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Contact Information

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Organization Information

*** Organization Legal Name** Open Source Ecology
Organization AKA Name
Fiscal Sponsor (if applicable) The Terra Foundation
*** Address** P.O. Box 442
*** City** Maysville
State Missouri

Zip/Postal Code 64469

Province

*** Country** United States

Country of Incorporation

Web Site <http://opensourceecology.org/wiki>

*** Telephone** 816-846-0736

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*** Year Founded** 2003

*** Mission Statement** The mission of Open Source Ecology is to accelerate the development of the next economy, an open source economy that optimizes both production and distribution while providing environmental regeneration and social justice. We create sustainable, low-cost, and open source industrial systems based on clean energy and designed for widespread adoption. By providing hands-on as well as distance-learning programs that teach people to build and service their own industrial machinery, we promote enterprise-based solutions to chronic unemployment and poverty, the re-localization of production, and sustainable economic development where wealth is based on the responsible management of local resources and the ecosystems that provide them.

We are lowering the barriers of entry to the economy by building the Global Village Construction Set (GVCS), a modular, high-performance, do-it-yourself, low-cost platform that allows for the easy fabrication of the 50 different industrial machines that it takes to build a small, sustainable civilization with modern comforts. The GVCS includes machinery, equipment, tools, components, and other infrastructures for creating a complete economy: food, fuel, energy, building materials, transportation, and fabrication. We redesign the conventional technological underpinnings of society so that they are affordable to make at the local level, user serviceable, designed to last a lifetime, and available for everyone to build and use without restriction anywhere in the world. The platform enables more people to produce clean energy, manufacture goods, construct buildings, and grow food locally using machinery that is, on average, 69% cheaper than commercial models when built by the end user.

*** Organization Structure** non-profit

Organization Structure (other)

*** List of Board Members** http://opensourceecology.org/wiki/Board_of_Directors

**List of Board Members
(optional attachment)**

*** Top four senior management team members** Marcin Jakubowski - Executive Director - 7 years - Marcin came to the U.S. from Poland as a child. He graduated with honors from Princeton and earned his PhD in fusion physics from the University of Wisconsin. Frustrated with the lack of relevance to pressing world issues in his education, he founded Open Source Ecology in 2003 in order to make

closed-loop manufacturing a reality. He began development on the Global Village Construction Set, an open source DIY tool set of 50 different industrial machines necessary to create modern civilization. His main interest is evolving to freedom by eliminating resource scarcity as the main force behind geopolitical relations - with the wise use of modern technology adapted for human service.

Joe Justice - Project Leader - Joe founded Team Wikispeed - an all-volunteer distributed Agile/Scrum team that built a 100 mpg vehicle, a record for a road-legal gasoline engine, in three months, and is the lightest car ever to achieve a five-star equivalency rating for front, side and rear impact tests.

Isaiah Saxon - Media Director - Co-founder and Director of Encyclopedia Pictura, a creative team working in film, game design, architecture and agriculture. He has won numerous awards for his music videos, including Video of the Year from DA&D, UKVMA, Antville, and Spin Magazine. Esquire called Encyclopedia Pictura "The Directors of the Future." EP is currently in development on their debut feature film, DIY in 3d, which aims to be the new heroic myth of the Maker Movement in America. They are co-founding an augmented reality gaming startup as part of the DIY transmedia world. For the last two years, Isaiah has led an effort to build a unique hillside neighborhood in Aptos, California called Trout Gulch.

Aaron Makaruk - Development Officer - 6 months - Aaron founded Youth On Record, a non-profit that provides music production and lyric-writing classes to youth in residential treatment centers, and has a history of development work.

Awards or recognition Marcin Jakubowski, PhD:

1. 2011 TED Fellow
2. Best of TED 2011 - #6 - The Huffington Post
3. 2012 Shuttleworth Fellow
4. 2012 Senior TED Fellow

Notes

Financial and Operational Information

*** Audited financial statements**

- [Open Source Ecology - Financial Statement - 2011.pdf \(837.41 K, uploaded by Aaron Makaruk on 03/01/2012\)](#)

*** Statement of financial position**

- [Open Source Ecology - Statement of Financial Position.pdf \(261.32 K, uploaded by Aaron Makaruk on 03/01/2012\)](#)

*** Cash flow statement**

- [Open Source Ecology - Cash Flow Statement.pdf \(243.4 K, uploaded by Aaron Makaruk on 03/01/2012\)](#)

