# *Open Source Hardware Business Models*

**Table of Contents**

## OVERVIEW

Gnusha's mission is to rethink the industrial revolution and solve massive social problems (such as: personal manufacturing, personal healthcare, space tech, ...). To accomplish this goal, Gnusha acts as an umbrella organization for leveraging the commons and emerging technologies.

*Open Source Hardware Business Models* helps outline potential business models for Gnusha/RepLab, diybio, OpenKollab Pooled Fund Initiative, open manufacturing, and the wider open source hardware business community. Feel free to re-work the document. In particular, *Open Source Hardware Business Models* aggregates previous documents and discussions of potential business models, the scope and future opportunities of open source hardware. New discussion is welcome, especially in the open manufacturing group.

**Credits/Thanks**
Bryan Bishop, Ben Lipkowitz, Eric Hunting, Suresh Fernando, Andrew Hessel, eightpennies, Dave Rauchwerk, Sam Putman, Marcin Jakubowski, James Jones, Vitaly Mankevich, Parijata Mackey, Heath Matlock, Paul D. Fernhout, Joseph Jackson, Jason Wohlfahrt, Mackenzie Cowell, Matt Campbell, Charles Collis, Cathal Garvey, Tim Schmidt, Trey Daniels, Nathan McCorkle, Michael Grube, Trent Waddington, Jay Dugger, Eric Katerman, René Pinnell, Thomas McCabe, Jacob Shiach, Simon Quellen Field, Brian Degger, Meredith L. Patterson, Derya Unutmaz, Jonathan Gray, Andre Lamothe,

**Quick introduction to SKDB**Heading 2 for Sections -Jay Dugger 2/7/10 2:23 AM
http://www.youtube.com/watch?v=-n39RK4inzg
http://www.youtube.com/watch?v=3S9z6H_EFqQ
http://www.youtube.com/watch?vs=Edl6uFn3_g4

Other information:
http://designfiles.org/dokuwiki/skdb

…

## Introduction to the concept of open source hardware

The personal computer era and the world wide web have made it possible to reconsider core technologies vital to our civilization and livelihood. (Debian story goes here). Gnusha exists to explore the possibilities of extending this metaphor with open source hardware and open source technologies (not just software). Central to the theme of open source hardware is technology licensing and distribution. Technology licensing is the legal token of good will and intention- we aim to provide an abundance of this. The TAPR Open Hardware License defines open source hardware as "a thing - a physical artifact, either electrical or mechanical - whose design information is available to, and usable by, the public in a way that allows anyone to make, modify, distribute, and use that thing." As understood by Gnusha, open source technology is the answer to a question of technology licensing and distribution.

What is open source? Reference: Open Source Initiative, Free Software Foundation, GNU, Open Hardware Foundation, GPL, BSD, Debian, RedHat, Cygnus, Revolution OS, technology licensing

Is open source a business model? No. But a business can use open source technologies, etc. etc. Insert generic elaboration here.

What is open source hardware? Open source hardware is technology released, distributed and used under OSI-approved licenses. Technology distribution means software (source code), designs, schematics, bills of materials, etc.

## Models

Consider a few models: the co-op model, tech tree and kits, and short-term consulting.

### Co-Op / Incubator Model

Gnusha/RepLab names a co-op for open source hardware and open source technologies. It has the ultimate goal to make a self-replicating fabratory or fablab. It has the short term goal to channel, leverage and focus all of us in different hackerspaces and fablabs world-wide to build better open source hardware. It will do this by making open source machines and running these machines for a price. The machines will be built by a core group of participants who bootstrap the co-op, and whenever possible, machines will be used to make machines.

Suresh: Who will build the open source machines?

I.e. have outside parties pay for time to use the machines, to produce whatever that they want to produce.

Suresh: who do you see as the 'outside parties'? How large is the market opportunity here?

Money goes back into the co-op to design, build, or buy better machines. Buying should happen only as a last resort, and only until we can make something better.

Meredith: and pay for power and consumables that co-ops are not yet able to generate themselves (i.e., rolls of 3mm ABS for the MakerBot). Self-sufficiency is the ultimate goal, of course, but pay attention to the economic incentives. If it costs $10 to print a pair of needlenose pliers and ship them to a co-op that needs them, and $5 for someone to drive to the hardware store and buy a pair, there is a short-term incentive for the Craftsman pliers. Shifting those incentives is the ultimate goal, but we literally can't afford to focus on ideology ahead of pragmatism.

Third parties, like small and mid-sized businesses might join the co-op to increase their available infrastructure.

A further extension of the co-op model is a federated or franchised model. In this model, a hackerspace "kit" would be provided to individuals or groups attempting to bootstrap a hackerspace, fablab, techshop, menshed, or some other initiative in their geographical area.

Suresh: I assume that this market is relatively small - consisting primarily of hobbyists. What do you think?

Meredith: I wouldn't underestimate the size of the hobbyist market. Home Depot isn't doing too badly.

Suresh: hmm...not sure that this is an accurate comparison. Fixing ones home is not really a

hobby. Also maintenance of ones home is a 'need to have'. Hobby work is, by definition, not a necessity. That's what makes it a hobby

If I may jump in, the building products industry perceives their market as divided between, roughly, two segments; 'professionals' in the form of big commercial builders and small independent contractors and 'amateurs' or 'DIY hobbyists' -us untrained schmucks who periodically use the wrong side of a hammer but still take pride in 'being handy' -men in particular as it is associated with masculinity- and who try -but often fail because of the underestimated skill-curve- at saving money over hiring pros for relatively minor home repairs. They market to, and design products for, each segment in different ways and tools in particular are designed specifically to suit each market segment. (they even design the amateur tools to be gender-specific now -the same tools ridiculously re-designed to appeal to male or female consumers! I recently had to buy a 'girled up' hot knife from a craft store to make some sub-irrigation planters with because the hardware stores in Santa Fe didn't know what a hot knife was anymore...)

Chains like Home Depot are 'consumer level retailers' that market chiefly to the small independent contractors and hobbyist/consumers. They 'disburse' building materials and products at a 'consumer level'; in small unit volumes (with a mark-up) the building products companies themselves won't usually deign to sell stuff at. To help cultivate their market they will often hold in-store classes and sell amateur-level educational media, encouraging the DIY hobby. The nature of this as a hobby supply store is illustrated by the fact that you can buy all the stuff needed to build a typical suburban home in Home Depot _except_ complete boilerplate home plans or kits. The industry is OK with us knuckleheads doing backyard decks, bird houses, and sloppy plumbing repairs but not anything serious that might result in us routinely killing ourselves or, even worse, actually learning how to do practical stuff and threatening the status quo of housing industry economics. (up to 80% of the cost of a home in the US is labor. If the general public suddenly could start effectively building homes themselves, mortgages would become obsolete and bankers would be jumping off buildings. If you just halved the labor overhead at a trade-off of double the materials cost, it would still be a revolution)

Any experienced Maker/tinkerer is familiar with this problem; when you need something that's not carried in hardware stores you will often be treated as a nuisance by wholesale suppliers and original equipment manufacturers -(OEMs) who aren't used to dealing with the little people and think they waste their time when they sell stuff in volumes less than gigantic. (and sometimes punitively mark-up small unit prices as a discouragement) Back in NJ I often found that physically visiting these companies -you could never get straight answers on the phone- was like walking into an Old Man Bar. This is one of the things that compels the need for kits. One of the basic roles of kits is to make available stuff that, because the industry would rather cater just to pros and big players, is a hassle to get yourself while at the same time eliminating (though pre-engineering) much of the skill needed to create something competently. -Eric Hunting 2/20/10 7:54 AM

Fabratory enthusiasts would be encouraged to purchase open source hardware kits to supply their

machine shops and labs; machines and kits could be provided at discounted rates, or other economic arrangements can be made. A laser cutter running at $10/hour could provide $2/hour back to the co-op and $8/hour back to the local hackerspace. How is this different from TechShop? Proprietary equipment isn't forced. The reason this is interesting is because it creates a market for open source hardware kits.

However, there is no necessity for the franchising to make the co-op model work. Different hackerspaces run under their own flags and their own rules, guide lines, etc., and there's no reason to disrupt that.

todo: franchising/federated version; creating a market for the kits via franchised hackerspaces that prefer open source hardware over proprietary oldware

The co-op/incubator model also lends itself to incubating different groups for a period of time, maybe on a per-project basis, with legal means for the groups to extend and outgrow the shell of the co-op incubator. Sam Putman knows of a Berkeley co-op that does this?

(1) Creating a market for the kits via franchised hackerspaces that prefer/choose open source hardware (over proprietary solutions)
(2) Creating a work force of "DIY" professionals that tackle revenue streams with open source tech (i.e. breaking down traditional markets)

http://groups.google.com/group/replab/browse_thread/thread/6d31e82531c3c325 dd http://groups.google.com/group/replab/browse_thread/thread/0e0399306d63af8c

co-op membership: entire hackerspaces, individuals involved in hackerspaces, etc.

**Tech Tree & Kits**

In this model, customers purchase kits for specific designs.

Suresh: Which customers?

Meredith: Simple answer: people who want stuff. Who are the "customers" of Thingiverse (i.e., the people who download meshes)? Who bought alpha and beta kits for the MakerBeam kickstarter? What are the sales figures for scitoys.com? These are market intelligence questions that need answers; gauging the size of a market is hard. For some kits, primarily those made up of consumables, a drop shipping model is one way to gauge market interest: arrange with third-party suppliers to drop-ship, for example, a "Basic Chemistry Glassware" kit to customers who have ordered one off a website. This facilitates market research (how many people are

interested in purchasing this equipment at this price? will they tell us what else they want, or if it's too expensive?) at comparatively low cost to the entrepreneur. Once basic market questions have been answered, the entrepreneur can migrate to sourcing, storing and shipping kits in-house, armed with better numbers about how much inventory, warehouse space, &c is needed, since this can in many cases provide a lower end-user cost.

This kits belong to a directed graph that organizes any specific design into a hierarchical list of prerequisites.Phrasing sucks, but for whom do we write? -Jay Dugger 2/7/10 4:19 AM

Suresh: same comment as Jay. This is cryptic and needs to be clarified.

Meredith's attempt at clarification: A kit can be described by a directed graph consisting of tools (lathe, circular saw, soldering iron...) and consumables (resistors, wood, metal...). The edges of the graph describe dependencies: [resistors, transistors, LEDs, capacitors, microcontrollers, PCB] => controller board, [wood, laser cutter] => wooden supports, [controller board, print head, wooden supports, acrylic platform, power supply] => MakerBot.

Suppose a customer wants to build a new computer keyboard. To make a computer keyboard of common design, you need plastic injection equipment or 3D plastic printing tech to make the case, keys, and connectors, and a way to make electronic circuits. A Tech Tree provides the customer with a kit for each level in the tree. If the keyboard customer needs a 3D printer and wants to build it as well as the keyboard, then sell them the kit for the 3D printer. If the customer needs a laser cutter to build a 3D printer, and wants to build a laser cutter as well as a 3D printer, then sell them the kit for the laser cutter. A customer could go all the way down the Tech Tree, but at some point will "opt out" and use their current tools and inventory, or pay money for machines or kits such as that 3D printer.

SKDB tells a customer they need a 3D printer. SKDB could also help operate the 3D printer when the customer builds it. How? Needs example. -Jay Dugger 2/7/10 4:28 AM

Suresh: Yes. Is there a process description diagram that can be provided to establish how SKDB tells a customer they need a 3D printer.

Meredith: This would be a good place for a picture. Show a tree for something simple, including tools and materials.

This model has a partial deployment with SKDB's octopart.com integration and the open source SMT project that Gnusha/RepLab has been planning. This could lead to an automated "here's what I want, please send me an electronic device that does it" Santa Claus machine.

1. Indent each subsection in the numbered list. Google Docs might permit 1.2.x.y.z style lists, but that can happen in style definitions and not in text. -Jay Dugger 2/7/10 2:24 AM --> using #2 on a publishing model, see Eric Hunting's ToolBook proposal/explanation:
   ToolBook and The Missing Link

fenn's response
ToolBook Business Models
Bryan's response
David Gingery and industrial bootstrapping

2. a blend of #1 and #2 - the "federated"/franchising model: an open source kit for constructing hackerspaces, fablabs, machine shops, techshops, etc. All equipment would be purchased from open source hardware vendors. See Suresh/Bryan notes from 2010-02-04, todo: follow-up with Vitaly. In this model, a market for kits is instantly created by encouraging the growth of new hackerspaces.

Here is what I am thinking, create a kit some tangible outcomes, like a lego kit. For example, insert a gene into something that turns green (GFP), which you can take a picture of and share on your facebook page

**Consulting Model**

consulting (cygnus) model: in this model (very much similar to Gnusha/RepLab), the concept is to provide a full open source toolchain from design to manufacturing for small to mid-size businesses.

What sorts of businesses specifically?

CAD software still goes for $20k USD per seat (or "per license"). This doesn't include the software or tools to help actually build the designs. There are many, many machine shops still using email to send around design files in-house. Also, outfitting various NPOs with an open source hardware toolchain and the like, to significantly reduce costs from typical lab fees and so on. Lab equipment for biology research easily costs $10k+ just for basic pieces of equipment- with open source hardware, a lot of this overhead vanishes and perhaps the NPOs can see more results from their research money? i.e., cancer NPO donations rack up $100M/year (USD).

**Consortia model**

Brian Riversimple(http://www.riversimple.com/) have designed/are designing an opensource hydrogen car. They then transfer the ownership to http://www.40fires.org/, an organisation in charge of licencing and revinues(still geting my head around it-Brian). Companies making the cars are on a lease system, the car is always owned by the factory and thus its in their interest to make efficient cars that can be recycled.

**Random stuff, ignore for now**

There is also the possibility of integrating Pink Army ideas or at least targeting kits for the R&D sector. For instance, thermocyclers cost $5k USD on average (have found educational ones for £1000/2000), but many of us in the open manufacturing community know how to build them for $10 to $20 (so a "thermocycler kit" or targetting some other market/sector like that might be beneficial for business model planning).

An excerpt from the 2010-01-12 SKDB update:Color coding makes sense. Hideous green for raw imports? -Jay Dugger 2/7/10 2:25 AM
Agree with colour-coding although on my screen it looks so hideous I'll be less likely to read it. How about a darker green? -Charles Collis 2/14/10 11:43 PM

The idea for SKDB is that volunteer package maintainers encode open source hardware projects currated from the web into a standard package. These standard packages are fairly simple, it's just a folder with some specific files, so almost anyone can make these packages. Right now SKDB has only a handful of packages: screw, lego, bearings, washers. When you download a package, the idea is that you're also downloading the hardware, or the instructions to make the hardware given what you have in your inventory. Because this project is still "just" beginning, it's true that it can't be literal at the moment, that the hardware can't physically be "beamed" over like the Star Trek replicators and matter transporters, but this is close enough. SKDB consists of two parts: (1) packages of open source hardware, and (2) instruction generation. What I mean by instruction generation is that the idea is that it will eventually spit out better instructions for how to build a project. I've found that Ikia instructions and lego kit instructions are some good examples of where I want to go. There's an entire website [1] called Instructables where users type out instructions for various projects. Unfortunately the quality is poor, and that's why I'm interested in a computational method of generating instructions for assembling projects. If you have a computational representation of instructions, it's not a big deal to have either (1) a human do it, or at a later time (2) a computer to follow the instructions, like CNC machines and automated manufacturing equipment. However! If you start off only with human readable instructions, you're in a world of hurt, for you will have to wait for artificial intelligence to be able to read in the information. But when you start with package maintainers that are trained to make computational instructions that can *then* be rendered into a human readable format, you're much much better off. Sure, but many useful instructions do start off as human-readable. The person documenting a useful machine or process may well (indeed is likely) not be the package maintainer. So we don't want to put off people submitting useful information just because they are being forced to create machine-readable instructions. Someone else can always come along and interpret for the machines. Capturing the processes is equally as important as making them machine-readable. So perhaps we should allow for a pre-stage which amounts to

information-gathering to avoid unnecessarily filter potentially useful contributions. -Charles Collis 2/14/10 11:45 PM There's one primary website that demonstrates the idea of a hardware repository called thingiverse.com [2]-- but for various technical reasons, it's not adequate for my purposes. Thingiverse is a website of "meshes", which is 3D surface information. CAD data- for computer-aided design- is from engineers, and maintains information about constraints, requirements, and even solid geometries. Meshes are more often used in animation, film, and 3D gaming where it only matters what the model looks like. The thingiverse users are using meshes because they are using 3D printers like the RepRap [3] or MakerBot [4].

[1] http://instructables.com/
[2] http://thingiverse.com/
[3] http://reprap.org/
[4] http://makerbot.com/

So, after working on SKDB for a while, I started to realize that I need to actually verify the data and information that I was encoding into the software. It is not useful to be working in a vacuum or a bubble. I need to know that I am not bullshitting people when I tell them that the length of a certain rod needs to be 10cm, or 12cm, and I need to get my error bars correct "or else". Meanwhile, on the internet, there has been growing this community of supporters in the Open Manufacturing group [1]. At openmanufacturing.org, the idea is to bring software development methodologies to the physical world. The mailing list [2] has been somewhat of an oasis on the web for like-minded thinkers and doers-- attracting people like Marcin Jakubowski of Factor E Farm, Michel Bauwens of the P2PFoundation, Joseph Jackson, Philippe van Nedervelde, Paul D. Fernhout, Todd Huffman, Eugen Leitl, Smári McCarthy, and various others. All around this concept of open source hardware and open manufacturing: where designs and schematics are provided and we're not afraid to build each other's machines, tools and parts. Where we're allowed to stand on the shoulders of giants, where we don't have to reinvent the wheel. Many of the participants either directly manage a fablab, hackerspace, or some other machine shop, or are somehow involved in those initiatives. A fablab is a cross between a machine shop and a wetware lab, where people can come to make (almost) anything. Tools and various technologies are put into the fablab so that as much as possible can be accomplished. One of the downsides of the fablab initiative is that it's an academic project geared towards answering a question, "What would third world country citizens make?" [3]. As a consequence, fablabs have all the tools to make (almost) anything.. except for making another fablab itself! They buy really, really expensive

equipment, and it requires huge academic and federal grants to get a fablab up and running successfully ($100k+). There's about 20 to 30 of these fablabs worldwide. A more broad, general case of this is a hackerspace, which people have been setting up on there own. There's hundreds of these [4]. They might not be as well funded, but it's a place where people come to share their tools, projects and work together to learn new things, hack, etc.

[1] http://openmanufacturing.org/
[2] http://groups.google.com/group/openmanufacturing
[3] http://www.ted.com/talks/neil_gershenfeld_on_fab_labs.html
[4] http://hackerspaces.org/wiki/List_of_Hacker_Spaces

Before I get back to the other projects, I mentioned to Mitch, and some other people lately, one of the recent developments in SKDB. I made a web server that interfaces SKDB to the outside world so that people don't have to use Linux or the command line. I tell people to think of it as a cross between thingiverse.com on steroids and instructables.com mated with a cluestick. On the site, users can log in to work on hardware projects (or they can download the hardware and physically/digitally work on it with whatever tools they are accustomed to). Next to every project on this website there are two buttons: "make" and "buy". The make button generates instructions or a plan that can be executed by the machines that a user has (even if it the user just has one "machine"- a person!). The "buy" button is a very special button.

The idea behind the "buy" button is that different people are willing to go to different lengths or troubles. Ben Lipkowitz was willing to build his lathe from scratch. However, not everyone wants to forge their own screws, and not everyone wants to summon their own Big Bang or to create their own quarks and universes just to make a sandwhich. For this reason, the "buy" button is kind of a way to opt out of the tech tree at a certain point. It's the point at which the user decides it's time to spend some money and purchase something practical. Nobody can do anything in a vacuum or a void- they have to have *something* to start with, like their own simple house repair tools, screw drivers, rubber bands, something! Back in 2009 I released some plans on the do-it-yourself genetic engineering mailing list on how to make microfluidic circuits out of pieces of glass, scotch tape and a sharpie to harness the hydrphobic effects of the ink, water and laminar flows. So in that situation you would need to at least have some glass, sharpies and tape, etc. I can't help people make big bangs (yet).

So when the user presses "buy", SKDB is assembling them a custom Bill of Materials. This past week an interesting opportunity popped up on my radar with Octopart [1]. Octopart is an electronics part search engine. What they do is they feed in vendor datasheets into their system and give price details and various parametric information about different electronics parts, as well as mechanical parts and so on.
For SKDB's purposes of letting users opt out of the tech tree, this is very interesting. I quickly wrote some code after talking with Octopart's head guy Andres Morey, and the code [2] interfaces SKDB to octopart to find parts that match a certain specification. The next step on this front is a program that I should write that automatically orders the parts from the vendors. Most vendors are *not* going to respond to my emails and phone calls, but I still have a way to have a computer automatically place orders across 30+ suppliers for a user, and consolidate all the ordering/shipping information in one location. This way the user can just see a BOM, see which parts they're buying, and everything comes to their door. With instructions :-). Maybe one day money won't have to be a part of this process?

[1] http://octopart.com/
[2] http://designfiles.org/skdb/octopart.py

More elaboration is available in the 2010-01-12 SKDB update document.

**Presentations**

## Markets

[Thu Feb 4 2010 15:18:34] Suresh Fernando: Q: What is the collective opportunity other than kit sales?
[Thu Feb 4 2010 15:18:55] … PROJECT SPECIFIC/SPACE SPECIFIC OPPORTUNITIES

- New Space Probably not--engineering constraints extremely high for intended purposes, but YNK. -Jay Dugger 2/7/10 2:26 AM Except not just talking about manned-flight, plenty of other stuff do do before that, from amateur rocketry and upwards from there. Would be a great way to get process, tolerances and quality up-to-scratch and shake out what's really required for more advanced stuff. -Charles Collis 2/14/10 11:59 PM
- personalized medicine/health care Probably not--FDA? AMA? I hope I have this wrong.-Jay Dugger 2/7/10 2:27 AM
    - Customized low-cost eyeglasses (TED Talk on this a few years ago?) Josh Silver http://www.ted.com/talks/josh_silver_demos_adjustable_liquid_filled_eyeglasses.html -Charles Collis 3/6/10 10:41 PM
    - avoid FDA by not being in the U.S.
    - Open Prosthetics
- individualized veterinary care
    - less regulatory burden
    - extant community uses
        - detailed breeding (AKC, AFC, livestock, lab animals)
        - veterinary supplements (steroids for dogs entered in weight-pulling contests, antibiotics and hormones, GMOs, etc.)
        - microchip identification
        - wildlife research?
- 'Appropriate' technology products
- Increasingly advanced automated systems and robotics
- diybio (FAQ)
    - **Potential Kits**: thermocyclers, SNP arrays, glow-in-the-dark genetic engineering, DNA sequencing, DNA synthesis, microfluidics, cell culture, PCR, centrifuges, incubators, autoclaves, flow hoods, refrigerators, chemical/supply organization, gel boxes, transilluminators, microscopes, spectrometers, mass specs, atomic force microscope (AFM), scanning tunneling microscope (STM), antibody extraction/creation kit, in vitro protein synthesis, histology staining, simple biochemistry kits (like those in the AP Biology classes for iodine tests etc.), Western blot kit, biobrick kit (for genetic engineering with parts from partsregistry.org etc.), glassware kit and glassblowing, did-i-just-blink smartbench software/hardware kit, pipetting tips, pipetting robots, programmable lab hardware and API standards, electrodes, make-a-power-supply brick kit, etc. etc.
    - 2010-01-22: DIYbio: Growing movement takes on aging in H+ Magazine; discussed on Slashdot, reddit and ycombinator hackernews; futurismic;
    - 2009-12-20: Do-it-yourself biology grows with technology (SF Chronicle)
    - 2009-08-01: Am I a biohazard? (The Scientist)
    - June 2009 issue of hplusmagazine

    - June 2009 issue of Gourmet magazine [1]
    - 2009-05-18: In attics and closets, "biohackers" prove the spirit of Thomas Edison endures
    - 2009-05-15: Garage Ribofunk: The Rise of Homebrew Genetic Engineering
    - 2009-05-12: In Attics and Closets, 'Biohackers' Discover Their Inner Frankenstein
    - 2009-03-18: The Geneticist in the Garage
    - 2009-01-19: DIY DNA: One Father's Attempt to Hack His Daughter's Genetic Code
    - 2009-01-07: Rise of the garage genome hackers
    - 2008-12-30: Students, Scientists Build Biological Machines (transcript) (Lehrer on PBS) (video)
    - 2008-12-25: Amateurs are trying genetic engineering at home (Slashdot)
    - 2008-12-18: Público: Biohackers: reventar y reinventar la biología desde los garajes
    - 2008-12-11: The Biohacking Hobbyist
    - 2008-09-15: Hackers aim to make biology household practice
- Extant body modification communities
    - Tattoo artists
    - Piercings
    - Hair dressers and stylists
        - What's a permanent wave or dye job except a temporary chemical modification of a body part for aesthetic effect?
    - cosmetics
        - See above...
- igem
- synthetic biology
- anti-cancer research organizations
- longevity research organizations
- brain implant community, Innerspace Foundation et al.
- labs/researchers
- consulting (short term stake in product development)
- commercial machine shops
- microfluidics (contraptor/makerbeam wouldn't be as heavily involved, however- maybe just on the photolithography equipment?)
- education market
    - high schools
    - community colleges
    - 4-year colleges
    - p2pu http://p2pu.org/about
    - http://fabacademy.org/
    - http://singularityu.org/
    - tons of others- see educational organizations
    - Kits: any of the diybio kits; also the educational CNC machine kit for students to train on and learn on and then potentially take home and continue to use into the future.
- RepRap supplies: http://www.reprapsource.com/en/shop/shapercube

Map of RepRaps (worldwide)
http://maps.google.com/maps/ms?ie=UTF8&hl=en&msa=0&msid=117099291054388532447.0004409098b1c5b712553

Map of MakerBots (worldwide)
http://maps.google.com/maps/ms?ie=UTF&msa=0&msid=103687026802878537105.00047ff60fb78c237fbc2

Map of Hackerspaces
http://hackerspaces.org/wiki/List_of_Hacker_Spaces
http://hackerspaces.org/wiki/List_of_planned_Hacker_Spaces
add yourself to the list: http://hackerspaces.org/wiki/Form:Hackerspace

List of MakerBot Regional Groups
http://hackerspaces.org/wiki/Form:Hackerspace

Map of DIYbio Enthusiasts/Groups
http://diybio.org/local/
http://maps.google.com/maps/ms?ie=UTF8&hl=en&msa=0&ll=42.358163,0.0&z=2&spn=0,0&msid=117373025318808082442.00045fd549f07830e0465&source=embed

Map of Synthetic Biology Research Centers
http://www.synbioproject.org/library/inventories/map/

Nanotechnology Research Map
http://www.nanotechproject.org/inventories/map/

Map of Stem Cell Research Centers
http://www.mbbnet.umn.edu/scmap/scresearchmap.html

Map of FabLabs
http://maps.google.com/maps/ms?ie=UTF8&source=embed&oe=UTF8&msa=0&msid=217507381704291487812.00044fdbd79d493ad9600

Microfluidics & Lab-on-a-Chip Companies
http://maps.google.com/maps/ms?ie=UTF8&source=embed&oe=UTF8&msa=0&msid=107377045868236488759.0004715966fd207a5f4cb

Map of Green Car Factories
http://maps.google.com/maps/ms?ie=UTF8&source=embed&oe=UTF8&msa=0&msid=114816322256884808376.000478453f634cd112a49

List of Linux User Groups
http://www.linux.org/groups/

Map of Research in Medical Robotics
http://maps.google.com/maps/ms?ie=UTF8&oe=UTF8&msa=0&msid=110344304588746687632.000450f1b31a6f9f56ea0

Map of Cancer Research
http://maps.google.com/maps/ms?ie=UTF8&t=h&oe=UTF8&msa=0&msid=100114098562756933277.00046966e3cdf8bd91c25

Map of Top High Schools in the U.S. as of 2008
http://www.mibazaar.com/education/high_school.html

Map of Top Medical Schools in the U.S. (2008)
http://www.mibazaar.com/education/medical_school.html

Map of America's most expensive colleges
http://www.mibazaar.com/education/expensive_colleges.html

Conference Roundup for Designers and Developers
http://conferenceroundup.com/

## Low-hanging fruit

http://designfiles.org/skdb/doc/proposals/trans-tech.yaml

blah blah blah - mumble... mumble

# ToolBook Emails from Eric Hunting et al.

What to do with emails? Boil down, plunge & squish as in assembling a wiki? Preserve excerpts? -Jay Dugger 2/7/10 2:29 AM

In following and participating in the discussions on open manufacturing and peer-to-peer organization and as a result of exploring the possibilities of local New Mexico Fab Lab development as well as my own personal project ideas, I've started to notice something. There seem to be a number of re-occurring questions that come up -openly or in the back of peoples minds- seeming to represent key obstacles or stumbling blocks in the progress of open manufacturing or Maker culture. And it seems that they share something in common. A 'missing link', if you will, in the mechanisms of cultural development. Here are a few of these questions that stand out for me;

Why are Makers still fooling around with toys and mash-ups and not making serious things?

