

Despite the challenges, developing successful local applications for Community Networks, designed as tools for conviviality, is important for many reasons: social, economic, political, ecological, practical.

It is thus critical to find the right balance between the global and the local. Between technology and society. Between the digital and the physical. Between growth and limits. Between global Internet corporations and local Community Servers.

This methodology aims to encourage community networkers, social scientists, designers, software developers, and urbanists to work together and imagine from scratch the concept of a community server, hosting local applications that serve local needs.

The target audience of this booklet is experts on all those fields, already using their own methodologies and practices, but which recognize the need to find a common understanding and language toward the vision of a Community Server.

Keep reading if you are ready to step out of your comfort zone and invest some extra time for imagining a more organic Internet ...

INTRO

TERMINOLOGY, DEFINITIONS, AND ASSUMPTIONS

A **Community Server** is a more or less powerful computer, a server, hosted inside an existing Community Network, in one of its network nodes.

A **Local Application** denotes the software, the digital platform, that runs on a Community Server, and which is accessible in principle, or by design, only to people residing in a specific geographic location, covered by the Community Network.

Hybrid Space is the complex space created by the combination of the physical space, the geographic area where a Local Application is accessible, and the digital space, the digital interactions enabled by the local application.

The current draft of this methodology **assumes a running Community Network on top of which a set of motivated actors wish to design and host a local application**. Future versions will include elements related to the creation of the Community Network itself, in parallel or beforehand.

The methodology is generic enough to be easily adjusted for any collaborative long-term project between actors from different disciplines and fields of action.

THE PHYSICAL SPACE

The target region served by a Community Server could be as small as a square and as big as a whole city or region. An urban garden, a neighbourhood, a valley, a pedestrian street, a square, a small island.

Any physical space that wishes to build a collective identity and facilitate social interactions for which a locally owned and designed digital space can play a key role.

THE DIGITAL SPACE

The design of an application could range from the customization of an existing self-hosted application to suit a specific scenario to a completely new design and implementation.

Examples of free software that could be used to support digital interactions tied to specific locations include Wordpress, Next-Cloud, Etherpad, and more.

THE HYBRID SPACE

The easier to grasp hybrid space formations are single-node community networks like PirateBox, the MAZI toolkit, and more. All people in the range of the Wi-Fi signal can access a digital space that it is accessible only in this specific location.

The "MAZI handbook" offers diverse examples of such hybrid spaces in different locations and using different applications. See *http://mazizone.eu*

Local applications in wider areas, e.g., a neighbourhood, are not very widespread. The bigger the CN hosting a local application the more difficult to define the "borders" in which a local application operates. RedHook WiFi is perhaps the most known example of this sort, that led to a custom application, TidePools, which is not maintained today.

OVERVIEW

The methodology is very ambitious in trying to capture the whole complexity of a long-term collaborative project between different actors both internal and external to a community, and in facilitating the communication across different expertises, disciplines and perspectives.

For this it is designed to allow for an incremental adoption, starting with a really simple "MethodKit" version of it, a set of brainstorming cards, organized in different "parts": Context, Threads of action, and Tools.

As a second step, we propose a novel methodology on how to use the suggested methodkit cards in a long-term iterative process inspired by agile methodologies and jazz improvisation, the Project Score

This booklet describes this methodology and includes a list of suggested actions for every Methodkit card as detailed examples of how a project inspired by this methodology could evolve, what could be the outcome by considering the different important "things to think of, and act upon".

In short, this booklet includes:

- A set of methodkit cards divided in three categories (Context, Tools, and Processes)

- A novel way, the Project Score, facilitate collaboration between diverse groups of experts

- Examples of actions for the Processes derived from a real case study

- Photos from this case study, in Sarantaporo area, rural Greece

PROCESSES

CONTEXT

TOOLS

Community

Physical Space
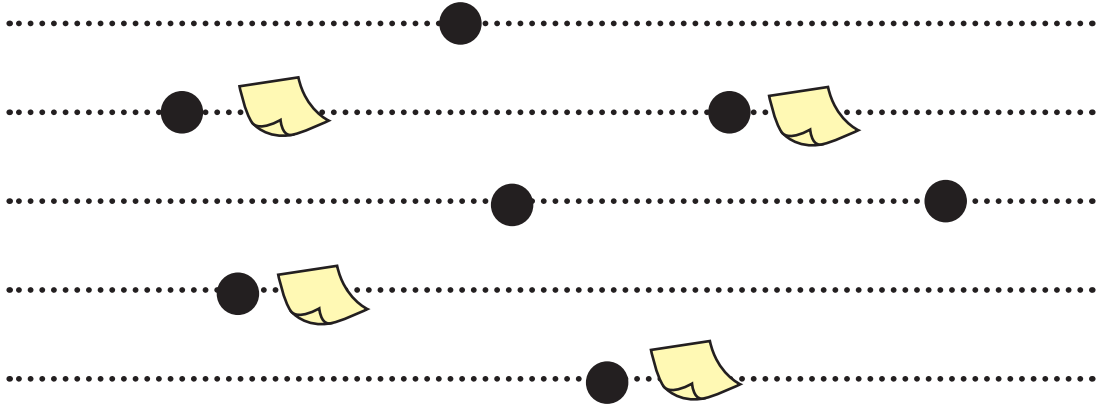
Digital Space
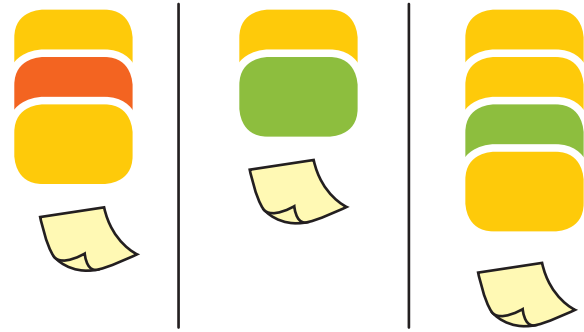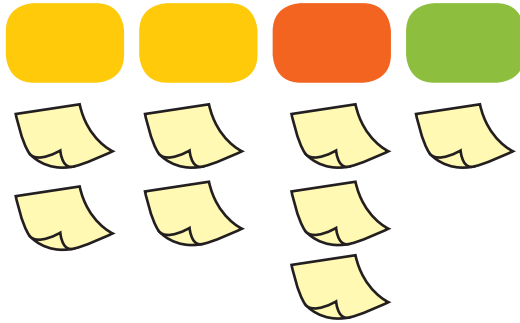
Project