- * **Organizational chart**
 - [Open Source Ecology - Organization Chart.pdf \(1.15 MB, uploaded by Aaron Makaruk on 03/01/2012\)](#)

* **Operating budget** \$64,488.00

- * **Top funders**
1. Shuttleworth Foundation - \$360,000
 2. Ewing Marion Kauffman Foundation - \$100,000
 3. Anonymous - \$100,000

* **Largest grant received** \$360,000 over 1 year from The Shuttleworth Foundation

* **Location: Program delivery** Maysville Missouri, United States & Internationally

Location: Offices

Social Entrepreneur and Issue Area

* **Social Entrepreneur** Marcin Jakubowski PhD

* **Position** Executive Director

* **Is the Social Entrepreneur also the Founder?** Yes

* **Number of years with organization** 8

* **Number of hours worked** 35 hours/week or more

* **Funding Eligibility** No

* **Primary Issue Area** economic and social equity

Secondary Issue Area (optional) environmental sustainability

Focus Area (optional)

Focus Area (2)

Focus Area (3)

* **How did you hear about the Skoll Awards for Social Entrepreneurship?** Skoll Foundation Web Site or newsletter

How did you hear about the Skoll Awards for Social Entrepreneurship? Please Explain.

Narrative Questions

* **1. Provide a brief biography of the social entrepreneur that leads the organization and a description of how this person has impacted the organization's success.**

Marcin came to the U.S. from Poland as a child. He graduated with honors from Princeton and earned his PhD in

fusion physics from the University of Wisconsin, Madison. Frustrated with the lack of relevance to pressing world issues in his education, he founded Open Source Ecology in 2003 in order to make closed-loop manufacturing a reality.

Marcin originally planned to build a homestead and run an organic farm, but after taking out loans to purchase farm equipment and enduring repeated and costly machine breakdowns, he decided to design equipment that he could afford to buy and service without going into debt. Soon after, his vision expanded to include other technologies that provided for the modern way of life. These are the roots of Open Source Ecology, and it's worth the time to watch his TED Talk and listen to him tell the story (link in section 10).

*** 2. Describe the current state of the pressing problem or issue(s) that your organization addresses.**

Developed nations have experienced a reduced ability to attract investments in domestic manufacturing because of the globalization of the labor market and the rise of factory automation. Many countries now face long-term structural problems that are leading to chronic, high rates of unemployment and the erosion of living standards. These economic problems are developing while we simultaneously face the climate change crisis and widespread, accelerating environmental issues.

We mention each of these global concerns because our mission is to simultaneously address economic, environmental, and social problems by forwarding a strategic initiative to accelerate the growth of the next economy from the bottom up, one that optimizes both production and distribution, regenerates the environment, and promotes social justice at the local level without geographic limitation.

Open source technology is about making innovation publicly available. Using the Internet, it is now possible for people across the planet to coordinate solutions to the same global issues locally through a process of experimentation and feedback about their successes and setbacks. A distributed network can accelerate its ability to learn, adapt, innovate, experiment, and finally succeed in a way that had not been possible at these socioeconomic levels before the rise of affordable or free collaborative services. We are leveraging tools such as Google Docs, Agile project management, web conferencing, email, wikis, YouTube channels, forums, and blogs to attempt to solve economic and environmental issues jointly in ways that have only recently been possible.

*** 3. Describe your organization's desired future state of the issue.**

We are building a global, distributed network that accelerates both experimentation and the publication of results in order to determine the most straightforward solutions to the problems we outlined in section two. Our focus is to identify the most affordable ways to build industrial machines that are designed for high-performance and longevity, ease of use and service, as well as how to unlock the power to enhance the quality of life for individuals and communities throughout the world using locally owned clean energy, construction, manufacturing, and agricultural businesses.

We desire to see a future where goods, food, and energy are manufactured locally using abundant, regionally sourced materials. We would like to see the wealth of communities depend on how well local natural ecosystems are managed, because their economic prosperity is intertwined with the health of the local environment.

*** 4. Describe how your organization's work is contributing to the desired future state in question three.**

We create open source designs for conventional industrial machinery, and we provide hands-on training and distance-education materials to teach people how to build the technology themselves. As we scale up our fellowship program, our plan is to incubate enterprise models based on the use of the Global Village Construction Set technology, and in so doing, we will build a growing online archive of open source business models that are free for anyone to adopt and implement anywhere in the world.