Ref here: CubeSpawn!!! its a SERIOUS tool... errr... will be a Serious tool when its done being a pipe dream or a half complete prototype... -james

(short answer; like early computer hackers lacking off-the-shelf media to study, they're still stuck reverse-engineering the off-the-shelf products of existing industry to learn how the technology works and hacking is easier than making something from scratch)

Why are Makers rarely employing many of the modular building systems that have been around since the start of the 20th century? Why do so few tech-savvy people seem to know what T-slot is when it's ubiquitous in industrial automation? Why little use of Box Beam/ Grid Beam when its cheap, easy, and has been around since the 1960s? Why does no one in the world seem to know the origin and name of the rod and clamp framing system used in the RepRap? (short answer: no definitive sources of information)

Why are 'recipes' in places like Make and Instructibles most about artifacts and rarely about tools and techniques? (short answer; knowledge of these are being disseminated ad hoc)

Why is it so hard to collectivize support and interest for open source artifact projects and why are forums like Open Manufacture spending more time in discussion of theory rather than nuts & bolts making? (short answer; no equivalent of Source Forge for a formal definition

of hardware projects -though this is tentatively being developed- and
no generally acknowledged definitive channel of communication about
open manufacturing activity)
ot just the project hosting, but also an open-source and capable, tool-chain. Stable, usable open-source, parametric CAD being one of the vital components  of course -Charles Collis 2/15/10 12:06 AM

Why are Fab Labs not self-replicating their own tools? (short answer;
no comprehensive body of open source designs for those tools and no
organized effort to reverse-engineer off-the-shelf tools to create
those open source versions)

Why is there no definitive 'users manual' for the Fab Lab, its tools,
and common techniques? (short answer; no one has bothered to write it
yet)

Why is there no Fab Lab in my neighborhood? Why so few university Fab
Labs so far? Why is it so hard to find support for Fab Lab in certain
places even in the western world? (short answer; 99% of even the
educated population still doesn't know what the hell a Fab Lab is or
what the tools it's based on are)

Why do key Post-Industrial cultural concepts remain nascent in the
contemporary culture, failing to coalesce into a cultural critical
mass? Why are entrepreneurship, cooperative entrepreneurship, and
community support networks still left largely out of the popular
discussion on recovery from the current economic crash? Why do
advocates of Post-Industrial culture and economics still often hang
their hopes on nanotechnology when so much could be done with the
technology at-hand? (short answer; no complete or documented working
models to demonstrate potential with)
Open-source hardware still incredibly nascent. Its potential is still not clear to many people, even though who know and understand open-source more generally, as the steps to its feasible evolution are still cloudy and indefinite. It will all need to be much more obvious to gain critical mass, but it'll get there...  -Charles Collis 2/15/10 12:08 AM

Are you, as I am, starting to see a pattern here? It seems like
there's a Missing Link in the form of a kind of communications or
media gap. There is Maker media -thanks largely to the cultural
phenomenon triggered by Make magazine. But it's dominated by ad hoc
individual media produced and published on-line to communicate the
designs for individual artifacts while largely ignoring the tools.
People are learning by making, but they never seem to get the whole
picture of what they potentially could make because they aren't
getting the complete picture of what the tools are and what they're

capable of.

Age hegemony based on turning
personal computers from tools people understood into mass-produced appliances the public used and yet never really came to comprehend and so remains dependent upon a corporate hegemony for. One might argue that this was a necessary evil by virtue of the complexity of the technology and the failure of public education to embrace and disseminate new knowledge effectively. But the end result was that the promise of social liberation information technology originally promised was superseded and forgotten. I think this is cautionary history. Do we want a Fabber that no one ever opens up or truly understands the working of? Or is this, on some level, still a necessary evil for the sake of realizing ubiquity? 40 years later, Grandma still isn't writing code and still has trouble finding the on-switch. What exactly does that mean for these new tools?

Most people just aren't interested enough (and may never be). But I don't think this is a problem as enough people are/will be interested to be significant. This kind of technology eventually will be easy to automate and be ultimately scalable so it doesn't matter too much of a small proportion of the population designs/creates anything useful. Being open and transparent and with tools evolving to be very useable, it should guarantee that it is a much larger proportion of the population than it is currently. -Charles Collis 2/15/10 12:13 AM

Then as now, there was this gap in the parallel dissemination of knowledge with the technology. Disseminating the power of computing very quickWe seem to basically be in the MITS Altair, Computer Shack, Computer Faire, Creative Computing, 2600 era of independent industry. A Hacker era. Remember the early days of the personal computer? You had these fairs, users groups, and computer stores like Computer Shack basically acting like ad hoc ashrams of the new technology because there were no other definitive sources of knowledge. This is exactly what Maker fairs, Fab Labs, and forums like this one are doing. And the magazine-dominated media for personal computing at the time was all about DIY programming in BASIC or Pascal and hacking compared to the contemporary computing media which is all about new products and the elites and corporations who make them. Again, this is just like Make magazine. As yet there is no media yet showcasing and reviewing fabrication tools the way PC Magazine does PCs or 'market' magazines like Computer Shopper collecting small dealers of stuff, but this is a readily anticipated future development. And you had visionary books like Computer Lib evangelizing the technology, culture, and it's future potential. And that's exactly what Neil Gershenfeld's book FAB is.

There are a lot of parallels here to the early personal computer era, except for a couple of things; there's no equivalent of Apple (yet..), no equivalent of the O'Reily Nutshell book series, no "##### For Dummies" books. Now, I'm not exactly sure that having an Apple in this field would be a good thing. Apple and companies like it then were key to opening the door to a very open and personal Information Age. The nature of personal computing the industry was pointing toward before Apple was one that looked like MiniTel and laptop Videotext keyboard terminals plugged into TVs. Apple came out of the sub-culture and turned it mainstream, making its technology socally relevant and ubiquitous, even if ultimately doing so for the sake of creating a 'mainstream market' to exploit for profit. But it also helped establish a traditional Industrially went from being about disseminating knowledge to putting mass produced products in people's hands at a 'reasonable' cost, largely because the communication of knowledge proved so much more difficult for an increasingly exclusive sub-culture composed largely of misanthropic nerds to pull-off than selling the technology by the novelties of its turn-key applications and 'style'. (pay no attention to that man behind the stylish ABS clamshell case...) But the end result of that strategy is clear; Silicon Detroit. Real progress in personal computer development is now reduced to a snail's-pace because of the drag of hegemonies. Moore's Law isn't translating into productivity gains, let alone social liberation.

I think the folks at MIT may have clued into this issue early on in devising the concept of the Fab Lab. But their solution is typically academic-minded. The Fab Lab is an ashram. There's nothing wrong with that. It's a good model. However, it's ability to communicate is limited by proximity. So you have to make a lot of them to spread the message. And that is limited by the population of experts since it doesn't leverage their accumulated knowledge that well. This is being done remarkably swiftly for what it is, but if it was in competition with an Apple Fabber -and it may soon be- it would lose to PC style market cultivation over true education. The key limitation here is that Fab Labs don't don't network their own knowledge coherently and they don't publish.

The Make magazine and blog publishes. Thing is, they don't quite know what they're doing or where it's going. They're surfing a meme with a YouTube model, letting it carry them rather than directing it in any particular way. It works extremely well as a medium for the exchange of incoherent hacker-style knowledge and it's much more culturally accessible because of its visual media, but it's not that good at communicating knowledge in an organized way and as the sub-culture it embodies becomes more technically sophisticated, it will inadvertently

produce barriers to its own accessibility. Eventually, fewer and fewer articles and recipes will make any sense to John Q. Public. But take note of something. Who is their parent publishing company? O'Reily. Someone upstairs may be watching and waiting for some sign that it's time for some strategic partnerships and "Epilog Laser in a Nutshell"...

Thinking on this, I'm struck by the question of what, then, is the functional role of an open manufacturing movement in the context of all this? What's the Missing Link? What collectively should the activities of this movement coalesce around for maximum cultural impact? The answer seems to be organized knowledge. If we are to preclude the outcome of an Apple Fabber degenerating the movement into another Silicon Detroit the key is in the effective dissemination of knowledge over and ahead of the dissemination of products. And that would suggest that what's missing in this movement is publishing. The systematic creation and dissemination of a large body of knowledge in the most accessible forms possible. Fab Labs have lead the way in this task, but they don't publish and so they don't leverage their dissemination potential that broadly. Make and the like publish, but they don't publish much that's coherent. They're 2600 for Makers.

This brings me to the notion that, perhaps, the effective role of the movement is that of a knowledge generating and publishing engine with the objective being to use the generation of media as a means of achieving ubiquitous accessibility for the technology through the accessibility of the knowledge in parallel with the technology. in other words, technology disseminated merely through the dissemination of products is a process of encryption that limits limits its liberating potential. But technology disseminated through the dissemination of knowledge through media is a process of decryption that enables its liberating potential. We need to think not just about the cultivation of the technology itself but the forms -media forms- in which we disseminate it and what cultural impact that has. So lets imagine a Fab Lab -or the Fab Labs collectively- as an ashram that publishes. A movement as an engineering laboratory whose output isn't products but media about the technology it cultivates.

This is sort of what I was thinking about with the Vajra Maker Incubator concept. It might run an open Fab shop, but it's key job is to gather and cultivate open technology -and the people who invent it- while producing media about what its doing and how its doing it -which would be how its residents earn a living. The community creates a haven for this intellectual activity -distributing the high cost of tools- and pays for itself on the publishing royalties -which is much the same model as the traditional artists commune which pays for

itself by creating an environment conducive to those artists' creativity and then gets a cut on the sale of what they produce to keep going. Corporate industrial research laboratories do much the same thing, only they're objective is to output patents -an intellectual and technological real estate scam. This community would be outputting the same thing, intellectually, only it's in the form of open technology which people make a living from based on the sale of the media that conveys it rather than controlling and exploiting the use of it -which is one of the common ways Linux and other open software is 'monetized'. This seems to parallel Cory Doctorow's and others vision of the Maker Monastery as a bastion of EcoTech and heart of an Outquisition movement. (though I'm liking the ashram analogy much better. Much less Gothic in aspect) Self sufficiency isn't possible for such a haven early on given the available technology. So it either needs a lot of extremely wealthy sugar daddies to support it indefinitely as a gift -and life preserver- to future generations, bootstraps from a very low-tech agrarian model, or it plugs-into and exploits the outside economy in a way their least interferes with its social objectives -and publishing seems to suit that. Maybe any combination of all three would work.

Now this notion isn't necessarily limited to some community in one place. As Make demonstrates, thanks to the Internet our ashrams can be virtual. Living in proximity to tools one can't afford alone is a big help, of course, but the key here is the community network and the development and publishing models. Not all makers are particularly good writers, illustrators, photographers, and videographers. The production of marketable media will likely often demand collaboration. And not all these people need continuous access to workshops. Also, some people will personally invest more in personal workshop facilities simply because they need more privacy for the sake of their own productivity. And, of course, for this to be effective as a movement it has to be able to function across many locations around the globe.

This is where that word ToolBook comes in. This is my imagined 'brand' for the publishing cooperative that this community would coalesce around. It would be like the 'Nutshell' and 'Dummies' books series name but would also be the publishing co-op company's name, ultimately a multi-national corporation. The basic 'deal' of the community is that, collectively, it owns a series of resources -workshops, live-in villages, data centers for web hosting and such, media production facilities, supplies warehouses, etc., under the ToolBook Publishing company name with individuals sharing ownership through stock in that company -much like a Kelsonian Community Investment Corporation. The

individual maker in this community applies for facilities for any particular development project which is intended to culminate in the production of one or more forms of media whose sales -or ad revenue- will recoup the expense of development. Now some things might be really small and simple so all the maker is looking for would be publishing assistance akin to LuLu.com, for which he receives a royalty on unit sales. If he must collaborate with writers or artists, they too would share those royalties. Other projects may require a lot of facilities and thus represent a greater investment decision based on the maker's reputation and the collective opinion on the value and importance of the project among the whole community. So here is where peer-to-peer organization an social credit come in with projects needing increasing communal support and collaboration the more elaborate they are and a formal community-wide project submission, evaluation, and management scheme, web based. And if the community member is living in a community-owned village then they are sharing some portion their royalties with that local community by way of 'rent' relative to their other forms of input to the local economy of that village. A diverse collection of media would be produced by this co-op; print and eBook media in casual to college-level forms, streaming and packaged video, blogs, events, talks, etc. And it would go beyond media to include project kits, small production or made on demand products, one-of-a-kind pieces, and so on. Individual community member activities could also split-off into industrial production - with both an external for-profit component and an internal community support component- particular with the production of stock materials for other makers to use. Villages might also generate products for their local economy, such as surplus produce from small farm operations.

How does this model seem? Nonsense, or maybe feasible?

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Let's have a look at a possible business model for the ToolBook concept. This is a rough outline to start the processing of hammering out details or spotting obvious bugs.

What is it?: ToolBook is a combination media production/publishing and Maker cooperative. It combines the facilities of Fab Labs and industrial design workshops with facilities for the creation of print, video, and digital media along with small-run economy media production and/or digital distribution. These facilities would be concentrated in some key locations as well as distributed across the globe relying on Internet integration and would be used by a community of Maker and media talent that are co-owners of the venture. Creation of key

concentrator facilities could form the basis of physical community development. (ie. Vajra project)

Mission: To match Maker talent to media development talent and share a collective and evolving pool of media and industrial resources for the specific purpose of systematically developing Maker-oriented media that focuses on a functional knowledge-base of tools, technology, and technique rather than just discrete personal artifacts and novelties. Things that empower people to make, not just give them something to make. This is intended to advance the Maker movement beyond the level of disorganized hobbyist activity to a vital open industrial movement and provide a media bridge between the fractured dispersed hacker knowledge of casual Maker activity and the non-applied abstract academic-oriented knowledge of formal engineering. Typical media pursued would consist of user guides for the common tools of the personal industrial workshop and Fab Lab and available building systems/methods such as various modular building systems like Grid Beam, T-slot, modular space frames, and the like. Media design would be based on the evolving visually-oriented aesthetic approaches and media forms of contemporary Maker media as epitomized by the current Maker blogs and magazines. Kit products are also likely. Development efforts would also focus on a systematic duplication of all the common tools of the Fab Lab in open source versions along with key infrastructure systems and standard-of-living artifacts supporting community development and developing world outreach such as independent power systems, farming equipment, relief and durable housing, independent manufacturing systems, open source laboratory equipment, major domestic appliances, educational technology and prefab facilities, and open source vehicle designs. Room would still be made for the more typical Maker novelties as fun is still important to life. But the emphasis of the organization would be on empowerment over amusement.

Legal Business Model: Cooperatively owned multinational corporation, possibly in the form of an LLC or S-Corp.

Do you really want to have a multinational S-Corp? better a C-corp or maybe a different model, with different organizations loosley affiliated with the same central operations model, but different legal frameworks dependant on physical location (more resilient that way) (all my opinions are opinionated-nature of the beast) James

I originally suggested these in the context of being quick and simple to setup at the start but, certainly, other structures may be more appropriate. I have limited knowledge of the options here and am not wedded to any particular model -Eric Hunting 2/20/10 9:51 AM

Operational Model: ToolBook would be a cooperative enterprise based on a simple, but international, corporation that profits on media publishing and where participation is keyed to private stock ownership. One joins the cooperative by buying some minimum number of shares, contributing equipment/facilities in exchange for shares, providing work/services for shares, or by exchanging some of the royalties earned on projects for shares. This establishes communal ownership of all facilities and a basis for group decision making on project choices and business strategy. Stock ownership entitles equal participation in co-op decision-making, regardless of the amount of individual holdings. Owning more stock in the co-op only entitles one to more return on a per-share basis. Some facilities may be residential communities (ie. Vajra) where diversion of royalties or larger share stakes may be applied to 'rent' or 'ownership' of residential space and continual access to local workshops. The publishing corporation may have a specific HQ location for legal purposes but for the most part would function as a structured P2P community globally dispersed, with most participants working from home wherever they are and relying on internet communication, particularly through the use of email/web forum systems, web based project management systems, and collaborative computing and conferencing software. A great many of the participants in the enterprise may only ever appear at physical facilities during social events. Conventional subcontracting may occasionally be employed, particularly for the non-creative duties of bookkeeping and accounting, specialty production services (usually when media product demand exceeds small scale on-demand production) and the like. This is more likely a later development, though, when publishing activities are producing considerable cash flows.

Aside from this, ToolBook would function very similarly to current publishing cooperatives as common in the independent book and comic book publishing industries. Members of the co-op work primarily as freelancers specializing in areas of their talent and interests; Makers, writers, graphic and photographic artists, programmers, etc. Any of these individuals -and in certain circumstances non-members- can propose projects which are intended to culminate in the production of one or more media products (book/eBook, video, web site, DIY kit, and occasionally small-run production whole artifacts) and which the whole shareholder community ultimately votes on the investment in through the access to co-op facilities and the investment in publishing. (later on, the company may open up project submission to non-shareholder freelancers as with conventional publishing, though only shareholders would vote on project support) Such projects may be

as simple as the publishing of media someone has already made independently or may be as elaborate as extended development for some sophisticated artifacts or technologies that will result in several complimentary forms of media; book, video, etc. Most projects may require a collaboration of several members to create, usually across the areas of design and fabrication, illustration, writing, media formatting, etc. Such teams will carry more weight in project proposals and potential scale of resource investment. All members of a project share, through a joint contract, the royalties produced by publication of the specific media for their project and can work out individual percentage shares according to anticipated work. The remainder of the profits are rolled back into the ToolBook enterprise to recoup project investment, produce stock dividends, and invest in additional co-op resources/facilities according to the collective P2P strategy of the whole co-op community. Occasionally, projects may culminate in not only media products but physical facilities and resources generating persistent income. For instance, a project intended to develop an automated greenhouse for use in developing countries could have its model/demonstration greenhouse, built for the purpose of being documented, operated continuously thereafter producing some nominal profit perpetually while sill being a basis of research and design refinement through experience. Such projects could still employ the same compensation model in parallel with income from published media for as long as the facility remains operational. Also, in some cases more prolific members of the co-op may request group investment in personal facilities which they can use/have at-hand where they reside to facilitate their productivity. (this as one alternative to residential communities built around shared workshop facilities) Such investments would depend heavily on the individual's history of productivity and value to the overall enterprise.

Start-Up: Based on establishing a P2P network of prospective founding co-op member/shareholders, the cobbling-together of some approximation of the below-listed Primary Facilities from among the personal resources of the community of 'interested parties', choosing an initial media project and developer team for it, and soliciting possible 'special interest' investor/members. (casual venture investors based on personal interest in the Maker movement, willing to finance facilities in exchange for stock) Corporation would be formerly established along with the initial project contract terms. Public web sites established for web presence and venture history blog, e-commerce for published media, and private web sites for member forums, project submissions, community discourse, conferencing, and voting, collaborative project management. These web based communications would establish basic P2P operational structure through

their approach to information and communications management. Though key officers may be needed for legal purposes, administrative hierarchy should be as flat as possible and systems relatively passive in their mode of management. Should be able to accommodate a certain degree of asynchronous participation and communication in order to deal with differing personal schedules and time zones. Think of it as rather like voting systems at the UN.

Primary Facilities:

•HQ (could be as simple as a mail-stop in global location chosen for multinational business convenience. May also be based on Conference Center or an Incubator Community)

•Fab Labs and other Workshops (can work in both members-only and public access modes)

•Stock Bank (as a community, the co-op would be able to buy certain materials in bulk for savings)

•Tool Bank (a lending library of more expensive/exotic but transportable tools relying on FedEx transport. Likely used mostly for pro media equipment for members who may not find the Media Studio accessible)

•Data/Network center (web services hosting, streaming servers, render farm)

•Media Studio (media equivalent of a Fab Lab with facilities for digital studio photography, video, and audio production)

•Media Production and Fulfillment Center (basically Lulu.com style print-on-demand facilities including CD/DVD and flash drive media capability with some mail-room capabilities)

•Conference Center

Secondary Facilities:

•Maker Incubator Communities (Vajra project/Factor E Farm - live-in Fab Labs but could also be used as locations for the Primary Facilities)

•Testing Grounds: (pieces of property set aside for field demonstration and testing of, usually, large systems and structures such as prefab and deployable buildings, renewable energy systems,

greenhouses, vehicles, hazardous systems like rocket engines, and anything that needs a large open space to test or demonstrate)

•Exhibit Halls. (public access exhibit, likely made as an extension of a public Fab Lab, used as a walk-in showcase of fab technology and Maker culture as well as a retail venue for ToolBook media. Could be a portable facility based on ISO container complex. Could be used in concert with Maker Faire events to showcase member community activities and recruit new ToolBook members and investors. Burning Man camp also a likely venue)

•Outreach Labs. (same as current Fab Lab projects, but with long-term emphasis on take-away fab and production capability through OS tool replication)

Key Media Projects: These represent the starting point for the spectrum of media/publications ToolBook would pursue. Altogether, this could be a couple hundred individual books or media items. Some may seem similar to existing publications, but the style would be highly visually oriented and some could be produced in computer based indexed video-book form. Not noted are things that duplicate media already done by Make Publishing and the like, so one would have to decide weather to duplicate some of this for the sake of branding or stick with this more focused non-competitive content strategy. Most ToolBook members would probably still participate in the rest of Maker culture activities. I suspect the smart approach is to not try to directly impose some artificial standard of production value on the open and participatory Maker media activity but rather let this more professionally produced and knowledge/skill oriented media have a more subtle influence.

•Maker's Sourcebook (Maker culture equivalent of the Whole Earth Catalog, published annually in book form and as a blog)

•Maker Culture (casual or coffee-table book on the Maker culture and activity around the globe. Similar to books on hacker culture, the MIT Media Lab, the young designer community, etc. Would showcase Fab Labs, Maker Faires, and key personalities, possibly including ToolBook community members)

•Maker's Shop Guide (guide to layout, safety, and DIY building methods for personal workshops and their furnishings)

•Maker's Engineering Handbook (simplified engineering and technology principles for aspiring makers with buildable demonstrators. strong

potential as a high school and college textbook)

•Maker's Electronics Handbook (similar to the engineering handbook, but focused on electrical and electronics engineering topics)

•Maker's Networking Handbook (similar to the above, but focused on networking systems with example projects for DIY telecom and network hardware)

•Maker's Codework Handbook (simplified guide/introduction to Linux, processor platforms like Arduino, and common open source software commonly used in Maker projects)

•Maker's Robotics Sourcebook (guide to applied robotics and automation for Maker projects)

•Maker's Contraptions Sourcebook (a guide to common mechanical/ electromechanical mechanisms)

•Maker's FabTech series (series covering specific areas of fabrication such as woodworking, forging/metalworking, glass, ceramics, textiles, casting and molding, etc.)

•Maker's Energy Handbook (guide to principles of energy and renewable energy technology)

•Maker Entrepreneur Handbook (guide to garage-shop manufacturing for profit with basic business management skills and economics principles - geared to the village or local area production scenario and to starting industrial designers)

•ToolBook Project series (DIY project books, organized by fabrication class, sometimes focused on more complex individual projects, other collecting sets of the best artifact project designs from the ToolBook member community. Similar to some project and craft books now coming out of Make Publishing)

•Papercraft Engineering Handbook (kids-oriented guide to papercraft model making using computers and desktop digital paper cutters. Would ideally include CD ROM CAD software and model collection and/or web site model catalog with emphasis on papercraft automata. Produced in concert with manufacturers of these cutters, such as Xyron, would be used as a way of introducing kids and grade school teachers to principles of independent industry through a safe low-cost machine and cheap paper and cloth materials)

•Fab Lab Handbook (visual guide to the contemporary Fab Lab, its tools, and common techniques)

•Fab Tools Handbook series (a series of more dedicated guides to each of the classes of tools common to the Fab Lab)

•OSfab series and kits (manuals and kits for open source versions of each of the tools of the Fab Lab)

•OShop series (OS designs and fabrication instructions for common hand and power tools)

•Osystem Sourcebook series (sourcebooks for each of the various common building systems available today; Grid Beam, T-slot, space frames like N55 and rod & clamp, rod and plate systems, basic modular wood joinery, welded space frames, etc.)

