MY APPLICATION

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SUBMISSION FORM

EDIT

PHASE II SUBMISSION – CONCEPT ONLY TRACK

Submission Fields (all answers must be in English language)

Overview of the solution/proposal: The non-technical overview of the proposed solution. Maximum 3600 characters (about 500 words)
Project website: https://wiki.techinc.nl/User:Becha/Lika/ProjekatPovezanoPolje

Goals of the project "Getting Lika Connected" are: bringing internet connectivity to a village in Croatia (Gubavcevo Polje), in order to achieve the rejuvenation of the remote rural communities, digital rights for the marginalised, while following "Environmental Justice in Tech" principles (Limitations / Reparations / Solidarity) & principles of Feminist Internet.

The proposed solution is to build a wireless community mesh network: distributed, decentralised, not-for-profit, communally owned & operated, built from repurposed / refurbished equipment, and set up by volunteers from the hackers & (digital rights / climate justice / feminist) activists.

Reasons for focusing on this area are: the multitude of disadvantages (historical, political, economic) in the last 30 years : ravaged by war (1991-1995), de-population, isolation, Climate & Environmental Crisis, Economic Crisis, Political crisis...

Out of the 9 KPIs, the strongest ones for this project are: SOCIAL IMPACT, INCLUSION & INNOVATION.

Vesna Manojlovic, a proposer & a leader of the project, has a long history of feminist activism, and is currently fulfilling a Diversity & Inclusion Advisor role within her regular (part-time) employment, and multiple Community Awareness / Code of Conduct Team volunteer roles in various intentional communities.

CV: https://wiki.techinc.nl/File:Vesna_CV_Bibliography_May_2024.pdf

Project time planning & tangible results:

Duration is 3 years: November 2023 - November 2026

* Phase 1: Exploration & Negotiations (1-9 Months) Time: November 2023 - August 2024
* Phase 2: Building (1-3 Months) Depending on the phase 1 outcomes
* Phase 3: Maintenance (0.5 - 2.5 years) Time: 6-24 months after the building.
* Phase 4: Final Review & Closing (6 months) May-November 2026

Detail design and/or schematic diagram (optional):

(none)

Video of your solution (optional)

(none)

Who will benefit from your solution and how?

Most benefits will be for the native/local community, who would be able to do their administration on-line, and to stay connected with the region, country, Europe & world; and their families in diaspora / emigrants from the region would be able to re-connect with their region of origin, and with families & friends left behind. Youth / next generation is more likely to visit their grand-parents, if they know that they can continue their "on-line lifestyle" even if they are in this remote village.

Secondly, women in the community, who are already strong leaders, will be able to influence the decisions about the network deployment, since one of the guiding principles is the principles of the Feminist Internet. (for example, "access" : https://feministinternet.org/index.php/en/principle/access)

Thirdly, having connectivity would enable enable "remote working" for temporary visitors, and thus invigorating local community interactions; mid-term, "digital nomads" would visit too; long-term: it would attract more people to MOVE IN & create new (intentional) communities / international communities of hackers, activists, artists and friendly experts.

And as importantly, there will be aspect of "no harm", that will bring the benefits to planetary environment & the more-than-humans: rivers, birds, forests, squirrels.

KPI'S

INNOVATION

Maximum 1500 characters (about 200 words)

Describe the degree to which the solution to an identified connectivity problem/issue is novel, unique, and original, in terms of its increase or improvement in connectivity, commercialization, or business models.

