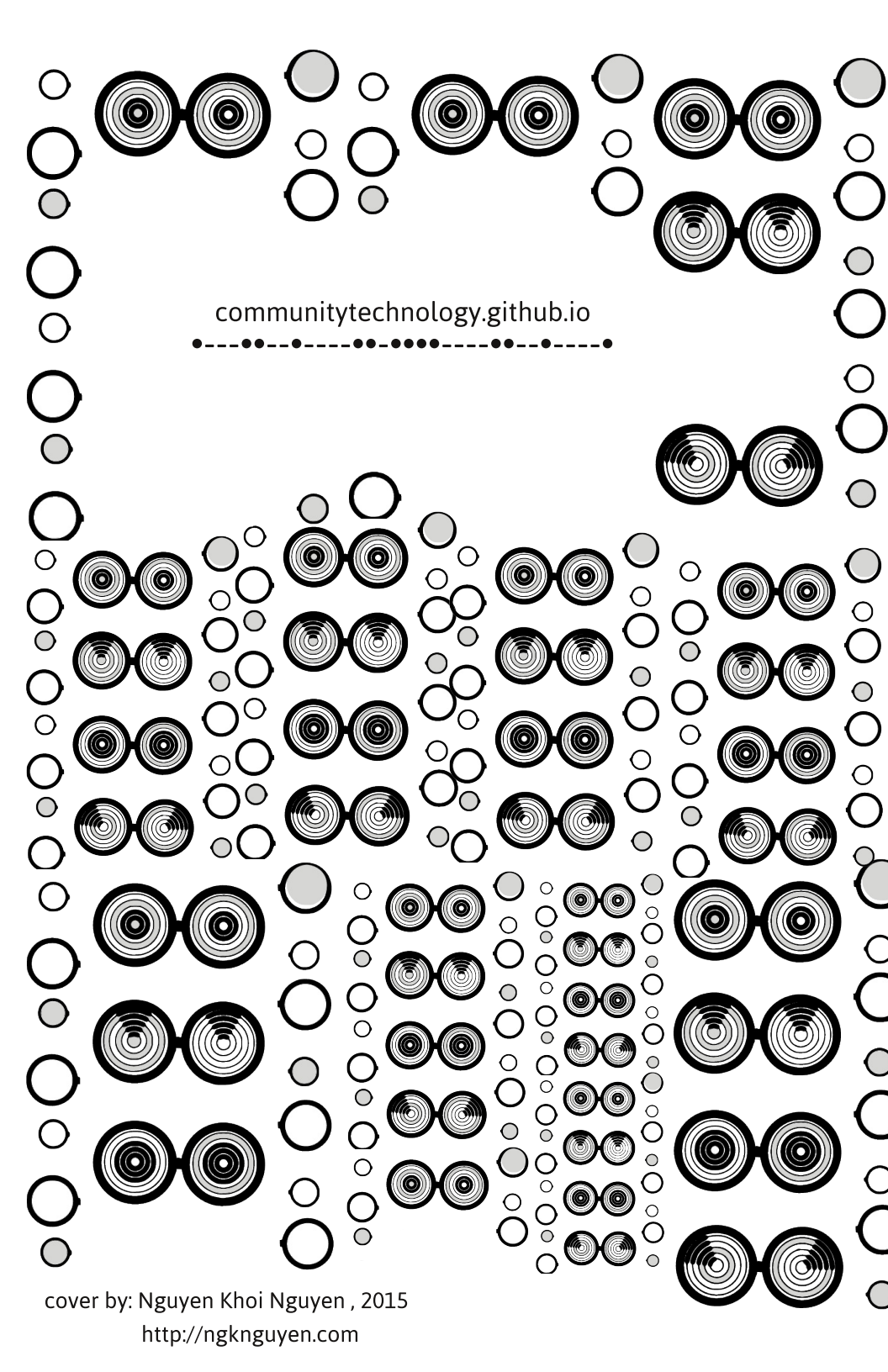


# (RE) BUILDING TECHNOLOGY



v.1

2015 AMC  
COMMUNITY TECHNOLOGY FIELDGUIDE

The image features a complex, abstract geometric pattern composed of various circles and concentric rings. These elements are arranged in a way that creates a sense of depth and movement, with some circles appearing to overlap others. The pattern is primarily black and white, with some gray circles interspersed. The overall effect is a dense, textured background that frames the central text.

communitytechnology.github.io

<b>OUR COMMON INFRASTRUCTURE</b>	1
INVESTIGATE TECHNOLOGY	3
IDENTIFY DIGITAL JUSTICE ISSUES	6
GETTING TO KNOW DIGITAL JUSTICE PRINCIPLES	11
<b>FACILITATION FOR COMMUNITY INVOLVEMENT</b>	16
CHOOSING A FACILITATOR	17
CREATING AN AGENDA	18
DISCUSSION FORMATS	20
CREATIVE EXPRESSION IN FACILITATION	25
COLLABORATIVE VISIONING PROCESS	27
<b>COMMUNITY CONTROLLED COMMUNICATIONS?</b>	31
COLLABORATIVE NETWORK PLANNING	32
IDENTIFY NEIGHBORHOOD SKILLS	37
PUT AWAY YOUR TINFOIL HAT: SECURITY IN CONTEXT	41
COMMUNITY RESILIENCE: COMMUNICATION TOOLS	45
<b>STORY PRESS: EXAMPLES IN ACTION</b>	51
MESH TECHNOLOGIES AND SOCIAL CHALLENGES	52
GLOBAL RELEVANCE OF DETROIT'S GRASSROOTS TECH SCENE	57
RED HOOK'S CUTTING-EDGE WIRELESS NETWORK	62
MESH BUKAVU	68
HACKERGRAM AND COWMESH	73
<b>DEVELOPING PROJECT METRICS</b>	75



# OUR COMMON INFRASTRUCTURE<sup>ooo</sup>

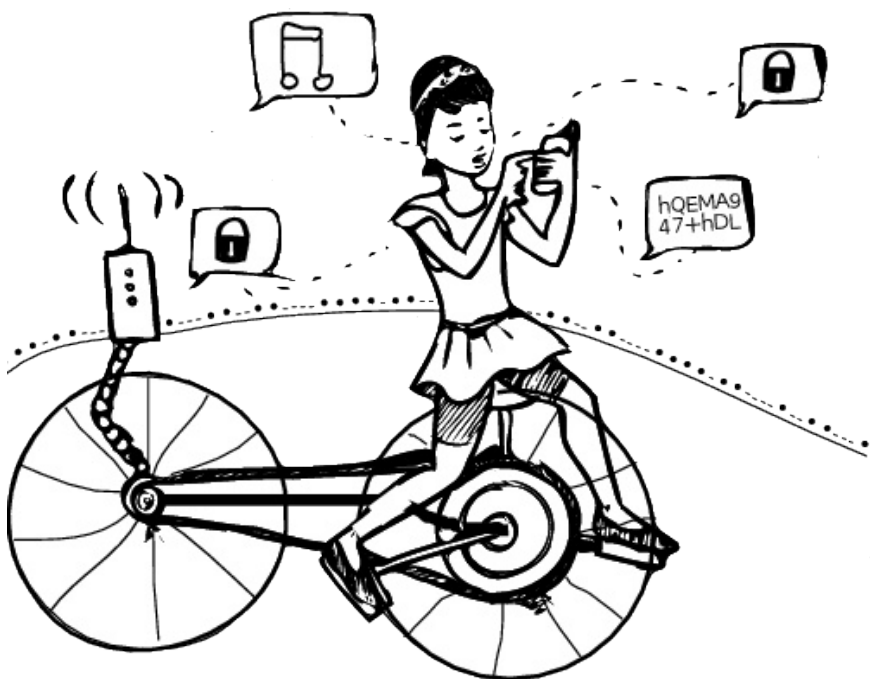
---

Today our shared digital infrastructure underpins mass digital surveillance, online bulk data collection and marketing, corporate control of Internet services, school performance metrics, workplace monitoring, and other systems of control. To resist these systems, people continue to build community-based technology projects and demonstrate an alternative vision. We find these small acts of resistance to digital control in neighborhoods, small towns, and rural areas around the world inspiring and rich with lessons in what the role of technology can be to restore neighborhoods, build new relationships, and develop new systems that encourage collaboration and creativity.

Examples of these alternatives include shared computer centers, privacy and counter-surveillance trainings, community wireless and cell networks, media training programs, government transparency projects, storytelling platforms, community radio stations, and more.

Technology and the Internet have the ability to transform our communities, assist in economic development, and help residents understand and utilize the power they already have. Community technology is a method of teaching and learning about technology with the goal of restoring relationships and healing neighborhoods. Community Technologists are those who have the desire to build, design and facilitate the healthy integration of technology into their communities.

In this collection, we aggregate a handful of tools, stories, and practices to support the growth and development of the community technology movement.



# INVESTIGATE TECHNOLOGY ° ° °

···· OPEN TECHNOLOGY INSTITUTE

**GOAL:** Investigate the properties of common technologies, understand how these technologies impact the community, and identify community-based alternatives.

## **MATERIALS:**

Paper and Index Cards

Pens / Pencils

Printouts of the questions for each group

## **ACTIVITY 1: INVESTIGATE TECHNOLOGIES**

**ESTIMATED TIME: 45 MINUTES**

1. Divide up into groups of 3. Each group should have a print out of the questions.

2. As a group, brainstorm a list of a few technologies you and your community use, for example (5 min):

- °° Your home or mobile phone network
- °° Online news platform
- °° Social mediaplatform
- °° Your computer or any software you use every day (web browser, office program.
- °° Your television or radio, and the programming on that service
- °° Your Internet Service Provider
- °° The local Internet cafe



3. Select one of the technologies you have brainstormed. Together, answer the following questions about that technology. One person in the group can write down the answers. Each question should take between 30 seconds to one minute.

### **OWNERSHIP**

1. Who owns the technology?
2. Who makes decisions about it?
3. How are decisions made?

### **ACCESS**

1. Who can use the technology?
2. Who is left out?

### **INTENTION**

1. What is the goal or mission of the technology?

### **DESIGN**

1. Who designs the technology or system?
2. Who is it designed for?

### **COMMUNITY IMPACT**

1. Who is strengthened?
2. Are local relationships strengthened or weakened?
3. Is anyone negatively impacted?

### **PROFIT AND SUSTAINABILITY**

1. Who profits from the technology? Are the profits or results shared? Where does the money go?
2. Does that technology generate jobs in your community?