•OSfarm Sourcebook series (could also be Factor E Farm branded. Guide to OS farming tools like the LifeTrac, hydroponics, mariculture, permaculture and other high efficient agriculture techniques)

•Global Relief Tech Sourcebook (catalog and instructions for relief shelters and support systems)

•Container Mod Sourcebook (guide to the repurposing and reuse of ISO shipping containers)

•UtiliHab Sourcebook (guide to the open source version of currently emerging T-slot based plug-in architecture systems)

•Earthbuilder Sourcebook (focuses on techniques for CEB, rammed earth, cast earth, SuperAdobe)

•Evolvable Architecture Sourcebook (focuses on various approaches to evolvable and P2P architecture)

•OScar Sourcebook series (starts with a guide to the current OScar movement. Branches into manuals for specific designs)

•OSpace Sourcebook (a sourcebook to the emerging culture of open source aerospace development)

•ToolBook TV and Podcast (journalistic guide to the latest in Maker culture, Fab Lab development, and desktop manufacturing technology)

So that's how I'm imagining this at the moment.

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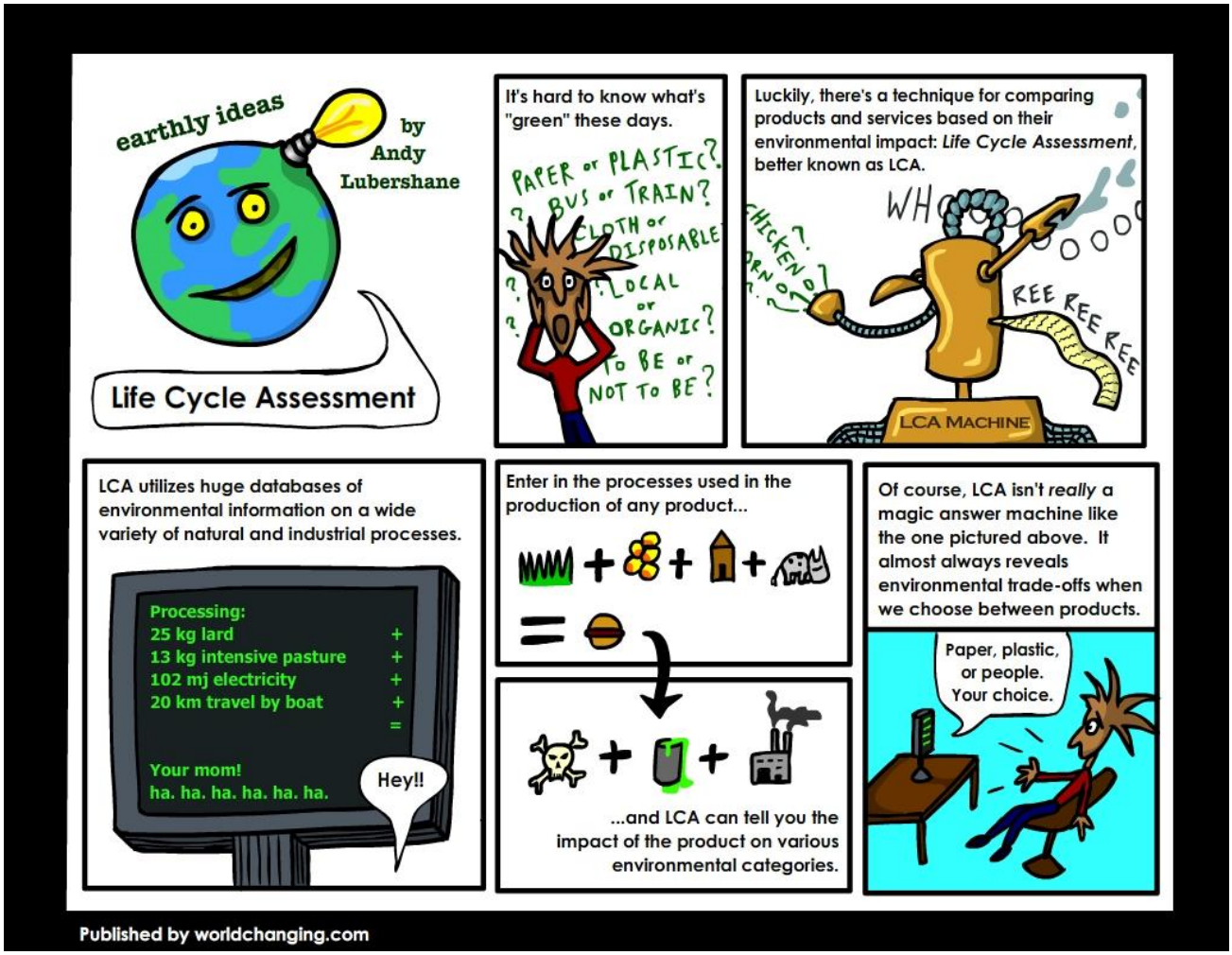
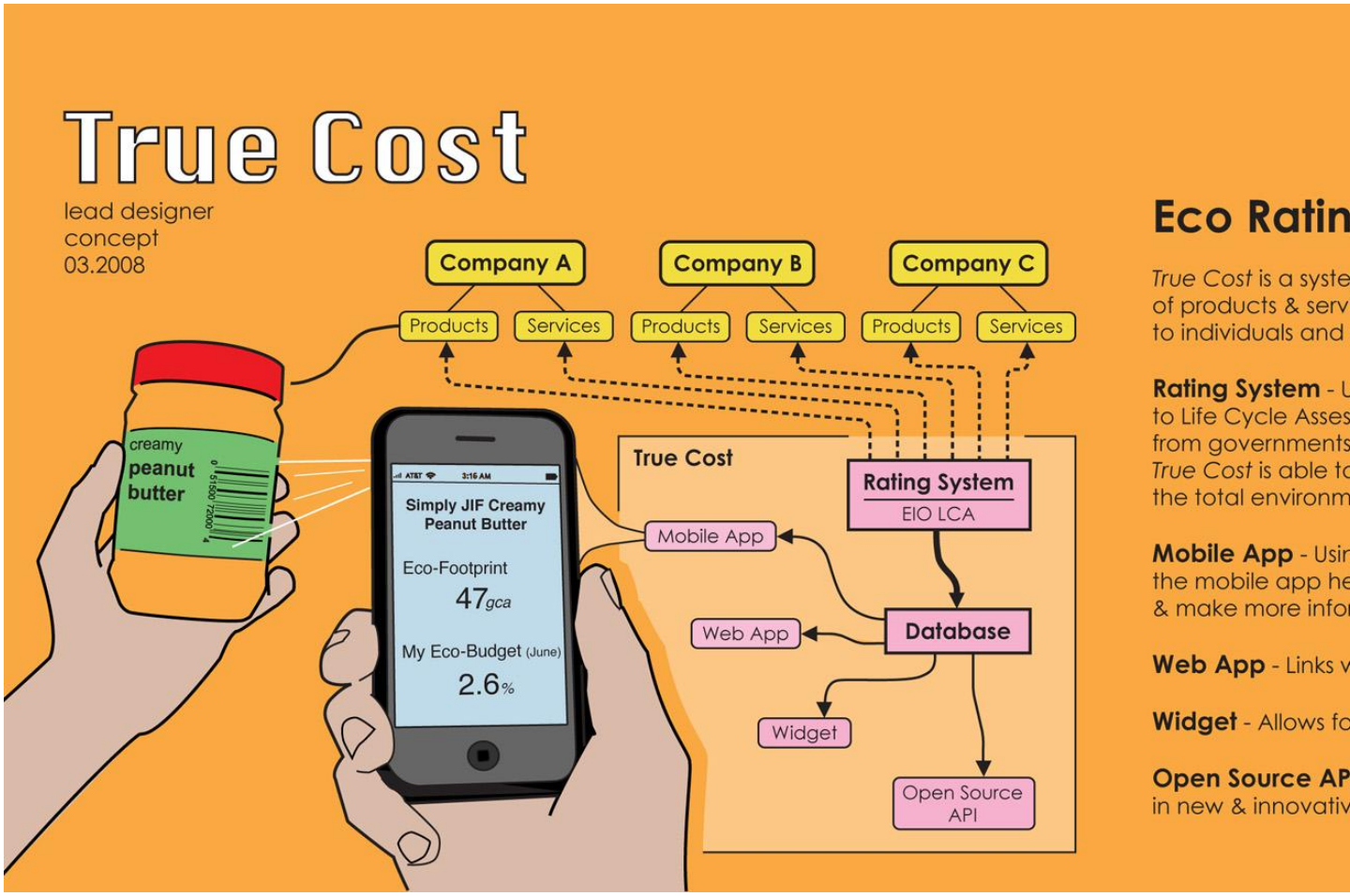
On Wed, Feb 11, 2009 at 12:25 AM, Nathan Cravens
<knu...@gmail.com> wrote:
> Ponderousness aside, this brings up a discussion
between Marcin Jakubowski
> and I that largely relates to this conversation.
Let's introduce what I call
> "efficiency through recursion." The test subject for
this model is: Open
> Source Ecology: Global Village Construction Set:
Compressed Earth Block
> Press: melting and casting from scrap metal vs
purchasing caste parts. This
> process can be called a form of "productive
recursion," an open source form
> of production from the bottom-up, produced more
efficiently to generate more
> value than top down proprietary methods. The
"efficiency through recursion"
> theory assumes a 5:1 ratio of value generated to
labor used in the
> theoretical case presented. This may mean more labor
time to produce an
> artifact than purchasing assembled materials
elsewhere, yet the financial
> cost (waste) saved means less toil or wage labor in
the long run to generate
> the same item: therefore: a recursive acceleration
in production efficiency.
> In theory, this will mean more leisure time as a
result when proven in
> practice: for one that chooses to construct the item
oneself at a community
> generated Fab Lab or when purchasing the same item
from an agent that

> applied similar methods of production. This means the time to manufacture a
> product through community supported manufacturing or personal fabrication,
> whichever is most efficient, will receive highly significant productive
> increases, and when proven by results, will become adopted. This theory can
> be proven many times over when communities can easily acquire the knowledge
> and materials to assemble the meta-tools or Open Source Fab Lab to generate
> productive tools that reduce toil and increase leisure. Inspired by our
> e-mail conversation and my stay at Factor e Farm, Marcin developed a working
> formula to test the theory of "efficiency through recursion" here:
> http://openfarmtech.org/index.php?title=Recursion

## Life cycle assessment




http://rjpinnell.info/Page12.html "True Cost"



## Open Source & Biotech

The following is an extraction of notes from a long email from 2008 called "What's all this about 'open', anyway?". Hopefully this can help explore the relationship of open source hardware, open source software, and open source licenses in the biotech industry.

**Import Landing Pad**

Import with care.
When you move data between documents you sometimes receive a block of unknown size. Import such a block here, at the bottom of the document. Work imported to this landing pad can have strange dimensions without affecting extant document content. After you safely import it, make necessary edits and move it to its final location in the document. If the document receives automatic updates, still import them to a landing pad for human review. Validation can fail, you know.

Social Funding Sources

Acumen Fund http://www.acumenfund.org/
BigOnline http://www.bigdatabase.ca/
BigIssue http://www.biginvest.co.uk/
Bridges Community Ventures http://www.bridgesventures.com/
Bridgespan Group
Cadiz http://cadiz.socialinvestmentreport.co.za/
Calvert Foundation http://www.calvertfoundation.org
CAPE Fund http://capefund.ca/
Catalyst Microfinance http://www.catalyst-microfinance.com/
Civic Ventures http://www.civicventures.org
Coast Capital Savings Credit Union www.coastcapitalsavings.com/Community
Draper Richards Foundation http://www.draperrichards.org/
DreamNow http://www.dreamnow.org/
E+Co http://www.eandco.net/
Echo In Green http://www.echoinggreen.org
Edmonton Social Enterprise Fund http://socialenterprisefund.ca/
Face The World Foundation http://www.facetheworldfoundation.com
Generation Foundation http://www.generationim.com/
Genus Capital http://www.genuscap.com/
Good Capital http://www.goodcap.net
Grameen Foundation http://www.grameenfoundation.org
GTech Strategies http://gtechstrategies.org/
Investing For Good http://www.investingforgood.co.uk/
Investeco http://www.investeco.com/
Launchpad http://launchpad.youngfoundation.org/
Metcalf Foundation http://www.metcalffoundation.com/
Natural Investments http://www.naturalinvesting.com

Nesta
Network for Social Change http://www.thenetworkforsocialchange.org.uk/
Network Hub http://www.thenetworkhub.ca
Omidyar Network http://www.omidyar.com/
Renewal Partners http://www.renewalpartners.com/
Rockefeller Foundation
http://www.rockefellerfoundation.org/what-we-do/current-work/helping-build-impact-investing-industry/grants-grantees
Schwab Foundation for Social Entrepreneurs
http://www.schwabfound.org/sf/index.htm
Seachange Capital http://www.seachangecap.org
Shuttleworth Foundation http://www.shuttleworthfoundation.org
Skoll Foundation http://www.skollfoundation.org/
Social Capital Partners http://www.socialcapitalpartners.ca
Social Enterprise Fund http://socialenterprisefund.ca/
Social Finance http://www.socialfinance.org.uk/
Social Innovation Fund
http://www.nationalservice.gov/about/serveamerica/innovation.asp
Social Investment Organization http://socialinvestment.ca/
Springbank Social Capital Advisors http://www.springbanc.com/
The Funding Network http://www.thefundingnetwork.org.uk/
Toronto Enterprise Fund http://www.torontoenterprisefund.ca/
UnLtd http://www.unltd.org.uk/
Vancity Community Foundation
https://www.vancity.com/AboutUs/OurBusiness/Subsidiaries/VancityCommunityFoundation/
Vancouver Foundation http://www.vancouverfoundation.bc.ca/
VentureSome
Volans http://www.volans.com/
W Media Venture
Western Economic Diversification Fund
Young Foundation http://www.youngfoundation.org.uk/
Zero Divide http://www.zerodivide.org/

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Resources

Business models for open source hardware (Gregory M. Pomerantz, 2000)

p2pfoundation - Open source hardware business models
oshbiz.zip presentation on how you can become a full-time maker and start buying more open source hardware

http://p2pfoundation.net/Open_Source_Hardware

http://p2pfoundation.net/Open_Hardware

http://p2pfoundation.net/Category:Design

http://p2pfoundation.net/Product_Hacking

http://en.wikipedia.org/wiki/Open-source_hardware

http://openhardwarefoundation.org/

http://hackerspaces.org/

http://hackerfoundation.org/

http://diybio.org/

http://pinkarmy.org/

http://openmanufacturing.org/

http://openmanufacturing.net/

http://groups.google.com/group/diybio

http://groups.google.com/group/openmanufacturing

http://groups.google.com/group/replab

http://groups.google.com/group/gnusha

http://groups.google.com/group/diytranshumanist

http://igem.org/

http://syntheticbiology.org/

http://biobricks.org/

http://creativecommons.org/

http://opensource.org/

http://gnu.org/

http://debian.org/

http://fsf.org/

http://heybryan.org/om.html

http://openfarmtech.org/

http://reprap.org/

http://fabathome.org/

http://replicat.org/

http://linuxcnc.com/

http://emachineshop.com/

http://ponoko.com/

http://shapeways.com/

http://makerbot.com/

http://thingiverse.com/

http://instructables.com/

http://makezine.com/

http://hplusmagazine.com/

http://humanityplus.org/

http://contraptor.org/

http://makerbeam.com/

http://cubespawn.com/

http://designfiles.org/dokuwiki/skdb

http://tangiblebit.com/

http://harkopen.com/

http://fabbaloo.com/

http://

http://www.wired.com/techbiz/startups/magazine/16-11/ff_openmanufacturing?currentPage=all
http://antipastohw.blogspot.com/2009/03/introducing-open-source-hardware.html

more stuff goes here
more
more
moar
more
more
moar

Sunday, February 14, 2010

[9:30:13 PM] Bryan Bishop: so why did we have phone calls then

[9:30:15 PM] Suresh Fernando: This sort of thing is the challenge

[9:30:24 PM] Suresh Fernando: what do you mean

[9:30:33 PM] Bryan Bishop: if you weren't ready, why did you bother

[9:30:42 PM] Suresh Fernando: I'm figuring it out as well

[9:30:51 PM] Suresh Fernando: I've made that claer

[9:31:29 PM] Suresh Fernando: It's not like we've got nothing done in the last few weeks

[9:35:26 PM] Bryan Bishop: on another note, does anyone know a music "expert"? i need to pick someone's brain for musical suggestions to accompany a potential made-for-youtube-video

[9:36:10 PM] Suresh Fernando: sorry...

[9:36:20 PM] * Suresh Fernando off to eat...

Monday, February 15, 2010

[10:36:32 AM] Bryan Bishop: suresh: http://www.youtube.com/watch?v=TGCiJvKaZtQ these videos tend to be common from engineering consulting firms. it's about 2min

[10:37:10 AM] Suresh Fernando: Thanks Bryab

[10:37:14 AM] Suresh Fernando: Bryan

[10:38:45 AM] James Jones: too bad they don't assemble and paint the robots using... Robots

[10:38:51 AM] Bryan Bishop: no kidding!

[10:39:18 AM] Bryan Bishop: anyway the reason why i mention that is because i'm putting together a video like that for skdb microfluidics

[10:39:24 AM] Bryan Bishop: and that's why i've been asking around for music

[10:40:17 AM] James Jones: lots of classic/movie soundtrack music in the world - good luck with finding the right piece tho

[10:40:28 AM] Bryan Bishop: yeah

[10:40:39 AM] Bryan Bishop: i've been asking some film friends of mine, maybe they can help pick something out

[10:40:45 AM] James Jones: by the way, are you up for a short voice call?

[10:41:03 AM] Bryan Bishop: hold on, i just sat up and blood is rushing

[10:41:21 AM] Bryan Bishop: yes

[10:41:25 AM] James Jones: cheaper than drugs I guess ;-)

[10:44:23 AM] Bryan Bishop: cubespawn funding

[10:44:44 AM] Bryan Bishop: getting a cubespawn funded is the objective, not throwing money at james :P

[10:46:33 AM] Bryan Bishop: "once i got married"

[10:49:19 AM] Bryan Bishop: $3k cnc machine- smithy, or somesuch

[10:49:30 AM] Bryan Bishop: 600mm cubespawn + cnc components versus fixing up the mechmate

[10:51:14 AM] Bryan Bishop: hard to find a place for the mechmate to live

[10:53:56 AM] Bryan Bishop: hextatic, tensegrity, using mass to damp out vibration, using tension to damp out vibration (instead of mass)

[10:54:21 AM] Bryan Bishop: active transducers in the cubespawn frame

[10:54:23 AM] Bryan Bishop: anti-sound systems

[10:55:31 AM] Bryan Bishop: synthetic regidity

[10:55:37 AM] Bryan Bishop: *rigidity

[10:57:08 AM] Bryan Bishop: mounting a makerbot in a cubespawn? maybe not

[10:58:12 AM] Bryan Bishop: xyz motion of cubespawn

[10:58:23 AM] Bryan Bishop: pull the extruder from a makerbot/reprap/darwin/mendel/repstrap

[10:59:35 AM] Bryan Bishop: before i start renting from the austin hackerspace, i

need les filip to get wifi access in the shop, also i need to check if the other locals want to chip in some money to the rent costs ($300/mo)

[11:03:20 AM] Bryan Bishop: after-market grinder for making endmill bits

[11:06:20 AM] Bryan Bishop: http://designfiles.org/~bryan/meetlog/graphs/james_jones.png

[11:06:28 AM] Bryan Bishop: http://designfiles.org/~bryan/meetlog/graphs/sam_putman.png

[11:06:33 AM] Bryan Bishop: http://designfiles.org/~bryan/meetlog/graphs/suresh_fernando.png

[11:09:57 AM] Bryan Bishop: https://www.google.com/analytics/settings/user_list

[11:09:57 AM] James Jones: http://www.cubespawn.com/priv_stats/

[11:16:25 AM] Bryan Bishop: http://austinhackerspace.org/

[11:16:32 AM] Bryan Bishop: http://groups.google.com/group/austin-hacker-space

[11:16:46 AM] James Jones: Link Fiesta!

[11:19:10 AM] James Jones: your data showed up, hadda select the correct analytics account in the upper right.. ;-)

[9:19:11 PM] Suresh Fernando: Check out this correspondence with a guy in Vancouver regarding Vancouver Hacker Space and let me know if we should suggest something

[9:19:28 PM] Suresh Fernando: [7:12:43 PM] Suresh Fernando: Hey Luke

<<< Hey Luke

[7:12:46 PM] Luke Closs: hi

[7:13:09 PM] Suresh Fernando: Did Jerry tell you about the project Im working on

[7:13:09 PM] Luke Closs: i like the openkollab idea

[7:13:17 PM] Suresh Fernando: awesome!

[7:13:17 PM] Luke Closs: no, but i just read your email

[7:13:26 PM] Luke Closs: open manufacturing is great

[7:13:37 PM] Suresh Fernando: with the hyperlinks there's lots to read

[7:13:41 PM] Luke Closs: i've been hacking with arduinos and diy electronics through the local Vancouver Hack Space

[7:13:46 PM] Suresh Fernando: aha

[7:13:52 PM] Suresh Fernando: you in vancouver

[7:13:54 PM] Luke Closs: yep

[7:13:57 PM] Suresh Fernando: me too

[7:14:00 PM] Luke Closs: near Burrard and Broadway

[7:14:06 PM] Suresh Fernando: Im on the Drive

[7:14:10 PM] Luke Closs: cool

[7:14:33 PM] Luke Closs: I'm familiar with several of the companies related to the open manufacturing space

[7:14:41 PM] Suresh Fernando: interesting

[7:14:42 PM] Luke Closs: no close connections (yet) though

[7:14:56 PM] Suresh Fernando: Whats your involvement in the space

[7:15:18 PM] Luke Closs: I'm a software developer (for Socialtext) building enterprise social software

[7:15:37 PM] Suresh Fernando: open manufacturing more of a hobby

[7:15:43 PM] Luke Closs: but I got involved with VHS (Vancouver Hack Space) and have started to learn the hardware and diy side of things

[7:15:43 PM] Luke Closs: ya

[7:15:51 PM] Suresh Fernando: i see

[7:15:57 PM] Suresh Fernando: interesting space

[7:15:58 PM] Luke Closs: VHS is looking to buy some of the equipment to do mini fabs

[7:16:08 PM] Luke Closs: like a laser cutter and maybe a rep-rap or a makerbot

[7:16:16 PM] Suresh Fernando: oh yeah

[7:16:56 PM] Luke Closs: lots of interest in this stuff at VHS.  I could introduce you to one guy named Dallas, who has a longer term vision of setting up some venture around this diy & fab stuff

[7:17:09 PM] Suresh Fernando: That would be appreciated

[9:20:27 PM] Bryan Bishop: could you give him my contact information?

[9:20:46 PM] Suresh Fernando: sure

[9:20:57 PM] Suresh Fernando: I;ll email intro you

[9:23:22 PM] Suresh Fernando: done

[9:23:27 PM] Bryan Bishop: thanks

[9:24:30 PM] Suresh Fernando: Part of our model should be to sell into situations like this

[9:25:41 PM] Suresh Fernando: I'll let you respond/think about Vitaly's email

[9:25:54 PM] Bryan Bishop: ?

[9:25:57 PM] Bryan Bishop: i don't think i saw it

[9:25:59 PM] Bryan Bishop: when was it?

[9:26:07 PM] Suresh Fernando: 2 seconds ago

[9:26:08 PM] Bryan Bishop: ah

[9:26:16 PM] Bryan Bishop: well then that is why :) i'm composing my message to luke

[9:26:43 PM] * Suresh Fernando off to eat chat later

[9:38:18 PM] Bryan Bishop: suresh: i think it should be obvious to you that VHS is an opportunity to sell kits

[9:38:26 PM] Bryan Bishop: but i'm sad that you didn't recognize this :(

[9:40:23 PM] Bryan Bishop: hello eric

[10:06:09 PM] Suresh Fernando: I realize this Bryan since we've talked about it

[10:06:20 PM] Bryan Bishop: ok great

[10:06:22 PM] Bryan Bishop: just making sure

[10:06:25 PM] Suresh Fernando: Can we assemble kits on a short timeline

[10:06:33 PM] Bryan Bishop: it depends on the contents of the kits

[10:06:40 PM] Bryan Bishop: i don't think we can do a $100k+ kit in a short timeframe

[10:06:55 PM] Bryan Bishop: but maybe something more down to earth.. say a $500 to $1k kit or less

[10:07:01 PM] Bryan Bishop: (even less than $100)

[10:07:15 PM] Suresh Fernando: Also, in the context of Hackerspaces that are under development, is Kits the only opportunity?

[11:39:29 PM] mnemnion: let me forward you a couple emails. it'll be background

for the others.

[11:39:53 PM] mnemnion: (as in, they are on the RepLab list and have read it already)

[11:43:37 PM] mnemnion: actually, they're more threads than discrete emails. Look on the RepLab google group for the threads "Funding RepLab" and "crowdbank"

[11:43:57 PM] Bryan Bishop: can we just make suresh read all of the old OM and replab emails?

[11:44:00 PM] mnemnion: this is in answer to the question of whether or not kits are the only oportunity vis a vis hackerspaces.

[11:44:27 PM] Suresh Fernando: just give me the short answer

[11:44:46 PM] Bryan Bishop: ...

[11:44:50 PM] mnemnion: okay, but the short answer might be the long answer.

[11:45:03 PM] Suresh Fernando: ok how about AN answer

[11:45:41 PM] mnemnion: the short answer is that there may be a great benefit to the OpenKollab project in somehow instancing a federation of hackerspaces

[11:45:54 PM] Bryan Bishop: how is this different from what's explained in the documents already?

[11:46:29 PM] Suresh Fernando: what does 'instancing a federation of hackerspaces' mean?

[11:46:35 PM] Bryan Bishop: instantiation

[11:46:37 PM] Suresh Fernando: setting them up

[11:46:43 PM] mnemnion: nope

[11:47:07 PM] mnemnion: instantiation of the federation, not per se the individual spaces

[11:47:13 PM] Suresh Fernando: i see

[11:47:20 PM] Bryan Bishop: like the hackerspace foundation.

[11:47:28 PM] Bryan Bishop: or the co-op model that we've been trying to explain

[11:47:36 PM] Suresh Fernando: In the Federation model, what is the relation between the instances

[11:48:08 PM] mnemnion: Y'know, I'll answer that. But the thread would have taken less time to read. :-)

[11:48:18 PM] mnemnion: we've kicked around a few ideas

[11:48:21 PM] Suresh Fernando: guide me to the thread

[11:48:26 PM] Bryan Bishop: i think it would be less time to just read the business doc

[11:48:27 PM] mnemnion: the most durable one is a subscription type model.

