Highlights are concepts that need refinement

ORGANIZATION: Open Source Ecology
PROGRAM: Seed Eco-Home2 Spec Build / Registered Apprenticeship
PROGRAM GOAL: Empower individuals to improve their material wellbeing in sustainable ways.

Problem Statement: Key barriers to technology and enterprise limit social mobility and regenerative economic models.

INPUTS	ACTIVITIES	OUTPUTS	SHORT TERM OUTCOMES		INTERMEDIATE TERM OUTCOMES		IMPACT
Resources that will be used to support the project	*The main activities that the project will involve*	*Size + scope of tangible products / services that will be delivered by the end of a year*	*Results (Timeframe Here)* - *These timeframes should be long enough that you have had an opportunity to observe impact*	*Indicators (Timeframe Here)*	*Results (Timeframe Here)*	*Indicators (Timeframe Here)*	*What long-term change in systems / conditions / environment will occur because of your project?*
Money ● *Grant funding* ● *GI Bill* ***Knowledge*** ● *OSE wiki* ● *Collaborators* ● *Prototypes* ***Supporters*** ● *Institutions*	1. *Spec Build Seed Eco Home* 2. *Campus Infrastructure* 3. *Registered Apprenticeship*	1. *Home purchase* 2. *Hab-lab, junkyard, mini workshop, kitchen* 3. *DoL and VA approval*	*Feb 1 2022* *Mar 1 2022* *Jun 1 2022*	*1x Customer Initial funding* *24x workers for spec build* *First class of 24 apprentices begins*			

● *Organizations* ● *Sponsors* ***Workers***	*4. Education Certification* *5. Marketing*	*4. Proprietary School Designation* *5. Apprentice Candidates*					

Assumptions:

- Material scarcity correlates with suffering
-

Application Requirements:

PROPOSAL

1. **Are you applying for a fellowship, grant, or are you undecided at this time?**

2. **How do you describe your idea in a tweet?** *Mass production through production by the masses.*

3. **Please provide a summary of your proposal: No longer than 1500 words. Must stand on its own.**

> **The first part of the proposal should be about you. Tell us your personal story, and how it relates to what you wish to do. We probably don't care much about your formal education, credentials, or awards, unless they're particularly germane to who you are or your idea. Do tell us your background briefly, but credentials are not what will impress us.**

Using a chronological frame:

Early Life

Growing up in Poland and having a grandparent [who was] in the concentration camps, I was aware even at an early age what happens when materials are scarce and when people fight over opportunity. After immigrating to Paterson, NJ…(what was the takeaway from your first experience with abundance?)

Schooling and Professional Life
At Princeton, I struggled with…and realized that…(what was your lightbulb moment as an undergrad?)

My experience in WI further solidified my belief in…(What drove you to abandon academia?)
What other milestones or turning points have you experienced in your life that resonate today?
Where did you fail and what did you learn from it?

Starting OSE
I bought a farm, believing that…
I lived in a mud hut, ate X, and spent my days…
By overcoming the following challenges, I have since learned that…

> **Second, what is one mainstream or "consensus" view that you absolutely agree with? (This is our version of a "trick" question, reversing the now-fashionable contrarianism.)**

Capitalism drives innovation

Capitalism is criticto human flourishing

Climate change is real al

Education is critically important

> **The third part should be about your idea. Convince us that this is a great idea worth investing in, and tell us what is new or unusual in your vision and understanding. What's the problem you intend to solve? If you have a ballpark budget (with revenue sources and expenses), let us know the bare basics now; we won't hold you to it strictly.**

My goal, and my daily life, is dedicated to open source these tools, so that anyone—from the remote villages in Third World countries to small enterprises in the developed world—can have access to these meaningful tools to create a better life for themselves. EVERYONE needs access to these tools—it's why we're creating them with an open source model, and with the most advanced digital and physical technology known to us today. The intended outcome for these tools is for 12 people working for a mere two hours per day, purely from local resources, . . . to sustain themselves and take advantage of a modern economy. The goal is to build cities from the ground up, and in harmony with the very nature of the planet we inhabit. With these tools, and with this outcome, I hope to decrease the barriers to human potential—freeing up human capital to achieve the higher goals of awareness, actualization, and invention.

Also (if applicable) tell us how long you have been working on this project or idea, whether you will be working on it full time or part time, any existing formal or informal partnerships or supporters, and how you might intend to reach your users or audience.

For the past 18 years, I have been willing my vision into existence, from the food I eat to the roof over my head. GVCS -> SEH as a revenue generating product to fuel revolution. By 2028, we hope to accomplish…Take the world to full promise of unbridled access to prosperity. 1) Financial independence or democratizing access to capital. Increasing access to capital. Open Source Capital. Massive unleashing of productivity and creativity (nobody sees that). Open development to transform industry, beginning with housing.

4. Please upload any other supporting documentation here:

- Innovations Article
- TED Talk
- New Yorker article?
- Something from WIKI?
- SEH Spec Build Budget
- Glidepath?