### **LOCAL IMPACT**

1. Is the content made by people in your community?
2. Is the content for people in your community?
3. How is the local media ecosystem strengthened or weakened?

### **TEACHING AND LEARNING**

1. How are skills and knowledge shared about the technology?
  2. Who installs it? Who repairs it?
4. After answering the questions, as a group write the name of technology and 2-3 words that describe the relationship between the technology and your community on an index card.

## **ACTIVITY 2: ALTERNATIVES**

**ESTIMATED TIME:** 15 minutes.

Everyone can return to their places. Make sure each person has a piece of paper and pen.

1. Individually, imagine the technology you investigated was built for and by your community. Draw that technology or system and how it would be different.

(10-12 min)

2. After everyone has finished, go around the room and ask each person to share their community-based alternative.

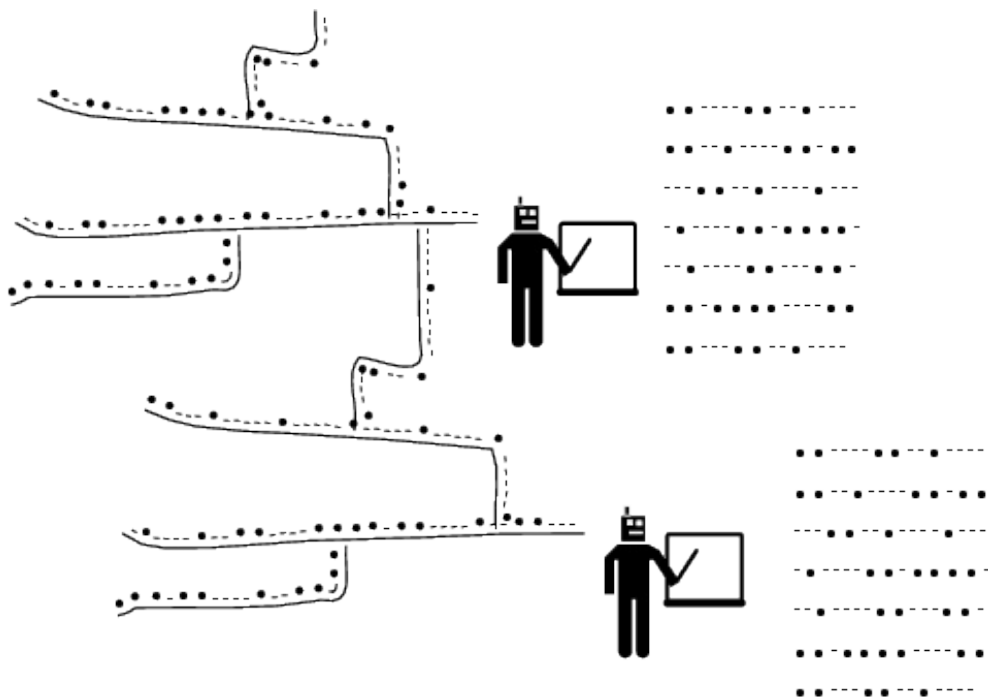
(3-5 min)

# IDENTIFY DIGITAL JUSTICE ISSUES<sup>ooo</sup>

..... POPULAR TECHNOLOGY WORKSHOPS BY VIRGINIA EUBANKS  
 (@POPTECHWORKS) POPULARTechnology.ORG

Technology has been both a tool for positive social change and a tool for new or increased social conflict. Technology mediates many of our interactions with government, media, health, education systems, our jobs, and each other. As the role of technology has increased or changed, how are people in our communities impacted? Who is positively impacted and who is negatively impacted? Who has a voice in how the technology is built and controlled?

These activities are designed to critically examine and identify digital justice issues in our communities.



## ACTIVITY: IDENTIFY DIGITAL JUSTICE ISSUES

Often the words “problem” and “issue” are used interchangeably or sometimes a problem is mistaken as an issue. More importantly, not all issues offer the opportunity to work towards justice, dignity, equality and self-determination for all people. Choosing a DIGITAL JUSTICE ISSUE to work on early in the process will help your campaign or organization have a clear vision, build coalition with others, and avoid excluding important stakeholders.

**TIME REQUIRED: 45 MINUTES**

### **MATERIALS:**

- A place to take notes
- Markers
- Sticky dots





Problem	Issue	Digital Justice Issue
Based on individual/personal issue	Based on a larger/community level	Based on larger/community issue influenced by historical or structural inequities
Ex. I might lose my job because my duties can now be done by a machine.	Ex. Technological changes have made it possible for employers to move many of the community's jobs overseas.	Ex. Middle class/unionized jobs are being moved overseas, while service jobs (below living wage) and high-level professional jobs remain here.
Ex. I can never get on the computers at the public library.	Ex. The community lacks low-cost or free public technology resources.	Ex. The city government is investing in resources that serve creative professionals, and letting infrastructure in poor and working-class neighborhoods deteriorate

**ACTIVITY:**

1. Read the difference between a problem, issue, and social justice issue on the next page.
2. Each person should identify 3 digital justice issues in the community and write them down. Everyone should be able to finish in 5-10 minutes.
3. In the group, everyone should read their issues. Write down the digital justice issues on the wall.
4. Give each person three sticky dots. Using the dots, each person should vote on what three issues they feel most passionate about by putting the dot on that issue. Count up votes and identify top three.
5. Collectively, use the checklist on the next page to help determine the strength and viability of each of those three digital justice issues as an opportunity for collective action. Write this chart in a place where everyone in the group can see it.
6. Based on these factors, discuss what issue would you like to work on first? Why? Write the issue where everyone in the group can see it.

Issue #1	Issue #2	Issue #3	Will the issue...
yes/no	yes/no	yes/no	Result in a real improvement in people's lives?

Give people a sense of their own power?

Alter the relations of power?

Be winnable?

Be widely felt?

Be deeply felt?

Build leadership?

Provide community access or training opportunities?



# GETTING TO KNOW DIGITAL JUSTICE

---

## PRINCIPLES<sup>ooo</sup>

---

..... DETROIT DIGITAL JUSTICE COALITION

This is an activity designed to foster discussion of the Detroit Digital Justice Coalition (DDJC) principles.

**NUMBER PARTICIPANTS AT A TIME:** 5-10

**MATERIALS:**

- A big sheet of paper
- Markers and Pens
- Paper
- Printed copies of the DDJC principles

**GOALS:** Participants will become familiar with the DDJC principles and brainstorm what looks like to put the DDJC principles into practice, at the individual, community and city/state levels.

**ESSENTIAL QUESTIONS:** What principles guide your life? Why are principles important? What are the DDJC principles? How can we put the DDJC principles into practice (as individuals, as communities and at the level of policy)?

## LEARNING SEQUENCE

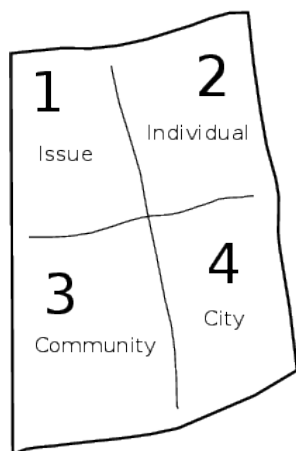
**STEP 1:** Present the large piece of poster paper with the 4 major DDJC principles (Access, Participation, Common Ownership and Healthy Communities); discuss with participants: What principles guide your life? Have them choose one and add it to the poster.

● ● ●

**STEP 2:** Hand out the sheets with detailed DDJC principles; after participants read them, explain how they were formed and ask which ones stand out to them, or that they have questions about, or that resonate with their own principles; discuss.

**STEP 3:** Hand out blank 8.5x11 paper, fold into 4 squares and open it. Have each participant choose one of the DDJC principles and write that principle in the upper left corner. In the upper right corner, ask them to brainstorm ideas for what that principle looks like in practice on an individual level. Then ask everyone to pass their paper to the left. Ask participants to read the previous two squares and in the bottom right square, add their own brainstorm around the question: what would this principle look like in practice at the community level? Ask everyone to pass their papers to the left again and after reading the previous three squares, add their own brainstorm inside the fourth square, answering the question: what does this principle look like in practice at the city/state level?

**STEP 4:** Ask anyone who wants to share their full paper to do so.





# FACILITATION FOR COMMUNITY INVOLVEMENT



# FACILITATION FOR COMMUNITY INVOLVEMENT<sup>ooo</sup>

.....DETROIT COMMUNITY TECHNOLOGY PROJECT

Community input and buy-in is one of the most important elements in community organizing. Neighborhood meet-ups or community meetings can be tricky to navigate with so many personalities and experiences at the table. Good facilitation is a key component to getting people excite the ball rolling and ensure active participation.

Facilitation is the art of creating a space where people can make connections and build powerful ideas. There are several participatory processes you can use to make collective decisions, design projects, and/or tap into the wealth of knowledge and experience that is present in the room.

°° **SECTION 1. CHOOSING A FACILITATOR**

°° **SECTION 2. CREATING AN AGENDA**

°° **SECTION 3. DISCUSSION FORMATS**

°° **SECTION 4. CREATIVE EXPRESSION IN FACILITATION**

°° **SECTION 5. COLLABORATIVE VISIONING PROCESS**

# CHOOSING A FACILITATOR°°°

····DETROIT COMMUNITY TECHNOLOGY PROJECT

Good facilitation is often hands-off, allowing participants to run the show. Facilitators should spend most of their time making sure people participate in the process and keeping participants on track with the purpose of the meeting.

When choosing a facilitator, you want to find someone that can relate to your crowd. They should be able to: “read the room,” or catch visual cues that may signify tension. This might include encouraging people to speak who have not had the opportunity to do so because others are talking a lot. It takes the efforts of the whole group to create a space that feels safe for people to contribute their ideas.

One of the most important qualities of a facilitator is good listening. The art of facilitation is in laying out information in a way that allows participants to draw connections.



# CREATING AN AGENDA<sup>ooo</sup>

.....DETROIT COMMUNITY TECHNOLOGY PROJECT

Agendas are important documents that inform people on why they are gathering and what they will do when they gather. They are like a script for a facilitator, giving direction as to how much time to spend on an activity as well as stating what questions to ask and when to ask them. Agendas provide the “bird’s eye view” perspective of the meeting. Having an agenda ready to pass out to participants before the meeting allows everyone to start on the same page.