[11:48:29 PM] mnemnion: will do!

[11:48:33 PM] Bryan Bishop: where that information has already been assembled and condensed

[11:48:34 PM] Bryan Bishop: *cough*

[11:48:53 PM] Suresh Fernando: Is there discussion of the Federation model in your doc

[11:48:58 PM] Bryan Bishop: yessir

[11:49:36 PM] Suresh Fernando: are you equating with coop

[11:49:45 PM] Bryan Bishop: yes that's what the model was discussed on the replab threads

[11:49:52 PM] mnemnion: wherein people pay in a modest monthly amount, which is in turn directed to projects.

[11:50:09 PM] Bryan Bishop: there was another model that marcin brought up in the thread

[11:50:16 PM] mnemnion: basically money turns into credits, credits are allocated by subscribing members, and turned back into money when projecst manage to reach full funding

[11:50:28 PM] Bryan Bishop: nothing new..

[11:51:06 PM] Suresh Fernando: Sam, is there more than is in Bryan's doc

[11:51:22 PM] Bryan Bishop: the way that credits are dealt with wasn't elaborated in the doc

[11:51:28 PM] Bryan Bishop: but that's a welcome addition

[11:51:37 PM] mnemnion: There are six hundred plus edits and thirty contributors on that document; I honestly have no idea what's in it anymore

[11:51:43 PM] Bryan Bishop: then read it

[11:51:46 PM] Bryan Bishop: and check the diffs

[11:51:51 PM] mnemnion: here's one thread:

[11:51:54 PM] mnemnion: http://groups.google.com/group/replab/browse_thread/thread/6d31e82531c3c325

[11:52:43 PM] Suresh Fernando: out of curiosity who admins the RepLab Group

[11:52:46 PM] mnemnion: here's another

[11:52:48 PM] mnemnion: http://groups.google.com/group/replab/browse_thread/thread/0e0399306d63af8c

[11:52:55 PM] Suresh Fernando: thks

[11:52:56 PM] Bryan Bishop: sam admins the replab group

[11:52:59 PM] mnemnion: That'd be myself, Marcin and Erik de Bruijn

[11:53:05 PM] Suresh Fernando: ok

[11:53:06 PM] mnemnion: I'm just the 'owner'

[11:53:13 PM] mnemnion: and Erik 'owns' the domain name.

[11:53:16 PM] Suresh Fernando: I just applied for admission

[11:53:29 PM] Bryan Bishop: imho the replab list should not have been created in the first place

[11:53:36 PM] Bryan Bishop: those discussions belong on the openmanufacturing mailing list

[11:53:45 PM] mnemnion: you should be able to read it, right?

[11:53:55 PM] Suresh Fernando: I was going to ask the same question

[11:53:56 PM] Suresh Fernando: yes

[11:55:11 PM] mnemnion: ok you're on it. what question

[11:55:11 PM] mnemnion: ?

[11:55:23 PM] Suresh Fernando: why 2 groups

[11:55:26 PM] Bryan Bishop: :(

[11:55:45 PM] Suresh Fernando: To go back to the beginning

[11:56:05 PM] Suresh Fernando: How does Coop model have anything to do with whether we can sell more than Kits to a HackerSpace

[11:56:22 PM] Bryan Bishop: did you read the document? it specifically outlined how that's possible

[11:56:29 PM] mnemnion: I'm subscribed to at least five groups off the top of my head: thingiverse, om, replab, ok, diybio. noisbridge list... there are a few others.

[11:56:41 PM] Bryan Bishop: the co-op model and federation model specifically

sets up machines that drive profit back into the overall structure

[11:56:54 PM] Bryan Bishop: i'm subscribed to 150 groups off the top of my head

[11:56:54 PM] mnemnion: may as well ask why OK has a list distinct from OM. they're different projects with overlapping interests.

[11:56:59 PM] Bryan Bishop: http://heybryan.org/mailing_lists.html

[11:57:05 PM] Bryan Bishop: sam, that's a god damn lie

[11:57:10 PM] Bryan Bishop: nobody has ever asked why OK is separate from OM

[11:57:17 PM] mnemnion: language :-)

[11:57:24 PM] Bryan Bishop: you have a way with me :)

[11:57:42 PM] Suresh Fernando: A pragmatic question about Coop

[11:57:46 PM] Bryan Bishop: hm?

[11:58:04 PM] Suresh Fernando: How exactly do you envision this rolling out

[11:58:15 PM] Bryan Bishop: that's a very broad question

[11:58:19 PM] Suresh Fernando: For example we announce we are setting up a Federation

[11:58:22 PM] mnemnion: have you read the two threads I linked to?

[11:58:35 PM] Bryan Bishop: an announcement may or may not matter, to be honest

[11:58:36 PM] Suresh Fernando: Not yet I'm chatting wiht you guys

[11:58:45 PM] Bryan Bishop: basically the way it goes is that we start building the machines.. that's basically it

[11:58:46 PM] Suresh Fernando: Maybe we should have this conversation after I read the threads

[11:58:56 PM] Bryan Bishop: we're already on that path

[11:59:10 PM] Bryan Bishop: that's what i thought we were doing here with the cubespawn-to-prototype-contraptor, and skdb-makerbeam-toolchain etc.

[11:59:12 PM] Suresh Fernando: but you need people to set up the specific locations

[11:59:16 PM] Bryan Bishop: yes that's true

[11:59:24 PM] Bryan Bishop: but in many cases the people we already know already have locations

[11:59:27 PM] Suresh Fernando: you can;t forget that part

[11:59:37 PM] Suresh Fernando: so convert them to Coop

[11:59:42 PM] Bryan Bishop: for instance, tim schmidt, dave rauchwerk, les filip, joe jackson, etc.

[11:59:45 PM] Bryan Bishop: convert?

[11:59:54 PM] Bryan Bishop: so that's something that i wanted to avoid actually

[11:59:58 PM] Suresh Fernando: they're already set up presumably

Tuesday, February 16, 2010

[12:00:02 AM] Bryan Bishop: i don't think we should force their entire initiative to be a "co-op member"

[12:00:09 AM] Bryan Bishop: but as long as there's at least one person

[12:00:18 AM] Suresh Fernando: Again...

[12:00:18 AM] Bryan Bishop: who is involved in the co-op, and the space

[12:00:27 AM] Bryan Bishop: instead of the entire hackerspace, fablab, techshop, etc.

[12:00:33 AM] Suresh Fernando: Either we work with existing Hackerspaces etc

[12:00:37 AM] Suresh Fernando: Or we start new ones

[12:00:39 AM] Bryan Bishop: i think you're not listening to me

[12:00:44 AM] Suresh Fernando: Is there any other option

[12:00:48 AM] Bryan Bishop: please read what i just said

[12:00:49 AM] Bryan Bishop: sigh

[12:00:53 AM] mnemnion: yes

[12:01:11 AM] Bryan Bishop: it would be great to get entire hackerspaces on board, but i wouldn't rely on that

[12:02:26 AM] mnemnion: it's more a federation of people interested in the RepLab project. Many of whom we can expect would be associated with hackerspaces, some of whom may want to get on board as a group and declare themselves to be in the process of building a RepLab

[12:02:47 AM] Bryan Bishop: how is that different from what i said

[12:02:51 AM] mnemnion: which is both more open-ended and more complex than a RepRap, hence usually a group endeavor, and likely done at universities and hackerspaces, at least at first

[12:03:34 AM] Suresh Fernando: Let me review the threads and I'll chat with you guys another time about this

[12:03:42 AM] mnemnion: awesome :-)

[12:03:54 AM] Suresh Fernando: thanks for the info

[12:04:13 AM] mnemnion: you bet

[11:14:21 AM] James Jones: Just got on... but going AFK for 30-60 minutes bbl

[11:15:33 AM] Suresh Fernando: saw your doc - thanks

[11:51:40 AM] Suresh Fernando: What do you guys think about using http://openpario.mime.oregonstate.edu:3000/ for project management?

[11:51:53 AM] Bryan Bishop: redundant

[11:52:13 AM] Bryan Bishop: also kind of restrictive

[11:55:24 AM] Suresh Fernando: restrictive in what sense?

[11:55:52 AM] Bryan Bishop: it seems to apply the same model to each project

[11:56:12 AM] Bryan Bishop: it's like sourceforge except even worse because it has no svn/cvs and no mirrored file hosting

[11:56:57 AM] Suresh Fernando: Not sure about last comment, but it does allow some customization of the way projects are structured - ie. you can choose from various modules

[11:57:12 AM] Bryan Bishop: i'm not going to be able to convince you

[11:57:12 AM] mnemnion: browsing the site

[11:57:16 AM] Suresh Fernando: Again, this is a process to manage group interaction, not just coding etc

[11:57:30 AM] Bryan Bishop: so?

[11:57:43 AM] Suresh Fernando: The requirements are presumably different

[11:58:11 AM] Bryan Bishop: i still don't like openpario :( michael has put a lot of effort into it, i know, but i think it's misguided and restrictive

[11:58:12 AM] Suresh Fernando: The good thing is that it is free and that they will integrate SKDB

[11:58:25 AM] Suresh Fernando: And will customize and extend based on our requests

[11:58:50 AM] Bryan Bishop: why do you ask for my opinions anyway?

[11:58:57 AM] Suresh Fernando: huh

[11:59:01 AM] Suresh Fernando: I want to know what you think

[11:59:04 AM] Bryan Bishop: do you?

[11:59:08 AM] Suresh Fernando: yeah

[11:59:12 AM] mnemnion: checking the cubespawn project

[11:59:14 AM] Suresh Fernando: Doesnt mean i agree

[11:59:23 AM] Bryan Bishop: it sounds like there's no chance in hell that i'll ever be able to convince you

[11:59:28 AM] Bryan Bishop: so why would you care what my opinion is?

[11:59:36 AM] Suresh Fernando: why do you say that

[11:59:47 AM] Bryan Bishop: sigh

[11:59:55 AM] Bryan Bishop: do you understand why openpario is poorly architectured?

[11:59:59 AM] Suresh Fernando: The first thing in determining if it is right for us is to determine the goals for the platform, right?

[12:00:11 PM] Suresh Fernando: No - that's good info

[12:00:29 PM] Suresh Fernando: In what sense? Let's Michael in the loop on that

[12:00:46 PM] Suresh Fernando: I'll start an email thread

[12:00:51 PM] Bryan Bishop: ugh

[12:00:56 PM] Bryan Bishop: i really don't want to tell him to rewrite it from scratch

[12:01:07 PM] Bryan Bishop: you can tell him if you want

[12:01:16 PM] Suresh Fernando: I have nothing to add to why it is poorly

architected, but they might have an opinion

[12:01:31 PM] Bryan Bishop: to you it's all about opinions.. how strange

[12:01:42 PM] Bryan Bishop: very confusing too!

[12:02:03 PM] Suresh Fernando: yeah - what privilieges your opinion

[12:02:10 PM] Bryan Bishop: if there is a design flaw, is that an opinion or a fact?

[12:02:13 PM] Suresh Fernando: in respect to their project

[12:02:27 PM] Suresh Fernando: It might be a fact, but I don't have enough info

[12:02:41 PM] Bryan Bishop: i think you do.. you've seen this design pattern on multiple occasisions

[12:02:42 PM] Suresh Fernando: only info is your assertion

[12:02:49 PM] Bryan Bishop: for instance, decentralization vs. centralization

[12:02:56 PM] Suresh Fernando: explain

[12:02:59 PM] Bryan Bishop: that's a common theme that we've been discussing for weeks

[12:03:16 PM] Suresh Fernando: you mean - centralizing on a single platform

[12:03:18 PM] mnemnion: Skype vs. RIC

[12:03:22 PM] mnemnion: IRC rather

[12:03:26 PM] Bryan Bishop: RIP :P

[12:03:32 PM] Suresh Fernando: ;-)

[12:03:47 PM] Suresh Fernando: I actually believe in a acertain amount of centralization

[12:04:13 PM] Bryan Bishop: the question isn't centralization versus decentralization, but there are times when you need to understand why both are not

the optimums

[12:04:16 PM] Bryan Bishop: this is one of them..

[12:04:57 PM] Suresh Fernando: Part of the reason that I want to expriment with this is that it would be cool to have an infrastructure that could include others in the Open Man space

[12:05:02 PM] Suresh Fernando: Define sub projects etc

[12:05:07 PM] mnemnion: perhaps, rather than raw assertion, you could explore why in this case (openpario in the context of project management) centralization qualifies as a design flaw.

[12:05:12 PM] Suresh Fernando: And engage a broader community over time

[12:05:18 PM] Bryan Bishop: sam, but when will suresh learn on his own?

[12:05:22 PM] mnemnion: I can't make that case, since I'm not convinced one way or the other myself.

[12:05:27 PM] Bryan Bishop: i'm wondering if he'll be able to figure it out on his own

[12:05:37 PM] Bryan Bishop: this happens often

[12:05:45 PM] Bryan Bishop: suresh finds something new, and then asks for our opinions rather than discovering for himself

[12:05:50 PM] Bryan Bishop: asking for opinions is good of course

[12:05:51 PM] mnemnion: suresh, bryan, has skills and abilities, and areas of knowledge, with which I am totally unfamiliar.

[12:05:51 PM] Bryan Bishop: but still

[12:06:04 PM] Suresh Fernando: Like I said, I dont centralization is a design flaw in the case of managing groups around projects

[12:06:04 PM] mnemnion: if I wanted, say, financial model advice, and I do, I'm

just going to ask him ignorant questions

[12:06:11 PM] mnemnion: I hope he'll be as patient with me as we're being with him.

[12:06:30 PM] Bryan Bishop: suresh: centralizing people is fine, but centralized hosting, platform lock-in, unnecessary overhead, etc., is terrible

[12:06:31 PM] Suresh Fernando: sam ;-)

[12:06:57 PM] Bryan Bishop: this is because of the nature of networks

[12:07:00 PM] Bryan Bishop: not because of "assertions"

[12:07:06 PM] Suresh Fernando: How do you centralize people without centralizing some of the infrastructure

[12:07:10 PM] Bryan Bishop: internets

[12:07:43 PM] Suresh Fernando: Lets see what James and Vitaly have to say about this

[12:07:49 PM] Bryan Bishop: see? there you go again

[12:07:53 PM] Bryan Bishop: i bet you'd hate microformats too :P

[12:08:01 PM] Suresh Fernando: Collaboration right?

[12:08:11 PM] Bryan Bishop: yes but understanding is also important

[12:08:17 PM] Suresh Fernando: for sure

[12:08:20 PM] Bryan Bishop: are you?

[12:08:20 PM] Bryan Bishop: heh

[12:08:31 PM] Suresh Fernando: yup - that understanding is important

[12:08:42 PM] mnemnion: can you be more  specific as to the alternative to openpario or something like it that you're proposing?

[12:09:11 PM] Suresh Fernando: good question

[12:09:28 PM] Bryan Bishop: i think microformats provide a good answer to that question

[12:09:44 PM] Suresh Fernando: can you explain - not sure what you mean by this

[12:10:01 PM] Bryan Bishop: also, it seems that openpario appeals to a certain style of "project management" that is more based on personal philosophies- so showing you something else, like distributed revision control of project management microformats, will probably make you puke

[12:10:22 PM] mnemnion: this would go faster without that kind of assumption, I suspect

[12:10:25 PM] Bryan Bishop: http://microformats.org/about

[12:10:30 PM] mnemnion: there ya go!

[12:10:33 PM] Suresh Fernando: What do you mean by 'more based on personal philosophies- '

[12:10:51 PM] Bryan Bishop: top-down "don't need to understand how things work under the hood" is an example of a management philosophy

[12:11:01 PM] Bryan Bishop: or management.. style?

[12:11:06 PM] Bryan Bishop: i don't know what word to use

[12:11:12 PM] Bryan Bishop: preference

[12:11:35 PM] Suresh Fernando: Don't need to understand how OpenPario works under the hood?

[12:11:51 PM] Suresh Fernando: Or just generally?

[12:12:49 PM] Suresh Fernando: If I am understanding you correctly isnt this the very argument that you used to explaint to Vitaly about the user friendliness of SKDB. From a user interaction standpoint you dont need to know how everything works

[12:12:50 PM] Bryan Bishop: sam, aren't there still people arguing over centralized version control versus distributed version control?

[12:13:06 PM] Bryan Bishop: i don't pay attention to those debates much, but it is in the back of my head nevertheless

[12:13:32 PM] Bryan Bishop: suresh: you are not a user, you're a facilitator of these projects, or at least, you seem to wish to be :)

[12:13:55 PM] Suresh Fernando: maybe - not clear exactly what the distinction is

[12:13:59 PM] mnemnion: i dunno, I'm busy in another window trying to get some detail on how large Debian projects do managment. any friendly links on the subject?

[12:14:27 PM] Bryan Bishop: no anthropology links, but i do have some links from under the hood..

[12:14:34 PM] Bryan Bishop: http://www.debian.org/doc/maint-guide/

[12:14:39 PM] Bryan Bishop: usually a package is maintained by a single individual

[12:14:51 PM] Bryan Bishop: and if they go into hiding, there's a way to poke them and take on their responsibilities

[12:14:55 PM] * Suresh Fernando 'til later

[12:15:39 PM] Bryan Bishop: suresh: centralized control has its merits, but under the hood, openpario is just needlessly centralizing all sorts of different types of data..

[12:16:00 PM] Bryan Bishop: these words have a different meaning than what you're used to, i suspect

[12:16:07 PM] Bryan Bishop: for instance, "decentralization" doesn't mean "inaccessible"

[12:16:24 PM] mnemnion: the architecture of control is not dictated by the architecture of storage and revision, either

[12:16:34 PM] Bryan Bishop: huh?

[12:16:47 PM] mnemnion: one can have limited and indeed fine-grained control over the content of a distributed project

[12:16:53 PM] Bryan Bishop: ah

[12:17:02 PM] Bryan Bishop: yes

[12:18:04 PM] mnemnion: it's really easy for people who are unfamiliar with the terrain to see decentralization as leading to total chaos, spambots embedding links in your source code, and general entropy

[12:18:17 PM] Bryan Bishop: i don't have support for todo lists and other things in the skdb/web/web.py web server at the moment, but the server is meant to provide a user interface to individual git repositories (distributed revision control system) and also for these servers to be setup/installed anywhere that a user wishes them to be.. if i went in and added a module for, say, exposing a TODO list to the web users, it'd look like openpario, but be fundamentally architectured differently

[12:18:51 PM] mnemnion: of course, at that point, we're well on our way to reinventing Wave

[12:19:12 PM] Bryan Bishop: ooh ooh, sam, did you see that someone from CCC threw wikipedia into a dcvs?

[12:19:16 PM] mnemnion: which is, offhand, the platform I think the openpario project should be migrated to

[12:19:20 PM] Bryan Bishop: http://www.gossamer-threads.com/lists/wiki/foundation/121420

[12:19:34 PM] Bryan Bishop: hm that's not the link i wanted.. but close enough

[12:20:02 PM] mnemnion: that's really ambitious and awesome actually

[12:20:43 PM] Bryan Bishop: too bad google's wave servers don't operate in federated mode yet

[12:20:52 PM] Bryan Bishop: i mean, they don't allow access to external wave

servers

[12:20:58 PM] mnemnion: I'm willing to put up with that shortcoming for now.

[12:22:30 PM] mnemnion: note to suresh when he comes back, the gossamer-threads link bryan provided actually gives pretty good discussion of the issues with centralized vs. decentralized peer collaboration

[12:22:41 PM] Bryan Bishop: that was unintentional O.o

[12:25:10 PM] mnemnion: Is anyone using GitTorrent?

[12:25:57 PM] Bryan Bishop: i'm not

[12:26:03 PM] Bryan Bishop: but that's mainly because i didn't know about it

[12:26:16 PM] Bryan Bishop: "GitTogether" heh

[12:27:53 PM] mnemnion: I just discovered it myself. Got potential.

[1:07:29 PM] Suresh Fernando: Sam, when you get a chance I'd like to learn more about:

[1:07:30 PM] Suresh Fernando:

I'd like to make a strong case for the educational market as our target demographic. We can expect to do well in the Maker community, which is a growing segment of the population with habits (double incomes, few kids, decent earnings) that make it at least possible to sell them moderately expensive hobby tools. The education market is substantially larger, and is increasingly recognizing the role that CAM is playing in the future of our economy. Additionally, they make larger purchases. The Pratt Institute of Design and Citytech City University of New York are both institutional sponsors of the MakerBeam project, and I have good reason to believe that many other academic institutions would be interested in a more mature product.

[1:08:07 PM] Bryan Bishop: what in particular about it

[1:08:17 PM] Suresh Fernando: Do you have any data relating to market size and the claim that this is a good market opportunity

[1:08:43 PM] Suresh Fernando: How do we substantiate

[1:08:45 PM] Suresh Fernando: [11:07:02 AM] Suresh Fernando: The education market is substantially larger, and is increasingly recognizing the role that CAM is playing in the future of our economy

<<<

[1:09:01 PM] Bryan Bishop: you can just look at the number of schools in the u.s., for instance

[1:09:10 PM] Bryan Bishop: and the number of students, and expected growth

[1:09:21 PM] Bryan Bishop: there's lots of data on public education in that sense

[1:09:27 PM] Bryan Bishop: especially from the u.s. government IIRC

[1:09:36 PM] Suresh Fernando: That doesnt speak to our opportunity - it just shows that the particular segment is growing

[1:09:57 PM] Suresh Fernando: Anecdotal evidence is also good

[1:10:16 PM] Suresh Fernando: The fact that MakerBeam is engaged in the space with academic institutions says somethign

[1:10:17 PM] James Jones: Ah I have read up to the realtime discussion... ;-)

[1:10:33 PM] Bryan Bishop: suresh: why?

[1:10:43 PM] Suresh Fernando: why what?

[1:10:47 PM] Bryan Bishop: err.. should i have disclosed all academic affiliations?

[1:10:54 PM] Bryan Bishop: i'm sorry

[1:11:06 PM] Bryan Bishop: i didn't know that was important

[1:11:42 PM] Suresh Fernando: They are educational institutions and it

substantiates the claim that there is an opportunity wiht educational institutions

[1:12:07 PM] Bryan Bishop: maybe.. but most of my academic affiliations are for projects that are more researchy

[1:12:16 PM] Bryan Bishop: for instance, VOICED/skdb

[1:12:17 PM] Suresh Fernando: fair enough

[1:12:31 PM] Bryan Bishop: or SC/open source clean room/AFM projects

[1:12:38 PM] Suresh Fernando: We need to figure out WHY they are interested in if this substantiates a business opportunity or just research

[1:12:44 PM] Bryan Bishop: or NYU/diybio kits, etc. actually this is the one that is less researchy

[1:13:25 PM] James Jones: do those affiliations have any impact on SKDB or OK?

[1:13:33 PM] Bryan Bishop: yeah

[1:13:37 PM] Suresh Fernando: Also, James what is view on OpenPario?

[1:13:46 PM] Bryan Bishop: what? sentence comprehension failure

[1:14:09 PM] Suresh Fernando: quick topic change... sorry

[1:14:29 PM] Bryan Bishop: i think you missed a few words or two

[1:14:39 PM] James Jones: my (uninformed) opinion is its a free place to host a portion of my project that requires no real effort on my part

[1:14:42 PM] Suresh Fernando: me?

[1:14:54 PM] Bryan Bishop: yes.. sentence comprehension failure occured at "James, what is view"

[1:15:02 PM] Bryan Bishop: or "James what is view", rather

[1:15:19 PM] Suresh Fernando: right - it should obviously say what is your view

[1:15:23 PM] Bryan Bishop: oh

[1:15:33 PM] James Jones: I got it, an unintentional brain-speech-to-text abbreviation

[1:15:37 PM] Suresh Fernando: I need to type more slowly

[1:15:45 PM] Suresh Fernando: exactly

[1:15:57 PM] Suresh Fernando: should have been comprehensible in context though

[1:16:43 PM] Suresh Fernando: Does/could Openpario add value to what CubeSpawn is doing?

[1:16:44 PM] James Jones: I think communicating by text leads to degenerative typing disorder, where you become less coherent the longer you do it... ;-)

[1:16:52 PM] Suresh Fernando: ;-)

[1:17:03 PM] Suresh Fernando: especially trying to keep up with Bryan

[1:17:08 PM] Bryan Bishop: ?

[1:17:17 PM] Bryan Bishop: i'm pretty slow

[1:17:20 PM] Suresh Fernando: you're a speedy typer ;-)

[1:17:25 PM] Suresh Fernando: nah

[1:17:26 PM] Bryan Bishop: (took me 9 seconds there! gah.)

[1:17:48 PM] James Jones: I think so - but to date no-one else is really workin' it so there are no tangible progress to prove it one way or another

[1:18:05 PM] Suresh Fernando: How might value be added?

[1:18:18 PM] Suresh Fernando: Presumably if there is a community engaged would be part of the story

[1:20:30 PM] James Jones: the real measure of value in this enviroment is results

created by others - figure, I can make loads of progress without any time spent documenting - not so here - so at present, this entire process is an investment - in time - open pario has the same charicteristics but the hope is value through a reductuion in personal effort in the future.. ;-) more than 9 seconds there!

[1:21:45 PM] mnemnion: Suresh: I don't have data, but any university with an engineering or design department is a potential client, as is any technically-focused high school.

[1:21:47 PM] James Jones: so open pario's "value" at this point is negative, but I expect there to be a future return....

[1:21:57 PM] mnemnion: it's a new market, there isn't really anything like what we're proposing.

[1:22:09 PM] mnemnion: Mindstorms does NOT count. ;-)

[1:22:29 PM] Suresh Fernando: mindstorms?

[1:22:38 PM] Bryan Bishop: .. legos?

[1:22:38 PM] Bryan Bishop: sigh

[1:22:41 PM] mnemnion: lego's robot project. it's actually used in education

[1:22:57 PM] Suresh Fernando: just googled it

[1:23:15 PM] mnemnion: in Germany there's FischerTeknik, which is kinda like MakerBeam, but kinda not, and made of nylon (and proprietary)

[1:23:29 PM] Bryan Bishop: whatever happened to lego technic

[1:24:17 PM] Suresh Fernando: Sam, so precisely the value proposition in the education sector is to get kids to learn about (what exactly).

[1:24:20 PM] mnemnion: they still make it, but again, our platform is bigger, stronger and more precise, and open.

[1:24:32 PM] Bryan Bishop: i don't think the value proposition needs to involve kids necessarily

[1:24:44 PM] Suresh Fernando: Teachers?

[1:24:46 PM] mnemnion: young adults, from both ends of the young adult spectrum

[1:24:58 PM] Bryan Bishop: maybe, but you should consider shop classes and labs

[1:24:59 PM] mnemnion: high school, university

[1:25:08 PM] Suresh Fernando: ok - young adults learn how to...