PROJECT SCORE

threads

actions

EXAMPLES OF USING
THE METHODKIT CARDS

The MethodKit offers already a wide variety of ways to use the methodkit cards for brainstorming and collaboration, and also various "canvases", which could be used instead or in addition to the proposed Project Score (see p.15 and p.36)

https://methodkit.com/how-to-use/

CONTEXT
The context cards describe important variables that determine the special characteristics of a community the need to be taken into account.

COMMUNITY
Designing for real community needs is a complex process that requires more than inviting a few people in a room to give feedback on specific design choices.

DIGITAL SPACE
The design and implementation of the local application is the core activity of the project which needs to be properly coordinated with all the other processes.

TOOLS
During the implementation of the project, there are various existing tools and methodologies that can be of great help.

PHYSICAL SPACE
Acknowledging the hybridity of space and placing the design of a local application in the actual physical environment is one of the most challenging and novel tasks for building useful and used community servers.

PROJECT
People hesitate to invest effort and time if they are not convinced of the sustainability and overall framing or identity of the project. Significant resources and creativity need to be invested to this respect.

METHODKIT CARDS

METHODKIT CARDS

COMMUNITY

LISTENING
How do you listen to the community characteristics and needs.

COMMUNITY ENGAGEMENT
Events and processes will help to engage the community in the design of the applications.

DOCUMENTATION
Capture and communicate your understanding of community needs and special characteristics.

LEARNING
Have you reserved enough time for training the community in new concepts?

TRUST BUILDING
Show who you are and be engaged, to be trusted.

PHYSICAL SPACE

NETWORK VISUALIZATION
Tangible ways through which your local network, infrastructure and applications are made visible in the ground.

DEDICATED SPACES
Permanent or temporal locations where someone can learn about the community network and its local applications, meet in person the people behind the project, and become part of it.

SPACE INFRASTRUCTURE
Internal and external design of the space, tools to facilitate interactions, and artefacts to communicate the selected framing and overall identity of the network.

RUNNING THE SPACE
Governance mechanisms and processes that guarantee the sustainability of the spaces and their proper functioning.

HYBRID INTERACTIONS
Links between the digital and the physical through displays and other visualizations of online interactions combined with face2face gatherings.

DIGITAL SPACE

APPLICATION

Continuous design for user experience, needs, and appropriation in the core functionality offered by your local application.

SOFTWARE DEVELOPMENT

A realistic plan for the deployment of different versions of the software application, including a Minimum Viable Product.

ADMINISTRATION

Making things easy and flexible for the administrator is the key ingredient of a local application for Community Networks.

CURATION

Online spaces, like physical ones, need presence and curation. No one will use your application if you are not "there".

CONTINUOUS FEEDBACK

The users of the software should be encouraged and facilitated to send you feedback on issues and feature requests, which can both help you improve the functionality but also reveal their needs and priorities.

PROJECT

PROJECT IDENTITY

Define your project's identity in its full complexity, and keep it updated.

COMMUNICATION

Share your project's objectives and results.

ORGANIZATION

Make sure the right people are working on the right tasks

NETWORKING

Build relationships with local actors but also external communities and international networks.

FUNDING

Collaborate with the community to find complementary funding for your project.

METHODKIT CARDS

METHODKIT CARDS

TOOLS

FACILITATION	The methodologies and tools used for facilitating brainstorming and playful interactions.
SHORTCUTS	Creative ways to feel gaps of skills or resources for a successful project.
NOTATION	Consider how your different actions depend and/or influence each other, and define appropriate notation for representing them.
TRANSLATION	Consider the need for translations in language and concepts between members of the team and between the team and the community.
TEMPO	Establish an appropriate rhythm for the project's members gather to discuss about their processes and possible inter-dependencies between them.
VISUALIZATION	Visualize the network using printed real maps and toys during brainstorming and participatory design processes.

CONTEXT

|	
PLACE	What are the special characteristics of the place where your local application will be deployed.
TEAM	Available skills and perspectives in your team.
COMMUNITY NETWORK	What type of Community Network will host your local application.
LOCAL COMMUNITY	How is the local community related to its Community Network.
RESOURCES	More or less hidden available resources that you can use.
NEEDS	Why is it important to build software suitable to run in a local environment independently from the Internet?

Given the particular focus of this methodology we propose a novel way to collaborate with the customized set of methodkit cards presented above, using the so-called **Project Score** as a triangulation and self-reflection device between the groups that lead the different processes. The objective of the **Project Score** is to visualize in a playful and inspiring way the different actions that the different involved actors in a participatory design process have implemented or plan to do so.

The presentation resembles intentionally a music score under construction, which unlike classical music is not predefined, but like in Jazz contains just a few guiding elements, subject to improvisation according to the dynamics of the group and the reactions of the audience, the community.