When designing a community meeting you will want to plan a clear agenda for people to follow. One tool to help design your meeting is P.O.P, which stands for Purpose, Outcomes and Process, a resource designed by the Rockwood Leadership Institute. Here is how you can use this tool to begin planning your community meeting.

**PURPOSE:** Sit down with your teammates and have a discussion as to what the purpose of your meeting is? Are you trying to recruit people to work on your project, are you going to inform people about an action or project happening, or are you trying to gather information from people? The first step is identifying a specific reason as to why you need to gather people.

**OUTCOMES:** Now that you know what your meeting is about, think through what you want to achieve at your meeting. Do you want to connect people who may not have been connected prior to the meeting or do you want to gather ideas on how to implement a plan? List a set of at least three outcomes you want to see that are connected to the purpose. These outcomes will help keep facilitation on track and go on to inform your process

**PROCESS:** There are many processes you can use to make your meeting interactive and engaging. To understand what process may work best in your situation, think through what each outcome is and how you plan to achieve that outcome. If one of your outcomes is to gather input on plan X, then you will want to choose a process that allows people to openly share ideas. If your outcome is to inform people on new laws that might affect them, then you will want to choose a process that enables you to share information to a diverse group of people. The size of your group will affect the process you choose. Generally the larger the group, the more you will want to use “small group” processes while in a smaller group facilitated discussion will work just fine. Whichever you choose, your process should reflect both the purpose and outcomes of your meeting.



# ● ● ● DISCUSSION FORMATS<sup>ooo</sup>

## ····DETROIT COMMUNITY TECHNOLOGY PROJECT

Good facilitation is often reflected in crowd participation. In many cases the one person most comfortable with speaking in public is the loudest at meetings, overshadowing others who may have equally as valuable ideas but are too shy to share them. When working with large groups of people to do visioning or problem solving, choosing the right discussion format can ensure participation from the majority of your group.

Below we have assembled various discussion formats from various popular education practices.

## DISCUSSION FORMATS:

### QUESTION LEAD LARGE GROUP DISCUSSION

- ... Choose a framing question to post on the wall.
- ... The facilitator guides the group discussion beginning with the framing question.
- ... Facilitator guides group responses to other questions that might emerge from the leading question.

*\*This works best when the facilitator is able to synthesize peoples thoughts and relate them to each other and then back to the big question being asked.*

## DISCUSSION FORMATS:

### THINK - PAIR - SHARE

**STEP 1:** Create a prompt that is connected to the goal of the meeting.

**STEP 2:** Ask individuals to write a response to that prompt.

**STEP 3:** Have the group break up into pairs to share their responses.

**STEP 4:** Regroup and have each group share main points of their discussion.

**STEP 5:** Ask people to discuss what ideas stuck out and why.

*\*This format is great way to get people who are unfamiliar with each other to work together. This also ensures that each member of the meeting is thinking and participating because everyone is asked to share their ideas with someone else in the group.*

## DISCUSSION FORMATS: SILENT CONSULTATION

**STEP 1:** Identify major questions that need to be discussed or explored.

**STEP 2:** Create four questions that encompass the main ideas that need to be discussed.

**STEP 3:** Write each question on a large sheet of paper and place them in 4 areas around the room.

**STEP 4:** Ask each participant to go around the room and write their responses/ ideas on each sheet of paper that has a question.

**STEP 5:** Have the large group break up into four groups, one for each question that was asked.

**STEP 6:** Have each group discuss the responses to the questions and create a summary of what was suggested, merging similar ideas.

**STEP 7:** Have each group share their summary to the larger group.

**STEP 8:** Facilitate the large group into figuring out next steps with each question.

*\*This is a great discussion format for breaking complex ideas or problems into manageable chunks of work that can be distributed amongst the group. This also is a great way to generate ideas for projects that include several perspectives.*



## DISCUSSION FORMATS:

### BREAK-OUT GROUPS WITH GALLERY WALK

**STEP 1:** Divide the group into smaller groups to discuss responses to a reading or a question.

**STEP 2:** Have each group chooses how to represent their reflections/questions/responses on large paper (i.e. notes, timelines, flow charts, images, quotes).

**STEP 3:** Have each group posts their large paper on the wall. Groups rotate throughout the room in a “gallery walk” viewing each others’ responses.

**STEP 4:** The larger group should then reflect upon what they notice.

*\*This is another great way to have groups with multiple perspectives share their ideas while getting to know each other. By having groups create images etc. to a reading or question often expands people’s thinking and results in unique and innovative ideas.*

## DISCUSSION FORMATS:

### FISHBOWL DISCUSSION

**STEP 1:** Gather a few volunteers from the group to form a circle in the middle of the room.

**STEP 2:** Ask the volunteers to sit in a circle with the rest of the group creating a circle around them. Have the inner circle discuss a particular reading or question.

**STEP 3:** Open up the space after for people in the outer circle to “tap into” the inner circle when they want to jump into the conversation or make comments.

**STEP 5:** After a certain amount of time, outer circle and inner circle switch.

Step 6: Inner circle discussion is brought to a close and the outer circle reflects on and responds to the inner circle’s discussion.

*\*This format is a good way to have in-depth, focused conversation within a large group.*

# CREATIVE EXPRESSION IN FACILITATION<sup>°°°</sup>

.....DETROIT COMMUNITY TECHNOLOGY PROJECT

When working with a diverse groups of people you should expect a diverse range of ways people give and receive information. Creative expression like writing, collaging, or visualizing goals are great ways to break through various communication differences and allow participants to customize how they participate.

Below are a few facilitation processes that use creative expression and build relationships.

## FREE WRITING

- ... Give participants a set amount of time to write about a question or topic. 3 to 5 minutes is a good range of time to work with.
- ... Ask participants to write whatever comes to mind without any formal structure or in other words stream of contious writitng.
- ... Have participants individually review what they wrote and circle or underline main points or big ideas that came out in their free write. Have participants share the what they circled or underlined with the larger group.

## COLLAGING

- ... Gather a set of magazines or old newspapers for participants to cut up.
- ... Ask participants to create a collage with elements they find in magazines or newspapers that represents their ideas about a project or question you are working on. (You can break people up into groups or do this individually)
- ... Have participants share their collage and explain what it represents.

## SKITS / MINI PLAYS

- ... Divide participants into groups or have them self select into groups of three to four people.
- ... Create a prompt, question, or topic for participants to create a short play with.
- ... Give participants at least 20- 30mins to create a script and any props they may need.
- ... Have each group share their skit.
- ... After each one have a conversation about what ideas were presented.

# COLLABORATIVE VISIONING PROCESSES°°°

.....DETROIT COMMUNITY TECHNOLOGY PROJECT

When working on community technology projects it is important that those impacted most by your project are involved in the visioning and shaping of your project. This can be done in several ways from collecting surveys to creating collective design processes. Below are a few visioning activities that help generate shared principles and visions for community work.

## WORKING FROM THE FUTURE

**STEP 1:** Create a prompt about the future for participants to write about. Example: It is the year 2040 and you are sitting at a park in your neighborhood. How do you see (X) having an impact on the environment?

**STEP 2:** Give participants five mins to free write what they see.

**STEP 3:** Have each person share their vision and record the main ideas on a large piece of paper in a central location.

**STEP 4:** Once everyone has shared, ask the group to brainstorm what needs to happen in order to make these visions come true. Create a list of ideas.

**STEP 5:** From this list of ideas have a discussion about what needs to happen in the project to work towards those visions.

**STEP 6:** Refine your list of ideas into a set of tangible goals for that project that reflect the participants' vision.

● ● ●

This is a great first activity with a group that is just starting to work together.

## CREATING A SHARED MISSION STATEMENT

**STEP 1:** Have each participant write responses to the following prompts as an individual free write, giving each prompt 3 minutes - 5 minutes.

WE ARE:  
WORKING TOWARDS:  
IN THIS WAY:  
TO ACHIEVE THIS:

**STEP 2:** Have participants review what they wrote and then use sticky notes to write down words, phrases or sentences that stand out to them.

**STEP 3:** Have participants place their sticky notes on the wall.

**STEP 4:** As a large group categorize the sticky notes sorting them into groups that relate to each other. Similar ideas should stay together. If themes emerge, name them.

**STEP 5:** As a large group, discuss the themes and groupings that have emerged.

**STEP 6:** Together, begin to craft sentences as a group that include the theme and reach address the prompts these themes and the . Each sentence should be representative of the skills and desired outcomes of the group.

Media-based organizing is a process of speaking and listening, as a community, in order to investigate the problems that shape our realities, imagine other realities and then work together to make them real. When we use media in this way, we build new kinds of relationships internally, interpersonally and within our communities. We transform ourselves from consumers of information to producers, from objects within narratives of exploitation and violence to authors of the transformation of our worlds. – Allied Media Projects’ theory of change

## THE DETROIT SUMMER 12 STEPS TO MEDIA BASED ORGANIZING

### 1. IDENTIFY YOUR ISSUE

What is the issue you’re focusing on? What is the background/context of that issue? Who currently frames the narrative of this issue? Whose voices are missing/silenced around this issue?

### 2. ASSEMBLE YOUR TEAM

Who will be the core team of media-makers for your project? How are the members of your team personally impacted by the issue? What unique insight does this give you/them as media-makers? Who in your community is most impacted by this issue? What will their role be in this media project?

### 3. ARTICULATE YOUR VISION

If your team had all of the resources and the power to address this issue, what would your community be like? How would it look, feel, smell, sound... How would people work together towards solutions?



#### **4. CHOOSE YOUR MEDIA**

Whose voices will be featured in this media project? What medium are they most comfortable with? Who is your primary audience? What medium is most accessible and compelling to them?

#### **5. LEARN YOUR MEDIA**

Who in your network is skilled in this media and would be willing to teach you? If you can't pay for this training, what could you barter?

#### **6. DEVELOP YOUR QUESTIONS**

What are the questions that get to the heart of this issue? What are the questions that guide people towards solutions? Who will you interview? Where will you go to collect interviews? How will you get good interviews?

#### **7. REFLECT ON THE ANSWERS YOU GATHER**

What are the common themes? What are the most compelling stories? What are the most powerful quotes?