A simple business model example is based around building the machines on-demand using abundant, nearly ubiquitous metal fabrication tools such as welders and band saws, and selling them for profit. Another example is to build a business converting scrap metal into virgin stock steel using the induction furnace. More complex examples involve using the open source tractor to till a field, the universal seeder to plant corn, the open source microcombine to harvest it, and the bioplastic extruder to make plastic goods for sale made from biodegradable

materials.

There are other organizations that use enterprise-based solutions to poverty, but we are expanding access to an entire toolset of industrial machinery, ranging from clean energy production and manufacturing, to construction and agricultural sectors. The machines combine in numerous "micro-ecologies" unlocking new economic potential through additive manufacturing processes, and there is a massive field of untapped innovation possibilities waiting to be discovered by individuals and communities across the world.

*** 5. Describe the results your organization has achieved. Answers should demonstrate a direct connection between the organization's activities and tangible results. If possible, please provide outcomes beyond number of clients served or services delivered.**

To date, we have released four GVCS machines at the beta stage, with full documentation: the open source tractor, compressed earth brick press, modular hydraulic-power unit, and soil pulverizer. Each beta-release is published with the following training materials to facilitate independent replication anywhere in the world: (1) design rationale; (2) 3D CAD files; (3) 2D fabrication drawings; (4) CAE analyses; (5) CAM files (where applicable); (6) exploded parts diagrams; (7) bills of materials and sourcing information; (8) scaling calculations; (9) A-Z instructionals; and (10) cost and performance comparisons to industry standards. Documentation is openly available on our website and for shipment in DVD format, along with high-quality video tutorials showing how to fabricate and safely operate the machinery.

Team Wikispeed is an all-volunteer distributed Agile/Scrum team that built a 100 mpg vehicle, a record for a road-legal gasoline engine, in three months, and is the lightest car ever to achieve a five-star equivalency rating for front, side and rear impact tests. Its founder, Joe Justice, is a project leader for Open Source Ecology, managing the development of the open source automobile, which is based on Team Wikispeed's frame, which can easily convert into a truck. Joe is also working with Marcin to implement Agile project management throughout the entire organization.

Thirteen other GVCS machines are currently being prototyped and include the open source bulldozer, CNC circuit mill, CNC torch table, dimensional sawmill, induction furnace, modern steam engine, CNC multimachine, biomass pelletizer, solar concentrator, universal power supply, ironworker, microtractor, and the backhoe. We maintain a YouTube channel with 840+ (near) daily video updates that provide the important service of bringing this technology to life so that people can see for themselves that it is possible to build this level of manufacturing affordably at a local level.

Open Source Ecology technology is being independently replicated in cities throughout the United States, there is a lively community in Europe in multiple countries with land-based communities emerging and documenting their progress on our website, and we are working with TED Global Fellow Manuel Aguilar to build a sustainable community in Guatemala using the GVCS platform.

*** 6. Describe your organization's model.**

We are implementing Agile project management and distributed collaboration tools to simultaneously coordinate development teams in multiple locations. The central point of collaboration is the Open Source Ecology Wiki, where team members create work logs and team up to make plans.

The key programmatic activities that are critical to our success are the four phases of product development: concept design, prototyping, field testing, and documentation. After trying multiple strategies, we have determined that concept design is best handled by retired engineers, who can often provide a lifetime of experience, financial stability, free time, and a desire to contribute to society. Prototyping and field testing are handled by trainees in tandem with professional fabricators, and documentation involves a set of individuals with diverse skills from videography and editing to mechanical drafting and 3D modeling.

Our significant partners are the TED Network, Team Wikispeed, and the foundations that support us. In the future, we anticipate partnering with organizations that provide environmental and economic development programming in developing nations - organizations such as TechnoServe and Kickstart - so that we can quickly adopt our methods for new socio-cultural environments.

*** 7. Describe how your organization plans to scale its impact.**

We design open source industrial machinery, create open source business models based on the use of the technology, train entrepreneurs with hands-on fellowships, and provide comprehensive distance-training materials that are available openly and distributed on the Internet. People throughout the world, from multiple countries in Europe to Africa, the Philippines, South America, and across the United States are replicating our machine designs, filling out evaluation surveys, and providing us with feedback, new ideas, and solutions to improve our work and technology. Our online forums are full of interesting debates, Marcin posts multiple video updates to our YouTube channel each week, our wiki has thousands of pages of research and collaborative planning, and it is translated into multiple languages.