COMMUNITY

DIGITAL SPACE

PHYSICAL SPACE
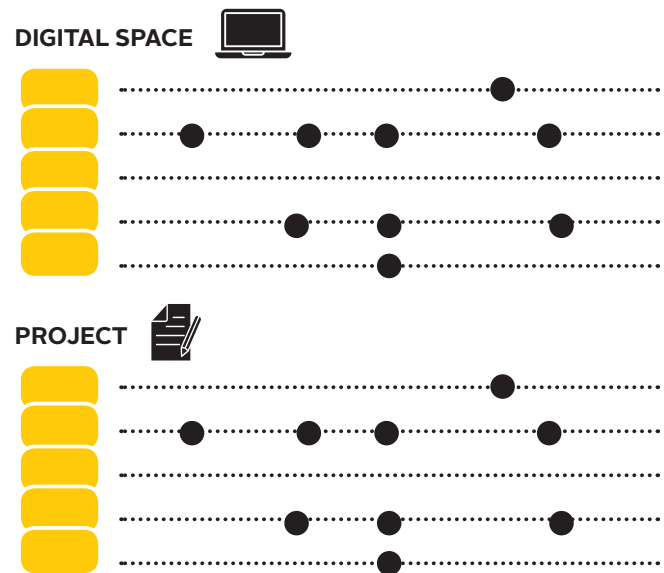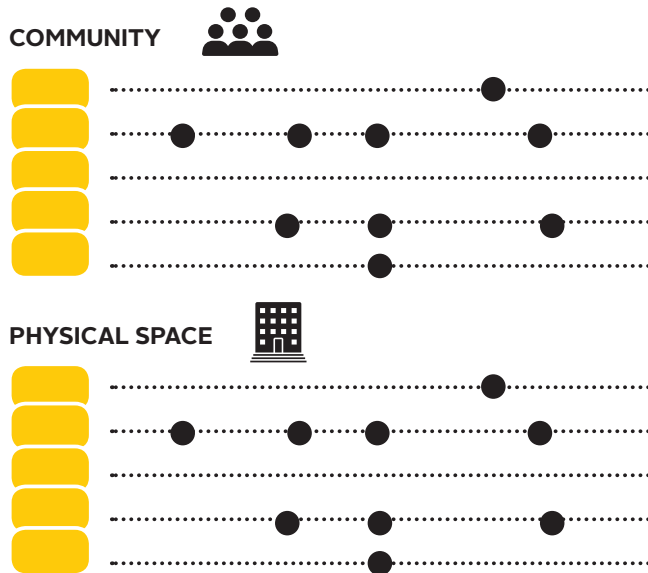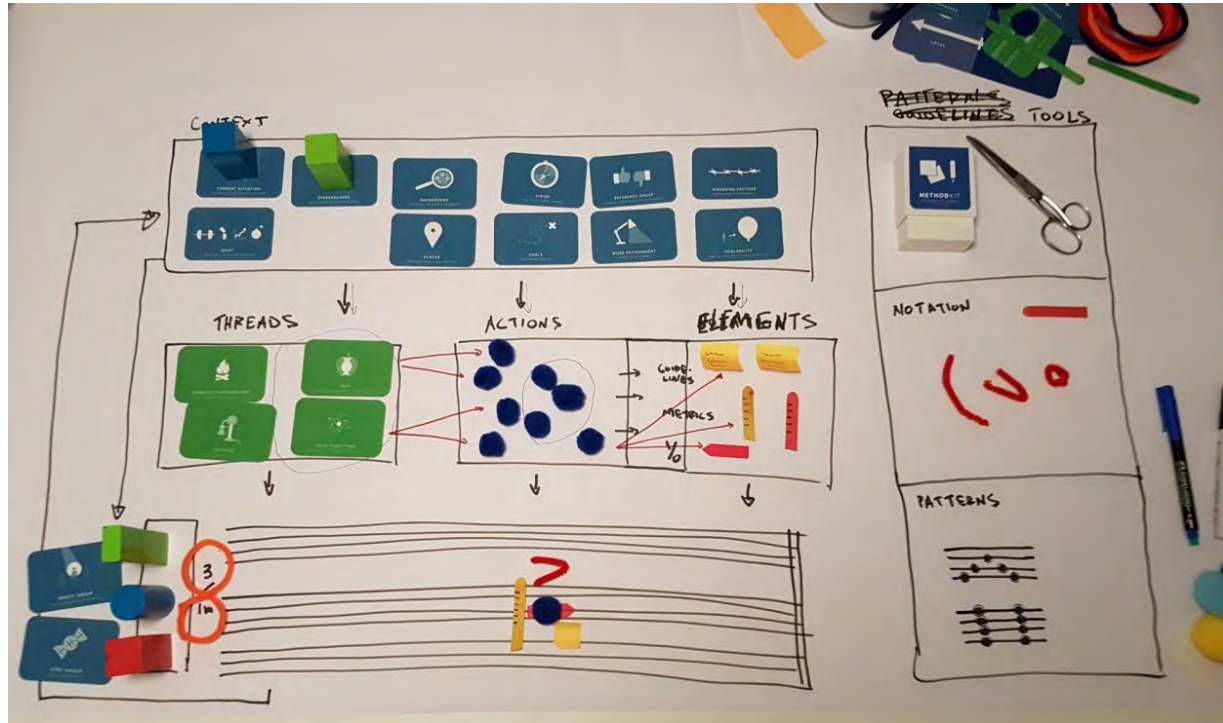
PROJECT

An early depiction of the overall methodology using existing methodkit cards compatible with those proposed in this methodology

An example of the project score in use for the Sarantaporo.gr CN case study

A training workshop at Pithio village in the Sarantaporo area, using for the first time a real map and toys for representing the different nodes of the network and their properties, as suggested by the "planning for real" methodology (see Tools).