#### **8. SHARE YOUR FOOTAGE WITH YOUR COMMUNITY**

Hold an event in which you share the voices that you've gathered. Facilitate a discussion about the media you have created so far. Share articles and other media that helps contextualize the ideas raised in your interview. What kinds of art can these ideas inspire? How can art (music, poetry, visual art) take these ideas further?

#### **9. EDIT, EDIT, EDIT**

How will you tie all of the ideas you've collected into a coherent narrative? How will you honor all of the complexity of the issue? How will you not only reflect ideas back to your community, but push their thinking forward? What will get cut?



## **10. PRODUCE A GORGEOUS FINAL PRODUCT**

Who will put the final touches on this media piece so that it sounds and looks as good as it possibly can? If you can't pay for this labor or do it yourself, what could you barter? How will you package/present it? What graphic design elements will you need to make it gorgeous, accessible and compelling to your core audience?

## **11. CREATE A DISTRIBUTION STRATEGY THAT IS ALSO AN ORGANIZING STRATEGY.**

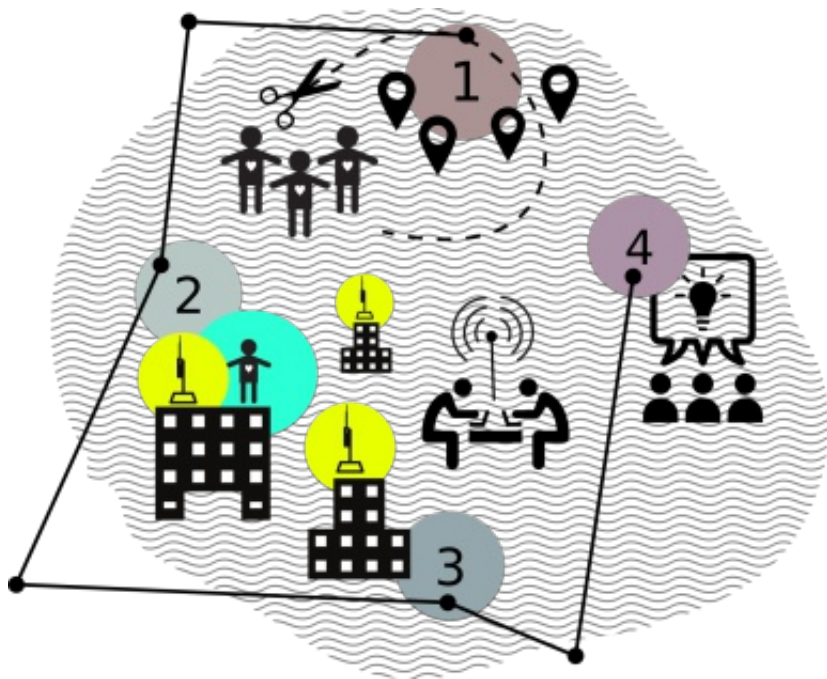
Where will people encounter this media (hand-to-hand sales, film screenings, workshops, an online store, at a community forum...)? How will they process the information? What will they do with the information? What will you learn from them?

## **12. BUILD RELATIONSHIPS**

As you distribute your media project build real relationships with the people you meet. Create a database of contact information and try to organize it by demographics (for example: teachers, students, parents). What will you ask them to do? How will they be able to shape the vision of the project through their involvement?



# Community-controlled communications?



Collaborative Design  
and Building

# ● ● ● EVERY NETWORK TELLS A STORY<sup>°°°</sup>

---

····· NINA BIANCHI & OPEN TECHNOLOGY INSTITUTE

Community wireless networks digitally connect communities, and allow neighbors to share Internet access or use locally hosted applications. Neighbors are linked from rooftop to rooftop using wireless equipment.

This activity will help you use what you already know in your neighborhood, town, or city to design a wireless network that links the people and places you want to connect. It will also help you get familiar with the different types of routers you can use to build your network.

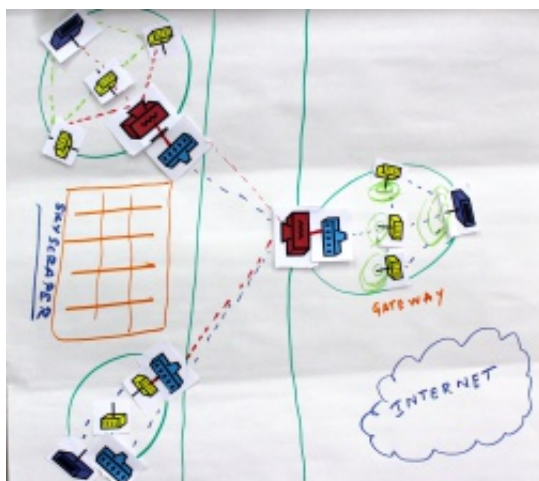
**GOAL:** Collaboratively design a rooftop network using a shared visual language.

**TIME REQUIRED: 1-2 HOURS.**

**MATERIALS:**

- °° Large (~18" x 24") pieces of paper to draw and glue onto.
- °° A table and chairs
- °° Scissors
- °° Markers
- °° Glue sticks
- °° Copies of this activity
- °° Router graphics

\* The full activity is available here: <http://communitytechnology.github.io>



## ACTIVITY:

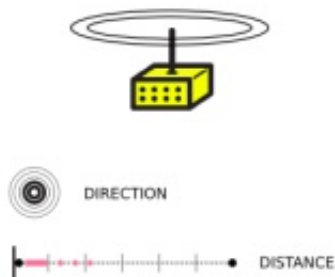
1. Divide into groups of 5-6 people. Each group should have a large piece of paper to draw a map and a printout of the activity. Each group will also need 10-20 of each type of router (or they can draw the routers).
2. Within the group, review each of the routers the wireless rules. Be sure everyone is comfortable with the information.
3. Begin by drawing your town or neighborhood. Discuss areas the network could connect and how people would access the network (hint: you might start with local organizations or public places).
4. When you have a general map, start adding the routers, thinking about how each of the locations will connect.
7. After the groups have finished, each group should present their map.

## BASIC WIRELESS DESIGN RULES:

1. Wireless routers need to have line of sight, so you will need to consider if signals will be blocked by buildings or trees. This is one reason you normally place routers on rooftops.
2. Laptops and smartphones can only connect to routers 50 to 100m away, so make sure there are access points near where you want people to be able to connect to the network.
3. While a high powered routers can speak to a low powered device far away, the low powered routers will not be able to respond. Lower powered routers will need to connect to routers within their estimated distance.



## LOW POWER OMNIDIRECTIONAL (ALL DIRECTION) ROUTER

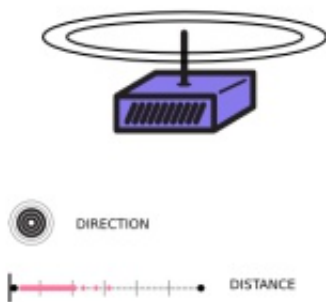


**FUNCTION:** Broadcast and receive in all directions over a short distance

**GOOD FOR:** Providing an access point for users, inside a house or building

**ESTIMATED DISTANCE:** 10-100 meters

## HIGH POWER OMNIDIRECTIONAL (ALL DIRECTION) ROUTER



**FUNCTION:** Broadcast and receive in all directions over a medium distance

**GOOD FOR:** Outdoor connections between buildings

**ESTIMATED DISTANCE:** 10-300 meters



## HIGH POWER SECTOR (DIRECTIONAL) ROUTER

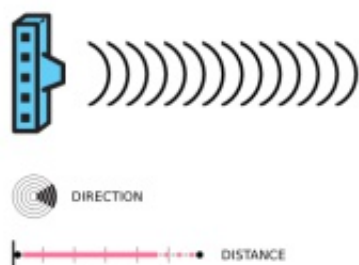


**FUNCTION:** Can broadcast and receive across a semi-focused area

**GOOD FOR:** Outdoor connections across longer, broader distances

**ESTIMATED DISTANCE:** 100-2000 meters

## HIGH POWER FOCUSED (NARROW BEAM) ROUTER



**FUNCTION:** Can broadcast and receive in one direction across a long distance

**GOOD FOR:** Long-range outdoor connections between two specific points

**ESTIMATED DISTANCE:** 1000-10,000 meters



# IDENTIFY NEIGHBORHOOD SKILLS°°°

..... OPEN TECHNOLOGY INSTITUTE

Like most community technology projects, wireless networks require a combination of social, technical and physical tasks, such as talking to people, listening, forming partnerships, solving wireless engineering problems and installing hardware. These skills are almost never found in a single person. More often, an individual is strongest or most interested in one area. In community meetings, you might ask what each person would like to contribute to the project.

In these activities, you will examine the different skillsets you will need to plan, build and maintain your network and how to find them in your community.

**TIME REQUIRED: 45 MINUTES.**

## MATERIALS + SUPPLIES:

Pen

Paper



## ACTIVITY 1: NETWORK SKILLS

As a group or within small groups, write a list of skills that will be necessary to plan, build and maintain your wireless network. Think about the skills needed to do tasks such as making flyers, flashing routers, mounting hardware, connecting electricity to rooftops, buying equipment, and finding other community members that would like to be involved.

Next, think of the different skills you know exist within the community and how those skills might benefit the network.



For example, an artist can help make flyers or create art where there are wireless nodes, and a carpenter can help make hardware mounts for different locations. Add those community skills to the list.

Tip: Try to engage any local amateur (HAM) radio operators. When it comes to running cable and mounting antennas, they will likely have experience and tools, as well as typically a strong sense of community service.

## **ROLES IN THE NETWORK**

Rather than trying to do everything alone, it is best to involve multiple people with different skillsets. Below are three common types of contributors and example skills that contribute to a healthy community network:

### **ORGANIZER**

Outreach

Working with and recruiting volunteers

Holding community meetings

Reaching out to important community partners

Conducting community surveys

Budgeting and finance

### **HANDY-PERSON**

Mounting hardware on rooftops or in parks

Connecting electricity to the sites

Building mounts for others to use

Teaching people how to build their own mounts

Purchasing and managing equipment

### **TECH ORIENTED**

Installing mesh software on routers

Configuring routers

Teaching others to install and configure routers

Troubleshooting network problems

## Creating local applications

Individual people in the community may take on these specialized roles. Or, depending on who is involved, some people may share a role or take on more than one role. Also, some skills may fall within multiple roles. By narrowing down the ways people can contribute, it is easier for more people to participate.

