Open Source Ecology

The Garfield Foundation

Letter of Inquiry

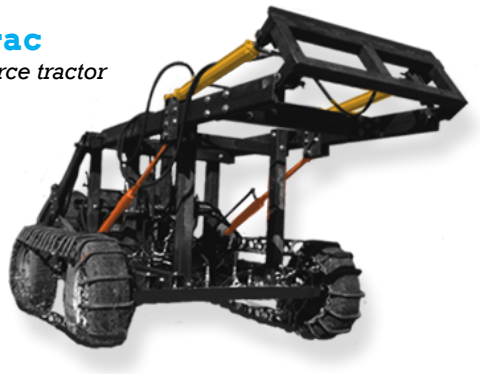
February 02, 2012

Mission

Open Source Ecology is accelerating the development of an open source economy that maximizes both production and distribution; one that leads to environmental regeneration and social justice. We are a network of engineers, farmers, educators, and multi-skilled collaborators working together to create the **Global Village Construction Set (GVCS)**, an open source, low cost, high performance technology platform of the 50 machines most responsible for high living standards in many parts of the world.

The GVCS lowers the barriers of entry* into manufacturing, construction, and agriculture, and can be used to create small enterprises or entire economies, whether in the rural Midwest, where the project was founded, in urban redevelopment, or in the heart of Africa.

LifeTrac
open source tractor



GVCS - Key Features

Open Source - we freely publish our 3D designs, schematics, instructional videos, budgets, and product manuals on our open source wiki, and we harness open collaboration with a network of global contributors.

Low-Cost - The cost of making or buying our machines is on average 49% cheaper than buying from an industrial manufacturer and 69% cheaper if built by the end user.

Modular - Motors, parts, assemblies, and power units can interchange, where units can be grouped together to diversify the functionality that is achievable from a small set of units.

User-Serviceable - Design-for-disassembly allows the user to take apart, maintain, and fix tools readily without the need to rely on expensive repairmen.

DIY - The user gains control of designing, producing, and modifying the GVCS tool set.

Closed Loop Manufacturing - Metal is an essential component of advanced civilization, and our platform allows for recycling metal into virgin feedstock for producing further GVCS technologies - thereby allowing for cradle-to-cradle manufacturing cycles.

High Performance - Performance standards must match or exceed those of industrial counterparts for the GVCS to be viable.

Flexible Fabrication - It has been demonstrated that the flexible use of generalized machinery in appropriate-scale production is a viable alternative to centralized production.

Distributive Economics - We encourage the replication of enterprises that derive from the GVCS platform as a route to truly free enterprise - along the ideals of Jeffersonian democracy.

Industrial Efficiency - In order to provide a viable choice for a resilient lifestyle, the GVCS platform matches or exceeds productivity standards of industrial counterparts.

Activities

We are engaged in three principle activities that support our mission:

Technology Development: we create open source technology as a basis for enterprise development relocalizing production in clean energy and resource-based economies.

Job Training: through the **OSE Fellowship** program, we train entrepreneurs to build, service, and use their own manufacturing capital in the context of establishing their own business.

Distance Education: online documentation includes the following: (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. All documentation is openly available on our website, along with high-quality video tutorials showing how to fabricate the machinery.

**on average 49% cheaper & 69% cheaper if fabricated by the end user. (link)*

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Program Areas - the open source economy promotes community revitalization, sustainability, and solutions to climate change. We assist individuals and businesses in job skills and business development training, while redesigning systems of production and consumption toward greater sustainability and the adoption of decentralized clean energy technology.

We provide innovative + scalable solutions that promote the environment + community revitalization.

The GVCS platform includes designs for a solar concentrator, biomass gasifier/burner, biomass pelletizer, modern steam engine, and wind turbine which can be used to power the rest of the machines in the platform. By making clean energy-based manufacturing accessible at the local level, we aspire to rapidly create jobs, income, and wealth for local residents, while addressing the root causes of problems from high unemployment rates to climate change. Finally, everything we do is open source and transparent inviting others to work with us, use our models, and improve on our theory of change offering a truly global collaborative effort to create the society we all want to live in.

Track Record

Kickstarter - on October 9th, we initiated a campaign to raise $50,000 on Kickstarter.com. We made a promise to deliver four full product releases by December 25th as the *OSE Christmas Gift to the World*. By November 20th, we raised $63,573 with 1,384 dontations, and on Christmas Day we delivered on our promise.

OSE Christmas Gift to the World - on December 25th we published full documentation of the *tractor, compressed earth brick press, soil pulverizer,* and *hydraulic power unit*.

Parallel Development - to date, we have secured more than half a million dollars in funding, and we are using that money to simultaneously develop the 13 machines by April in a distributed network that spans from Detroit to Los Angeles:

- Gasifier Burner
- Induction Furnace
- CNC Circuit Mill
- Backhoe
- Tractor
- Steam Engine
- CNC Torch Table
- CEB Press
- Multimachine
- Bulldozer
- Universal Power Supply
- Universal Rotor
- Ironworker

Revenue to Date

- **'True Fans'** - *520 supporters $10/mo.*
- **Construction Grants** - *$60k/$43k*
- **Kickstarter.com** - *$63,573*
- **Ewing Marion Kauffman Foundation** - *$100k*
- **Shuttleworth Foundation** - *$360k*

Leadership - OSE was founded by Dr. Marcin Jakubowski, a Princeton graduate with a PhD in Physics from the University of Wisconsin.

- **2011 TED Fellow***
- **2012 TED Senior Fellow**
- **2012 Shuttleworth Fellow**

Rated the 6th top TED Talk of 2011 by the **Huffington Post.*
(link)

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Impact

We strive to have the greatest return on investment that we can. We envision a truly post-scarcity society of people living full lives with free time and access to a renewed tradition of intergenerational collaboration discovering together how to live, the best way to foster good people, and how to create a just society.

Outcomes

- **Manufacturing and job creation**
- **Small business entrepreneurship**
- **Clean energy market transformation**
- **21st century infrastructure**
- **Local economic development**

Budget Overview

Based on the average grant size of the **Garfield Foundation**, we would like to write a proposal in the amount of **$43,700**, which is the average cost of developing a single machine in the Global Village Construction Set platform. The OSE Fellows program will be fully underway beginning in April 2012, after we finish constructing the **FabLab Training Facility** and the **HabLab** earth-construction housing units. The grant would go to the development of a machine of the foundation's choice covering design and documentation by *Mechanical Engineers, Technical Writers, Industrial Designers* and *Video Documenters* as well as prototyping and field testing by OSE Fellows.

The grant would cover the training of individuals in machine fabrication/maintenance and enterprise development and directly fund the development of a GVCS machine. Finally, the grant would cover the cost of providing extensive documentation of designs and production procedures, so that anyone across the planet could use them. An investment now will produce a design that will be subject to independent replication and testing across the planet. This alone will impact many lives, and ten years from now, it will undergo multiple generations of refinements. Together, we can have a long-term impact promoting environmental regeneration and community revitalization by investing in the growth of an open source economy.

Thank you for considering our request.

Sincerely,

Aaron Makaruk
Resource Developer
Open Source Ecology
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For more information: (links)

1. **TED Presentation 2011**
2. **OSE Wiki**
3. **OSE YouTube Channel**
4. **OSE Website**

The Liberator
compressed earth brick press