In later training workshops in the Saranta-poro area, the printed real maps of the area became a standard tool for planning the deployment of new nodes in the different villages.
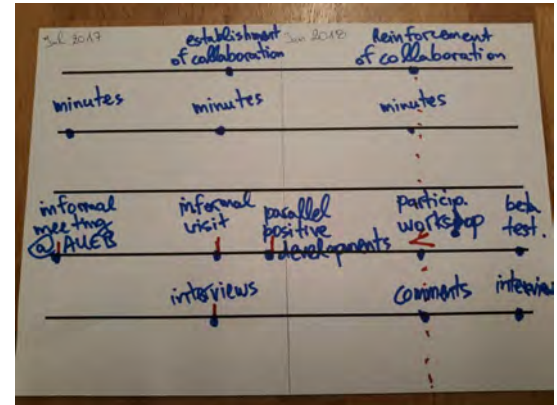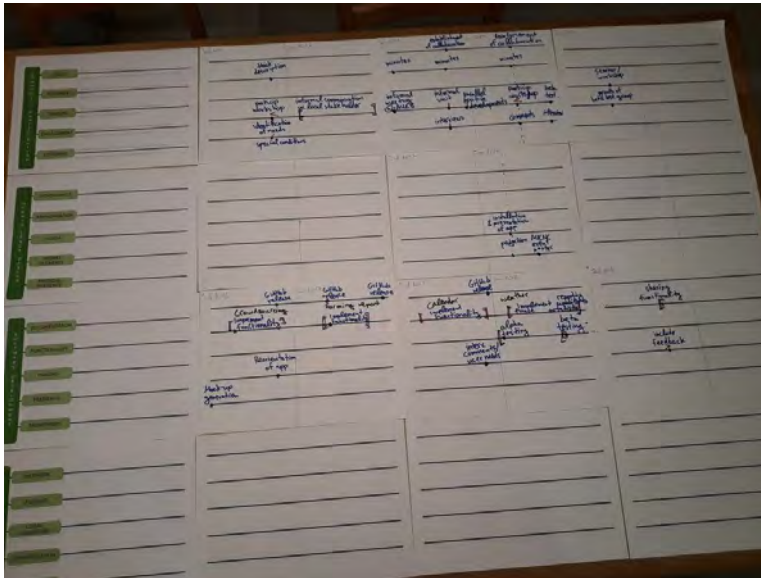
A full project score during a gathering of the community engagement and software development teams of the netCommons project

Images from a participatory design workshop for netCommons Applea farming app

Bringing international experts in the Sarantaporo village and connecting remotely with a similar Community Network in a very different environment (New York city) had a great impact in showing to the local community how important is what they are doing.

Public presentations of the the Sarantaporo case study at the Onassis foundation (left) and the EU parliament (right). Presenting the project in international and local forum attracts attention and provides opportunities for synergies and funding.

Informal discussions during visits to the community without a particular reason can prove critical for building trust and discovering the real needs not often expressed in formalized settings.

PLACE

This context variable refers to the given environment where the project takes place: the geographic location, the demographics of the population, some high-level social, political, economic, and cultural characteristics.

It is out of the scope of this booklet to provide a detailed analysis on how these variables could/should influence the implementation of the methodology, and this is why they are all put together under the same context variable.

But it is important to identify the corresponding values and keep them always in mind in order to reflect on how they influence the different decisions at different levels. This is critical in the beginning of the project but also during its evolution and especially when important "discoveries"' about the nature of the place are made that can help to improve the common understanding of the team of this very important contextual element.

RESOURCES

Especially for low budget projects, one should carefully identify the available resources which will determine the priorities and feasibility of the different steps. In short, the most important resources on the side of the team are the available **Budget** and **Time**, and already available **Software and Infrastructure**.

On the side of the community, there might be many visible (and non-visible) resources, like available open spaces for gatherings or training sessions, old unused devices that could be recycled, and so on.

SKILLS

The first important question one needs to ask before determining the right strategy for a participatory design process is related to the available Skills and resources of the leading team and the potential external partners.

As a basis, there should exist in the team, on the one hand, an **Application-Designer** and **Software-Developer**, who will implement the actual application according to the local needs, and on the other hand, a **Community-Organizer** and **Event-Facilitator** responsible to engage and interact with the local community and try to identify matches between the local needs and the functionality potentially offered by the application.

The setting up of such a team can lead already to a quite costly process in terms of human resources and overall expenses. But there are still many key skills that should be ideally covered by specialized people such as community outreach and communication, edu-

cation, documentation, funding, and more. **Community-Networking-experts** would be also needed on the technical side if they are not already part of the target community.

The most challenging aspect is the "cultural" differences between the two types of expertise that need to be combined, especially in light of the non-obvious reasons why local applications are actually needed, especially from the perspective of a non particularly technical and/or political person.

In case where there is only one side represented in the actual team it would be important that someone from the team takes the "missing" role, e.g., an engineer playing the role of the facilitator.

COMMUNITY NETWORK

One could identify three radically different case studies:

AFFORDABLE-INTERNET: This category includes CNs which are built to provide affordable or even free Internet access to small or large communities. For example, there are numerous rural or small-scale urban community networks built by experts with varying levels of engagement of the local community, with the clear goal to provide affordable Internet access.

Typical examples that fit this category could range from the Sarantaporo.gr network serving more than 10 villages all the way to the OTI initiatives in the US in Detroit and NY, among others. Large parts of the Guifi.net network also fit this category and the same for Freifunk.net in Germany, as well as the many community ISPs that form the FFDN in France.

ALTERNATIVE-INTERNET: This category includes CNs built as big "sovereign" networks that do not depend on the Internet to provide useful services at a smaller scale. Typically, these are city-wide or even region-wide community networks, whose members are mostly technically savvy and key requirement for participation in the community is the installation of a node. Some projects are built exactly around this idea, like AWMN and ninux.org. Other projects, like Freifunk and Guifi.net, while focusing on Internet connectivity have some of their core members actively building local (sometimes local-only) services along these lines.

OUTSIDE-THE-INTERNET: This category includes typically small-scale CNs or offline networks, built to provide local services in a specific location, often through a single node like the PirateBox or the MAZI toolkit.