How does this list compare to the list you made in the first activity? Add anything to your list that you might have discovered.

## ACTIVITY 2: NAME THAT PERSON

Next to the skill write the kind of person, organization or the specific individual that you know has that skill. People you might include: electricians, carpenters, graphic designers, local business owners, hardware shops, specific community leaders and organizers, artists, etc.

For this activity you can use the list below or use the list of skills you developed in the brainstorming session. Fill-in the kind of person, organization or the specific individual with this skill. An example is on the next page.

After completing the list, discuss the following questions:

What skills does the group already have?

What skills do you need to find?

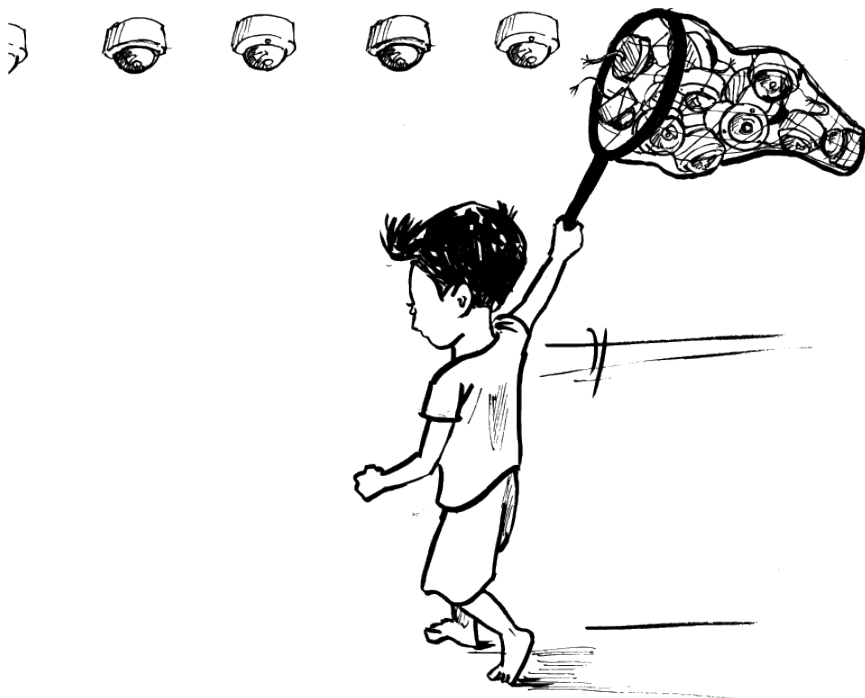
Where would you find these skills? Who in your community might take on these roles?

Identify a strategy for reaching out to each person, organization or group you have identified.



**EXAMPLE**

Outreach.	<i>example: youth organization</i>
Working with and recruiting volunteers.	<i>example: school teacher</i>
Holding community meetings.	<i>example: restaurant</i>
Reaching out to important community partners.	.....
Conducting community surveys.	
Budgets and finance.	
Mounting hardware on rooftops or in parks.	
Connecting electricity to the sites.	
Building mounts for others to use.	
Teaching people how to build their own mounts.	
Purchasing and managing equipment.	
Install mesh software on routers.	
Teaching others to install and configure routers.	
Troubleshooting network problems.	
Creating local applications.	
Making signs.	
Creating a logo.	



## **PUT AWAY YOUR TINFOIL HAT:** **SECURITY IN CONTEXT<sup>ooo</sup>**

..... SEETA PEÑA GANGADHARAN, EMI KANE, AND BEX HURWITZ, COORDINATORS OF THE AMC2014 WATCH THIS! SURVEILLANCE, SECURITY, AND ORGANIZING TRACK

For organizers working to secure and defend the rights of this nation's poorest and most marginalized communities, the surveillance state is nothing new. Even before programs like COINTELPRO, abolitionists had to work covertly due to surveillance by Southern slave owners.

Today's instruments of surveillance are far more complex than those of the past. Yet, current-day social, economic, and racial justice organizers can learn from the holistic response to these issues, evident in the writings of 19th century

● ● ●

abolitionists and others from before and around that time, such as Frederick Douglass who suggested that security be a guiding principle and a value of organizers, not merely a tool.

Learning from these approaches, we have developed a framework for understanding security issues within a larger context and broader historical arc of political organizing. We refer to this framework as "contextual security."

A contextual approach differs from the dominant "right to privacy" framework for addressing security concerns in that it starts with understanding social movement needs and histories rather than going straight to the digital tools and techniques for defending against surveillance.

Many social justice activists and organizers do not find the tools-focused, privacy rights framework of "a right to privacy" helpful. It's hard to start with the language of rights or technological solutions when state and corporate actors regularly and systematically upend the privacy of our communities. For many of us, the conversation of surveillance must begin by addressing social power and problems of social control.

Over the course of the last three years leading panels and strategy sessions at the Allied Media Conference, and informed by the work of the Tactical Tech Collective—we've learned that conversations about safety and security are most successful when they are grounded in discussion about what we envision, know, and practice.

The following set of questions offer a starting point for grassroots organizers interested in applying a contextual security framework to their organizing.

Begin by asking yourself the following questions:

- ... What are you fighting for? Who are you fighting for?
- ... What does safety mean to you and your community?
- ... What are you concerned about with respect to your security – physical, digital, emotional/psychosocial/other?
- ... With whom do you work or interact in your organizing?

Next, think about your communication security needs and strengths:

- ... What are you already doing to protect yourself from surveillance?
- ... Which kinds of information or communications need to be kept only between you and your networks or allies in order for you to reach your movement's goals?
- ... What kinds of information does your network need to collect and store to reach your movement's goal?
- ... Have you thought about which laws (if any) are in place that affect how you interact, communicate, congregate/assemble with others? What are they?
- ... Which tools of communication are you most reliant on? And which communication networks are you most reliant on? How much control do you have over those tools or networks?
- ... How much do the owners/creators of those tools/networks have over you?
- ... Are the tools or networks you use widely adopted by the people or communities you are fighting for?
- ... How likely are your allies or networks to adopt new digital tools? Are there others you can turn to for support when adopting new digital tools?
- ... Can you and your allies or networks afford the tools you rely on or tools you will need to adopt?



You can engage in this activity as a mapping exercise, in which each member of your group writes a single answer to each question on a sticky note. Then place your answers underneath each question on a wall or butcher paper.

For many of the questions, you can categorize answers along a continuum. So, for example, when answering the question about reliance, label one end of the continuum "total group or personal control" (e.g., you, your organization or collective created and owns the communications tool you use). Label the other end of the continuum "no group or personal control."

Consider also the dimension of time. For many of the questions above, ask yourself: "How does my answer change over time, if we're talking about today, the length of our campaign, this year, the next decade, or an entire generation?"



# EVERY COMMUNITY IS RESILIENT:

## NEIGHBORHOOD COMMUNICATION TOOLS

THE WORK DEPARTMENT

OPEN TECHNOLOGY INSTITUTE

Each of our communities is unique and has many intersecting layers. We can see physical layers (the “built environment” like buildings, parks, and streets) but what about the systems, like communication, that are more difficult to detect on a map? How do different systems work together to create resilient neighborhood connections?

In this workshop, we address how physical, social, and digital infrastructure layers stitch our community ecosystems together. For example, during Sandy, libraries across the region served as physical safe harbors offering heat and comfort, while digital networks like Red Hook WiFi helped neighbors mobilize recovery efforts. Our connections enable us to navigate disasters, and they also help us organize around everyday issues.

## GOAL

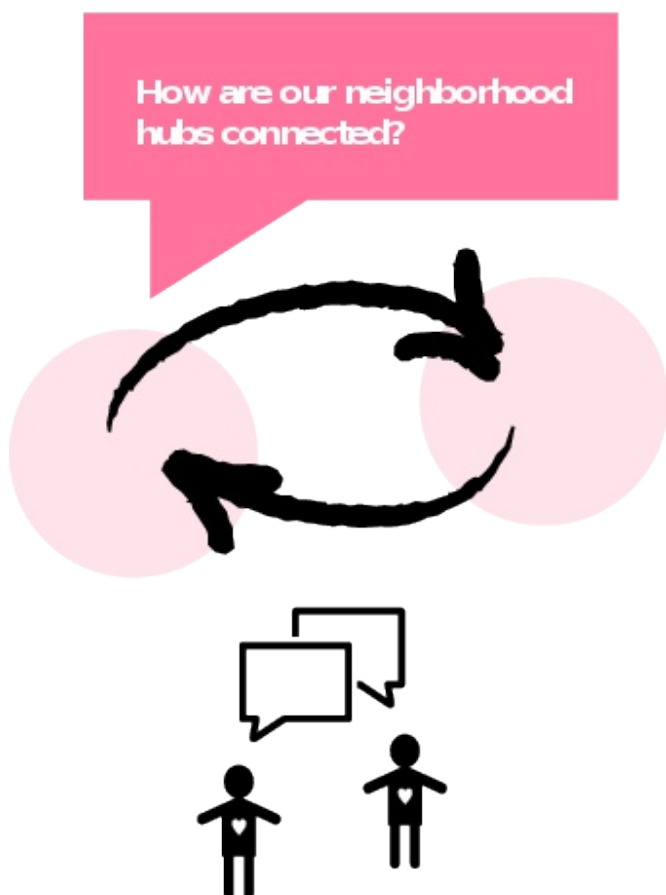
Facilitate a collaborative mapping process that enables you and your community to identify and build communication tools for resilience.

## OUTCOMES

1. Collaborative conversation around social + digital assets
2. Map of neighborhood connections and disconnections (existing digital and analog tools and opportunities for new connections)
3. Three clear next steps (may include community contacts, resource connections, engagement / project ideas)

## MATERIALS (PER GROUP)

- 18 x 24" large paper
- 3-4 highlighter markers (different colors)
- 3-4 regular markers (different colors)
- Scissors
- Connection/Disconnection Cards
- Glue stick or tape



—  
CONNECTION

**How are the hubs connected?**

—  
DISCONNECTION

**Where are the dividing lines in the neighborhood?**

—  
CONNECTION

**What digital tools do people and hubs use to collaborate, organize, help each other, and get the word out?**

—  
DISCONNECTION

**Are there some places that are dangerous or unusable?**

—  
CONNECTION

**What non-digital tools do people and hubs use to collaborate, organize, help each other, and get the word out?**

—  
DISCONNECTION

**Who is disconnected or left out, especially in emergencies?**



## STEPS

**BREAK INTO GROUPS** of 5 by neighborhoods or area. Place the large paper in the center of the table so that everyone can see and engage with it. Pass out the markers and highlighters within your neighborhood group.