We expect to see a hundred independent replications of single GVCS machines throughout 2012. In 2013, we will engage in an experiment to see how much economic output can be generated in a single location with the complete platform. The outcomes generated from the 2013 experiment will act as the basis for expansion to other regions across the world. We will begin training mobile trainers, who will teach people how to implement the technology and enterprises in their own local economies. Cooperative fabrication facilities that house the entire set of 50 machines, which are then used by multiple small businesses, are also an idea for rapid expansion of our programs and services.

The open nature of our work means that most of its potential is yet to be discovered, but there is so much already happening, that we are certain that this work will perpetuate itself, because its open nature means that people can take ownership of the solutions for themselves and follow its course as far as their ambition takes them.

*** 8. Describe your organization's long-term strategy for financial and organizational sustainability.**

To date, we have 540+ True Fans who donate \$10 a month for 24 months to the project, and we have received grants from The Shuttleworth Foundation (\$360,000), The Ewing Marion Kauffman Foundation (\$100,000), an anonymous construction grant (\$100,000), and we waged a successful Kickstarter.com campaign for \$63,000. Non-grant revenue is generated through sales of GVCS machinery and through sales of the Civilization Starter Kit DVD (available for free download on our website), which contains all the training materials required to replicate the technology. We are creating entirely new markets for products that lie beneath the lower targets for conventional demographics. For example, we are selling tractors to people who would never be able to afford a John Deere model, and the scope of the GVCS platform cuts across a broad set of industries valued in the trillions of dollars. There is significant potential for us to support businesses that sell GVCS machinery locally, given that all of our machine designs and business models are openly available and free to modify. As our influence spreads, we do ask enterprises to donate 5% of their profits back to OSE for five years for our contribution to their success, and this represents, in itself, a potentially significant revenue stream.

Our headquarters is outside of Maysville, Missouri at Factor e Farm, a 30-acre stretch of land held as a community trust. Factor e Farm has a 3,000 sf design and training facility and ten living units to house on-site trainees. The facilities are equipped with machine tools purchased from Detroit, and the land serves as the main location for GVCS concept designing, prototyping, field testing, and documenting.

Marcin Jakubowski is our founding director, and we are recruiting an executive director to manage day-to-day management so he can fulfill a broader leadership role throughout our development network. We are also hiring a projects director to simultaneously manage a team of project leaders of whom each is responsible for coordinating a team focused on creating and documenting a single GVCS machine. Each project leader manages a team of mechanical engineers, fabricators and machinists, field testers, and documenters (mechanical draftsmen, technical writers, and CAD professionals). Using Agile project management, we expect to ramp up a program of rapid development involving 20 simultaneous projects starting in July.

We are aggressively researching the best management practices we can uncover, and our search is aided by the intense amount of global support we are receiving from supporters and volunteers, who accelerate our organization's capacity to learn and adopt new approaches. The idea behind our mission has the power to help millions of people, and this inspires a passion in everyone involved, which gives us a sense of confidence that the right steps will be taken to ensure that our organization has long-term stability and sustainability.

*** 9. Why is your organization interested in the Skoll Award?**

The Skoll Funds will allow Open Source Ecology to formalize its open hardware development pipeline for technologies beyond the Global Village Construction Set. Our goal is to make a full spectrum of economic best practices as widely available as possible, with the GVCS being just the beginning. As we complete this first phase of development, we will be prepared to scale up our hands-on fellowship trainings for implementation in regions across the planet.

Using a small subset of GVCS tools, the remaining machines in the platform can be constructed using abundant local resources available in most parts of the world and can be transported in a shipping container. Once the economics are precisely defined and our teacher trainers begin emerging, we will be prepared to have a focused, simultaneous, and multiplying impact in numerous sites throughout the world, with the goal of teaching communities to build local industrial manufacturing training centers that they can manage themselves for an expanded regional impact.

Skoll has the vision, resources, and values that are required to make this a reality.

10. Is there anything else you would like to share? (Optional)

Marcin Jakubowski PhD -- 2011 TED Talk -- Best of TED #6 by the Huffington Post:

http://www.huffingtonpost.com/2011/12/19/wiki-diy-civilization_n_1157895.html?1324310724

Joe Justice -- 2011 TEDx Talk -- Founder of Team Wikispeed:

<http://www.youtube.com/watch?v=x8jdx-lf2Dw>