This approach is novel in 5 categories: 4 of them with regionally adjusted from existing examples :

* promotes community engagement & grassroots empowerment for rural networks (KPI: SOCIAL IMPACT, INCLUSION)
* business model based on cooperative ownership, commons: shared ownership, the direction that opposes commercialisation,
* technically, by practicing creation of "mesh networks", decentralised networks with alternative infrastructures , for resilience (possibly off-grid) ; this had been already implemented at many places globally
* promotes principles of "Feminist Internet" (https://feministinternet.org) , by harnessing the power of strong community leadership of local women

This innovation aspect is globally original :

* promotes Climate Justice, by using ONLY repurposed / reused / recycled equipment! & using ONLY renewable energy / fossil-fuels free energy
References: https://labs.ripe.net/author/becha/environmental-impact-of-internet-urgency-de-growth-rebellion/
& https://labs.ripe.net/author/becha/towards-climate-justice-in-tech/

Stretch Goals for Innovation category:
- adding other equipment to the "WiFi sites", with sensors & measuring (Klimerko, RIPE Atlas… LIGHTNING DETECTORS) -> making this ^^^ data available to locals
- monitoring & alerting & STOPPING deforestation, water abuses, illegal hunting, forest fires…

RELEVANCE *

Maximum 1500 characters (about 200 words)

Describe the degree to which the solution solves or addresses an identified connectivity problem/issue and the digital divide, particularly
1) relevant to underserved communities in the targeted area;
2) delivering real value to its users in the targeted area; or
3) suitable for submission in the specific use case.

(whenever possible, please use numeric or quantifiable data with references)

This village (and nearby villages) is in need of support, due to de-population, war, and economic under-development: https://en.wikipedia.org/wiki/Gubavčevo_Polje & https://en.wikipedia.org/wiki/Gračac

https://www.academia.edu/79963682/Demographic_characteristics_of_Lika_region

I have been visiting here every year since 2013, I have organised one mid-size international festival in 2016, and many smaller gatherings in the last 10 years: https://wiki.techinc.nl/User:Becha/Lika & https://wiki.techinc.nl/User:Becha/Lika/2013-plans

This rural, isolated area is NOT well covered by the mobile network of national telecom provider: https://www.hrvatskitelekom.hr/karte-pokrivenosti

Making wireless mesh network is a well established alternative for remote areas: "Alternative Network Deployments" https://www.rfc-editor.org/rfc/rfc7962 & https://cn-roadmap.github.io

Local community has built & maintained own drinking-water infrastructure, governed as commons, since 1950's, still in operations; and they had a co-op for local produce exchange & re-selling from 1945 till 1995 (between two wars) ; this shows that they are capable of maintaining Internet infrastructure as commons;

Women, specifically, have been focus of the re-development efforts: https://likaclub.eu/4-medunarodna-konferencija-zene-i-tocka-i-ove-godine-u-lici-okuplja-uspjesne-poduzetnice/

SUSTAINABILITY *

Maximum 1500 characters (about 200 words)

Describe how your solution is planning to achieve sustainability including both financial/business (e.g. investment/revenue streams) and technical (e.g. implementation aspects). In answering financial/business sustainability, it would be helpful if you can address the following questions:

- Is there broader support for the initiative beyond your organization, either financially or otherwise? Does any of this support come from industry partners or government entities? If so, can you highlight details on this?
- Is this a market-based model or are subsidies required to achieve ongoing progress?
- Has this been commercialized and if not, are there plans for commercialization that you can share? Can you comment on any impending business model and anticipated fees? Do you believe that the product/service can (or should) reach commercial sustainability?

This concept proposal is for the exploration & building phase, in order to create new infrastructure, as this is the biggest initial investment requirement.

Maintenance & ongoing operations will be covered in the cost sharing / Common pool ways, at first voluntarily, and potentially by formally establishing a co-op.
e.g.
https://wiki.techinc.nl/User:Becha/Lika/ProjekatPovezanoPolje#Budgeting_Maintenance_Phase

This project is not meant to become a profit-making business, and it might rely on constant fundraising to stay viable.

Estimated sources for future funding are:
- diaspora: emigrants who are willing to support "land of origin", and are financially able to do so
- NGOs
- EU funding e.g. support for adding Connectivity to remote villages:
https://ec.europa.eu/enrd/smart-and-competitive-rural-areas/smart-villages/smart-villages-portal_en.html

I have been applying for funding since 2022, and I will continue to do so:
https://wiki.techinc.nl/User:Becha/Lika/ProjekatPovezanoPolje#Funding

Minimal Budgeting Building Phase
• equipment: antennas, servers, cables, poles, batteries, solar cells = 2000 €
• connectivity fees: 100€ x 12 = 1200€
• electricity costs (in case we do not get enough renewable solar energy) 15€ x 12 = 300€

Different kind of "sustainability" is very important for my project - environmental sustainability, that I covered in KPI INNOVATION.