[1:25:11 PM] Bryan Bishop: ...

[1:25:12 PM] Bryan Bishop: ?

[1:25:27 PM] Suresh Fernando: 'manufacture'?... build stuff...

[1:25:31 PM] Bryan Bishop: do they?

[1:25:41 PM] Suresh Fernando: I'm asking you guys

[1:25:46 PM] mnemnion: the following: CAD, CAM, programming microcontrollers, and mechanical engineering

[1:25:56 PM] Suresh Fernando: thks

[1:26:24 PM] mnemnion: the idea is we design a class around the kit, that teaches all of these concepts by having the students build their own manufacturing robots, and use open software to design things using those robots and build them.

[1:26:35 PM] mnemnion: then at the end of the semester, all the parts go back in the drawer, and you keep what you made with the robot

[1:26:49 PM] Bryan Bishop: senior design projects are very common

[1:26:57 PM] Suresh Fernando: So, in the absence of research etc. you have the sense that this is an opportunity based on what?

[1:27:06 PM] Suresh Fernando: not saying its not an opportunity

[1:27:10 PM] mnemnion: indeed. this could be simple enough to be senior for high

school and sophomore for college.

[1:27:15 PM] Suresh Fernando: just want to understand why you think so

[1:27:16 PM] mnemnion: Neal Gershenfeld

[1:27:23 PM] Bryan Bishop: neil

[1:27:28 PM] mnemnion: what MIT thinks, the rest of the engineering schools do

[1:27:31 PM] mnemnion: thks bry :-)

[1:27:37 PM] Suresh Fernando: who's Neil

[1:27:40 PM] Bryan Bishop: ...wtf

[1:27:45 PM] Bryan Bishop: we've mentioned him a thousand times to you :P

[1:27:46 PM] Suresh Fernando: wtf

[1:27:52 PM] Suresh Fernando: I forgot

[1:27:54 PM] Suresh Fernando: obviously

[1:27:57 PM] Bryan Bishop: neil runs CBA and the fablabs initiative

[1:27:58 PM] Suresh Fernando: or i wouldnt ask

[1:28:02 PM] Bryan Bishop: ;kal;kfa;kadslads

[1:28:08 PM] Suresh Fernando: lol

[1:28:12 PM] Bryan Bishop: this is very frustrating

[1:28:25 PM] Suresh Fernando: how does Neil fit into education story

[1:28:26 PM] mnemnion: http://en.wikipedia.org/wiki/Neil_Gershenfeld

[1:28:36 PM] mnemnion: he wrote the book on FabLabs. Literally.

[1:28:42 PM] Bryan Bishop: neil is basically hte head poncho of fablabs around

the world

[1:28:44 PM] Bryan Bishop: *the

[1:28:51 PM] Bryan Bishop: http://cba.mit.edua/

[1:28:53 PM] Bryan Bishop: er

[1:28:55 PM] Bryan Bishop: http://cba.mit.edu/

[1:29:08 PM] Suresh Fernando: so how does he fit into our strategy to reach education space

[1:29:19 PM] James Jones: wow I like to watch ;-)

[1:29:21 PM] Bryan Bishop: he's fairly hard to get in contact with

[1:29:32 PM] Bryan Bishop: i've been trying for a few years, and fenn even longer :(

[1:29:40 PM] Bryan Bishop: http://ng.cba.mit.edu/

[1:29:45 PM] mnemnion: he has defined a category of education: the Fab 101 class, or "how to build (nearly) anything"

[1:29:51 PM] Suresh Fernando: aha

[1:29:54 PM] mnemnion: we are aiming to produce products for that category

[1:29:55 PM] Bryan Bishop: there's about 30 fablabs around the world

[1:30:13 PM] Suresh Fernando: He, obviously, is on our radar...

[1:30:21 PM] Bryan Bishop: well he wasn't on yours apparently

[1:30:38 PM] Suresh Fernando: Bryan, has he not responded to emails

[1:30:38 PM] mnemnion: and reaching Dr. Gershenfeld will not be a problem. Erik de Bruijn is intending to speak to him in a couple months at some conference or other vis a vis the RepLab initiative

[1:30:42 PM] Bryan Bishop: here's a typical fablab inventory

[1:30:43 PM] Bryan Bishop: http://designfiles.org/skdb/doc/BOMs/comparison/fablab.yaml

[1:30:50 PM] James Jones: learning... its so painfull...

[1:30:58 PM] Bryan Bishop: suresh: No, he has not.

[1:31:06 PM] Suresh Fernando: Another thing...

[1:31:21 PM] Suresh Fernando: We should think of others like him to eventually build an advisory group of big names

[1:31:28 PM] Bryan Bishop: why

[1:31:33 PM] Bryan Bishop: just because they are popular doesn't mean they know a thing

[1:31:34 PM] Suresh Fernando: So braindump dream people you want involved in the project

[1:31:50 PM] Bryan Bishop: in fact, neil's students say he always "gershes things up"

[1:31:51 PM] Suresh Fernando: Looks good and also they can add value if they like what you are doing: relationships, advice etc

[1:31:51 PM] mnemnion: we don't necessarily need to contact him, although i'm sure he'd be happy to be a part of something concrete. I bring him up as someone who has made a case for our market and product.

[1:31:52 PM] James Jones: because bryan - everything is eventually politics

[1:32:04 PM] mnemnion: oh man.

[1:32:04 PM] Suresh Fernando: Its premature now, but in time

[1:32:05 PM] Bryan Bishop: james: that's only if you keep perpetuating that myth

[1:32:23 PM] mnemnion: Y

[1:32:30 PM] James Jones: try getting anything done without "connections"

[1:32:33 PM] Bryan Bishop: we're here to get things done :)

[1:32:36 PM] mnemnion: we should move this to Wave. otherwise we're going to keep losing proposals like that

[1:32:37 PM] Bryan Bishop: not play politics

[1:32:42 PM] Suresh Fernando: James - exactly

[1:32:43 PM] mnemnion: which should properly become a subwave and get moved to a useful location

[1:33:03 PM] Bryan Bishop: why a wave

[1:33:04 PM] Suresh Fernando: Sam - proposal like what?

[1:33:09 PM] Bryan Bishop: the advisor board

[1:33:15 PM] Suresh Fernando: I wont forget

[1:33:17 PM] Bryan Bishop: sigh

[1:33:19 PM] mnemnion: proposal like "let's make a list of people who should be on an advisor board"

[1:33:20 PM] Suresh Fernando: Its part of the model

[1:33:30 PM] mnemnion: that's a natural subwave

[1:33:33 PM] Suresh Fernando: This is why we need a project management infrastructure

[1:33:37 PM] Bryan Bishop: is it?

[1:33:39 PM] Suresh Fernando: like OP

[1:33:40 PM] Suresh Fernando: yeah

[1:33:41 PM] Bryan Bishop: you've never mentioned this in any of your documents

[1:33:47 PM] Bryan Bishop: so how are we supposed to know it's part of the model

[1:33:50 PM] Suresh Fernando: so that shit isnt all over the place and is centralized

[1:34:00 PM] Bryan Bishop: project management crap will not help if you don't write it down at least once

[1:34:11 PM] mnemnion: suresh, centralization is not what you need. you need harmonization.

[1:34:16 PM] Suresh Fernando: its written down, but not categorized

[1:34:18 PM] Suresh Fernando: Its here

[1:34:28 PM] Bryan Bishop: i'm pretty sure i've read every document

[1:34:31 PM] Suresh Fernando: Needs to be a part of the Timeline etc

[1:34:33 PM] mnemnion: access control and synchronous updates

[1:34:34 PM] Bryan Bishop: it's possible that i forgot though

[1:34:52 PM] mnemnion: having a single server repository is not, imho, a necessary part of getting that

[1:35:00 PM] James Jones: oh, shit all over the place is the proper way to run the farm! - and it turns out every aspect of life is some kind of farming - even a render farm incorporates the word

[1:35:14 PM] Suresh Fernando: Bryan - possible you forgot something ;-)

[1:35:17 PM] mnemnion: heh

[1:35:22 PM] Bryan Bishop: then which document?

[1:35:32 PM] Suresh Fernando: huh

[1:35:34 PM] Bryan Bishop: or what was around it

[1:35:38 PM] Bryan Bishop: i'll be happy to go find it

[1:35:42 PM] Suresh Fernando: Advisory board you mean?

[1:35:47 PM] Bryan Bishop: .. yes that's what we're talking about

[1:35:49 PM] Suresh Fernando: No thats not documented at this point

[1:35:56 PM] Suresh Fernando: Its in my head from past experience

[1:36:02 PM] Bryan Bishop:  ah! so the truth is revealed

[1:36:23 PM] Suresh Fernando: I was just commenting on the POSSIBILITY of your forgetting something, not saying you did

[1:36:29 PM] Bryan Bishop: ok. it's not bad that it's in your head, but i thought you just said (a few minutes ago) that it was documented

[1:36:29 PM] mnemnion: well, suresh has been fairly clear that there will be a corporate entity, in the broadest sense.

[1:36:37 PM] mnemnion: those are hard to run without an advisory boar

[1:36:37 PM] mnemnion: d

[1:36:41 PM] Suresh Fernando: In this chat

[1:36:48 PM] mnemnion: it seems corrolary to the thesis

[1:36:50 PM] James Jones: Damn! you mean we are going to have to rely on the expierience of our team members - I dunno, man... ;-)

[1:37:05 PM] Suresh Fernando: unfortuately

[1:37:10 PM] Suresh Fernando: Unfortunately

[1:37:15 PM] Bryan Bishop: sam: i don't think the exact legal structure has been

fleshed out yet, but i could be wrong

[1:37:30 PM] Suresh Fernando: Of this collaboration?

[1:37:38 PM] mnemnion: nope, but all your options can validly be called "corporations" so I'll stick with that until we're more clear

[1:37:48 PM] Bryan Bishop: i don't mean to be rude.. but are you having trouble following conversation?

[1:37:55 PM] mnemnion: for some people it has unappealing connotations. I try to be neutral.

[1:38:09 PM] Bryan Bishop: no not you sam

[1:38:15 PM] mnemnion: I would rethink any question that needs that preface. :-)

[1:38:22 PM] Bryan Bishop: maybe you can make it better

[1:38:43 PM] mnemnion: I'm having trouble following the conversation myself. But that's just IRC.

[1:38:52 PM] Bryan Bishop: oh really?

[1:38:57 PM] Bryan Bishop: in what way can i help you

[1:39:00 PM] mnemnion: ya rly

[1:39:05 PM] Bryan Bishop: heh

[1:39:28 PM] Suresh Fernando: Now I'm lost too

[1:39:35 PM] Suresh Fernando: haha

[1:39:44 PM] James Jones: inside txt abrv joke

[1:39:53 PM] Bryan Bishop: a poor joke, but funny

[1:40:07 PM] mnemnion: So people for an advisory board: we can just throw them out there and Suresh can make it into a document. and eventually we can step the

game up.

[1:40:18 PM] Suresh Fernando: exactly

[1:40:19 PM] Bryan Bishop: but what if the people you guys pick don't know shit?

[1:40:20 PM] James Jones: more about the human condition in the digital age than anything else

[1:40:22 PM] Suresh Fernando: Just keep track for now

[1:40:31 PM] Suresh Fernando: This follows getting all our docs in order

[1:40:45 PM] mnemnion: Neil Gershenfeld, Michel Bauwens, Adrian Bowyer, come to mind.

[1:40:51 PM] Bryan Bishop: but why

[1:40:55 PM] Suresh Fernando: Michel will be in for sure

[1:40:57 PM] Bryan Bishop: neil has demonstrated a disinterest

[1:40:58 PM] mnemnion: I would also court someone from NASA if at all possible

[1:41:09 PM] Suresh Fernando: Not for THIS story

[1:41:18 PM] Suresh Fernando: It's going to be a GREAT story right?

[1:41:24 PM] Bryan Bishop: i'm not so sure any more

[1:41:29 PM] Suresh Fernando: oh come on

[1:41:36 PM] Bryan Bishop: (my optimism has been dropping like a rock)

[1:41:41 PM] mnemnion: I'm pretty sure Erik de Bruijn and Neil have been in contact wrt. RepLab

[1:41:45 PM] Bryan Bishop: *optimism

[1:41:46 PM] Suresh Fernando: I dont believe you

[1:41:46 PM] James Jones: oooh pick me for the nasa courting - women are beginning to dominate in some areas of science ;-)

[1:41:52 PM] Bryan Bishop: sam: sounds like an old boy's club

[1:42:21 PM] Suresh Fernando: We want to position as THE project to pay attention to in this space

[1:42:21 PM] mnemnion: so learn the handshakes

[1:42:42 PM] Suresh Fernando: That's the goal

[1:42:48 PM] Bryan Bishop: why

[1:42:51 PM] mnemnion: bbias

[1:42:52 PM] Bryan Bishop: they don't KNOW

[1:42:56 PM] James Jones: and plot the org charts against the timelines

[1:43:03 PM] Suresh Fernando: That should be self evident

[1:43:14 PM] mnemnion: "Karen Taminger, materials research engineer, NASA's Langley Research Center "

[1:43:43 PM] James Jones: Karen you atomic structure Vixen!

[1:43:53 PM] mnemnion: she did the technical briefing for EB F3. She'd  be the one to get in touch with about that project.

[1:44:01 PM] Suresh Fernando: cool

[1:44:19 PM] Suresh Fernando: Sam, whats the nature of your relationship with the academic institutions

[1:44:37 PM] mnemnion: They gave me money; I give them beam, and credit.

[1:44:55 PM] Suresh Fernando: Are you in ongoing contact with them

[1:45:16 PM] Suresh Fernando: Also, why exactly did they give you money?

[1:45:26 PM] Bryan Bishop: um.. for makerbeam

[1:45:43 PM] Suresh Fernando: really, I thought maybe to party

[1:45:47 PM] Bryan Bishop: wtf

[1:45:49 PM] Bryan Bishop: ;lk;lkf;klas;kjfa

[1:46:07 PM] Suresh Fernando: As part of a larger research process?

[1:46:41 PM] Suresh Fernando: What is their goal in dishing out money?

[1:47:13 PM] mnemnion: well, it was two professors, who each wanted to obtain the beam for a design class they're teaching

[1:47:24 PM] Suresh Fernando: I see

[1:47:44 PM] Suresh Fernando: Well that substantiates your initial claim about the market opportunity

[1:47:48 PM] mnemnion: Damon Baker, at Citytech, is part of a new subdepartment of a department in a larger department that's a branch of a subuniversity in the City University of New York system or something.

[1:47:58 PM] mnemnion: that department is basically the FabLabs department.

[1:48:02 PM] mnemnion: Pratt is setting up something similar.

[1:48:43 PM] Suresh Fernando: TOPIC CHANGE

[1:48:46 PM] Bryan Bishop: ?

[1:49:01 PM] Suresh Fernando: How do you guys want to handle reviewing the Perspective Docs tomorrow

[1:49:09 PM] Bryan Bishop: haven't we already?

[1:49:10 PM] Suresh Fernando: Sequentially?

[1:49:13 PM] Bryan Bishop: you've asked us for our input on each document

already

[1:49:17 PM] Suresh Fernando: No

[1:49:19 PM] Bryan Bishop: please don't make us do it again

[1:49:25 PM] Suresh Fernando: That part is complete

[1:49:34 PM] Suresh Fernando: We need to extricate commonalities

[1:49:37 PM] Suresh Fernando: That's the goal

[1:49:47 PM] Suresh Fernando: The question is how exactly to do this

[1:49:55 PM] mnemnion: Two passes: first reviewing commonalities, then reviewing distinctions

[1:50:04 PM] mnemnion: then we harmonize via a group document

[1:50:28 PM] Suresh Fernando: So tomorrow we literally spend, say 10 mins on each for starters?

[1:50:31 PM] James Jones: ah the dartboard/blender model...

[1:50:39 PM] Suresh Fernando: Does that work?

[1:51:13 PM] mnemnion: well, I think we've all gone over the documents. we can probably dive straight into compare and contrast

[1:51:39 PM] Suresh Fernando: Hmm

[1:51:47 PM] Bryan Bishop: sam: you said you did not go over all the documents

[1:51:51 PM] mnemnion: I think if we start with points in common we might find that there's not much work left to do

[1:51:51 PM] Bryan Bishop: at least, that's what you said yesterday

[1:52:02 PM] Suresh Fernando: So if we start the call and say 'compare', is it clear what to do?

[1:52:42 PM] mnemnion: mmm... I think we should say "identify common points across all documents"

[1:52:55 PM] Suresh Fernando: OK, lets see how that goes

[1:54:21 PM] James Jones: I'd agree that we'll find mostly commonalities, I'll have to re-write with an aim for dissention, just to spice it up...

[1:54:42 PM] Suresh Fernando: James, your doc was very positive ;-)

[1:55:02 PM] James Jones: see! it failed - no spice

[1:55:42 PM] mnemnion: this is basically bryan's call, but I would really like to see a shorter document that abstracts and summarizes his position. I don't think the 'open hardware business models' document is really the same kind of entity as the other three. It has over six hundred revisions and several active authors who aren't a part of this particular discussion

[1:55:59 PM] Bryan Bishop: why does it matter how many revisions it has

[1:56:10 PM] Bryan Bishop: these authors are a part of the discussion whether you recognize them or not

[1:56:18 PM] Bryan Bishop: so much for an advisor board huh

[1:56:25 PM] Suresh Fernando: That's true

[1:56:33 PM] Suresh Fernando: There is a larger context

[1:57:00 PM] Bryan Bishop: sam: i'm not going to repeat myself. i'm sorry. no dice

[1:57:22 PM] Suresh Fernando: Bryan - what in your view is the single most important point in your doc

[1:57:48 PM] Bryan Bishop: i'd say the models

[1:58:02 PM] Suresh Fernando: In particular Coop?

[1:58:07 PM] Bryan Bishop: that is one of them

[1:58:17 PM] Bryan Bishop: there is a subsection that says MODELS

[1:58:19 PM] Bryan Bishop: that's what i refer to.

[1:59:10 PM] Bryan Bishop: it could use some touch-ups, no doubt

[1:59:15 PM] Bryan Bishop: but with over 800 edits, it would give sam a heart attack

[1:59:20 PM] mnemnion: So why not abstract and trim that section and produce something of roughly the same length as the other offerings on the table

[1:59:21 PM] Suresh Fernando: There's little disagreement about Kits and Consulting

[1:59:36 PM] Suresh Fernando: The only issue that is even debatable is Coop

[1:59:38 PM] Suresh Fernando: I would think

[1:59:44 PM] Bryan Bishop: ?

[1:59:48 PM] mnemnion: then sign it so we know where you're coming from, and it's all good.

[2:00:02 PM] Bryan Bishop: i'm still not convinced you've read it

[2:00:06 PM] Bryan Bishop: especially after admitting, namely, that you have not

[2:00:43 PM] Bryan Bishop: if the revision count increases, will that deter you from reading it

[2:00:48 PM] mnemnion: oh I've read it a few times. that's how I concluded that it's unweildy and ponderous in its present form.

[2:00:51 PM] mnemnion: wieldy

[2:00:58 PM] Bryan Bishop: did you edit it?

[2:01:15 PM] mnemnion: not interested

[2:01:21 PM] Bryan Bishop: wtf

[2:01:28 PM] Bryan Bishop: um

[2:01:33 PM] mnemnion: like I said, it's your call.

[2:01:37 PM] Bryan Bishop: go away

[2:01:40 PM] Bryan Bishop: leave me alone

[2:01:45 PM] Suresh Fernando: It doesn't matter

[2:01:56 PM] Suresh Fernando: We're identifying commonalities remember

[2:02:00 PM] Suresh Fernando: We have enough to work with

[2:02:07 PM] mnemnion: sure

[2:02:19 PM] Bryan Bishop: i thought it was a fairly good identification of commonalities that i wrote.. but whatever

[2:02:23 PM] Suresh Fernando: And Bryan just said focus on the models part

[2:02:23 PM] Bryan Bishop: i'm not going to write it again

[2:02:31 PM] mnemnion: works for me

[2:02:32 PM] Bryan Bishop: i will revise and update for sure

[2:02:35 PM] Bryan Bishop: but i'm not going to repeat myself

[2:02:45 PM] Bryan Bishop: and i'm certainly not going to take steps backwards

[2:02:50 PM] Bryan Bishop: sam: please just edit it

[2:02:55 PM] Suresh Fernando: We dont make work projects

[2:02:55 PM] Bryan Bishop: we need your input

[2:02:57 PM] Bryan Bishop: in order to collaborate it

[2:03:00 PM] Suresh Fernando: Enough to do as it is

[2:03:11 PM] mnemnion: [2/16/10 11:58:56 AM] mnemnion: So why not abstract and trim that section and produce something of roughly the same length as the other offerings on the table

[2:03:17 PM] Bryan Bishop: yes please consider editing it

[2:03:28 PM] Bryan Bishop: or contributing in some way other than making your own documents that you don't plan on integrating

[2:03:30 PM] Bryan Bishop: :P

[2:03:51 PM] Suresh Fernando: Personally I see no value in either Sam editing it or Bryan rewriting it

[2:04:10 PM] Bryan Bishop: i see a lot of value in sam

[2:04:12 PM] mnemnion: there's certainly no value left in continuing to make a case either way

[2:04:15 PM] Bryan Bishop: he is very opinionated on these topics

[2:04:25 PM] Bryan Bishop: i think his contributions would be interesting to the group

[2:04:43 PM] Suresh Fernando: Where you have very unclear opinions right ;-)

[2:04:47 PM] Bryan Bishop: ?

[2:04:49 PM] Bryan Bishop: what?

[2:04:57 PM] Suresh Fernando: We're all opinionated

[2:05:07 PM] Suresh Fernando: That's just the way it is

[2:05:09 PM] Bryan Bishop: ?

[2:05:11 PM] Bryan Bishop: i don't care

[2:05:13 PM] Bryan Bishop: anyway, moving on

[2:05:21 PM] Suresh Fernando: yeah, we should do some work

[2:05:23 PM] James Jones: I categorically deny opinionation!!!!!!

[2:05:23 PM] Bryan Bishop: i still mean it sam..

[2:05:35 PM] Bryan Bishop: suresh: no i mean moving on from your random comment about your opinionation

[2:05:51 PM] Suresh Fernando: ok

[2:05:57 PM] Suresh Fernando: but we should really do some work

[2:06:05 PM] Suresh Fernando: we do have a structure for tomorrow which is good

[2:06:18 PM] Bryan Bishop: this seems like work to me.. trying to get the group to collaborate on a friggin' document

[2:06:28 PM] James Jones: oops called away bbl

[2:06:30 PM] Suresh Fernando: it is work... admittedly

[2:06:42 PM] Bryan Bishop: just open up the editor sam.. and press delete, rewrite, or integrat,e whatever

[2:06:51 PM] * Suresh Fernando off to do something else

[2:22:08 PM] James Jones: back for a sec, so Sam how bout EBF3 Cubes printing MakerBeam? Yummo, or what!?

[2:23:48 PM] James Jones: Lets Print Ballscrews too!!! oh yeah! don't need 'em - linear motors and print finished parts direct!! no machining, or very little...

[2:24:31 PM] James Jones: Butler! print me a SSTO

[2:24:49 PM] Bryan Bishop: :)

[2:25:00 PM] Bryan Bishop: where does one acquire such a cool butler

[2:25:35 PM] James Jones: robo butler - falls from the distended belly of... CubeSpawn!! YaY!

[2:27:51 PM] James Jones: actually (i'll flip you a render next time I remember) I have a line of robots designed for my own amusement that are what led me to CubeSpawn - which is just a link in a chain of kewler stuff

[2:35:30 PM] mnemnion: Been thinking about cable linkages for a Stewart plaform; seems like it would be resource effficient and fairly self replicable, UHMWPE cable should be achievable tech for us.

[2:35:42 PM] Bryan Bishop: you should talk with ben lipkowitz about his work on stewart platforms for cnc machining

[2:35:50 PM] Bryan Bishop: in particular the hextatic designs

[2:35:54 PM] mnemnion: and once we go EB F3 for metals, there's lots of wire laying around anyway

[2:36:08 PM] mnemnion: vitaly and ben had a long conversation about two weeks ago on that very subject

[2:36:12 PM] Bryan Bishop: i'm sure

[2:36:14 PM] mnemnion: down at the Bay Area RUG

[2:36:25 PM] Bryan Bishop: ben needs to be kicked in the ass to get back to work on that

[2:36:34 PM] Bryan Bishop: he was really sad when BFI rejected the idea

[2:36:39 PM] Bryan Bishop: (buckminster fuller institute)

[2:36:57 PM] Bryan Bishop: (that wa somewhat recent in the scheme of things)

[2:36:59 PM] Bryan Bishop: *was

[2:37:09 PM] mnemnion: ben needs a space and funding more than he needs an asskicking

[2:37:18 PM] James Jones: well this brings me back to the whole wealth without

money, and civilization from scrapmetal bit again

[2:37:20 PM] mnemnion: and we all know that feeling

[2:37:33 PM] Bryan Bishop: i gave him space and money

[2:37:41 PM] Bryan Bishop: the problem was that the space didn't give him any keys

[2:37:44 PM] Bryan Bishop: oh well

[2:37:50 PM] mnemnion: even GNU was written on a proprietary UNIX system

[2:37:56 PM] James Jones: I feel like I've had an asskicking, so can I skip that step, next cycle?

[2:38:02 PM] Bryan Bishop: oh no sir

[2:38:06 PM] mnemnion: btw, on the wealth without money tip, check this out:

[2:38:07 PM] Bryan Bishop: you get to have another asskicking

[2:38:08 PM] Bryan Bishop: it's on the house

[2:38:11 PM] Bryan Bishop: free of charge

[2:38:33 PM] mnemnion: http://globalenergymoney.com/globalenergymoney/home.html

[2:38:50 PM] James Jones: in the spirit of self replication and all I'll administer my own

[2:39:10 PM] mnemnion: this is a project that I'm some nebulous part of. "springboard" perhaps?

[2:39:21 PM] mnemnion: anyway, Alex knows the people he needs to in order to turn this into a real fund

[2:40:32 PM] James Jones: "couponomies of scale"!

[2:41:16 PM] James Jones: I was thinking a non-fiat materials currency to reduce

tax burden - this is awesome too!

[2:41:45 PM] James Jones: (coupon+economy) by the way

[2:43:08 PM] James Jones: although accounting practice taxes you for inventory, I think ducking that responsibility can be done - car companies are great at it

[2:48:10 PM] James Jones: 10 bil kw at 3.5 c per face value on the 100GJ note is about 3.5 million USD

[2:48:36 PM] James Jones: suitable for framing!