In all these three scenarios the participatory design of local applications makes sense but possibly for different reasons and most importantly it is a different "community" that needs to be considered.

CONTEXT

LOCAL COMMUNITY

For each of the two main types of CNs described above, there are two different options for the corresponding type of engagement of the local community.

In the first CN type, Affordable-Internet, the community building and maintaining the network is typically much smaller than the community using the network, for Internet access. In the most participative scenario, the first community is fully "contained" in the second one, and it is actually members of the "social" community, a village, a neighbourhood, a wider urban area, that have built the CN to serve the needs of the whole community, an **Independent-CN-for-Affordable-Internet.**

On the other extreme, there are the cases that the main actors that built the network come somehow from the outside and it is only a handful of local actors that help to maintain it with the continuous support by the external experts, a **Supported-CN-for-Affordable-Internet.**

For the second CN type, Alternative-Internet, the social community typically overlaps with the network community. The candidate applications are to be used primarily by the "node owners" of the CN, those actively engaged in the construction of the network itself, an **Independent-CN-for-Alternative-Internet.** Ninux.org is a typical example of this category, while AWMN is another one, very proud for the wide range of local services replacing all major Internet services, developed by its members. But there are also cases that Alternative-Internet CNs are meant to serve the wider community as was the case of RedHook WiFi, a **Supported-CN-for-Alternative-Internet.**

Finally, there is a third category in which the CN does not exist already but is only "potential" and the creation of the CN (together with its local applications) is part of the objectives of the overall process.

NEEDS

Before entering in the analysis of the needs of the community one must tackle the single question that very often rises before, during, and after the design and implementation of a local application: **"Why local?"** . Why it is not enough to connect to the Internet and use the generic application (cloud-based or not) that everyone who has Internet access uses every day?

This is a list of possible reasons, starting from the more practical needs toward the more political ones.

NO-INTERNET-ACCESS:
In cases where Internet access is simply not available or very limited, local applications can actually enable a wide range of basic digital interactions not possible otherwise. This is perhaps the most obvious scenario in which local applications make sense.

RESILIENCY:
Local applications could be seen as an alternative to the Internet-based

services when the latter fail for various reasons (a physical disaster, an economic or political crisis, among others), increasing the resiliency of the system and the community.

HIGH-PERFORMANCE:
For a certain range of applications, local servers could help to achieve better performance, which is especially the case when Internet connectivity is limited or of low quality (e.g., highly asymmetric).

NET-NEUTRALITY:
The access to local applications in a CN can enjoy the net neutrality principle of fair treatment leading to better performance, support of local actors, and also openness to innovation.

PHYSICAL-PROXIMITY:
Local applications running on a CN can have useful information about the physical location of its users without the use of any private information such as GPS coordinates or IP addresses.

DIGITAL-SKILLS:
Hosting local services and applications, exposes the local community to the challenges of running Internet platforms including complex issues like privacy, freedom of expression, and more, providing the means for digital emancipation and education on digital skills.

COMMUNITY-EMPOWERMENT:
The engagement of the community not only in the creation of a community network but also in the design of a local application can contribute to feelings of empowerment and in general the increase of the community spirit and social cohesion.

DATA-OWNERSHIP:
By construction, the data generated and stored through a local application are owned by members of the community. This ownership could/should lead to the appropriate governance structures for the management of this data for which there is the unique option, compared to Internet-based platforms, to be democratic.

SELF-DETERMINATION:
The power over the design of a local application is a more subtle than "ownership" form of power, which could be also democratically shared among all of its members.

PRIVACY:
Derived from the data ownership and self-determination reasons, local applications could be seen as a means to build services that collect and manage information according to the needs of the local community and could lead to systems that are more respectful to privacy and freedom of expression, without providing an a-priori guarantee for this.

CONTEXT

COMMUNITY PROCESS

Designing for real community needs is a complex process that requires more than inviting a few people in a room to give feedback on specific design choices.
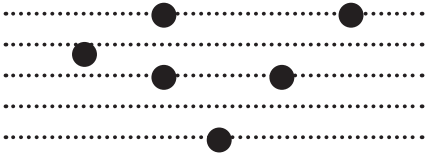
note: the proposed actions in this and other processes are just examples for inspiration and for clarification on the idea behind the suggested threads of action.

PROCESSES

LISTENING

● **RANDOM WALK INFORMAL DISCUSSIONS**
Walk around and observe, focusing on the numerous details of everyday life, and engage in informal discussions. Needs are not always conscious and not always expressed in public, but they express themselves in the most unexpected moments. So, consider to Stay More and Let Yourself Be Surprised when visiting the community.

● **EXPLORE-LOCAL-MEDIA**
Nowadays a lot of a community's character is expressed through online interactions in forums, social media, news outlets. Exploring these interactions, such as discussions, photos, and videos, through appropriate hashtags and groups can give invaluable information. This can be explored also from a distance and complement the more costly in-person visits.

● **PERSONAL RECORDINGS**
Recording the everyday life of a community through short audio interviews, photos and videos can be a very informative process that operates in multiple dimensions. Observing these recordings, and revisiting them from time to time, reveals different hidden layers of information on a community's character but also the changing perspective of the observer.

COMMUNITY ENGAGEMENT

● **PARTICIPATORY WORKSHOP**
Participatory workshops are the most explicit form of participatory design and must be used with caution. While applying different methodologies, adaptability and improvisation, and honesty and transparency are important qualities that you need to develop.

● **ESTABLISH SMALL BETA-TESTER GROUP**
Select a few motivated people from the community to work closer with, engage them in testing your application since the early stages, and share with them regular updates based on their feedback.

● **ONLINE GROUP COMMUNICATION**
E-mail lists and messaging groups can play a key role in building a community spirit and provide quick support and receive feedback in different phases of the project.