+ https://wiki.techinc.nl/Sustainability

SCALABILITY

Maximum 1500 characters (about 200 words)

Describe the capability or potential with which the implementation of a particular solution can be easily scaled up, within and without the targeted geography/demographic, to benefit/potentially benefit a broad number of people and/or support areas with demonstrated lack of connectivity or usage. In answering this, please be sure to indicate what indication you have of beneficiary buy-in and interest level.

Initial plan is to create the coverage in a very small village.
Near-by villages are on the route where the antenna's should be located, so it is "natural" to extend to them, too — and that is how "scaling" will function.

Here are the locations & local women leaders that I have established contact with:
* Gubavcevo Polje : Mrs. Markelica
* Omsica: Mrs Klanac
* Deringaj: Mrs. Anka
* Kijani: Mrs. Sovilj
* Gračac: Mrs. Mićerete Fidani

I have contacts with two (female) librarians, in local public library in Gračac, which provides space for research, team meetings & local community focus.

I have also already established cooperation with a nearby NGOs Prospero & Prizma - they already run many projects where we could both benefit from cross-connections:
https://www.udrugaprospero.org/wordpress/
http://www.udrugaprizma.hr

NGO Prizma is willing to cooperate, since they are organising an orthogonal project:
https://www.nomadland-project.com/

Rural Tourism: https://www.ideasforchange.com/en/blog-archive/depopulation-and-accessibility-the-combination-to-boost-a-tourist-destination

My preferred technical solution is also developed by a woman (Elektra Wagenrad) "Independent Solar Energy Mesh System" : https://isems.netlify.app/en/

EFFICACY

Maximum 1500 characters (about 200 words)

What is the cost/benefit ratio of the solution? (The efficacy of a solution can be measured by its cost/benefit ratio, which is calculated as the cost of the solution per person or service it benefits.) How does this compare with other existing or comparable solutions, to the best of your knowledge? Also, do you believe that the cost of the initiative would be reduced if your initiative achieved greater scale or would they be likely to stay the same?

My proposed solution will be FREE OF CHARGE to the users for the first year, subsidised by grants, volunteer work & repurposed equipment;
after the first year, it will be funded by contributions , in the co-op / community governance model.

Existing commercial alternatives are:
* local telecom offer : e.g. 13€/month, but without guaranteed reachability:

https://telemach.hr/mobilni-internet/paketi-za-pretplatnike ; and limited to household
* Starlink: 80€/month, with initial investment of 500€ - again, individual solution that does not scale & is not economically viable for poor people

I have been researching other solutions, and here are 3 concrete examples of what I am NOT interested in doing — while they do have some elements that are suitable; I might borrow the ideas & work together with them:
* RuralNet: Croatian, Commercial, based on optical fiber, state-owned (or state sponsored) https://www.ruralnetwork.eu/hr/o-nama/
* Rhizomatica: Very successful with community, I have been working with them, but it's based on mobile technology : https://wiki.techinc.nl/Rhizomatica_Community_Telecommunications_Infrastructure
* off-grid micro-net: Ideologically perfectly right, good tech tips, but not yet successful: https://anarchosolarpunk.substack.com/p/offgridinternet

My solution will, additionally, provide empowerment for women: see SOCIAL IMPACT KPI for the description.

READINESS

Maximum 1500 characters (about 200 words)

Describe the readiness and maturity level of the team for solution development/deployment including achieving necessary scale. Have you filed patents where appropriate? What is the experience and expertise of the team? What is the team's growth vision? How does the team plan to get the support and buy-in from the community?
I have been planning this project, theoretically, since 2013, and practically since 2019.
I have very strong connections with European technical communities, and with local population. Team will consist of volunteers from all of these areas: for example: https://www.otvorenamreza.org/sto-je-otvorena-mreza/

I have both technical skills my self (Bachelor degree in Computer Science) and Community Building skills (part of my day job, and my passion).
I have been teaching (last 30 years) & organising workshops & events (last 10 years); e.g. https://wiki.techinc.nl/Internet_Governance_and_hackers
For getting buy-in from local community, it helps that my roots are here — both my grandmother & my father were born & died here —and I have been living part-time in this location, in my own little "hut" for 10 years. Plus I speak local language(s).