### HUBS

1. Discuss where your neighborhood hubs are: places where people gather, run into each other, hang out. Make sure you think about where different groups in the neighborhood connect (not just your particular community). Consider both public spaces (parks, recreation centers) and businesses (cafes, barbershops).
2. As your conversation unfolds, sketch a map of your neighborhood hubs on the large paper. Decide together on how to define the boundaries of your neighborhood.
3. In your conversation, recall what happened at these hubs during Hurricane Sandy or other emergencies. Who gathered there, and why?

### CONNECTIONS

1. Pass out the Connection Cards and use these questions as a guide.
2. Draw connections between your hubs using a highlighter, and either stick or draw icons or notes onto the map showing the different communication tools used by different groups. How are the hubs connected? Do the same communities and groups within the neighborhood use the same hubs? Where do different communities and groups mix?
3. What digital tools do people and hubs use to collaborate, organize, help each other, and get the word out?
4. What non-digital tools do people and hubs use to collaborate, organize, help each other, and get the word out?

# CONNECTIONS WORKSHEET

<p>Name + Organization</p>	<p>Email + Phone</p>
<p>What tools do your neighbors use to collaborate?</p>	<p>Who in your neighborhood is disconnected?</p>
<p>What tools or combination of tools could connect the people who are disconnected?</p>	



## DISCONNECTIONS

1. Now it's time to look for challenges or disconnects.
2. Use a different color highlighter to mark areas on the map as you consider the following questions.
3. Where are the dividing lines in the neighborhood? (For example, between gentrified and struggling areas? Between groups that speak different languages?)
4. Are there some places that are dangerous or unusable?
5. Who is unconnected or left out (examples: elders, kids, people with disabilities or different language speakers), especially in emergencies?

## SUM IT UP

1. Work as a group to summarize the story of your map as if describing it to a newcomer or someone from far away. You can use the space above to brainstorm.
2. Complete your Connection Worksheet and present findings to the larger group.

# STORY PRESS<sup>ooo</sup>





## **MESH TECHNOLOGIES AND SOCIAL CHALLENGES**

MIKHAIL FROM FALANSTER - MINSK, BELARUS | 22/04/2015

Originally from <http://talash.by/node/5>

Reprinted with permission.

We began activities with mesh networks about two months ago. It is an incredible mix of wave theory, deployment issues, and social challenges. Why? I would like to talk about the points below and share its history before. Lets begin with the background and main definition.

### **MESH INTRO**

First of all, what is a mesh network? It is a wireless network without hierarchy, where every node can have different roles as a router, a server, a client, or a gateway. Mesh is a self-healing network. When someone switches off their own device, the network continues to work. The non-hierarchical technology can help people be the owner of their communication channels and distribute responsibility of the network uptime and about their basic freedom in community.



## THE MESH CLUB. ORIGINS AND STRUCTURE

February, 2015. I started the mesh club in the youth organization Falanster. I thought it would be a good place for starting a mesh initiative in my country. Why? Because the Falanster has a progressive vision and mission: to help develop and defend civil groups, communities, and society using digital technologies.

We divide the mesh club's activity in to four main parts (branches). The first one is a series of meetups where our knowledge and theories about network basics are shared. The second one is a practical part which is saturated by work with different devices, firmware, and network applications. The third one is social communication.

On this point I need to pay more attention. There are different street festivals, creative places, topics, or local communities which have need to foster communication in their own networks. I live in Belarus, it is an Eastern European country, and there is a good internet penetration for households (about 90%).

But there is one big issue here. All power for communication comes from one state provider (ISP) who controls all the external (and most of the internal) Internet traffic. It gives them the opportunity to control communication and implement freedom of speech censorship. We started the initiative to accumulate and spread knowledge about an alternative network – a mesh network.

The fourth branch for the mesh club's activity is to develop public Wi-Fi areas. For this case, we will motivate people to share their Wi-Fi for other people to use, and to develop mesh activity in the areas most ready for Wi-Fi in Minsk (the capital). We would like to begin a free spectrum movement

● ● ●  
for open use of Wi-Fi frequencies (2.4 and 5 GHz).

## TARGET POINTS OF MESH RESEARCH

We have a little story of mesh implementation in two different locations.

The first place is a big hangar in the creative center CECH, in the center of Minsk. There are many different events with a lot of people, especially in the warm months. We want one of our mesh experiments on the 16th of May during the Share Youth Practices Festival.

The second place is a big city park called Loshitsa where inhabitants want to start a festival for neighbors at the end of May. Several weeks ago we visited there and made a map of the area for a future mesh center (we entitle it as IT-tent) and a Wi-Fi bridge to a potential gateway in an adjacent area of the city.





## MESH GAME

We were inspired with the “Every Network Tells a Story” activity from the Commotion Wireless project, and developed “Mesh-Game”. It is a fork =). Now when we are going to visit a new place for a possible mesh network deployment, we use this activity to teach people to plan the network and possible conditions that could come up in the future. At the end we have a diagram which, firstly, will help us in future deployment (we hope =) ). Secondly, it engages people from local and topic communities in the design of their future mesh network. It is a win-win scenario: fun and utility.

## SOCIAL CHALLENGES

While there are a few technical issues, we can manage with stuff during the next few weeks. The hardest issues at the moment are social patterns, habits, and stereotypes. When we communicate with different communities they understand networks as the capability to have Internet access. They don’t understand why they need to use local network functionality, if the Internet exists. They also see all

our efforts as trying to provide Internet access for free. Their understanding can be described with simple formula: Mesh = Wi-Fi = Internet.

The other issue is hardware. The Commotion software has a short range of supported router models. It is a huge issue for people who don't have extra expenses to change their usual router (or one imposed by the provider), and understand the attitude of the traditional ISP. Therefore now we focused on street festival mesh activities. It is a more fluent area for flexible mesh strategies.

## AS A CONCLUSION

We've just started our mesh adventure, and we will meet a variety of social issues along the meshification way! It is a very interesting process to open opportunities. My reader, I will keep you in the loop about our successes and troubles. I will be curious to read other mesh experiences and experiments. Be in touch! **Be mesh!**

More information at <http://falanster.by/be>





## **ALLIED MEDIA PROJECTS AND THE GLOBAL RELEVANCE OF DETROIT'S GRASSROOTS TECH SCENE**

KAT HARTMAN, JUNE 17, 2014

From ModelD Media: <http://bit.ly/Model-D-DigiStew>

Reprinted with permission.

Allied Media Projects evolved out of the Allied Media Conference, which has existed in one form or another since 1999. The AMC wasn't always a local asset, however. During its first six years, the conference was held in Bowling Green, Ohio. AMP formally incorporated as an organization in 2002 and Detroit Mike Medow (now AMP's business manager) got involved to help move the AMC to Detroit in 2007.

AMP's nearly two-decade-long history as leaders of innovative media work in the midwest has allowed them to build a powerful global partner network. AMC co-founder

● ● ●

Josh Breitbart went on to work at the New America Foundation's Open Technology Institute (OTI). In 2011 he helped AMP and their partners in the Detroit Digital Justice Coalition secure a grant from the Broadband Technology Opportunities Program (BTOP) of the National Telecommunications Information Agency (NTIA). The BTOP money required a focus on expanding broadband Internet adoption in underserved communities. AMP and the East Michigan Environmental Action Council, both founding members of the Detroit Digital Justice Coalition, used the BTOP funds to launch three programs under the banner "Detroit Future" (no relation to Detroit Future City).

Over three years, the Detroit Future programs has trained thousands of Detroiters in digital media literacy. AMP's recently published "Detroit Future Media Guide to Digital Literacy" provides an in-depth look at their uniquely effective approach. AMP's Digital Stewards program began as a "track" within the Detroit Future Media training, taking "digital literacy" a step further -- not only were students learning how to make their own media, Digital Stewards learned to install and manage these decentralized Internet networks in their own neighborhoods.

Today, the Digital Stewards project has emerged from AMP's Detroit Future Media program as a distinct force and a platform for hands-on technology education and improved Internet access for some of what used to be Detroit's least connected communities.

To understand how wireless mesh networks are used to train, engage, and empower Digital Stewards, it's essential to understand a bit about the technology. Individuals can join the network by logging into the mesh wireless signal transmitted by a router. To extend the range of the signal and grow the network, they can simply install a router along



a direct sight line with a router already within the network, usually on rooftops within a neighborhood. When participants connect their computers or other devices to these routers, they are able to exchange digital information with one another.

This specific network structure is called an intranet. It allows participants to communicate only with each other through a secure network that is independent from the Internet; however, it is also possible for one user within the intranet network to connect directly to the Internet and broadcast that signal, allowing all users on the network to gain Internet access. While, a large number of users may affect the quality of this external Internet connection, the cost of a wireless router is relatively low, about \$50-\$100, making the Internet much more accessible in low-income communities.

By building these networks themselves, AMP's Digital Stewards develop skills and learn about the Internet, software, and hardware. In short, they develop a general digital literacy. Diana J. Nucera, the community technology director at AMP and coordinator of the Digital Stewards Project, explains that participants tend to be older Detroiters who are looking for a safe space to learn about technology and the Internet. Currently, stewards range in age from 20 - 78. To create an inclusive learning environment, Nucera has developed a unique curriculum that is accessible to and respectful of all ages and backgrounds.

"This pedagogical approach tends to challenge traditional notions of who technologists are and how they are trained," says Nucera.

She believes that Detroit's tech ecosystem currently lacks technologists, but the stewards program is a powerful localized strategy for filling this skill gap.



Currently there are seven mesh networks in Detroit. They are all supported by AMP and maintained by Digital Stewards who are residents of the neighborhoods where the networks have been installed. An anchor organization in each community also assists with organizing and managing these networks. This is essential to Nucera, who believes that building these networks inspires residents to think about the future of their neighborhoods in new ways.