DOCUMENTATION

SHORT SUMMARY
Short summaries of events and informal meetings are fundamental tools for the internal communication and coordination between the project's teams. They should be written in a way to highlight the most important findings, "user stories", and non-obvious observations. It is highly recommended that some of these summaries are made available to the community through an online collaborative space or even in a public web site or social media.

DETAILED MINUTES
When possible short summaries could be complemented by detailed minutes with optional comments, which should be made available to the participants to provide feedback and annotations. Sometimes the annotations provide even more useful information than what has been said during the meetings.

THICK DESCRIPTION
Detailed accounts of visits and informal meetings can reveal important details that often do not make it to short summaries and minutes. Such details might seem unimportant at a first glance but they often contain a lot of subtle information that can make a big difference in the long-run.

LEARNING

TRAINING SEMINARS
Meaningful participation requires deep understanding of the object of design and its potential role in community's life. The use of real maps and toys can make a big difference while describing technical aspects both on the digital and physical space. Training local people to become themselves trainers is both empowering and effective.

PRODUCE EDUCATIONAL MATERIAL
Learning processes need to be supported by adequate educational material. Ideally, this material should be translated in the local language and adapted to the local needs.

ESTABLISH AN EDUCATIONAL PROGRAMME
Independently or in collaboration with existing institutions or educational centres, it would be very helpful if education becomes a separate complementary project.

TRUST BUILDING

ORGANIZE A PUBLIC EVENT
Public events on the overall project, including demos and invited guests, can add to the credibility and transparency of the project. They can also become instrumental in identifying key local actors and generating a feel of trust regarding the intentions and integrity of the project leaders.

PARTICIPATE IN LOCAL PROJECT
The most typical reason for failure of an "external" participatory design project is the perception that the project leaders want to "do their project and leave", caring only to push their technology or receive their funding. Participating in local projects and activities and link them with one's own project can reverse this stereotype and build trust, but only if it is genuine. Caring for a community cannot be faked. Better not start the project otherwise!

ENGAGE IN SOCIAL INTERACTIONS
Becoming part of the community through social interactions, participation in local events and rituals, sharing thoughts and personal stories are the best ways for the community to get to know you and trust you. But again, don't pretend to care (if you don't)!

PROCESSES

PHYSICAL SPACE PROCESS

Acknowledging the hybridity of space and placing the design of a local application in the actual physical environment is one of the most challenging and novel tasks for building useful and used community servers.
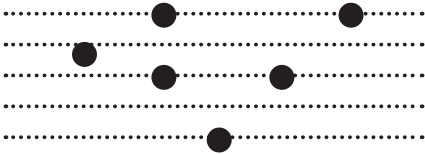
NETWORK VISUALIZATION

VISUALIZE ACCESS
Being geographically constrained, your local network needs to communicate its coordinates and access methods (e.g., WiFi SSID, URL, etc), but also its special characteristics compared to traditional Internet services (e.g., being a local-only network), in public space through the use of posters, signs, and other artifacts.

VISUALIZE TOPOLOGY
It can be very helpful and inspiring if your local network is represented with physical objects on a real map or maquette, which ideally could be always accessible in various dedicated spaces, allowing people to understand and deliberate on its design and coverage, and create feelings of ownership and pride.

VISUALIZE INFRASTRUCTURE
You can make the infrastructure visible through posters, signs or objects designed according to the selected visual identity of the network, designating the presence a network node (e.g., an antenna) or a server where they actually are.

DEDICATED SPACES

RUN A KIOSK
Places, like a kiosk in a square or event or a desk in a library, where there is information and educational material about the network. Member of the networks could contribute being present to address specific questions and give customized advice on the potential involvement of someone based on their needs and skills.

PARTICIPATE IN A COMMUNITY SPACE
Info points and meetings of a Community Network could be hosted in welcoming community spaces, creating opportunities for interactions and synergies with other like-minded groups.

CREATE A COMMUNITY HUB
A dedicated space for the Community Network can provide more visibility and opportunity for the development of long-term learning, governance, and community participation processes through events, assemblies, seminars and courses. But it needs more funding and human resources!

SPACE INFRASTRUCTURE

INTERIOR DESIGN
The way a space is designed can make a difference in terms of engagement, e.g., the placement of chairs toward one-to-many talks vs. many-to-many gatherings. Other elements of interior design can make it easier for people to "step-in" or facilitate hybrid interactions.

SURFACES
Surfaces for projections, announcements, timetables, displays, message boards, or brainstorming boards are very important and should be carefully selected and placed in the space. Gathering with a few key people to discuss informally about your concerns and plans of action on top of a real map of the area might lead to very valuable feedback.

SERVER ROOM
Even if not technically necessary, having a community server installed in the location which hosts also physical interactions can be convenient and empowering.

RUNNING THE SPACE

ORGANIZE EVENT
Organize a wide variety of events ranging from participatory design workshops and training seminars to informal meetings and gatherings around the network and the community. Keeping a digital memory of them in the local network can be a good starting point for motivating the use of local applications.

OPEN DOORS
Spaces work better when they are open in regular times announced in advance. It will help a lot of cause if there is always someone during the selected opening hours to inform the public about your Community Network and ideally organize interesting activities of interest.

ORGANIZE ASSEMBLY
Make sure that there are regular meetings around the governance of the space and the establishment of appropriate rules that will guarantee the proper functioning and avoid misunderstandings.

HYBRID INTERACTIONS

HYBRID HAPPY HOURS
Establish a certain appropriate time of the day where people come to interact through the local application in proximity, perhaps using a big display to visualize their interactions, but at some point stop and take away the devices to talk face to face.

PERMANENT INTERACTIVE DISPLAY
Project on a visible display an interactive element of your local network (e.g., a chat room, an etherpad page or an interactive poll). Note that you might need to be present or check regularly to moderate the content contributed.