I am also trained in NVC mediation of conflicts, and I can invite other negotiation experts to help out.

RISK LEVEL

Maximum 1500 characters (about 200 words)

In addition to discussion of standard business risk elements like operations, compliance, economic/financial, please describe your analysis of the risks of the proposed solution, based on factors such as its complexity, regulation, stringent technology/implementation/market requirements, community or beneficiary buy in, intermediaries or partners, or vulnerability to local or regional geopolitical changes.

There are multiple risks / challenges, related to: geography, technology, legal structures, desired principles & cultural norms:
* Area Challenges: - hilly; - hard to access; - isolated from supply chains
* Technical Challenges: - getting "backhaul"; - securing electricity supply; - negotiating with land owners; finding "lines of visibility" ;
* Legal / Administrative : - creating a structure for shared ownership; revitalising a culture of commons governance

* Principal Challenges
- using ONLY renewable energy / fossil-fuels free
- using only repurposed / recycled / refurbished equipment (that is at the same time low-power-usage)
- Feminist Internet principles: using only Free & Open Source software
https://feministinternet.org/en/principle/open-source

SOCIAL IMPACT

Maximum 1500 characters (about 200 words)

Describe the potential positive impacts on or contributions to society your solution has made in terms of citizens' quality of lives (e.g. equality, employment) if your solution succeeds. Additionally, if you anticipate that your solution could have wider benefits (e.g. healthcare, education, agriculture, etc.) then please indicate (but only where this can be attributable to your solution), etc.). If your solution is targeted towards an intermediary (like an ISP or Telco operator), what evidence do you have that the benefits (such as lower prices, etc.) are passed on to the end user?

Projected positive outcomes of my project:
- successful, easier, more regular & stronger connections between locals & emigrant population / families
- rejuvenation of the local communities - by attracting youth back to the area (or at least attracting grandchildren to visit!)
- making local community more connected with the region, country, Europe & world
- making local produce available to the remote "markets": for example, selling medicinal herbs, wild fruit, sheep wool, and honey.

Most of the benefits will be for women, because women have traditionally been tasked with "emotional labor" of keeping families connected - and by making this easier, they will have their burden decreased; also, the "gathering" economy (herbs, honey) are by custom done by women - and the increased income from being able to see (or share / exchange) these products will improve women's economic positions.

Conversely, any solution that increases connectivity would bring most of the above benefits — and this is a unique one:
- strengthening of local community by sharing a common infrastructure

"Governing of infrastructure as commons" will again benefit women, since the existing cooperation between strong female leaders (examples listed in other KPIs) will keep this new infrastructure in their hands; since there will be no profits, there is less danger of the "takeover" by men (who are still having deeper patriarchal attitudes).

INCLUSION

Maximum 1500 characters (about 200 words)

Describe the inclusivity of your solution with respect to the target audience/beneficiary. Is your solution able to address underserved user communities such as women, children, elderly, low income, accessibility challenged, LGBT+ etc., or help them overcome the digital divide? Please also address whether your solution can reach people where it is more convenient and/or where they will feel safe (such as in their homes)?