"Locally maintained networks require community investment to a degree that results in community improvement," says Nucera. "Additionally, there is the added bonus of Internet access, which AMP considers to be a human right."

Once network installation wraps up, the stewards will begin populating the networks with locally specific apps that serve the needs of their neighborhood. Stewards will help with the development, installation, and testing of these apps.

The stewards of a network located in the 48217 ZIP code, which has been listed as Michigan's most polluted ZIP code, are planning to install sensors that track air quality levels. The data these sensors produce will be collected and maintained on their network. All stewards plan to develop and install an app that allows for their communities to

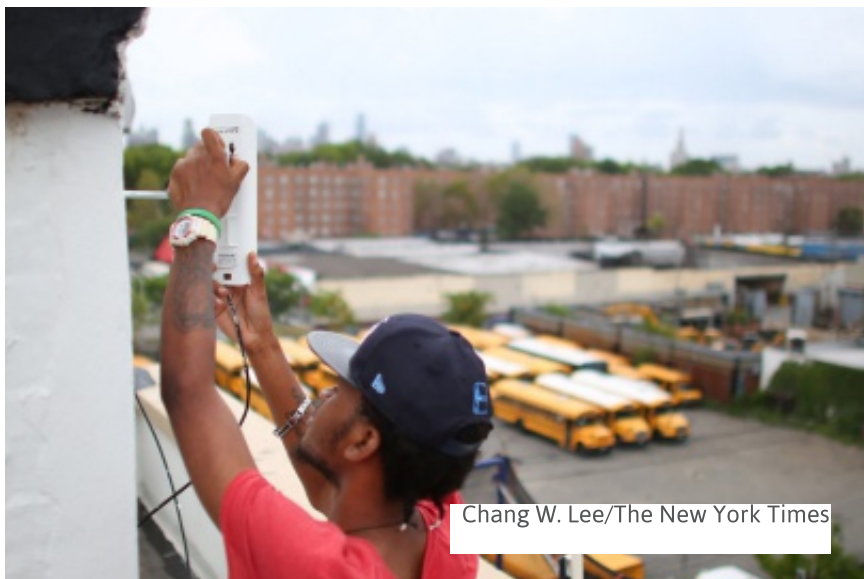


operate a digital radio station through their respective networks (this particular project was recently chosen as a finalist for a Knight Arts Challenge Grant).

These highly local and Detroit-specific apps will work in tandem with open source software developed, tested, and fine-tuned by people all over the country, highlighting the unique scale and scope of the Digital Stewards project. AMP's national partner OTI has recently released Commotion 1.0, an operating system for wireless mesh networks that provides a platform on which the Steward's apps can run. Navigating this software package provides Stewards another opportunity for building their digital literacy, but additionally, the apps they build in the process have the potential to be adopted by other wireless mesh users all over the world. The Work Department, a Detroit-based design and development firm, collaboratively designed the curriculum toolkit and documentation for Commotion with AMP and OTI. The Work Department underlines one more example of how Detroit-based technologists are contributing to a global conversation through local projects.

The Digital Stewards project is able to take on the specific and nuanced issues affecting Detroit and develop tech solutions that are globally relevant. Across its projects, AMP have been finding innovative ways to engage Detroit's grassroots and diversify the city's tech ecosystem. While this work has a direct impact in Detroit, AMP's organizational power comes from their ability to see these narratives in a larger context and then share them with world for maximum impact.

Learn more at: <https://www.alliedmedia.org/dctp>




## **RED HOOK Wi-Fi**

### RED HOOK INITIATIVE

Red Hook WIFI is a community-led, free WIFI program in Red Hook, Brooklyn, where broadband adoption rates are lower than the city average. Our vision is to close the digital divide, generate economic opportunity, and facilitate access to essential services and improve quality of life for residents and businesses in our neighborhood. We partner with local businesses to design, deploy and maintain the WIFI network, and provide a path to a career in technology for young adults in Red Hook. Additionally, whenever a user signs on to the network, our homepage displays local events, places of businesses, local news, jobs listings and more. Red Hook WIFI is completely free to users.

The WIFI program began as a pilot by RHI in early 2012 and became the primary communication platform for public housing residents in the recovery period immediately following Hurricane Sandy. Over the past three years, Red



Hook WIFI has expanded to 15 hotspots throughout the neighborhood serving hundreds of Red Hook residents and visitors. Unlike most neighborhood or city-wide free WIFI programs, Red Hook WIFI has been designed, installed, maintained and promoted by young adults who are residents of public housing in Red Hook.

## **DIGITAL STEWARDS**

The Digital Stewards are young adults from Red Hook ages 19-24, employed by RHI to use technology as a pathway to community development and meaningful employment. In a year-long, paid fellowship, Digital Stewards spend the first six months training in software and hardware technology and media production. Then, they apply their new skills to community development initiatives for three months, and culminate the fellowship with a 3-month internship at a tech-based business. Digital Stewards are also provided coaching and counseling in leadership, public speaking, and professional development to facilitate a successful transition. RHI has proudly graduated 15 Digital Stewards. 75% of them have gone on to further employment, training programs, other technology fellowships, freelance work or further education.

## **FUTURE EXPANSION**

Red Hook WIFI, a program of the Red Hook Initiative, was selected from over 200 applications from around the globe as part of the NYC Economic Development Corporation RISE: NYC competition. The Red Hook Initiative, the only community-based non-profit to be awarded a RISE grant, will receive a portion of the \$30 million award funds to expand the Red Hook WIFI network through partnerships with local businesses.

● ● ●

Through a partnership with Sky Packets, a wireless network installation and maintenance company, Red Hook WIFI will install and maintain 70 access points throughout Red Hook. With such growth, Red Hook WIFI will cover 80% of the commercial areas in the neighborhood and make it the largest community-developed and maintained free WIFI program in the United States.

Red Hook WIFI is also partnering with The Beautiful Earth Group to enhance the stability and resiliency of the network through solar backup energy and have proposed an innovative distributed mesh network with designed redundancy in the event of a power outage. Additionally, local ISP Brooklyn Fiber will provide 1 gigabit of dedicated bandwidth for the network, enabling users to experience speeds faster than common residential access.

17 businesses hosting resilient Red Hook WIFI Internet gateway equipment will receive free high speed Internet service for the 2-year duration of the grant period, and over 50 additional Red Hook businesses and their customers will be able to take advantage of the free network.

The expansion of Red Hook WIFI will continue to be installed and maintained by Digital Stewards, a group of young adults who are residents of public housing in Red Hook employed by RHI in a year-long, paid tech fellowship. 30 young people have graduated or are actively employed as Fellows with 75% of graduates pursuing a tech career, securing employment, or continuing their education.

RISE: NYC funding will cover the cost of equipment, Internet bandwidth, design, and installation while RHI will continue to support staffing and salaries for the Digital Steward Program. “Red Hook WIFI offers a unique opportunity to

blend essential job training and paid employment for young adults from Red Hook while bringing critical services for the local business community. It is truly an example of a community building strength from within.” says Jill Eisenhard, Founder & Executive Director of RHI. The awards were announced on April 29, 2015 and Red Hook WIFI will begin the expansion work in early fall 2015.

Find out more at: <http://redhookwifi.org/>



Chang W. Lee/The New York Times



# MESH BUKAVU

BENJAMIN MURHESA

OBSERVATIONS AND REPORTS FROM JANUARY TO MAY 2015

*Radio Maendeleo in Bukavu, Democratic Republic of Congo had a three day workshop in January, 2015 to build a community network. The result was the beginning of a network with local applications and resources for the community. What follows are anecdotes of the first few months of running the network.*

FEBRUARY 2ND, 2015

As the first Mesh project in Bukavu, I have a lot to explain to people before moving forward with the project. I made contact with organizations in which we will set up our equipment and I think that went well. For the next parts of the network, I want to install another antenna in the nearby office to cover the town of Ibanda in full, and part of Kadutu - if we have enough equipment.

One issue we have seen so far: we launched a network that does not cover all of Bukavu. This may cause some problems, as people who are in areas that are not served by the network want to connect. I get calls every day from people asking me to come quickly and install on their buildings!

The students really applaud the presence of Wikipedia and the library of books on the network. For other young people with smartphones, it is the chat feature that interests them. Currently, I am taking the opinions of the population already using the Mesh, I am compiling their opinions for network improvements. After welcoming the opinions of the people, I will evaluate them and see if there other applications that I can add to the network to meet those needs. This should not

be a problem, since we worked on this in the workshop, but can contact others for help if need be.

To recap: we installed routers on Radio Maendeleo, Radio Star, Women's Media Association (AFEM), Superior Pedagogical Institute (ISP) Ceruki and main campus, and Heir of Justice. Today I just Installed at the Bukavu General Hospital. Tomorrow in the morning, we will install at Groupe Jérémie. Our hope is that the surrounding population of these offices will also have access to the network.

For now, we are not advertising the network - we do not think it is time yet. First, we must cover more of Bukavu (as much as we can), then make the network available to the public. We will then try to get invited to some organizations and programs, and make a few presentations to explain the network to more people.

For the next few months we will focus on expanding this project quickly. News of the network has arrived in the neighboring city of Goma, and people there are very excited about it. I have received calls from people in Goma to bring this initiative there, to North Kivu. If we could go to Goma, and see it is feasible, I think it could be a great project. In Goma I will not have any problems, since I am a native of Goma, and bring many relationships with some NGOs and universities there.

I have already thought of a small group of people who can help with network maintenance, and we are working on the sites that require troubleshooting here in Bukavu. I am thinking of takingve dynamic individuals with these skills as the group of people for a Goma workshop. The problem there is payment for those individual's time - otherwise we might already be set for continuing the project, and the upcoming workshop.

One site - KJN, is really far from the city. For this installation, we are using Rocket M5 routers with dish antennas, in a point-to-point configuration to make the link. With some additional configuration we can extend the network to that location.

MARCH 31ST, 2015

During the past few weeks, we worked to expand the network with a group of six people. Most were involved in the original workshop to build the network, but we had a few new faces. We were also excited to work with all the wonderful people at the different organisations where the network equipment is installed.