SPACE ENCOUNTERS
Consider organizing digital "encounters" with other relevant spaces using a large projection screen and appropriate equipment that can allow people to communicate seamlessly with the other side as a group, forming a "hybrid" roundtable.

PROCESSES

PROCESSES

DIGITAL SPACE PROCESS

The design and implementation of the local application is the core activity of the project but the challenge is to understand the equal importance of all the other processes.
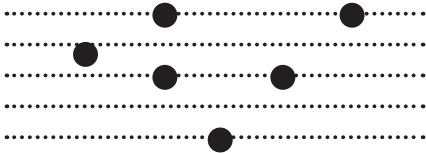
APPLICATION DESIGN

DEFINE VISUAL IDENTITY
Design the logo and decide on important visual elements, color coding, fonts, representation of servers and wireless access points, and more. The visual identity is a really critical component of your application and it is worth to spend time engaging the community in the process. But note that at some point someone has to make a decision!

DEVELOP USER STORY
Describe in detail how your application will be used over time by a specific "target user", based on input received from the Community Process. For every step, write down the information requested and delivered and the corresponding interface actions needed for the desired outcome to be reached.

CREATE MOCK-UP
Translate a specific user story to specific functionality offered by your application, visualized through a series of screens that the user will be exposed to during this process. Take your time exploring different options before actually implementing the user interface.

SOFTWARE DEVELOPMENT

CHOOSE DEVELOPMENT FRAMEWORK
This is one of the first and important actions for the software development thread. The selected framework will determine the possibilities for integration with other software solutions and the culture of developers who will be engaged over time, among others.

DEFINE MINIMUM VIABLE PRODUCT
Decide on a minimal but functional version of your application and establish the whole lifecycle of the development process based on it.

INTEGRATE EXISTING SOLUTION
You should try to minimize the "new" software developed during the participatory design process and depend on core functionality on existing free software solutions like NextCloud, Etherpad, and more. These are improving day by day and it is important to keep an eye on the developments in this scene.

ADMINISTRATION

SELF-HOSTING PROCESS
For local applications to be easily adopted in different contexts they need to be easily "self-hosted" by someone with limited technical skills. This will make it also easier to engage more developers in the implementation of the software.

CUSTOMIZATION OPTION
Make sure that you offer reasonable and adequate options for customization in terms of appearance, visualization, permissions, and more, paying attention to the increased complexity. Ideally, a new customization option could correspond to a specific need and should be made available to a specific person responsible for setting this option.

FEDERATION API
Allowing local instances of your application to communicate between them or with online "aggregation" servers can offer the option to balance the local with the global according to the needs of the community.

CURATION

INITIALIZE ONLINE INTERACTIONS
Make sure to start using the digital platform you develop among the most engaged users but also the developers and create a welcoming atmosphere for those connecting for the first time.

INSERT MOTIVATIONAL MESSAGES
Make sure that the users of your application feel rewarded when they perform important actions and get informed about the overall activity, but do not overdo it.

MODERATE CONTENT
The more content is inserted in the platform the more it will become important to do some sort of moderation and filtering. Making transparent the reasoning behind your moderation decision can increase the level of trust and engagement of your community.

CONTINUOUS FEEDBACK

GIT* ISSUES MANAGEMENT
Online git platforms like github and gitlab contain a very useful feature (the "issues") which is managed appropriately it could serve for a feedback platform from all types of users (more or less technical).

PERFORM USER TESTING
Engaging a few motivated community members (the alpha-testers group) to use your online platform without any assistance while you are watching can reveal many imperfections in the design of the user experience of your applications. Consider asking your test users to create new issues on your selected git platform documenting these imperfections and keep a close communication with them through a telegram group or similar.

MONITOR USAGE
Consider implementing ways to gather implicit and/or implicit feedback through the actual use of the interface. Although more difficult technically understanding how the platform is used in practice can be very helpful.

PROCESSES

PROJECT PROCESS

People hesitate to invest effort and time if they are not convinced of the sustainability and overall framing or identity of the project. Make sure to dedicate significant resources and creativity to this respect.
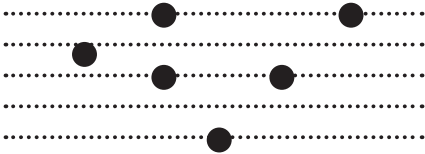
PROJECT IDENTITY

● **DEVELOP MAIN NARRATIVE**
You need to distinguish between the identity of your "product", the local application, and this of the overall project for which the application is only a small part. And then develop carefully the narrative, the storyline, of your project. Who are you and why you are doing it. Note that this might change over time so keep your mind open to adjust it accordingly.

● **MAINTAIN AN INTERNAL PROJECT DOCUMENT**
It will prove very useful if the team could collectively edit and maintain a document where the main storyline of your project is developed, but also the history of important developments, resolutions, self-reflections, etc. A sort of a collective project diary, which could be a wiki, a list of Etherpad documents or another collective editing tool.

● **SWOT ANALYSIS**
A classic tool that is worth to use regularly and observe differences over time.

COMMUNICATION

● **DIFFERENT STORIES FOR DIFFERENT AUDIENCES**
Such a multi-dimensional project requires the collaboration with different actors. Make sure you adjust your storyline according to the different target audiences, the local community, local stakeholders, funders or supporters from around the world.

● **PRESENCE IN SOCIAL MEDIA**
Today it seems obvious that a project needs to be present in popular social media, and keep a regular schedule of posts. But note that this is more work than one can imagine and perhaps it could be a wise decision to choose only one or two most appropriate social media channels, those most relevant for your project and community.

● **ALTERNATIVE MEDIA CHANNEL**
Being a project advocating for the deployment of local applications it makes sense to establish a presence also in non-mainstream media channels using self-hosted software like Mastodon.