My solution is addressing these underserved user categories, in order to overcome digital divide: rural population, women, elderly, low income.
In addition to covering connectivity at homes, WiFi Mesh will also cover the fields, where shepherds are often walking with their flocks of sheep & cows.
Currently, we are not focusing on LGBTQ+ group, but the family members of younger generation , from diaspora, are firmly within those categories, and in the interviews that I conducted with them, they show both the readiness for participation, and the need for improved Internet connective coverage.
My expertise and qualifications as Diversity, Equity & Inclusion advisor: within RIPE & technical hackers communities
https://wiki.techinc.nl/User:Becha/public-wiki#Diversity
e.g. "Data Feminism" https://labs.ripe.net/author/becha/data-feminism-from-data-ethics-to-data-justice/

& I have been fighting for inclusion & empowerment of End Users :
https://labs.ripe.net/Members/becha/the-internet-is-for-empowerment-of-end-users

ANTICIPATED CHALLENGES/OBSTACLES

(Maximum 800 characters)

Please indicate what impediments/challenges exist, and any anticipated barriers to adoption. This may include, but is not limited to, technological, market-based, cost, socio-cultural issues, compliance, etc.

In addition to the ones listed in "RISK LEVEL", possible obstacles can come from illegal practices, such as:
- vandalism (destroying the antennas by hunters or bored youth)
- theft (stealing equipment, same categories)

& Climate disasters (deep snow, strong winds, flooding, heat waves)

STANDARDS (OPTIONAL)

Would you like your application reviewed by the IEEE Standards Association for potential standardization projects?

- No

OBSTACLE

(maximum 800 characters)

Describe any aspect of current standards that represent an obstacle for your solution (N/A if

not applicable)

N/A

SUPPORT

(Maximum 800 characters)

Describe any potential standards that need to be introduced to support your solution (N/A if not applicable)

N/A

CONSENT TO THE STATEMENTS BELOW BY CHECKING THE AGREEMENT BOXES

I consent to a due diligence check by IEEE to confirm that I am who I say I am and that the project or ideas described in this submission are in fact my work (or our team's work).

- I consent

I declare that the contents of this submission are my own (or our team's) and not the intellectual property of a third party.

- I declare

Will you commit to being available to present your idea/solution (virtually, live) to the Selection Committee in September?*

- Target dates are 2-13 September; we try to be as accommodating as possible on scheduling

- I agree to the statement above

Are there any blackout dates you want to tell us about?

- Yes

Please expand

I am giving training courses in Sarajevo 2-6. September, so those are not very good dates for additional presentations.

If you win, are you available to share/present your solution at our Summit on 14 October 2024 (either in-person or virtually)?

- I agree to the statement above

If you win, are you willing to submit a video showcasing your idea/solution?

- I agree to the statement above

If you win, will you provide us with an update on how you are progressing approximately one year later?

- I agree to the statement above

LEAD PARTICIPANT

First Name

Vesna

Last Name

Manojlovic

Employer/Affiliation

UnCiv

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Example: +61 3 1234-5678

Application Type

● Individual Application

Are you at least 18 years of age?

● Yes

Are you an IEEE member?

● No

Type of team: How would you categorize yourself or your team?

● Individual

Competition Track (Choose the track you will compete in for this submission)

● Concept Only (your idea has not yet been undertaken or demonstrated/proven)

Solution Title

Getting Lika Connected : Povezano Polje

ABSTRACT

The concept or project solution description. Please include the main motivation for the solution, and describe the business/social/community need, technological challenge or market opportunity (if appropriate). You may also include a description of and/or comparison with the nearest current state-of-the-art technical/business/social solution. You should describe how your proposed solution is novel/innovative and how it has the potential to overcome the limitations of existing solutions. Maximum 3500 characters (about 500 words).

Web site: https://wiki.techinc.nl/User:Becha/Lika/ProjekatPovezanoPolje

Idealistic goals of my project are: rejuvenation & reconnection of the remote rural communities, while following "Environmental Justice in Tech" principles (Limitations / Reparations / Solidarity).