[2:49:21 PM] James Jones: since a joul if I remember is a watt second - looking it up now

[2:50:31 PM] mnemnion: no

[2:50:46 PM] mnemnion: wait maybe? but it's 4.2 cal to the joule

[2:50:49 PM] mnemnion: it's a small number

[2:51:57 PM] mnemnion: your definition is correct but the economic analysis is off

[2:52:11 PM] mnemnion: it's worth about two hundred bucks at the moment

[2:52:16 PM] James Jones: yah its 1 watt second 3600 joules

[2:52:27 PM] James Jones: yah I'm re-calculating

[2:53:28 PM] James Jones: 3600 joules watt hour so a kw is 3,600,000 joules

[2:53:47 PM] James Jones: duh Units kwH

[2:54:58 PM] James Jones: $972 assuming 3.5 c per

[2:55:21 PM] James Jones: little different

[2:55:30 PM] mnemnion: sounds high for crude, but we're in the ballpark now

[2:55:41 PM] mnemnion: it's a basket of energies

[2:55:48 PM] mnemnion: so there are cheap ones, less cheap ones

[2:56:31 PM] mnemnion: the project has finally surfaced but there's a lot of presentation left to do where the details are concerned. but the notion is solid

[2:57:03 PM] James Jones: sure, commodoties 'n derivitives - this is Cap and trade from a more manageable angle

[2:57:42 PM] James Jones: seems less cooruptable since its the end product, not the process being used as a standard

[2:58:25 PM] mnemnion: ok, looks like gigjoules are going for about twenty bucks apiece

[2:58:50 PM] mnemnion: it also really shows off what a good deal renewables are once you build them

[2:59:07 PM] mnemnion: since you can continually leverage a renewable as a source of currency

[2:59:32 PM] mnemnion: as my friend glenn said "demurrage makes sense to me. it's like bandwidth: you have to use it for it to be of any value"

[2:59:51 PM] James Jones: yah the value is in the product, not in the funny business of hiding the damage its doing

[2:59:54 PM] mnemnion: current and currency from the same plant

[3:00:10 PM] James Jones: thanks for keeping me current\

[3:01:33 PM] mnemnion:  "Global Energy Money. It's Current, See?"

[3:01:41 PM] Bryan Bishop: that, sir, was terrible

[3:01:45 PM] mnemnion: alright, the universe outside skype beckons

[3:02:01 PM] James Jones: yes must make fiat money now

[3:48:42 PM] James Jones: off now to the "Capacitor Banking and Trust" to count my Joules... since we're "old-money" its really the Family Joules .... oh no direct contributions please, deposit all contributions in the Capacitor Bank 100 GJ is hard

on the wallet...;-)

[4:10:40 PM] mnemnion: the first person set up a Ponzi scheme can be tried for violation of the first law of thermodynamics

[4:11:12 PM] Suresh Fernando: huh

[4:11:40 PM] Suresh Fernando: maybe making sense of that requires having read the last part of the thread ;-)

[4:11:48 PM] mnemnion: yes indeed

[4:11:50 PM] James Jones: self limiting, real "laws" can't be broken

[4:12:13 PM] mnemnion: suresh, you'll dig Global Energy Money

[4:12:17 PM] James Jones: tribal rules are flexible

[4:12:43 PM] mnemnion: it's not per se part of the open manufacturing ecosystem, but can definitely play a role in the larger picture

[4:12:58 PM] James Jones: they apply mostly to monkeys with low status

[4:14:11 PM] James Jones: there are a lot of "open currency" things going on, so it does tie in, at least from an awareness standpoint

[4:15:29 PM] James Jones: pay me in food and aluminum, don' gimme no Chits

[4:15:47 PM] Bryan Bishop: http://p2pfoundation.net/Thermoeconomics

[4:16:02 PM] Bryan Bishop: http://evolvingtrends.wordpress.com/

[4:16:08 PM] Bryan Bishop: i want nothing to do with this

[4:16:19 PM] James Jones: granted!

[4:47:21 PM] James Jones: hey guys, does the ringing in my ears bother you?

[4:47:56 PM] Bryan Bishop: only on tuesdays

[4:48:08 PM] Suresh Fernando: its not too bad

[4:49:04 PM] James Jones: off on a post-work errand - see Y'all tomarrow (i never actually say that BTW)

[8:15:50 PM] Suresh Fernando: From MakerBot Operators Google Group

[8:15:58 PM] Suresh Fernando: Hello MakerBot Community,

I am in charge of FOSSVT, Vermont's Open Source and Education Conference which focusses on FOSS use and opportunity in K-12 schools. I am posting here to see if there are any owners of the Cupcake CNC printing machine in the Vermont or New Hampshire area. My intent is to invite a Cupcake CNC owner to present at our conference.

This is the third year of our conference and I am hoping to start introducing the attendees to the concept of Open Source hardware. Hence my interest in demonstrating your new machine.

Plus....let's be honest...this machine is just wicked cool. If interested, contact me at fos...@ncose.org

All the best,

Bryant Patten

Executive Director

The National Center for Open Source and Education

www.ncose.org

[8:16:33 PM] Bryan Bishop: why not forward that to OM

[8:16:41 PM] Suresh Fernando: ok

[8:29:08 PM] mnemnion: Teachers get this.

[8:29:23 PM] Suresh Fernando: It's interesting to me that the OM space has such a active discussion space and engaged community. This is not the case with OpenGov, OpenEducation etc.

[8:29:28 PM] Suresh Fernando: Any sense as to why this is?

[8:29:55 PM] mnemnion: success.

[8:30:15 PM] Suresh Fernando: what do you mean?

[8:30:21 PM] Suresh Fernando: success in what sense

[8:30:26 PM] mnemnion: the RepRap, MakerBot, all the RepStraps, homebrew CNC, embroidery machine hacking

[8:30:38 PM] mnemnion: the arduino and all the blessings it brings

[8:30:50 PM] mnemnion: OM is happening right now. OG, OE not so much

[8:30:54 PM] Suresh Fernando: Well there are companies in the OpenGov space making millions of $ - are very successful

[8:30:59 PM] mnemnion: although if you want to get OE hopping, reach out to the Free Schools

[8:31:08 PM] mnemnion: because there's a robust community of pratice already

[8:31:13 PM] mnemnion: shows what I know :-)

[8:31:23 PM] Suresh Fernando: OE is for later

[8:31:35 PM] Suresh Fernando: That's and interesting space too

[8:31:45 PM] Bryan Bishop: i'm having a terrible time understanding you

[8:31:47 PM] Bryan Bishop: "OE is for later"

[8:31:47 PM] Suresh Fernando: Worry about making this project successful first

[8:31:50 PM] Bryan Bishop: "that's and interesting space too"

[8:32:17 PM] Suresh Fernando: Mapping the OE ecosystem and working on financing and Open Education project in the same manner we are working together

[8:32:31 PM] Bryan Bishop: still not helping

[8:32:33 PM] mnemnion: I'm just guessing here, but Suresh is just one guy, and I think he's focusing on OM and OG so that his head doesn't explode

[8:32:34 PM] Bryan Bishop: please speak english

[8:32:36 PM] Suresh Fernando: I working on sometbing similar in the OpenGov space now

[8:32:43 PM] Suresh Fernando: What part dont you get

[8:32:45 PM] Bryan Bishop: i just can't understand you

[8:32:47 PM] Bryan Bishop: please use sentences, and words

[8:32:58 PM] Suresh Fernando: reread and think

[8:32:59 PM] mnemnion: "OE is for later" could be translated as "if someone wanted to work on the OE angle full-time I'd be totally down but I simply don't have time right now"

[8:33:11 PM] Bryan Bishop: angle of what

[8:33:15 PM] Suresh Fernando: reflect on context

[8:33:27 PM] Suresh Fernando: I shouldnt have to explain that to you

[8:33:36 PM] Bryan Bishop: you shouldn't have to explain context to me?

[8:33:39 PM] Suresh Fernando: If you understand the abbreviation

[8:33:41 PM] Suresh Fernando: OE

[8:33:44 PM] Bryan Bishop: yes i know what context means

[8:33:47 PM] Bryan Bishop: yes i know what "OE" means

[8:33:56 PM] Bryan Bishop: it's just, you're dropping words from your sentences

[8:33:57 PM] Suresh Fernando: OK I'll explain

[8:34:02 PM] Bryan Bishop: please do not drop words

[8:34:03 PM] Suresh Fernando: Do you get that OM is NOW

[8:34:10 PM] Bryan Bishop: no

[8:34:15 PM] Bryan Bishop: that sentence doesn't make sense either

[8:34:19 PM] Bryan Bishop: it is not "now".. it is OM

[8:34:24 PM] Bryan Bishop: unless you're making a zen joke?

[8:34:33 PM] Bryan Bishop: "the omm is in the now"

[8:34:36 PM] Suresh Fernando: Do you get that we are working on an OM project

[8:34:37 PM] mnemnion: yowza

[8:34:41 PM] Suresh Fernando: lol

[8:34:42 PM] Bryan Bishop: lfda;ladfjl;fadsl;fads

[8:34:45 PM] Bryan Bishop: go away

[8:34:55 PM] Suresh Fernando: I'm trying to explain

[8:35:03 PM] Suresh Fernando: OM: Open Manufacturing

[8:35:11 PM] Bryan Bishop: yes i know what OM is

[8:35:12 PM] Suresh Fernando: It is a current project, right?

[8:35:17 PM] Suresh Fernando: Do you see that

[8:35:18 PM] Bryan Bishop: it's a community

[8:35:21 PM] Bryan Bishop: wtf

[8:35:25 PM] Suresh Fernando: Our project

[8:35:28 PM] Bryan Bishop: http://openmanufacturing.org/

[8:35:36 PM] Suresh Fernando: Hmm

[8:35:44 PM] Suresh Fernando: ;-)

[8:35:53 PM] Suresh Fernando: I didnt think it was that complicated

[8:35:59 PM] Bryan Bishop: i thought we were working on the openkollab pooled fund business model

[8:36:23 PM] mnemnion: OpenKollab OpenManufacturing Ecosystem Pooled Fund.

[8:36:27 PM] Suresh Fernando: There is a relation between that business model and what we are working on

[8:36:28 PM] Bryan Bishop: yes, my mistake

[8:36:30 PM] mnemnion: it's like a name in biology. there's a tree in there.

[8:36:34 PM] Bryan Bishop: wonderful

[8:36:41 PM] Suresh Fernando: By that business model is not fully defined by our

project

[8:36:47 PM] mnemnion: Suresh is treating OK as global in this discussion.

[8:36:50 PM] Bryan Bishop: anyway, please don't drop words in the future.. i really have trouble understand you suresh

[8:36:55 PM] mnemnion: so he's just shortening it to OM

[8:36:56 PM] Bryan Bishop: sam: i'm going away now

[8:37:03 PM] Suresh Fernando: I am, for example, working with Open Gov projects as well as I;ve stated before

[8:37:21 PM] Suresh Fernando: I know that I have a bad habit of dropping words... its true

[8:37:24 PM] Suresh Fernando: Just need to slow dwn

[8:37:25 PM] Suresh Fernando: down

[8:37:34 PM] mnemnion: hahaha

[8:37:38 PM] Bryan Bishop: or maybe take a typing class

[8:37:41 PM] Suresh Fernando: I hope you get it now

[8:37:44 PM] mnemnion: missed a key there...

[8:37:46 PM] Suresh Fernando: right

[8:38:06 PM] Suresh Fernando: Its not the typing skills... although they also leave somthing to be desired ;-)

[8:38:13 PM] Bryan Bishop: .. again with the letters

[8:38:19 PM] Bryan Bishop: god

[8:38:22 PM] Suresh Fernando: So to answer from a while ago

[8:38:23 PM] Bryan Bishop: alright, that's it. i'm gone

[8:38:24 PM] mnemnion: you were making plenty of sense to me. but then ambiguity is my friend.

[8:38:31 PM] Bryan Bishop: ambiguity is not my friend.

[8:38:46 PM] Suresh Fernando: OE later means I wont be working on Open Education stuff for the forseeable future

[8:39:00 PM] mnemnion: well, I said "friend" but you know it's more complicated than that...

[8:39:20 PM] Suresh Fernando: Still not clear why this space is especially active

[8:39:25 PM] mnemnion: me and ambiguity, let's say the relationship is robust. or that it has its moments.

[8:39:29 PM] Suresh Fernando: Is it Brian's stellar leadership of the list?

[8:39:34 PM] Bryan Bishop: leadership?

[8:39:39 PM] Suresh Fernando: Activity

[8:39:53 PM] Suresh Fernando: Maybe not, just a hypothesis

[8:40:40 PM] mnemnion: because robots are cool. and teaching kids is important but kind of frumpy. and open government is critical and complicated and annoying and often boring as hell.

[8:40:56 PM] Bryan Bishop: i don't think it's because "robots are cool"

[8:41:00 PM] Suresh Fernando: maybe that's it

[8:41:01 PM] mnemnion: you want to see active, check out a forum on Mixed Martial Arts.

[8:41:14 PM] Suresh Fernando: You guys just want to talk about building robots

[8:41:17 PM] Bryan Bishop: suresh: the openmanufacturing mailing list isn't really

all that active

[8:41:34 PM] Suresh Fernando: It's pretty active as Google Groups go

[8:41:37 PM] Bryan Bishop: for instance, compare:

[8:41:42 PM] Bryan Bishop: http://groups.google.com/group/openmanufacturing/

[8:41:48 PM] Bryan Bishop: oops

[8:41:48 PM] mnemnion: no, I want to build robots so that they can liberate the designs flickering in that place between sleep and waking.

[8:41:54 PM] Bryan Bishop: http://groups.google.com/group/openmanufacturing/about/

[8:41:58 PM] Bryan Bishop: http://groups.google.com/group/diybio/about

[8:42:01 PM] Bryan Bishop: compare those to /about pages

[8:42:10 PM] Suresh Fernando: hmm... yes this is even more active

[8:42:23 PM] Bryan Bishop: (that's why i keep talking to you about diybio/open hardware kits)

[8:42:34 PM] Suresh Fernando: I see you're the leading poster in this group this month

[8:42:42 PM] Bryan Bishop: every month :(

[8:42:42 PM] Suresh Fernando: I see

[8:42:48 PM] Suresh Fernando: ;-)

[8:43:02 PM] mnemnion: bryan has a habit of extensively crossposting, which accounts for some of that activity.

[8:43:04 PM] Suresh Fernando: What other groups that are large are you active in

[8:43:11 PM] Suresh Fernando: I do the same

[8:43:15 PM] mnemnion: do you have a filter that segregates your crossposts from other content, brian?

[8:43:23 PM] Suresh Fernando: Michel calls it 'boundary spamming'

[8:43:27 PM] Bryan Bishop: i'm in a lot of other groups

[8:43:27 PM] mnemnion: just curious, your records are quite thorough

[8:43:31 PM] Bryan Bishop: http://heybryan.org/mailing_lists.html

[8:43:42 PM] Bryan Bishop: i do have a bit of a filter, but the borders are becoming fuzzier with passing time

[8:43:49 PM] Bryan Bishop: for instance, diybio kits are really related to replab believe it or not

[8:43:52 PM] Bryan Bishop: i know, you hate me, but it's true

[8:43:59 PM] Bryan Bishop: the transhumanist groups as well

[8:44:11 PM] Bryan Bishop: all the way up to the grey goo enthusiasts and computronium lovers and brain uploaders

[8:44:14 PM] Bryan Bishop: there are all sorts of groups :)

[8:44:18 PM] mnemnion: the transhumanists I continue to view with the same wary admiration I've always had for them

[8:44:30 PM] Bryan Bishop: well, there's some things changing

[8:44:34 PM] Bryan Bishop: or, being redone

[8:44:46 PM] mnemnion: as for diybio, I'm a microbiologist and geneticist by training. Vitaly and I have been talking about contraptions for doing array genetics etc.

[8:44:47 PM] Bryan Bishop: the latest batch of transhumanists are much more heavily interested in diybio and openmanufacturing

[8:45:04 PM] Bryan Bishop: yeah i'm building some microfluidic designs for DNA

synthesis and sequencing

[8:45:10 PM] Bryan Bishop: (in skdb)

[8:45:58 PM] Bryan Bishop: helloooo large-scale automation in a 2x2 inch device

[8:46:14 PM] Bryan Bishop: http://designfiles.org/papers/microfluidics/

[8:46:23 PM] Bryan Bishop: suresh, another big community is the longevity folks http://designfiles.org/papers/longevity/

[8:46:25 PM] mnemnion: also I'm a member of the Chlorophyll Collective, which is a loosely organized crew based around the ideal of algae for the masses

[8:46:33 PM] mnemnion: it's how I know mike gittelsohn actually

[8:46:57 PM] Bryan Bishop: "mitochondria collective" might have seemed more motherly

[8:47:13 PM] Bryan Bishop: ... bad jokes aside..

[8:47:24 PM] mnemnion: Dr. Friendly and some others have interest in making home kits for spirulina cultivation

[8:47:38 PM] mnemnion: which is just a special case of photobioreactor

[8:47:40 PM] Bryan Bishop: meh

[8:47:57 PM] Bryan Bishop: actually

[8:48:04 PM] Bryan Bishop: i was working on an acdemic project once to insert insulin genes into spirulina

[8:48:13 PM] Bryan Bishop: so i was helping them do the bioinformatics analysis to help them figure out a good plasmid vector

[8:48:51 PM] mnemnion: yeah, you and your meh. :-P you can put anything you want in an algae. it's like e. coli except you feed it sunlight instead of sugar.

[8:49:16 PM] Bryan Bishop: well consider the scale up issues

[8:49:19 PM] mnemnion: and then, of course, it's primed to get out and cause maximum chaos.

[8:49:25 PM] Bryan Bishop: you start sucking up tons of phosphorous and calcium from the environment

[8:49:26 PM] mnemnion: how much harm can one little cell do though, really?

[8:49:33 PM] Bryan Bishop: anyway, there's an upper limit on how much you can grow

[8:49:42 PM] Bryan Bishop: mind you, i was on a DARPA project for biofuels, so it was all bullshit

[8:49:46 PM] Bryan Bishop: but maybe you have another use in mind

[8:50:18 PM] mnemnion: oh right

[8:50:18 PM] mnemnion: http://serc.carleton.edu/images/microbelife/topics/red_tide_genera.v3.jpg

[8:50:31 PM] Bryan Bishop: have you seen.. bubble algae?

[8:50:39 PM] mnemnion: ?

[8:50:40 PM] Bryan Bishop: http://heybryan.org/bioreactor/

[8:50:43 PM] Bryan Bishop: coolest thing ever

[8:50:56 PM] Bryan Bishop: there are species of spherical algae with an inner diameter of like 5cm

[8:51:24 PM] mnemnion: I had a feeling that's what you might be referring to

[8:51:28 PM] Bryan Bishop: valonia macrophysa

boergesenia

ventricaria ventricosa

dictosphaeria ocellata

dictosphaeria cavernosa

[8:51:36 PM] mnemnion: I dunno about 5 cm but I've definitely seen those in the wild

Wednesday, February 17, 2010

[10:58:30 AM] mnemnion: g'mornin

[10:58:56 AM] Suresh Fernando: morning

[11:03:30 AM] Suresh Fernando: brb

[11:50:36 AM] Suresh Fernando: wonder if James will join us today

[11:50:50 AM] Bryan Bishop: hello

[11:50:56 AM] Suresh Fernando: hey bryan

[11:51:03 AM] Bryan Bishop: just got back from an optometrist's appointment, sorry i'm late

[11:51:23 AM] Suresh Fernando: by the way I forwarded your longevity link to a buddy of mine in that space and he was ecstatic

[11:51:29 AM] Bryan Bishop: :)

[11:51:31 AM] Suresh Fernando: do you have any other such references

[11:51:34 AM] Bryan Bishop: http://designfiles.org/papers/longevity/

[11:51:39 AM] Suresh Fernando: you're not late

[11:51:41 AM] Bryan Bishop: http://alcor.org/

[11:51:52 AM] Bryan Bishop: http://groups.google.com/group/opensourcemedicine

[11:51:55 AM] Bryan Bishop: http://pinkarmy.org/

[11:51:59 AM] Suresh Fernando: amazing

[11:52:00 AM] Bryan Bishop: http://imminst.org/

[11:52:06 AM] Suresh Fernando: you follow everything

[11:52:08 AM] Bryan Bishop: http://groups.google.com/group/diytranshumanist

[11:52:16 AM] Bryan Bishop: http://fuckdeath.org/

[11:52:27 AM] Suresh Fernando: what's your interest in this area

[11:52:30 AM] Bryan Bishop: not dying

[11:52:39 AM] Suresh Fernando: Do you know of the sens foundation

[11:52:41 AM] Bryan Bishop: yes

[11:52:44 AM] Bryan Bishop: http://sens.org/

[11:52:47 AM] Bryan Bishop: http://mfoundation.org/

[11:52:48 AM] Suresh Fernando: Aubrey... whatever

[11:52:51 AM] Bryan Bishop: aubrey de grey

[11:52:53 AM] Bryan Bishop: i've talked with him a few times

[11:52:55 AM] Suresh Fernando: My buddy is working with Aubrey

[11:53:03 AM] Bryan Bishop: http://heybryan.org/transhuman/ <-- some notes from a conference chat with aubrey once

[11:53:11 AM] Suresh Fernando: Trying to raise a Billion $

[11:53:18 AM] Suresh Fernando: yeah a BILLION

[11:53:19 AM] Bryan Bishop: here are my notes from aubrey's latest talk at h+ summit 2009

http://adl.serveftp.org/~bryan/hplus-summit-2009/aubrey-de-grey.html

[11:53:24 AM] Suresh Fernando: hmm

[11:53:27 AM] Bryan Bishop: right now i'm working on an skdb package for microfluidics

[11:53:32 AM] Suresh Fernando: maybe should get you in the loop on this

[11:53:38 AM] Bryan Bishop: in particular i'm going to be doing some stem cell engineering with my microfluidic circuits

[11:53:51 AM] Suresh Fernando: OK I'll st up a call

[11:53:53 AM] Bryan Bishop: http://hplusmagazine.com/articles/bio/diy-bio-growing-movement-takes-aging

[11:54:06 AM] Suresh Fernando: Dump more info re what you are working on when you get a chance so I can pass it on

[11:54:10 AM] Bryan Bishop: http://fightaging.org/

[11:54:13 AM] Bryan Bishop: http://healthyyears.org/

[11:54:28 AM] Suresh Fernando: Also you're work/interest in the space

[11:59:06 AM] James Jones: Доброе утро, товарищи

[11:59:40 AM] Vitaly Mankevich: omg don't get all Party on me

[11:59:50 AM] Suresh Fernando: shall we start

[11:59:57 AM] Suresh Fernando: calling you guys

[12:00:33 PM] Bryan Bishop: okay i'm in

[12:00:38 PM] mnemnion: लसोएऊ

[12:00:44 PM] James Jones: fine then.... Javol!

[12:00:47 PM] Suresh Fernando: hey james

[12:00:52 PM] Bryan Bishop: james do you have a microphone today?

[12:00:53 PM] Suresh Fernando: shall we use bridge

[12:01:18 PM] James Jones: nope micless

[12:01:26 PM] Suresh Fernando: lets use the conference bridge

[12:01:35 PM] Suresh Fernando: 712-775-7100

[12:01:45 PM] Suresh Fernando: #502181

[12:01:48 PM] James Jones: sorry sam my nepali is non existant

[12:02:03 PM] Suresh Fernando: james you going to join us on the bridge

[12:02:11 PM] mnemnion: so the last time we did that I was on skype through vitaly?

[12:02:14 PM] James Jones: yep

[12:02:55 PM] Bryan Bishop: it tells me i'm the first caller

[12:03:23 PM] Bryan Bishop: james is on

[12:03:34 PM] Suresh Fernando: apparently vitaly is dialing the rest of us in

[12:03:38 PM] mnemnion: bryan - you're gettin back on skype, vitaly is calling the bridge. at least I think that's what just happened

[12:03:46 PM] Bryan Bishop: what?

[12:03:47 PM] Suresh Fernando: so bryan you could go back on Skype i think

[12:03:48 PM] James Jones: flipped me out the first time

[12:03:52 PM] Bryan Bishop: i thought we just agreed to use the conference bridge?

[12:04:10 PM] Suresh Fernando: well its cheaper to use skype if possible

[12:04:24 PM] mnemnion: better for lag etc. if everyone in the skype call is on one side and james who isn't skypin is on the other

[12:04:24 PM] Bryan Bishop: okay i am now off the conference bridge

[12:04:53 PM] James Jones: i'm still on zat the plan?

[12:05:29 PM] Bryan Bishop: i am now back on the skype conference call

[12:06:24 PM] James Jones: great tunes... for 1973... ;-)

[12:06:46 PM] mnemnion: ok that was weird

[12:06:47 PM] Bryan Bishop: i don't think you're supposed to be on the phone line

[12:07:10 PM] James Jones: who, me?

[12:07:35 PM] Bryan Bishop: nevermind

[12:07:38 PM] James Jones: communications, the weakest link

[12:07:53 PM] Suresh Fernando: technology - aaah

[12:07:54 PM] mnemnion: it's so web 2.0 it makes my fillings hurt

[12:08:18 PM] Bryan Bishop: how is this web 2.0?

[12:09:02 PM] Suresh Fernando: lets just go on the bridge

[12:09:11 PM] Suresh Fernando: its taken 10 mins

[12:09:43 PM] Bryan Bishop: vitaly is on hold

[12:11:01 PM] Vitaly Mankevich: can you guys dial me?

[12:11:14 PM] Bryan Bishop: what?

[12:11:26 PM] James Jones: I can, can you conference?

[12:11:51 PM] Bryan Bishop: vitaly is off

[12:12:00 PM] Bryan Bishop: suresh has decided on the phone bridge

[12:12:04 PM] Suresh Fernando: Lets go on the bridge

[12:12:12 PM] Vitaly Mankevich: ok

[12:13:08 PM] Bryan Bishop: i'm on the conference bridge

[12:13:19 PM] Suresh Fernando: go on bridge please

[12:13:22 PM] Bryan Bishop: i just did

[12:13:59 PM] mnemnion: I am, as previously discussed, not equipped to make outgoing calls. so we stilll need to figure out a route from skype to the bridge.

[12:14:20 PM] Bryan Bishop: so we either screw sam or screw james

[12:14:25 PM] mnemnion: my phone took a headcrash, the mic is busted, and replacing it hasn't happened yet.

[12:14:31 PM] mnemnion: we made this work before.