The following organizations supported the mesh network these past few weeks with their roofs and towers:

- Radio Maendeleo
- Groupe Jeremie
- PNMLS
- Prasad
- Superior Pedagogical Institute (ISP), and Ceruki
- Women's Media Association (AFEM)
- Heritieres de la Justice
- Radio Star
- KJN in Bagira
- The tower of Orange in Chomuhini

We received feedback and input from the people who are using MeshBukavu. They have provided us with many ideas and suggestions for the network. Below is a summary of their suggestions:

**1. Websites** - Currently Wikipedia is running on the mesh as engine to draw people to the network. This has been very



successful and useful. There has also been a request to have access to copies of local websites from the universities, civil society groups, and human rights organizations.

**2. Library** - Mesh users appreciate the free books that are available on the network, however these books are only novels. They would like to have access to more academic subject as well, for example books on Computer Science, Mathematics, Physical Chemistry, Accounting, and other academic publications.

**3. Entertainment** - With more applications for entertainment on the server, we can increase interest with youth and children. A parent recently asked us to add games, songs, and film specifically for children.

**4. Chat** - People would like to use the chat server and ChatSecure to send images and sound files. People would also like to use other chat clients.

**5. Documentation** - Apart from the documentation about the network, which is currently available, the server should also host documents on courses in languages (English and others) and a dictionary.



● ● ●

In the past few weeks we encountered some routing challenges on the network. If a client is connected to a node, on some places it is impossible to reach the server. Connecting to this server is working very smoothly at the Access Point of Radio Maendeleo. While every node connected to the network is meshing correctly, but the connection to the server was not working. One local volunteer was able to resolve the problem, fortunately. Thought this did take a bit of time to fix.





# हैकर gram

## HACKERGRAM

HACKERGRAM & MOJOLAB, INDIA

### WHAT'S IN A NAME?

Hackergram is an experiment that we started in Bhopal 2012. We were a group of 4 young individuals who believed we wanted to do something that we could consider as our humble contribution to the larger scheme of things. We all defined it our own ways and tried to figure out the areas that we wanted to work in. But as the existence of any entity goes through various changing processes, so did we. One fundamental thing about change is that while one can take some time to articulate the documentation, in reality we have only one decision that can be executed. For people like us who had no experience in living with a sub-urban or rural community, those decisions sometimes weigh on us quite heavily.

Let's start with the name of our experiment, Hackergram. A lot of people find this name "cool" in the city and the next question we are asked is what do we "hack"- people's social accounts, financial account or are we "ethical" hackers, and many more questions like that. What we wanted it to mean was it's a "gram" (read village in Hindi) community of people who contribute by being who they are "hai" ( as in Being in Hindi) or "kar" (read doing in Hindi) doing what they do. And then the biggest challenge follows soon and that is explaining the nature of work we do. I'm not sure even my father understands fully what we do? He has an idea that we

● ● ●

do work with technology, meet a lot of people, travel and little bit and some more technology there. Oh and of course that Arjun is an Ashoka fellow. And it has taken us two years of effort to get very little recall value from people above our generation. And as far as the rural community goes, we do not even bother with the name and they can't really care less for it. So the recall value for the friends in our village comes from the work that we do in their area.

This makes us wonder have we chosen a name that people cannot connect to and as result to our work. Because even with language barriers they are able to connect with us as human beings and at that level for them when someone in the future comes and asks them who we are and what we do, they would tell you our names who worked on laptops and put up a network. And that raises a speculation that may be should give a name to our experiment based on the place we go. Now if we do that how will people know that this work is being done by us? Ironically, it's like making a brand name for oneself, which we have moved away in the first place but feel the requirement of building one nonetheless, since it is the custom of "market" or any entity in the universe. After all how can you define and connect to something that has no recall value, if it has no name.

## BUILDING THE COWMESH AT JANASTU HACKERGRAM

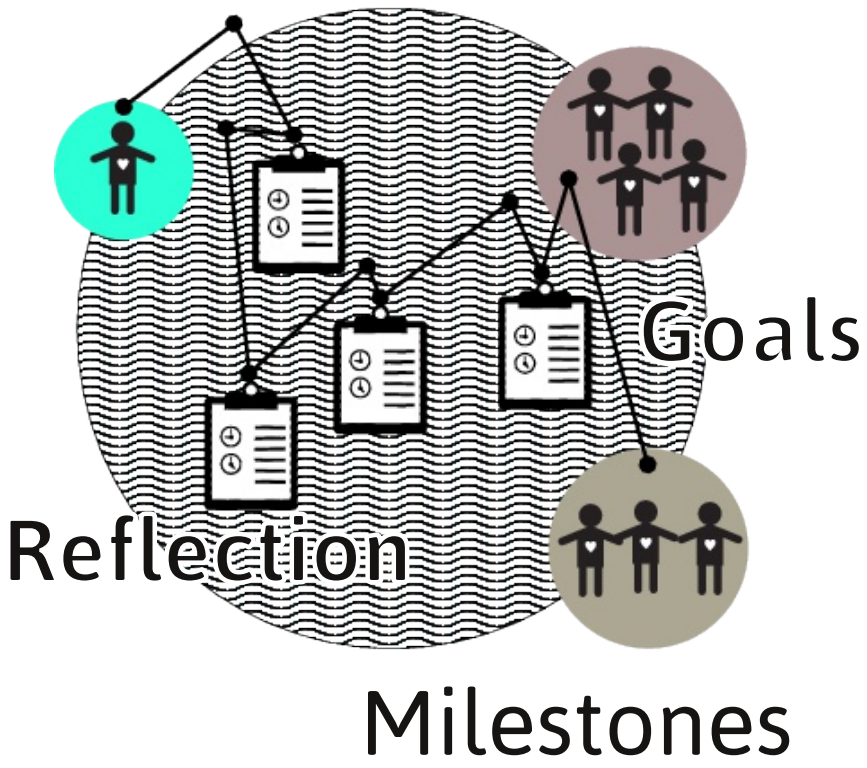
We're setting up a local, off-grid WiFi Mesh for 5 villages around Janastu Hackergram. The idea is for people to first learn to use take ownership of their connectivity and learn to use communication tools in a low intensity, localized, peer environment with external information brought onto the network by choice of the participants. We think this will help extend the best of the Internet while allowing people to consume and share information at a pace of their own choosing rather than at the mercy of a centralized connectivity agenda. We also believe that learning to share information safely and responsibly before getting on the internet will create better quality digital citizens.

Co-conspirators welcome!





Purpose





# DEVELOPING PROJECT METRICS<sup>ooo</sup>

---

.....DETROIT COMMUNITY TECHNOLOGY PROJECT

The purpose of this worksheet is to draw out the best method(s) to measure the progress of your project. There are three sections to this worksheet:

1. Developing project goals
2. Identifying your goal measurement methods, and
3. Identifying milestones.

## UNDERSTANDING THE PURPOSE OF YOUR PROJECT

Answer the questions below to flesh out the purpose and trajectory of your project.

### **WHY ARE YOU DOING THIS PROJECT?**

What issues are you trying to resolve and why?

### **WHAT KIND OF IMPACT DO YOU WISH TO CREATE THROUGHOUT YOUR PROJECT?**

Who will be impacted and why is this important?

### **WHAT DOES SUCCESS LOOK LIKE?**

What type of impact would you like to make in your community? What does that impact look like?



## SETTING PROJECT GOALS

Read through your answers above. Look for themes and concrete statements that describe the work you will be doing. Use the template below to develop at least 3 to 5 goals that reflect your answers above. Goals should be **MEASURABLE**, connected to a **TIME FRAME**, and be **SPECIFIC**.

Here are a few examples:

*Goal 1: The Detroit Community Technology Project will develop at least 15 COMMUNITY TECHNOLOGISTS through a community training in the SUMMER OF 2015 that will go on to build a 15 NODE MESH NETWORK IN 4 NEIGHBORHOODS.*

*Goal 2: The Detroit Community Technology Project will hold 3 COMMUNITY WORKSHOPS in the EAST, WEST AND SOUTHWEST REGIONS of the city about community wireless in the FALL OF 2015 that will teach people BASIC TECH SKILLS while simultaneously recruiting volunteers and people to participate in housing mesh routers.*

Now define 3 to 5 goals for your project. Use the color coding to identify what is measurable, the time frame, and the specific details of your goal.

**1. (NAME OF YOUR PROJECT) WILL ...**

**2. (NAME OF YOUR PROJECT) WILL ...**

**3. (NAME OF YOUR PROJECT) WILL ...**

## IDENTIFYING GOAL MEASUREMENT METHODS

There are several ways you can measure goals. What you are measuring will determine how to collect the data you need. If you are doing a training and want to measure how well you transferred skills and how many people you trained - in order to better understand your teaching methods, you may want to track attendance and do a pre and post skills assessment. If your goals are less about numbers and more about self transformation or relationship building you may want to collect testimonials by creating surveys that allow people to share their stories rather than circle “yes” or “no”.

Here are a few examples of measurement tools you may want to try:

- Pre- and Post-test
- Surveys
- Transcribed conversations
- Attendance to events or workshops
- Written Reflections

The questions below will help you draw out what approach will work best for each goal.

**GOAL 1:** \_\_\_\_\_

What in this goal is measurable?

Why do you want to measure that?

What do you plan to do with the information you gather?

When will you measure this goal?

How will you measure this goal?

**GOAL 2:** \_\_\_\_\_

What in this goal is measurable?

Why do you want to measure that?

What do you plan to do with the information you gather?

When will you measure this goal?

How will you measure this goal?

**GOAL 3:** \_\_\_\_\_

What in this goal is measurable?

Why do you want to measure that?

What do you plan to do with the information you gather?

When will you measure this goal?

How will you measure this goal?



# MILESTONE WORKSHEET

Milestone	Date	Task(s) <i>to reach milestone</i>	Point Person	NOTES

## IDENTIFYING MILESTONES

Milestones can be events, the completion of lesson plans, specific meetings, the completion of a flyer design, the completion of a website, installation of equipment, or a decision that needed to be made that will impact the future of the program - or any other important progress made on the project

Using the goals you developed for your project, identify milestones or specified points in your project that will lead you closer to reaching your goals.

*\*Note you should have at least 1 milestone per month of your project.*



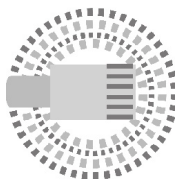
# NOTES



# NOTES



[communitytechnology.github.io](https://communitytechnology.github.io)



Detroit Community  
Technology Project