Practical goal: bringing internet connectivity to Gubavcevo Polje (a village in Croatia); optionally: as a "community mesh network"

This will be done in cooperation with family, local community, emigrants, international communities of hackers, activists, artists and friendly experts. Mid-term, this would enable

"remote working" for temporary visitors, and thus invigorating local community interactions; long-term: it would attract more people to MOVE IN & create new (intentional) communities! And short-term, it would be making organisation of "camps" & "gatherings" easier

* Additional goals:
- practicing creation of "mesh networks" : rural networks, community networks, decentralised networks…
=> WHILE focusing on LOW TECH & SLOW TECH (offering MINIMUM VIABLE SERVICES)
- enabling "remote working" for temporary visitors, and thus invigorating local community interactions
- attracting more people to MOVE IN & create new (intentional) communities!
- making organisation of "camps" & "gatherings" easier

* More detailed social goals
- keeping (online) connections / communication between locals & emigrant population / families
- strengthening local community by sharing a common infrastructure
- making sure that the project & service is NOT-FOR-PROFIT / non-commercial
- rejuvenation of the local communities - by attracting youth back to the area (or at least attracting grandchildren to visit!)
- making local community more connected with the region, country, Europe & world
- making local produce available to the remote "markets"

* Stretch Goals
- adding other equipment to the "sites", with sensors & measuring (Klimerko, Atlas… LIGHTNING DETECTORS?)
> making this ^^^ data available to locals
- monitoring & alerting & STOPPING deforestation, water abuses, illegal hunting, forest fires.
- producing & sharing local content & media

Problem Statements
The village of Gubavcevo Polje, and the municipality of Gracac, has been suffering a lot in the last 30 years (and the more distant past has not been easy, either): Ravaged by war (1991-1995), De-population, Isolation, Climate & Environmental Crisis, Economic Crisis, Political crisis…

This resulted in displaced people, disconnected families, and destroyed nature.
- Ravaged by war (1991-1995)
- De-population
- Isolation
- Climate & Environmental & Economic Crisis

CHALLENGES
Area Challenges: - hilly; - poor; - hard to access
Technical Challenges: - getting "backhaul"; - securing electricity supply; - negotiating with land owners; - getting funding

Principal Challenges
- creating a structure for shared ownership; revitalising a culture of commons governance (as used for water infrastructure)

- using ONLY renewable energy / fossil-fuels free
- using only repurposed / recycled equipment

I am a Community Builder for Network Operators Groups / RIPE, so I have good contacts with engineers worldwide (also with IETF/GAIA); and my family comes from Lika - so I am working with local communities on the ground.

My biography: https://wiki.techinc.nl/File:Vesna_CV_Bibliography_May_2024.pdf

https://becha.unciv.nl
https://labs.ripe.net/Members/becha

Maturity level of the solution (Please indicate the maturity level of the proposed solution. Check all that apply.)
- Conceptual only

PRIMARY CATEGORY

Which category does your submission fall under primarily?
- Community Enablement (CE): your solution enhances community demand and adoption of internet service provision. Example may include innovations in: digital literacy/skills training; accessibility; content relevancy; language or other barriers to use

Does your submission also apply to other categories? Check all that apply.
- Business Models (BM): your solution uses a new business model/approach, which may make internet use more affordable or enhance reach of service
- Technology Applications (TA): your solution is focused on a novel or innovatively new use of technology

TECHNICAL INNOVATION

If your solution is technical in nature, please answer the following:
- Has components of both

SPECTRUM

If spectrum is involved, is it
- No spectrum involved

INFRASTRUCTURE

Are you
- Creating new infrastructure

BUSINESS INNOVATION

If your solution involves an innovation in business models, specifically those that impact affordability, please check any of the following boxes that apply:
- Common pool solutions/cost sharing

COMMUNITY INNOVATION

If your innovation involves a Community Enablement solution (and hence is more likely to impact the level of demand for internet use) please check any of the following boxes that apply:

- Digital Skills Building
- Other
- Accessibility
- Language solutions
- Creating/enabling relevant content (e.g. agriculture, education, health, entertainment, etc.)`

Please specify other

Rural Repopulation; Digital Nomadism; Disaster Recovery

SCOPE

Please select the scope or intended scope of your proposed solution. (check multiple boxes if more than one applies)

- Other
- Rural

GEOGRAPHIC AREA

Please indicate what geographic area you are (or intend to) focus on.

Croatia / Lika (area) / Gubavcevo Polje (village)

How did you learn about the IEEE CTU Challenge?

- Non-IEEE email list