5. Multimedia URL:

6. Raw cut of 1500 words:

<u>Draft 1</u>

I was born in Poland, now I'm in the US. My grandmother was in a concentration camp in WWII, and my grandfather in the Polish underground derailing German supply trains. My family moved to America in the 80s, soon before the iron curtain fell, when I saw tanks rolling down my street. Not a parade, but the last days of martial law. It was also a brain drain as my father, a scientist, got a passport to America. Life changed for us overnight. I always thought how science and tech could improve the lot of humankind. I ended up getting a Ph.D. in plasma physics - but I discovered - that I was useless.

So I started a farm, and lived in a mud hut, in Missouri. Tired of academia - I wanted to something real. Thus began my lifeling experiment - what would it look like to create an ideal society from scratch? We began to build - what is known as the Global Village Construction Set (GVCS) - a set of the key, 50, open source machines that could build a civilization with modern comforts - a civilization in a box which could be replicated inexpensively anywhere in the world. Timeless idea, tried many times before - but now we had the power of the internet on our side. We got to the world stage in 2011, with my TED talk on the GVCS - as the project began to grow on its own.

We build hundreds of prototypes with contributors from all over the world - proving that industrial productivity can be achieved - on a small scale. We coined Extreme Manufacturing - or rapid swarm builds based on modular design. We get really excited about the promise of digital, distributed manufacturing - a new economic system based on open, collaborative design. Where we create revenue models that are not based on scarcity - where we transition the open source paradigm of non-rival resources into the world of the tangible (non-software) economy. Progressives relate to this as universal basic income. Entrepreneurial types people call it financial independence. Exponential tech lovers like Diamandis and Branson call it creating 10x the entrepreneurs with open tools. We call it distributed market substitution and the open source economy.

But a decade later, it became apparent that open source hardware - is much harder than open source software. Not 10x or 100x, but more like 1000x harder. Great! We found a big, hairy, audacious goal. A few years ago, we transitioned from the vision to execution - from a decade of proofs-of-concept - to enterprise. The next trillion dollar economy - not re-distributive but instead truly distributive - based on an open source hardware core. Yet we have 200 years of proprietary industrial culture that stands in the way, patents, and an elephant in the room - people thinking that we really collaborate. We think that we're doomed to remain in the stone age of innovation - until we learn to collaborate. That means we don't revert to patents and reinventing the wheel - but using a common core as the new basis of enterprise.

Our next step culminates in a single product that builds upon our open source machines. Housing 2.0. Using our swarm build methods, open source modular design, and unbridled collaboration - we are starting an apprenticeship program to solve housing. Our main innovation is compressing build schedules with our integrated design and a modular swarm build model, from 6 months to 14 days. By training entrepreneurs to build houses - and to create an open source franchise around this. All knowhow is open and free - we monetize on the houses we build and the training programs to enlarge the open innovation ecosystem. As the only way to solve any complex world issue. Housing is such an issue. On one side is the technology itself, which we digitize as in the 6Ds of disruption model. With financial incentives where we train people to become partners in an open source franchise, we move forward to unbridled innovation fueled by radical transparency of both the house and the underlying business models.

The roadmap involves starting an apprenticeship program at our land-based site as our next milestone for 2022. We already have the design and prototypes, and we're solving for training the builders - as partners. This includes an open source microfactory where we train people and build the house modules. We use a flexible model where we can either build all the modules on site, in the microfactory - or any combination thereof. Our service is flexible - from providing turnkey builds - to complete house kits - to training and consulting.

In 2023, we plan to release our next house model - built with compressed earth blocks (CEBs) instead of stick frame - using our open source, automated machine. We are already using our open source microtractor in the builds, and are continuing to integrate an increasing level of open source machinery and automation in the build. This is to reduce the embodied energy from ~20GJ for the lumber used in the walls - to less than 2 GJ for the CEBs used in the walls - while adding fire, bullet, and tornado-proofing. We have already proven rapid CEB laying rates, and our next step is to integrate this into a low cost home.

In 2024, we plan to incorporate 3D printed parts, built from recycled vinyl and other plastics. We are developing a plastic recycling infrastructure from trash to shredder to 3D printing filament to 3D printer - using a 100% open source hardware and software toolchain based on the machines that we have already designed and prototyped. By replacing siding, trim, roofing materials, doors, windows, and nonstructural members with 3D printed parts, we aim to reduce the materials cost of our base 1000 sf model from $50k by 25-40% - contributing further to cost control by import substitution.

Our milestone for 2025 is to take our zero energy design even further. We already have a zero-energy option for our base model for 100% off-grid operation using photovoltaics, efficient appliances, and thermal battery storage. Our goal is to add solar hydrogen production with compressed hydrogen storage for fueling cars. We plan on developing already proven hydrogen internal combustion engine cars, bypassing the need for fuel cells. Our calculations indicate that based on industry standard alkaline electrolyzers

combined with the OSE PV system that we used on Seed Eco-Home prototype 1 - we can already achieve gasoline cost parity with hydrogen. This is impossible given that we would be developing hydrogen-optimized internal combustion engines at the same time - so this could be solved only with collaborative design.