PROCESSES

ORGANIZATION

BALANCE BETWEEN VOLUNTEER AND PAID WORK
Depending on the funding sources some members of the team might be possible to get paid while others not, and the same hold for the local community. Make sure to take "corrective" actions, formally or informally, to establish a culture of fairness and trust inside the project.

SHIFT ROLE OF COORDINATOR
In such a complex project, individual teams need significant freedom and for this coordination becomes critical. It is very important to shift the role of the coordinator over time to give responsibility to multiple members of the project

IDENTIFY NEED FOR HELP
If certain threads of action are considered important but do not perform as expected, discuss with the team about the possible reasons and seek for help either inside the team or by engaging external actors. Sometimes you can get support with clever win-win collaborations, e.g., with students working on related topics, local actors having complementary objectives, etc.

NETWORKING

FIND THE COMMUNITY CHAMPION OF YOUR PROJECT
If you don't manage to engage a few key local actors that believe in your project and would be willing to invest some effort to support it, it will be very difficult, or even impossible, for it to be adopted by the wider community.

ORGANIZE LOCAL EVENTS WITH EXTERNAL GUESTS
If possible it would be very helpful to make your process a special case of a wider (e.g., international) project and link to activities of other communities. Bringing visitors from these international communities in local events can be very effective in gaining the attention and trust of your local community.

BUILD SYNERGIES WITH COMPLEMENTARY PROJECTS
Local networks share many values with other similar initiatives on housing, food, public spaces, money, energy, and more. Make sure that you are in touch with key people from such initiatives and join forces on different fronts: communication, funding, engagement.

FUNDING

EXPLORE LOCAL AND EXTERNAL FUNDING SOURCES
Produce a comprehensive list of possible funding sources identifying the key objectives of the funder, the time frame, and the resources required from your side to apply. There are very often many neglected and underestimated sources of funding both at a local and global level.

SUPPORT FUNDING EFFORTS OF LOCAL ACTORS
If you have an already funded project, consider to use it as a driver and support structure for other local funding efforts, which will then provide complementary resources and also help to build trust.

ORGANIZE A FUNDRAISING WORKSHOP
Bringing together key actors in a workshop dedicated on this topic (possibly public) can reveal complementarities and common objectives of funders, not clear beforehand.

PROCESSES

RELATIONSHIPS AND NOTATION

Many of the actions exemplified above depend on each other's input/output or have other types of relationships like before/after vs. parallel or different forms of dependence like the success of one influences the success of the other.

It can be very inspiring for a team to reflect on such relationships between their actions and try to draw them on the Project Score.

The actual Notation might differ from project to project depending on the actual relationships that are useful to identify between the different actions and it does not need to be formalized.

Improvising during the team gatherings might prove an inspiring and playful group experience that will add to build common understandings.

GIT*

A very interesting feature of the github/gitlab platforms, is the so-called "Issues". What is interesting with this feature is that it has the potential of mixing the design with the software process in very interesting ways. But one needs to be careful to achieve a good balance between the two since the primary use of such platforms is by the software developers and mixing bug fixes and low-level technical issues with high-level UX design is not straightforward.

In any case, git platforms can be a little intimidating for non-technical people and will likely not succeed to engage all typologies of actors in a given community. For this, it is important to include in the team "translators" that can get feedback from the field and translate it into the more technical language that will be developed inside github.

CANVASES

MethodKit provides nicely designed versions of standard and customized version of "Canvases" for Strengths Weaknesses Opportunities Threats (SWOT) analyses and business models, which are freely available as pdf. See *https://methodkit.com/pdf/*

PLANNING FOR REAL

There are numerous methodologies for community engagement through participatory workshops of various kinds. If there are experts on this topic as part of the team, most probably they will have their own preferences about which event, workshop, brainstorming session methodology is most appropriate and it is very important that someone feels confident and comfortable in applying such a methodology in public.

The "planning for real" methodology is an especially interesting approach not typically present in related hand-books:

1. create a physical model of the area of interest;
2. catch people's eye and interest for simply coming over at the meeting in the first place, in a non-committal free and open way;
3. open up the discussions toward expressing interests, values and desires;
4. try things out, before making commitments;
5. create implementation options by means of triangulators (e.g., option cards);
6. engage those interested gradually in the participatory process, by getting nearer and nearer to a commitment, and develop an action plan according to the revealed skills;
7. form action groups around a particular kind of action.

FACILITATION

There are numerous event facilitation guides There are numerous event facilitation guides but in our context the Project Planning and Facilitation tools by OTI, are a good starting point. See *https://communitytechnology. github.io/*

TOOLS

TIPS ON USING THE METHODOLOGY

Notice that it will be very rare that all required skills and resources will be present from the beginning in a team. For this it is important to creatively plan for "shortcuts" in the proposed methodology and make it possible to develop a project even with the tiniest resources.

As in music, it is possible to produce interesting results even with one chord. So, don't hesitate to choose only those threads of action according to the project's resources and community needs.

What is really important is that the effort invested produces re-usable results that add to a common pool of achievements in this area. For this, the development of adequately "free" software and the corresponding documentation are a fundamental requirement.

Finally, note that the focus of the suggested actions and guidelines are on activities that are important for the communication between different teams. Internally each process can follow more detailed and relevant methodologies for the corresponding tasks.

FURTHER READING

The netCommons reports D3.1 and D3.3 contain a detailed account of a participatory design process that is under development in the area of Sarantaporo and numerous references to related work.

The netCommons report D3.6 contains a detailed review of the initial version of the methodology produced based on our experiences in Sarantaporo.

All reports are available at:
https://www.netcommons.eu/?q=content/deliverables-page

Co-creation of the methodology:

You can contribute to the CommunityServer wiki with feedback on currently listed methodological elements and proposing new ones based on your experience in this wiki:
http://nethood.org/studio/

TIPS & READINGS

NetHood | netCommons