[12:14:36 PM] Bryan Bishop: let's just use chat

[12:14:51 PM] Bryan Bishop: chat is inclusive of everyone

[12:15:53 PM] Bryan Bishop: vitaly, sam is asking you to skype him into the conference call

[12:16:27 PM] Bryan Bishop: vitaly, we're having a heard time hearing you

[12:16:33 PM] Bryan Bishop: okay, sam is on now

[12:17:13 PM] Bryan Bishop: "commence identifying from the documents thta we have all submitted, the points of agreement or convergence"

[12:17:21 PM] Bryan Bishop: "sam you have some ideas on how to proceed with this specifically"

[12:17:42 PM] Bryan Bishop: do we have an agenda

[12:17:54 PM] Bryan Bishop: "talking about the documents"

[12:18:05 PM] Bryan Bishop: is there anything worth repeating from the past few days over chat?

[12:18:12 PM] Bryan Bishop: sam hasn't thought about it more

[12:18:22 PM] Bryan Bishop: sam wants to start with james

[12:18:26 PM] mnemnion: that was HAS thought about it more

[12:18:32 PM] Bryan Bishop: noise

[12:18:45 PM] Bryan Bishop: reverse ordering of receiving them

[12:19:01 PM] Bryan Bishop: can you guys paste the links in the chat?

[12:19:22 PM] James Jones: http://docs.google.com/Doc?docid=0Ac1zmsAw8z8pZGZjcDdrOG1fMTFjMmIyY2pjeg&hl=en

[12:19:28 PM] Bryan Bishop: is that yours?

[12:19:35 PM] James Jones: yep

[12:20:34 PM] Bryan Bishop: the main business models seem to be the same as in the other documents again: kits, consulting, design adsorption

[12:20:48 PM] Bryan Bishop: can't hear vitaly

[12:21:22 PM] Bryan Bishop: okay i just hung up from the conference call

[12:21:40 PM] Bryan Bishop: okay i am now on the skype call

[12:21:48 PM] Bryan Bishop: why am i hearing music from the bridge

[12:22:16 PM] James Jones: I'm fine with chat, for as musical as your voices are, this'll get the essence.. ;-)

[12:22:29 PM] Bryan Bishop: can someone dial 502181# for the 17127757100 number?

[12:22:37 PM] Bryan Bishop: the skype audio just dropped for me

[12:22:41 PM] Suresh Fernando: me too

[12:22:45 PM] Bryan Bishop: everyone seems to just got dropped

[12:22:50 PM] mnemnion: fail!

[12:22:57 PM] James Jones: Mega-fail!

[12:22:58 PM] mnemnion: chat it is

[12:22:59 PM] Bryan Bishop: so, i'm going to recommend for a third time that we just use the chat

[12:23:10 PM] Suresh Fernando: just use chat

[12:23:10 PM] mnemnion: so, we're looking at the Cubic View

[12:23:12 PM] Bryan Bishop: it's better for documentation purposes anyway

[12:23:15 PM] James Jones: I second your 3rd!

[12:23:28 PM] Bryan Bishop: skype conference is back, where is james?

[12:23:35 PM] James Jones: at least halfway

[12:23:50 PM] Bryan Bishop: sam wants to use skype only

[12:23:59 PM] James Jones: I'm gone - I could barely hear sam and vitaly was inaudable

[12:24:08 PM] mnemnion: no nono

[12:24:13 PM] mnemnion: bryan!

[12:24:13 PM] mnemnion: arge

[12:24:13 PM] Suresh Fernando: Chat it is

[12:24:19 PM] Bryan Bishop: so for a fourth time, let's do chat

[12:24:19 PM] mnemnion: in future, we should use chat voice

[12:24:25 PM] mnemnion: der skype voice

[12:24:26 PM] Suresh Fernando: JAMES' DOCUMENT

[12:24:30 PM] mnemnion: for now it's the fingaz

[12:24:31 PM] Bryan Bishop: yes i am aware that you said skype voice, sam

[12:24:32 PM] mnemnion: ya

[12:24:37 PM] Suresh Fernando: What do we agree on in relation to the doc?

[12:24:44 PM] Bryan Bishop: suresh, i already mentioned my agreement points above

[12:24:55 PM] James Jones: its short, its general...

[12:25:47 PM] Suresh Fernando: Do we agree with: I agree with Sam's assertion that educational customers will be valuable as direct customers,

[12:25:53 PM] Bryan Bishop: the original point that i made two weeks ago was that if cubespawn, makerbeam, contraptor and skdb want to pursue the consulting and kits business models, we need to demonstrate a full run through the entire toolchain - i.e. showing cubespawn drilling parts for the contraptor, and skdb running cubespawn, and probably the same for makerbeam

[12:25:56 PM] James Jones: yes

[12:26:16 PM] Bryan Bishop: didn't we talk about education yesterday?

[12:26:22 PM] Suresh Fernando: yeah

[12:26:34 PM] Suresh Fernando: Just trying to be formal

[12:26:47 PM] Suresh Fernando: Vitaly, Sam?

[12:26:48 PM] Bryan Bishop: james has indicated on multiple occasions his extreme joy out of something like the above :)

[12:27:17 PM] mnemnion: present me agrees with the me of Sunday in this particular instance.

[12:27:24 PM] James Jones: well, I think that the toolchain is a near term goal, but the machines can work without it...

[12:27:30 PM] Bryan Bishop: that's certainly true

[12:27:39 PM] mnemnion: no other agreement between past and present is specified or implied by this statement

[12:27:45 PM] James Jones: not for proof of concept, but to accomplish work

[12:27:46 PM] mnemnion: <ahem>

[12:27:52 PM] Bryan Bishop: sam, thanks for being so..verbose?

[12:27:56 PM] James Jones: noted, sam

[12:28:05 PM] Bryan Bishop: so,

[12:28:20 PM] Bryan Bishop: whether or not the machines can work without it raises the question of the business model

[12:28:22 PM] Bryan Bishop: in particular for the ROI goals

[12:28:29 PM] Bryan Bishop: can there be ROI without the toolchain integration demonstration

[12:28:41 PM] mnemnion: yes.

[12:28:41 PM] Bryan Bishop: i.e. james you specifically mentioned kits

[12:28:50 PM] Bryan Bishop: i see kits as necessitating the integration to some extent

[12:28:54 PM] Bryan Bishop: perhaps not something perfect :) of course

[12:29:08 PM] James Jones: into the void, where prohibited, yes - look at reprap, it didn't quite work for a couple years

[12:29:12 PM] Vitaly Mankevich: I think the problem is that demonstration of all 4 projects working together is months away, optimistically

[12:29:27 PM] Bryan Bishop: what's our deadline for demonstrating a valuable business model?

[12:29:32 PM] James Jones: I agree with vitaly assesment

[12:29:33 PM] Suresh Fernando: That's OK if we can show how this could happen

[12:29:44 PM] Bryan Bishop: suresh what's the deadline for a viable business model?

[12:29:49 PM] Suresh Fernando: Will happen

[12:29:52 PM] Bryan Bishop: ?

[12:30:03 PM] Suresh Fernando: We haven't talked timelines yet

[12:30:12 PM] James Jones: its a condition, not a deadline

[12:30:29 PM] Suresh Fernando: Next meeting we can focus on timelines

[12:30:39 PM] Bryan Bishop: so, from james' document i noticed these lines:

[12:30:40 PM] Bryan Bishop: "No definitive business model exists at this point.

A collection of possible revenue generating activities emerges, but this is more a collection of contingencies, than a deliberate proposal."

[12:30:40 PM] Suresh Fernando: This week we need to focus on common strategy

[12:30:52 PM] mnemnion: when the product is atoms, investors will see the hardware and won't see the software. Prototypes are valuable; the code needed is

the code needed to make the prototypes work, anything else is bonus.

[12:30:55 PM] Bryan Bishop: so it sounds like james is going to need some help from the rest of us in order to demonstrate to investors how awesome his work is

[12:31:10 PM] Bryan Bishop: that's just my interpretation of the document though

[12:31:37 PM] James Jones: I'll wear a bikini if it'll help (it won't)

[12:31:42 PM] Bryan Bishop: it will not =(

[12:31:49 PM] Suresh Fernando: Do we agree that a coordinated strategy requires Kits?

[12:31:56 PM] mnemnion: so 'kits for the educational market' is one area of substantial agreement

[12:32:12 PM] Bryan Bishop: there are other markets that we'll be talking about later today of course

[12:32:12 PM] Suresh Fernando: And if so does Kits require Toolchain?

[12:32:19 PM] Bryan Bishop: i think that a kit does require a toolchain

[12:32:19 PM] James Jones: understood - i'm up for the necessary though, whatever is needed to get this thing rolling

[12:32:24 PM] Bryan Bishop: sam was able to make makerbeam kits without skdb

[12:32:31 PM] Bryan Bishop: but i do think that there's going to be a lot of work involved

[12:32:35 PM] mnemnion: although I might call that an "educational package" not a "kit". "kits" should be the simpler version, without the classroom materials, aimed at the home hobbyist and smaller hackerspace

[12:32:38 PM] James Jones: no kits can be made without a toolchain

[12:32:40 PM] Bryan Bishop: sam, how many people did it take for you to be .. relatively not overworked?

[12:33:00 PM] mnemnion: well I'm certainly not relatively not overworked right now!

[12:33:13 PM] mnemnion: two people could be doing what I'm doing comfortably, and we'd get more done than I do.

[12:33:14 PM] Bryan Bishop: are you still shipping out makerbeam pieces to your kickstarter friends?

[12:33:19 PM] Vitaly Mankevich: i don't understand why making kits require a toolchain

[12:33:23 PM] mnemnion: my main business partner is meditating at the moment

[12:33:34 PM] Vitaly Mankevich: please explain

[12:33:38 PM] James Jones: Vitaly, it doesn't

[12:33:41 PM] Suresh Fernando: Bryan can you explain why Kits requires Toolchain

[12:33:55 PM] Bryan Bishop: it doesn't, it just reinforces suresh's "ecosystem model"

[12:34:04 PM] Bryan Bishop: ultimately that's why we're in this together

[12:34:05 PM] Suresh Fernando: how so?

[12:34:10 PM] Bryan Bishop: because bits and pieces of our individual puzzles fit together

[12:34:11 PM] Suresh Fernando: I see

[12:34:19 PM] Suresh Fernando: ok

[12:34:22 PM] Bryan Bishop: for instance, cubespawn can make contraptor, and contraptor can prototype kits from skdb, etc.

[12:34:28 PM] James Jones: toolchain is a goal, it'll be something to develope, but it is NOT a requirement

[12:34:40 PM] Bryan Bishop: it's a requirement, i feel, for the business model

[12:34:40 PM] Suresh Fernando: Right - painting this picture would enhance the collective picture

[12:34:47 PM] Bryan Bishop: because at the moment you don't have a business model for cubespawn, james

[12:34:54 PM] Bryan Bishop: i'm just going off the document of course

[12:34:55 PM] Suresh Fernando: right

[12:35:01 PM] Bryan Bishop: vitaly, overall you could do kits one-off if you want to

[12:35:12 PM] Vitaly Mankevich: well if making kits with toolchain costs 2x than witout it then collective picture is just a picture

[12:35:13 PM] Suresh Fernando: Important to note that requirements for biz model is not same as requirements for product development

[12:35:29 PM] Bryan Bishop: i don't know what the cost would be with the toolchain versus without it. i think it's worth exploring in the future

[12:35:33 PM] James Jones: right, no model, just (potential) business ..;-)

[12:35:50 PM] Suresh Fernando: vitaly, why would Toolchain dramatically increase cost?

[12:35:56 PM] mnemnion: I gathered that the CubeSpawn model was the provide consulting and hardware assembly services, plus maybe software integration for businesses adopting CubeSpawn technologies for the labor offset advantages to the bottom line

[12:36:11 PM] Bryan Bishop: sam, it was also to sell cubespawns

[12:36:12 PM] Vitaly Mankevich: the value of the toolchain will be demonstrated if we can make kits at significatly reduced costs compared to available options

[12:36:11 PM] James Jones: thats accurate, Sam

[12:36:15 PM] Bryan Bishop: i.e. like a cnc cube

[12:36:47 PM] Bryan Bishop: a cnc cube can recover costs fairly quickly

[12:36:48 PM] Suresh Fernando: vitaly - or somehow demonstrate a product that can sell more

[12:37:00 PM] James Jones: I think the toolchain, improves the process, but the process can function without it

[12:37:38 PM] Bryan Bishop: the toolchain improves the process, but also provides you a business model ;)

[12:37:45 PM] James Jones: it should improve the degree to which the process can be automated

[12:38:09 PM] Suresh Fernando: Bryan - how do you see the Toolchain defining the bix model

[12:38:16 PM] Suresh Fernando: business model

[12:38:16 PM] mnemnion: James: is there any other aspect of your document you'd like for us to discuss

[12:38:17 PM] Bryan Bishop: i think i outlined that in my document

[12:38:22 PM] Bryan Bishop: but for now let's stick to james' document

[12:38:22 PM] mnemnion: before we move to Vitaly

[12:38:42 PM] Suresh Fernando: OK - no consensus on Toolchain at this point

[12:38:54 PM] Bryan Bishop: consensus?

[12:39:07 PM] Suresh Fernando: agreement that the approach is required

[12:39:12 PM] Bryan Bishop: that's not what i was getting at

[12:39:23 PM] James Jones: yah, its pretty simple, unless anyone else has something else,

[12:40:03 PM] mnemnion: okay, if you're satisfied, I'm satisfied, anyone else want to comment on Jame's document before we change gears?

[12:40:09 PM] Bryan Bishop: no

[12:40:16 PM] mnemnion: wandering off to look up vitaly's email

[12:40:19 PM] Vitaly Mankevich: i think James will get big props when he builds a prototype micro assembly/manufacturing line that makes more or less complete product

[12:40:38 PM] Bryan Bishop: is props enough? :)

[12:40:46 PM] Vitaly Mankevich: props and more

[12:41:03 PM] James Jones: YAY Tax Refund!! then more finance raising... ;-(

[12:41:19 PM] Suresh Fernando: Shall we switch to Vitaly's doc

[12:41:24 PM] James Jones: yes

[12:41:34 PM] Bryan Bishop: where is vitaly's doc?

[12:41:35 PM] Vitaly Mankevich: the question is how long this will take

[12:41:41 PM] Vitaly Mankevich: well i didn't do a doc

[12:41:41 PM] Bryan Bishop: was it the email?

[12:41:45 PM] Vitaly Mankevich: i sent an email

[12:42:14 PM] Bryan Bishop: oh snap! i just checked my inbox, i have some great news - an article was published on SKDB a few seconds ago - http://hplusmagazine.com/articles/toys-tools/hackerspace-your-garage-downloading-diy-hardware-over-web

[12:42:16 PM] Vitaly Mankevich: Perspectives on the OK Pooled Fund from:vitaly

[12:42:42 PM] Bryan Bishop: okay i see

[12:43:03 PM] Vitaly Mankevich: search gmail for "Perspectives on the OK

Pooled Fund from:vitaly"

[12:43:13 PM] Bryan Bishop: i'm still looking forward to your elaborate skdb wishlist =]

[12:43:14 PM] Suresh Fernando: Here is my eval of the projects at the table in the context of near

term profitability. I believe I'm being fairly objective and I tried

to keep the critisism in the constructive range. More likely than not

I'm biased as far as Contraptor is concerned, so I welcome other

opinions on that.

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Makerbeam

Pros: The product is very much WYSIWYG, with few opportunities for

disappointment. Already sold and delivered the first batch of mini-T

slot to tens of customers (?). For development roadmap, can rely on

industrial T-slot e.g. 80/20 - not necessary to explore new and

potentially dead end directions (though they are worth venturing in

once core business is established).

Cons: manufacturing runs require several $K, need to optimize price/cost ratio

Summary: looks to be #1 on the list to make money in the near term

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Contraptor

Pros: Promises to accelerate many ad-hoc/grassroots developments in personal fabrication. Great platform for educational purposes (potentially large market). Demonstrated several working machines, some targeted to hobby market (like entry level CNC machine). Sold and delivered 12 beta kits to 7 customers.

Cons: Since the product was originally intended for DIY, converting to small-scale manufacturing takes longer than planned. The product is expected to perform to a certain standard, and whether the perceived standard is higher than the actual ability to perform, remains to be seen (this should become apparent with more feedback from beta kits). Development roadmap mostly consists of new directions, some of which can be dead end. Need to optimize price/cost ratio, arguably longer process than for Makerbeam due to more variables.

Summary: provided that beta is successful, should be on track to make money in the next few months.

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Cubespawn

Pros: Promising concept to deliver professional quality "task" cells, which can be built into conveyor-type arrangement for continuous automatic production. Ties well with Open Hardware and Micromanufacturing. Structure prototypes built.

Cons: To attract funding, needs demonstrated offering to competitively solve some specific problems (e.g. automated PCB production line). Relatively early stage, with more R&D required. Components are professional quality and more expensive as such.

Summary: seems like more (self-)funded work is needed to produce a working demonstration of a cell for a specific task, and then gauge the interest again.

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SKDB

Pros: Takes things into right direction of creating "hardware source" - describing hardware designs in consistent manner in code or pseudocode which a) allows automatic generation of all kinds of derivative data such as instructions for machining, assembly etc; and b) allows the use of existing revision tracking systems. There are

more byproducts of this, but I'm thinking of the immediately useful ones.

Cons: Too ambitious in attempt to cover everything including laws of physics. Essentially a quasi-simulation engine with very broad (open?) scope. Requires elaborate modeling of a project to represent it in SKDB terms, which is not a trivial task. Interesting for its potential and perhaps in academic context, but as is, does not offer a competitive solution for sharing hardware project data.

Summary: Significantly narrower focus is needed in order to demonstrate utility in solving specific immediate problems, and therefore attract the user base. Hardware/project description should be significantly simplified. I have some ideas on that if you want to hear them, but they would likely require re-engineering SKDB from scratch for specific tasks (Hardware-as-code / Assembly-Simulation / BoM / Inventory). The good thing is that we're dealing with code which is easier to modify than physical hardware.

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Vitaly

Reply

Reply to all

Forward

[12:43:29 PM] Bryan Bishop: actually instead of pasting it

[12:43:32 PM] Vitaly Mankevich: @bryan i'm almost done with it

[12:43:37 PM] Bryan Bishop: vitaly: no rush

[12:43:44 PM] Bryan Bishop: http://groups.google.com/group/openmanufacturing/browse_frm/thread/1d02b243299ca84a#

[12:43:46 PM] Bryan Bishop: there it is on the web

[12:44:16 PM] mnemnion: I'd say it's thoughtfully put, and conservative, probably in the way we want/need.

[12:44:38 PM] Vitaly Mankevich: my understanding is that any investor will look at what is happening right now

[12:44:44 PM] Suresh Fernando: Anything that you feel strongly about: agree or disaagree

[12:44:56 PM] Suresh Fernando: What about SKDB complexity for users?

[12:44:59 PM] Vitaly Mankevich: anyone can write a plan a grand vision

[12:44:59 PM] Bryan Bishop: suresh: my comments for the document can be found in the email, but the comments were mainly responses to vitaly's woe

[12:45:07 PM] Suresh Fernando: I know

[12:45:09 PM] Bryan Bishop: *woes

[12:45:16 PM] Bryan Bishop: skdb complexity for users is misguided

[12:45:20 PM] Bryan Bishop: users just have to type out a single command

[12:45:24 PM] Bryan Bishop: apt-get install washingmachine

[12:45:27 PM] Suresh Fernando: Bryan, is SKDB something that your average machinist will be able to work with

[12:45:34 PM] Bryan Bishop: ultimately yes

[12:45:44 PM] Suresh Fernando: 'ulimately'

[12:45:44 PM] Bryan Bishop: but right now, no, i doubt the machinist would be able to install it

[12:45:53 PM] Bryan Bishop: we've been working on a .deb package of skdb for a while

[12:45:59 PM] Bryan Bishop: i never realized how hairy this process was!

[12:46:05 PM] Bryan Bishop: hey aren't we talking about vitaly's document?

[12:46:12 PM] Suresh Fernando: no doubt ;-)

[12:46:25 PM] Suresh Fernando: yeah - this was a strong point that Vitaly made

[12:46:27 PM] Vitaly Mankevich: If I was VC or angel, i would not invest my money in SKDB as it is right now, sorry Bryan, I would watch it though

[12:46:30 PM] Suresh Fernando: that you engaged with him on

[12:46:36 PM] Bryan Bishop: vitaly: understood

[12:46:43 PM] Bryan Bishop: buuut i should remind you that i do have some funding already, hehe

[12:46:47 PM] Bryan Bishop: not much

[12:46:49 PM] Bryan Bishop: but yeah

[12:46:55 PM] Suresh Fernando: Simplicity of use will be an issue

[12:47:03 PM] Bryan Bishop: i think simplicity of understanding will be a bigger issue

[12:47:08 PM] Bryan Bishop: because clearly suresh has taken a very long time to understand it

[12:47:11 PM] Suresh Fernando: that too

[12:47:25 PM] Suresh Fernando: And still only at a surface level at best

[12:47:43 PM] James Jones: my concerns with SKDB are essentially the same, great concept! how do I use it... Today...

[12:47:46 PM] Vitaly Mankevich: that is one of the problems of SKDB by the way, if you expect to sell it, people should be able to grasp it immediately

[12:47:59 PM] Bryan Bishop: i've been looking for a way to diagram "apt-get"

[12:48:06 PM] Bryan Bishop: there are no technical diagrams that explain apt-get, anywhere on the internet

[12:48:14 PM] Bryan Bishop: i find this very peculiar and disheartening

[12:48:15 PM] Vitaly Mankevich: the keyword is "reduce cognitive load"

[12:48:29 PM] Suresh Fernando: Dont be disheartened

[12:48:35 PM] Bryan Bishop: it's a shame.

[12:49:01 PM] Suresh Fernando: It doesnt mean the concept is not valuable... we're just identifying what needs to happen to drive adoption

[12:49:13 PM] James Jones: no need for that, its not a simple concept, it must be simple to use - even for technical people

[12:49:18 PM] Bryan Bishop: right now adoption isn't the goal, i don't think it's

ready for adoption

[12:49:23 PM] Vitaly Mankevich: i mean people grasp the idea of sharing the hardware over the web, but how specifically is done is way too complicated and it needn't be

[12:49:28 PM] Vitaly Mankevich: needn't

[12:49:33 PM] Bryan Bishop: you just put it in a folder, how is that complicated

[12:49:35 PM] mnemnion: ok backing off SKDB for a second

[12:49:41 PM] mnemnion: this project has software needs

[12:49:43 PM] Bryan Bishop: yeah, let's get back to the other parts of vitaly's document

[12:49:57 PM] Suresh Fernando: Sam - what are the software needs

[12:50:01 PM] mnemnion: they don't precisely match the spec. of SKDB but they are there and they are real

[12:50:05 PM] James Jones: for half the users I support that alone would stop them, "whats a folder"

[12:50:13 PM] Vitaly Mankevich: i listed the projects in the order of their potential to make money and attract money, as i see it

[12:50:28 PM] mnemnion: suresh, that would be a good conversation for us all to have. let's make a note of it for later.

[12:50:29 PM] Vitaly Mankevich: at the present moment

[12:50:39 PM] Suresh Fernando: Sam - OK

[12:50:43 PM] Suresh Fernando: Why not now?

[12:50:44 PM] James Jones: hanging out with technical people gives you an artificial sesnse of how tech savvy people are

[12:51:06 PM] mnemnion: in the interest of time. we have ten minutes, technically.

clearly we're going over by some, but...

[12:51:05 PM] Suresh Fernando: If we can agree on what we need that would be good

[12:51:21 PM] Suresh Fernando: we can be flexible about process

[12:51:24 PM] mnemnion: it's better suited to email anyway. more discursive, less scattered

[12:51:33 PM] Suresh Fernando: we can continue this via chat during the week

[12:51:39 PM] mnemnion: maybe start a thread when we're 'done' here?

[12:51:45 PM] Suresh Fernando: OK

[12:52:04 PM] Suresh Fernando: How much time do you guys have

[12:52:05 PM] mnemnion: so vitaly, is there any other aspect of your doc you want us to cover?

[12:52:11 PM] Suresh Fernando: Do we need to wrap in 10 mins

[12:52:11 PM] James Jones: btw I got Gwave, if we are going to try that

[12:52:23 PM] Bryan Bishop: i think vitaly's document is quite clear on his understanding of the other projects

[12:52:22 PM] James Jones: my time is open

[12:52:29 PM] Bryan Bishop: this has allowed me to correct a few points about SKDB

[12:52:31 PM] mnemnion: I can be here for another half hour / hour

[12:52:36 PM] Bryan Bishop: but it doesn't seem like any points need correcting on cubespawn or makerbeam

[12:52:38 PM] mnemnion: and will be in and out after that

[12:52:41 PM] Bryan Bishop: so let's move on to another document

[12:52:45 PM] Suresh Fernando: how about go to 1130 pst

[12:52:51 PM] Suresh Fernando: OK Sam's

[12:52:55 PM] James Jones: good by me

[12:53:01 PM] Bryan Bishop: sam can you copypasta a link?

[12:53:12 PM] mnemnion: http://docs.google.com/Doc?docid=0ART51ZQYpQSuZGR2dGtzY3BfNDNkZHhuZ2JkNw&hl=en

[12:53:16 PM] Bryan Bishop: yummy

[12:53:36 PM] mnemnion: basically, we're talking about incubator(s) here

[12:53:45 PM] Bryan Bishop: the main point that needs to be discussed is the incubator

[12:53:47 PM] mnemnion: since the educational angle we've come to an accord on earlier

[12:54:07 PM] Bryan Bishop: i don't feel it would be a wise use of our resources to make multiple hackerspaces

[12:54:14 PM] Bryan Bishop: or make multiple incubators or multiple installations of manufacturing firms

[12:54:15 PM] mnemnion: suresh, I'm interested specifically in your opinion here, as this touches on the investment and format angle directly.

[12:54:29 PM] Bryan Bishop: for this reason, i brought it up on the first conference call

[12:54:33 PM] Bryan Bishop: because i knew it would be a sensitive subject

[12:54:41 PM] mnemnion: everyone's of course, I just want to make sure we get yours.

[12:54:49 PM] mnemnion: :-)

[12:54:58 PM] Suresh Fernando: My opinion is that if we can construct the right business case around an incubator model it makes sense

[12:55:09 PM] Suresh Fernando: We need a phyiscal infrastructure model of some sort

[12:55:11 PM] Bryan Bishop: i think an incubator is not different from the co-op model

[12:55:19 PM] Suresh Fernando: Its closely related no dount

[12:55:23 PM] Bryan Bishop: physical infrastructure model is the same thing as what i was talking about when i said toolchain early today

[12:55:26 PM] Suresh Fernando: doubt

[12:55:45 PM] Suresh Fernando: I dont get that

[12:55:49 PM] Bryan Bishop: really?