Draft 1-JRM Edits

Part I - About Marcin and OSE

I was born in Poland and moved to America just before the iron curtain fell. My grandmother was in a concentration camp in WWII, and my grandfather derailed German supply trains as a member of the Polish underground. After my father, a chemist, got a passport to America, life changed for us overnight. One day, tanks rolled down my street during the last days of martial law. The next, I was overwhelmed by the abundance of the Supermarket in Patterson, NJ. Science and technology seemed to play an important part in it all. I pursued a Ph.D. in plasma physics and discovered that I was useless.

Tired of academia, I wanted something real and started a farm in rural Missouri. From a mud hut, I began a lifelong experiment: create an ideal society from scratch. We began with the Global Village Construction Set (GVCS)--50 open source machines that could build a modern civilization. This was a timeless idea, tried many times before. The internet, however, changed what was possible. In 2011, I brought the GVCS to the world stage with my TED talk.

A decade later, it became apparent that open source hardware is much harder than software. Not 10x or 100x, but more like 1000x harder. We found a big, hairy, audacious goal. *From the day I broke soil, I encountered several formative challenges…tractor, workshops, grit, interpersonal challenges, funding…*

A few years ago, we transitioned from the vision to execution, from a decade of proofs-of-concept to enterprise. The next trillion dollar economy–not re-distributive but truly distributed–based on an open source hardware core. Standing in the way is 200 years of proprietary industrial culture, and the illusion of collaboration. We envision a world that innovates without reinventing the wheel, by using a common core of industrial tools as the new basis of enterprise.

Today, we build hundreds of prototypes with contributors from all over the world, proving that industrial productivity can be achieved on a small scale. We coined Extreme Manufacturing - or rapid swarm builds based on modular design. We feel driven by the promise of digital, distributed manufacturing, and the emergence of a new economic system based on open, collaborative design. We can create revenue models that are not based on scarcity, where we transition the open source paradigm of non-rival resources into the

world of the tangible (non-software) economy. Progressives relate to this as universal basic income. Entrepreneurial types call it financial independence. Exponential tech lovers like Diamandis and Branson call it creating 10x the entrepreneurs with open tools. We call it distributed market substitution and the open source economy.

Part II - A conventional belief you agree with

Conventional wisdom states that free markets and the protection of private ownership rights through capitalism have vastly improved human wellbeing, and we agree. Our vision for an open source economy seeks to exist within this system in a way that reduces the barriers to entry to industrialization while regenerating our natural environment. Expand on conventional idea we agree with here. How would you make capitalism and free markets work for you? How would you improve it to increase human wellbeing?

Part III - Why should EV fund this idea?

Fundamentally, what is the reason someone should invest in this idea? My take is that it simultaneously tackles several issues: labor, education, affordable housing, and the future economy. It brings communities together in a way that silicon valley never could. It applies globally. Once you identify the different categories that the OSE Housing 2.0 addresses, you can mirror the structure below by explaining how it will achieve these impacts.

Our next step culminates in a single product that builds upon our open source machines. Housing 2.0. Using our swarm build methods, open source modular design, and unbridled collaboration - we are starting an apprenticeship program to solve housing. Our main innovation is compressing build schedules with our integrated design and a modular swarm build model, from 6 months to 14 days. By training entrepreneurs to build houses - and to create an open source franchise around this. All knowhow is open and free - we monetize on the houses we build and the training programs to enlarge the open innovation ecosystem. As the only way to solve any complex world issue. Housing is such an issue. On one side is the technology itself, which we digitize as in the 6Ds of disruption model. With financial incentives where we train people to become partners in an open source franchise, we move forward to unbridled innovation fueled by radical transparency of both the house and the underlying business models.

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Overall Feedback:

- I focused on the first ½ of your draft with edits that focused on a more active voice. I stopped after the structure expanded away from your story and into the vision for the future. For the next draft, I think we need to add some structure and reorganize the topics before polishing the actual words.
- I think this is a strong start, but you should talk about your personal journey a little bit more. When you picked me up from the airport, one of your first questions was, “What made you ‘you’?” I think this is a profound question and very important to the first section of this essay.
- I think we need to ground the distributed enterprise model a bit in basic economic terms. I think this is particularly important for the second section we are answering: what is a conventional idea you agree with? Specifically, what aspects of the status quo align with your vision, what doesn’t, and what are you open minded about? Right now your middle paragraphs read as very aspirational. One risk here is that it can seem detached from reality. This isn’t inherently bad because you have a BIG

idea. All I'm advocating for here is to explicitly state how your vision would alter the world as it currently functions. I think this is an important credibility test–does the applicant understand the grandeur of his vision in a way that will help them achieve it? Or, is he biased to see only what he wants to?

- Once we iron out the main points of what you want to convey, we can refine the overall essay to have a clear arc that holds the reader's attention.