[12:56:00 PM] Bryan Bishop: manufacturing is a physical thing

[12:56:01 PM] mnemnion: basically, i'm sitting around with a huge pile of beams, in a carpeted apartment, with no miter saw.

[12:56:03 PM] Suresh Fernando: yes

[12:56:10 PM] Bryan Bishop: we need to BE somewhere

[12:56:12 PM] Bryan Bishop: apartments are not ideal

[12:56:14 PM] Suresh Fernando: yes

[12:56:16 PM] Bryan Bishop: i am also in an apartment

[12:56:24 PM] Bryan Bishop: this is why i asked about housing arrangements a few weeks ago

[12:56:26 PM] Suresh Fernando: how does toolchain relate to this

[12:56:27 PM] James Jones: well easier on the carpet that way ;-)

[12:56:29 PM] mnemnion: vitaly and mike are building contraptor in a 200 sq ft space, on a 50 sq ft machine.

[12:56:42 PM] Bryan Bishop: i have a 4000 sq ft space available down the street, but i have to pay rent

[12:56:51 PM] James Jones: Cubespawn lives in my living room

[12:56:55 PM] Bryan Bishop: and honestly i'm not entirely convinced that austin is the right location

[12:57:08 PM] Bryan Bishop: i am also not convinced that an incubator is the right model

[12:57:10 PM] Suresh Fernando: Sam - you have thoughts on location

[12:57:14 PM] Bryan Bishop: either way, i do think we will end up with Space somehow

[12:57:18 PM] Vitaly Mankevich: Bryan, why not find similar spirited projects, team up with them and rent that space?

[12:57:22 PM] Suresh Fernando: Bryan what are your reservations

[12:57:25 PM] Bryan Bishop: vitaly: that's actually what i'm doing

[12:57:30 PM] James Jones: but I have 8 acres and 3 45 foot semi trailers in good condition

[12:57:38 PM] Bryan Bishop: suresh: all of my friends are in the bay area or boston. so it would seem that, eventually, i should move there

[12:57:42 PM] Vitaly Mankevich: That's pretty much what we're looking at doing

[12:57:46 PM] Suresh Fernando: aha

[12:57:46 PM] mnemnion: we're actively looking at a space in West Berkeley, but

if that doesn't pan out there are many like it.

[12:57:57 PM] Suresh Fernando: I mean reservations about incubator model

[12:58:13 PM] mnemnion: it's worth noting that Fenn, who wrote a good chunk of the extand SKDB code, is now in the bay area

[12:58:17 PM] Bryan Bishop: the incubator versus the other modles? quite a lot

[12:58:24 PM] Bryan Bishop: *models

[12:58:25 PM] mnemnion: extant

[12:58:36 PM] Bryan Bishop: for instance, an incubator that doesn't do co-op machine equipment would seem odd to me (you might as well)

[12:58:42 PM] Suresh Fernando: You can marr Coop model with incubator model I would think

[12:58:43 PM] Bryan Bishop: or an incubator that doesn't do kits seems also kinda silly

[12:58:50 PM] Bryan Bishop: well it's basically the same thing

[12:58:52 PM] Suresh Fernando: *marry

[12:58:58 PM] Bryan Bishop: except one's in sam's words and he seems to like that

[12:58:59 PM] Suresh Fernando: exactly

[12:58:59 PM] Bryan Bishop: :)

[12:59:10 PM] Suresh Fernando: So if you support coop, whats the problem with incubator

[12:59:21 PM] Bryan Bishop: the main problem would be the physical location issues, then

[12:59:30 PM] Bryan Bishop: i don't have specific issues at the moment

[12:59:35 PM] Bryan Bishop: but just a fear of resolving the issue of austin vs. bay

area

[12:59:43 PM] Suresh Fernando: Vitaly, are you in support of Bay area incubator

[12:59:43 PM] Bryan Bishop: and moving costs, etc.

[1:00:14 PM] Suresh Fernando: James?

[1:00:33 PM] James Jones: I remote to work as it is, so the bay area is as close to me as austin is...

[1:00:48 PM] mnemnion: I'd like to add that I don't think we have to move CubeSpawn, necessarily, in order to integrate it.

[1:00:49 PM] James Jones: austin is an 80 minute drive

[1:00:56 PM] Bryan Bishop: i've been planning to build an "HQ" for all of my projects

[1:01:01 PM] mnemnion: that said, it might help.

[1:01:13 PM] Bryan Bishop: in particular, a machine shop, electronics shop, biology lab equipment, etc. to support all of the work i've been doing on skdb and then some

[1:01:24 PM] mnemnion: but we have a local 80/20 representative, so anything James specs, we can order

[1:01:27 PM] Bryan Bishop: last year i was talking with alex lightman who had $130M available for this sort of project

[1:01:43 PM] Bryan Bishop: we were going to buy a high school and rennovate it out and just throw in as much manufacturing equipment as possible

[1:01:48 PM] Suresh Fernando: Who is alex?

[1:01:55 PM] Bryan Bishop: alex lightman is the director of the world transhumanist association

[1:02:04 PM] James Jones: oh, I'd be up for a visit, maybe a few, but once a

running machine is in someones hands it'll start getting refined and change in detail

[1:02:05 PM] Bryan Bishop: he was previously the guy who got the govt to transfer from ipv4 to ipv6

[1:02:14 PM] Suresh Fernando: $130 mill available for what exactly

[1:02:20 PM] Bryan Bishop: wellll

[1:02:22 PM] Bryan Bishop: it turnso ut that didn't happen

[1:02:24 PM] Bryan Bishop: that's why i'm still in austin

[1:02:30 PM] Bryan Bishop: so that money wasn't actually there

[1:02:41 PM] Suresh Fernando: but he has access to money no doubt

[1:02:42 PM] Bryan Bishop: but i just thought you should know, that's where i'm coming from

[1:02:44 PM] Bryan Bishop: i'm sure.

[1:03:05 PM] Vitaly Mankevich: We are independent entities with our respective businesses or business ideas. Nobody is forcing anyone to do something or not to do it. My position on the incubator is - if this is in spirit of open hardware and has business potential, I think it's worth doing. I'm a bit fuzzy on specifics though.

[1:03:24 PM] Bryan Bishop: vitaly: my document was meant to help outline the specifics for different scenarios

[1:03:28 PM] Bryan Bishop: so maybe we should move on to it now?

[1:03:30 PM] Suresh Fernando: Specifics have yet to be introduced ;-)

[1:03:32 PM] Bryan Bishop: since we have -3 minutes remaining

[1:03:35 PM] Bryan Bishop: (that's negative!)

[1:03:49 PM] mnemnion: I believe we added another half hour in there

[1:03:53 PM] Suresh Fernando: i thought we were going to 1130

[1:03:55 PM] Bryan Bishop: lovely

[1:03:56 PM] Bryan Bishop: http://docs.google.com/Doc?docid=0Ad_WP5lmDYDzZHQ4MmZxMl8xM2ZrMmZjOWZ0&hl=en

[1:04:06 PM] Suresh Fernando: BRYANS DOC

[1:04:14 PM] Suresh Fernando: Shall we focus on models

[1:04:21 PM] Bryan Bishop: that's probably best

[1:04:25 PM] Suresh Fernando: And start with Coop

[1:04:28 PM] Bryan Bishop: there are also two diagrams near the bottom of the document

[1:04:33 PM] Bryan Bishop: that may or may not be interesting to us

[1:04:40 PM] Suresh Fernando: I think we agree on developing Kits and on finding ways to consult

[1:04:51 PM] Suresh Fernando: Thoughts on the idea of coop

[1:05:18 PM] Suresh Fernando: In other words flowing money into a pool to build opes source hardware machines...

[1:05:35 PM] Suresh Fernando: and renting these machines etc

[1:05:42 PM] mnemnion: well

[1:05:49 PM] mnemnion: out here we have TechShop

[1:05:50 PM] Bryan Bishop: renting proprietary machines is never economically feasible, FYI

[1:05:52 PM] mnemnion: two of them actually

[1:05:54 PM] Bryan Bishop: techshop is hideously expensive

[1:06:06 PM] James Jones: I'd be happy to grant cubespawns to the co-op at materials cost - as I see it that would be mutually beneficial

[1:06:09 PM] Bryan Bishop: and james newton made some deals with corporate HQ that means they have to always buy proprietary equipment

[1:06:21 PM] mnemnion: and isn't doing so well economically. they're running at a loss to expand and hopefully recoup.

[1:06:21 PM] Bryan Bishop: jim newton

[1:06:23 PM] Bryan Bishop: i forget his exact name

[1:06:33 PM] Bryan Bishop: http://techshop.ws/

[1:06:58 PM] Bryan Bishop: they were trying to set up a techshop here in austin actually

[1:07:02 PM] Bryan Bishop: les filip and two others were working on it

[1:07:03 PM] Suresh Fernando: Bryan in your coop model how do you understand the various locations that are a part of the coop to be pulled together

[1:07:10 PM] Bryan Bishop: they hired an MBA to look at the business plan for it, and found out that they would be screeeeewed

[1:07:23 PM] Bryan Bishop: suresh, the different locations would be "separate" or "not of concern to the co-op"

[1:07:30 PM] Bryan Bishop: if an entire hackerspace becomes a member that's awesome!

[1:07:35 PM] Bryan Bishop: but in general i wouldn't expect that to happen

[1:07:47 PM] Suresh Fernando: so the coop members are...

[1:07:49 PM] Bryan Bishop: in particular, i'm thinking one member of a hackerspace might be a member of the co-op or something

[1:07:52 PM] Suresh Fernando: inidividual machinists

[1:07:56 PM] Bryan Bishop: probably

[1:08:29 PM] Bryan Bishop: " A further extension of the co-op model is a federated or franchised model. In this model, a hackerspace "kit" would be provided to individuals or groups attempting to bootstrap a hackerspace, fablab, techshop, menshed, or some other initiative in their geographical area."

[1:08:39 PM] Bryan Bishop: " Fabratory enthusiasts would be encouraged to purchase open source hardware kits to supply their machine shops and labs; machines and kits could be provided at discounted rates, or other economic arrangements can be made. A laser cutter running at $10/hour could provide $2/hour back to the co-op and $8/hour back to the local hackerspace. How is this different from TechShop? Proprietary equipment isn't forced. The reason this is interesting is because it creates a market for open source hardware kits."

[1:08:57 PM] mnemnion: the only problem I see is the total lack of said kits.

[1:09:01 PM] Bryan Bishop: :)

[1:09:03 PM] Bryan Bishop: cubespawnnnnn

[1:09:11 PM] Bryan Bishop: also there are some things we're starting with

[1:09:20 PM] Suresh Fernando: Back to Incubators for a bit

[1:09:20 PM] Bryan Bishop: for instance, i'm working with an NYU professor to do a diybio kit

[1:09:26 PM] Bryan Bishop: oh that reminds me, the thermocycler kits too

[1:09:39 PM] Suresh Fernando: How would it be financed and what are the associated revenue lines?

[1:09:39 PM] Bryan Bishop: thermocyclers usually go for $5k to $10k, and can be made for about $20 USD

[1:09:44 PM] Vitaly Mankevich: well makerbot sells kits to hackerspaces left and right already

[1:09:47 PM] Suresh Fernando: Sam?

[1:10:04 PM] Vitaly Mankevich: there is a demand, but not many well packaged offerings

[1:10:06 PM] mnemnion: funding would be via a pooled fund, I rather hope

[1:10:11 PM] Suresh Fernando: ;-)

[1:10:14 PM] Bryan Bishop: vitaly, i've heard that makerbot has had trouble keeping up with demand

[1:10:38 PM] Vitaly Mankevich: incidentally i got a couple of inquires from hackerspaces

[1:10:44 PM] Suresh Fernando: What would be the exact difference between an incubator and a hackerspace?

[1:10:58 PM] Vitaly Mankevich: hackerspace is more of a collective

[1:11:04 PM] Bryan Bishop: a co-op incubator, i think, will be a huge hit :)

[1:11:11 PM] mnemnion: the investors would acquire a non-exploitative share in the business, something like 10 percent, and invest additionally through loans, and socially through making a space with associated expertise available, plus the additional economic advantages of being housed with working equipment.

[1:11:43 PM] James Jones: my 2 cents here a running CubeSpwan model would apeal to more hackerspaces than makerbot, flexibility if nothing more

[1:11:56 PM] Suresh Fernando: So this would be the location where we assemble kits and sell them to the education market, for example

[1:12:01 PM] Vitaly Mankevich: @James demo, demo, demo

[1:12:01 PM] Bryan Bishop: yes

[1:12:08 PM] mnemnion: very much so

[1:12:12 PM] James Jones: I agree

[1:12:17 PM] Bryan Bishop: or not just the educational market, but also the diybio market and the biology lab market

[1:12:25 PM] mnemnion: and where we do research and development on additional tools, software integration, and support documents

[1:12:31 PM] Suresh Fernando: was just an example

[1:12:34 PM] Bryan Bishop: (i'd be working on this kits, but i think sam has some expertise he can lend)

[1:12:38 PM] mnemnion: education and makers are our main demographic

[1:12:40 PM] Suresh Fernando: starting to make sense

[1:12:48 PM] Suresh Fernando: Another question?

[1:12:48 PM] Bryan Bishop: it would be amazing if we could have an "HQ" for open manufacturing projects

[1:12:57 PM] Bryan Bishop: and with housing for the locals.. cheap housing or something

[1:13:02 PM] Bryan Bishop: hostels are very cheap

[1:13:07 PM] Bryan Bishop: i'd live at HQ if i could

[1:13:10 PM] Suresh Fernando: What sorts of things can you make if you integrate all of the projects that you can't make individually

[1:13:25 PM] Bryan Bishop: i'd live at the hackerspace down the street from me, but sadly there's a "no squatting" policy

[1:13:33 PM] Bryan Bishop: cubespawn + contraptor

[1:13:36 PM] Bryan Bishop: skdb + cubespawn

[1:13:37 PM] mnemnion: actually, bryan, through our colleague Gautam Agarwal we have close contacts to the cooperative association in Berkeley

[1:13:50 PM] mnemnion: which can extend equity for purchasing just exactly the

kind of cheap housing you're talking about

[1:13:55 PM] Suresh Fernando: what ened user products

[1:13:58 PM] mnemnion: which is nice, since buildings in the area are forclosing left and right

[1:14:03 PM] Bryan Bishop: thermocylers would be a good place to start with, i think

[1:14:16 PM] Bryan Bishop: but sadly it doesn't use cubespawn, contraptor or makerbeam

[1:14:28 PM] Suresh Fernando: We should brainstorm stuff that you can actually make...

[1:14:39 PM] Bryan Bishop: haha yes it's very easy to make a thermocycler

[1:14:46 PM] Suresh Fernando: That would be useful for me, investors etc

[1:14:52 PM] Vitaly Mankevich: well i think people out there have plenty of ideas

[1:15:33 PM] James Jones: contraptor, anything open source thats mechanical initially , would be a good starting point

[1:15:40 PM] Bryan Bishop: sure

[1:15:51 PM] Vitaly Mankevich: DIY tools

[1:16:00 PM] mnemnion: An educational package that contains all the modular components for students to build themselves the following: a light duty CNC router, an FDM printer, and a powder-bed printer. Plus perhaps a pick-and-place machine.

[1:16:03 PM] Vitaly Mankevich: desktop fabrication tools

[1:16:06 PM] James Jones: electronics already has cheap low run fab services available

[1:16:11 PM] mnemnion: for teaching a fab 101 class.

[1:16:19 PM] Bryan Bishop: sam: an educational CNC kit, even just a desktop CNC machine, would sell like hot pancakes

[1:17:05 PM] mnemnion: you would be able to assign students a core set of beams and connector hardware, per team, and then check in and out the specific components needed for that unit, like the different printer heads, the powder gaskets, etc.

[1:17:10 PM] Bryan Bishop: marcin jakubowski, fenn and i were talking with sam a while back about running an SMT machine

[1:17:27 PM] Bryan Bishop: which would have an over-the-web interface for ordering PCB runs

[1:17:33 PM] Bryan Bishop: people would *love* to have american-made PCBs

[1:17:36 PM] mnemnion: the PCB assembly line is another excellent integration product, mostly across CubeSpawn and MakerBeam

[1:17:45 PM] Bryan Bishop: and skdb :)

[1:17:50 PM] Bryan Bishop: especially for finding alternative parts

[1:17:52 PM] mnemnion: although if we can build some or all of it from Contraptor, so much the better

[1:18:06 PM] Vitaly Mankevich: there are bunch of US run PCB prototyping shops btw

[1:18:08 PM] Bryan Bishop: oh

[1:18:12 PM] Bryan Bishop: sorry, my bad

[1:18:44 PM] James Jones: http://sketchup.google.com/3dwarehouse/details?mid=5244d827152955ec97b1166ef535f6&prevstart=0

[1:18:52 PM] Bryan Bishop: grr more meshes :(

[1:18:54 PM] Bryan Bishop: meshes make me weep

[1:18:56 PM] Suresh Fernando: progress ;-)

[1:19:06 PM] Bryan Bishop: meshes are not progress

[1:19:13 PM] James Jones: you have probably seen that, but its simple and fairly cheap to build

[1:19:15 PM] mnemnion: I have in mind a sort of a 'replab roadmap', I put together a crude one at the end of my post for the p2p foundation on replab

[1:19:17 PM] Suresh Fernando: I mean in our collab!

[1:19:26 PM] mnemnion: some of the thinking has evolved considerably since then

[1:19:42 PM] Bryan Bishop: sam, do you know where skdb started off?

[1:19:49 PM] Bryan Bishop: we were going to design a self-replicating machine or fablab

[1:19:56 PM] Bryan Bishop: and we figured that the way that reprap was doing it was all wrong

[1:20:04 PM] Bryan Bishop: in particular the "add a component at a time" and "whack a mole as it appears" method

[1:20:11 PM] Bryan Bishop: so what we figured was if we had this database of manufacturing processes,

[1:20:16 PM] Bryan Bishop: we could then select a cyclical graph out of the mix

[1:20:21 PM] Suresh Fernando: Can I ask a question that you guys will pay attention to?

[1:20:25 PM] Bryan Bishop: in particular, we could query the database for a full set of machines that can make each other

[1:20:31 PM] James Jones: maybe

[1:20:34 PM] mnemnion: worth a shot suresh!

[1:20:35 PM] Suresh Fernando: lol

[1:20:49 PM] mnemnion: I did answer the last one, I think.

[1:21:00 PM] Suresh Fernando: is there any fit with established players like the FabLab network, MakerBot, Replap etc

[1:21:13 PM] Suresh Fernando: RepRap

[1:21:15 PM] Bryan Bishop: no, fablab and makerbot have been very rude and unwilling to communicate

[1:21:29 PM] mnemnion: plenty of fit

[1:21:40 PM] Vitaly Mankevich: perhaps Replab, yes

[1:21:43 PM] mnemnion: Zach and Bre are easy to talk to although Bre is truly a busy fellow.

[1:21:50 PM] Bryan Bishop: zach always ignores me

[1:21:54 PM] James Jones: I think makerbot has positioned themselves as competition, all my emails and attemps at contact have been rebuffed

[1:21:54 PM] Bryan Bishop: i don't look up to that guy

[1:22:01 PM] Bryan Bishop: james, me too

[1:22:14 PM] Vitaly Mankevich: they're probably just busy

[1:22:15 PM] Suresh Fernando: FabLab has lots of infrastructure, tools and so on

[1:22:15 PM] Bryan Bishop: i've offered to do so much free work for zach, and he never lifts a finger

[1:22:20 PM] mnemnion: several of the RepRap core team, including Zach, Erik de Bruijn, and Sebastian Baillard have expressed admiration for the RepLab idea

[1:22:22 PM] Suresh Fernando: Can't we get there somehow?

[1:22:33 PM] mnemnion: Erik is in fact one of the core people on RepLab

[1:22:39 PM] Vitaly Mankevich: This is pretty big undertaking though

[1:22:39 PM] Bryan Bishop: i have nointerest in playing a popularity game

[1:22:44 PM] mnemnion: he maintains the twitter/identica account, and the domain name

[1:22:53 PM] James Jones: erik I have contacted, and he's friendly and personable

[1:22:59 PM] Suresh Fernando: Erik was the guy who actually got me going on this process

[1:22:59 PM] mnemnion: Erik is going to talk to Neil Gershenfeld in April abt. RepLab stuff

[1:23:12 PM] Bryan Bishop: best of luck to him

[1:23:25 PM] Suresh Fernando: He is very interested in this model in principle

[1:23:52 PM] Bryan Bishop: suresh: you should visit a fablab, and a hackerspace, and techshop

[1:23:55 PM] Bryan Bishop: suresh: where are you located?

[1:24:13 PM] James Jones: sunny vancouver!

[1:24:16 PM] mnemnion: The netherlands is one of the few places where this thing is happening more strongly than in the bay area. I'd almost consider relocating if I didn't love it here so much.

[1:24:16 PM] Suresh Fernando: Am going to http://vancouver.hackspace.ca/doku.php

[1:24:18 PM] Bryan Bishop: there's a vancouver hacker space

[1:24:22 PM] Suresh Fernando: next week

[1:24:38 PM] Suresh Fernando: see above

[1:24:49 PM] Bryan Bishop: i see it

[1:24:51 PM] Vitaly Mankevich: I'm not familiar with academia establishment at all, but how important are connections to getting anything visible?

[1:24:56 PM] Suresh Fernando: have connected with the local folks

[1:25:00 PM] mnemnion: the dutch design movement is totally enamored of 3d modelling

[1:25:03 PM] James Jones: I'd go visit the dutch girls in a second If I could afford the move!!

[1:25:06 PM] Bryan Bishop: vitaly: so far it seems to be the only way.. fenn was trying to get neil's attention for YEARS

[1:25:10 PM] Bryan Bishop: and all of his emails just go into a black hole

[1:25:24 PM] Suresh Fernando: James, you have a girlfriend i thought?

[1:25:35 PM] James Jones: 2 actually

[1:25:38 PM] mnemnion: hehehe

[1:25:39 PM] Suresh Fernando: haha

[1:25:43 PM] Bryan Bishop: poly?

[1:25:54 PM] James Jones: dactyl

[1:26:08 PM] Bryan Bishop: no, polyamorous

[1:26:09 PM] Suresh Fernando: I'll summarize this chat and distribute by Sunday

[1:26:16 PM] Bryan Bishop: suresh: why not just copy-and-paste the chat

[1:26:22 PM] mnemnion: ...any joke on poly and dactly I can concoct definitely doesn't belong here

[1:26:32 PM] Suresh Fernando: I want to identify important things that we need to

figure out

[1:26:41 PM] Suresh Fernando: Also, we need presentable documents

[1:26:42 PM] Bryan Bishop: i think it would be beneficial to post the chat log to OM

[1:26:48 PM] Suresh Fernando: Feel free

[1:27:02 PM] Suresh Fernando: Anything else in the next 4 mins

[1:27:09 PM] Suresh Fernando: This was productive!

[1:27:15 PM] James Jones: yah I get personal, you go public, I see how it works

[1:27:33 PM] mnemnion: lollerz

[1:27:56 PM] Bryan Bishop: but srsly

[1:27:57 PM] Suresh Fernando: Bryan - I'm all in favour of maximizing the visibility of this process

[1:27:59 PM] Bryan Bishop: the article was just published

[1:28:00 PM] Bryan Bishop: http://hplusmagazine.com/articles/toys-tools/hackerspace-your-garage-downloading-diy-hardware-over-web

[1:28:04 PM] Bryan Bishop: i'm so excited

[1:28:06 PM] Suresh Fernando: Feel free to invite others to this chat space

[1:28:12 PM] Suresh Fernando: They can lurk

[1:28:24 PM] Bryan Bishop: yeah about that.. i've been inviting them into the IRC channel

[1:28:27 PM] Bryan Bishop: since there's more activity there

[1:28:30 PM] Bryan Bishop: and more people involved

[1:28:38 PM] Suresh Fernando: different process

[1:28:44 PM] Bryan Bishop: not true

[1:28:49 PM] Suresh Fernando: I know you disagree

[1:29:07 PM] Suresh Fernando: Invite them to both

[1:29:33 PM] Suresh Fernando: Unless there is more to discuss - thanks everyone!

[1:29:40 PM] James Jones: kewl so back to email for afterthoughts and additional Q, I guess

[1:29:54 PM] Suresh Fernando: Yeah - fire away

[1:30:05 PM] James Jones: lovely typing with you all!

[1:30:13 PM] Suresh Fernando: Next week we need to focus on timelines and maybe what sort of collab infrastructure we might use

[1:30:26 PM] James Jones: I'll get a Mic too

[1:30:33 PM] Suresh Fernando: We argued about OpenPario earlierl... doesn't really matter to me

[1:30:44 PM] Bryan Bishop: argued?

[1:30:50 PM] Suresh Fernando: discussed

[1:30:57 PM] Bryan Bishop: samand i were trying to explain some technical things to you

[1:31:00 PM] Bryan Bishop: *sam and i

[1:31:03 PM] Suresh Fernando: In some ways, chat can be more productive...

[1:31:06 PM] Bryan Bishop: my space bar seems to bewobbly

[1:31:12 PM] James Jones: 'cussed and dissed

[1:31:14 PM] Suresh Fernando: It also creates a transcript for others

[1:31:28 PM] Suresh Fernando: But James, get a mic!

[1:31:38 PM] mnemnion: seconded!

[1:31:42 PM] James Jones: Javol, herr commandante!

[1:31:43 PM] Vitaly Mankevich: +1

[1:31:52 PM] mnemnion: and lets have an email thread about openpario vs. wave vs. something else

[1:31:53 PM] Bryan Bishop: james: you can make a microphone out of a piezo from your cell phone and a transducer, plus a few wires shoved into your RS232 port

[1:32:07 PM] Suresh Fernando: Please commence all relevant emall threads

[1:32:10 PM] mnemnion: do it! shove wires into your RS232 port!

[1:32:13 PM] Bryan Bishop: heh

[1:32:15 PM] Bryan Bishop: you know you want ot

[1:32:16 PM] mnemnion: take pics!

[1:32:16 PM] Bryan Bishop: *to

[1:32:17 PM] James Jones: no thanks, but thanks for offering

[1:32:28 PM] Bryan Bishop: DIY man, didn't you read the news? it's the wave of the future

[1:32:30 PM] mnemnion: upload them through your next computer!

[1:32:53 PM] Suresh Fernando: I have another call so adios for the moment

[1:32:57 PM] James Jones: I'll get to chipping silicon in the kitchen.....

[1:33:14 PM] * Suresh Fernando going to talk about life extension/longevity

ecosystem mapping

[1:33:15 PM] James Jones: ok I'm out BACK TO WORK!