

Labor over Capital:

HOW OPEN DEVELOPMENT SUSTAINS SMALL BUSINESSES & DRIVES INNOVATION



What Are We?

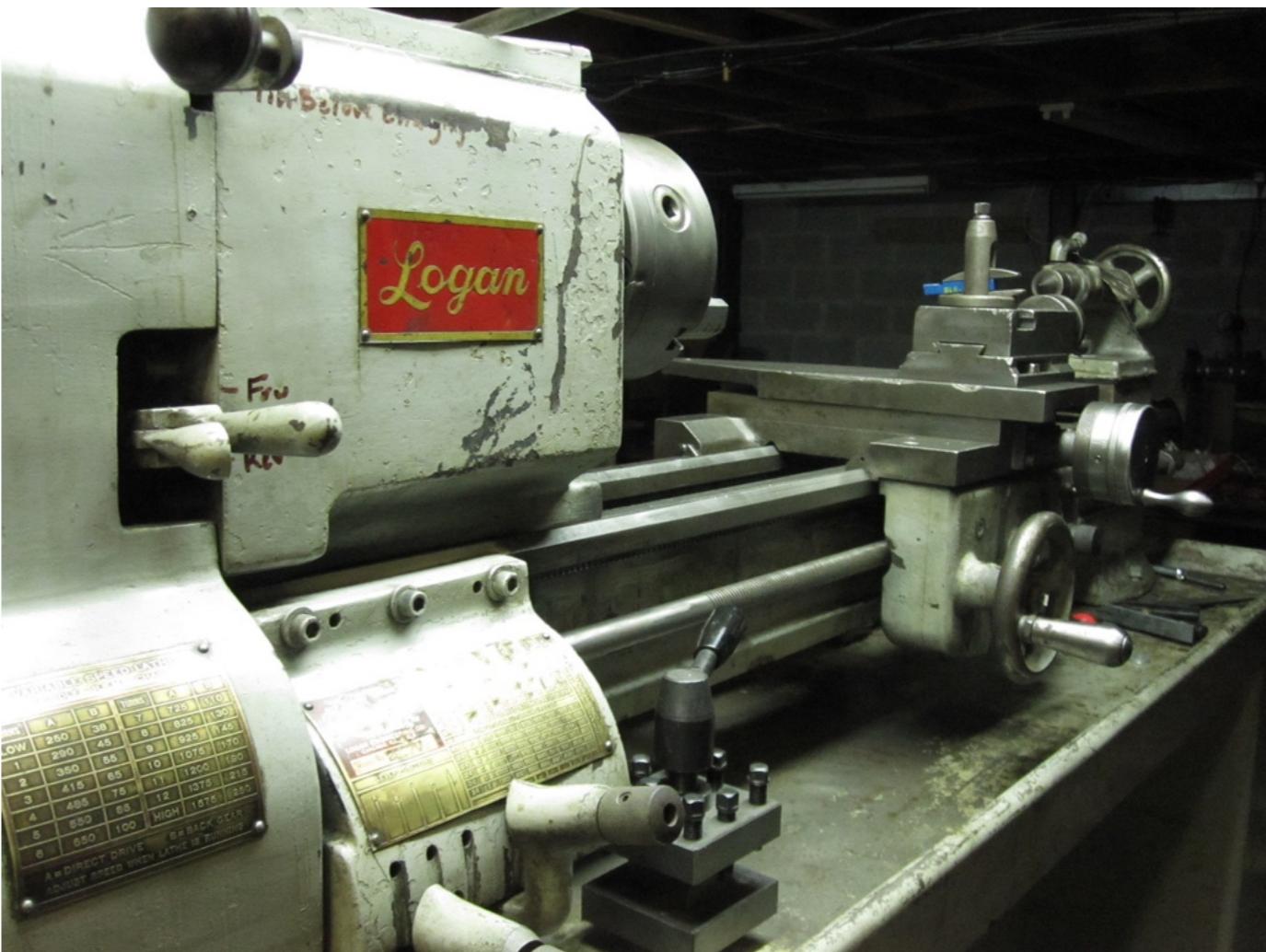
An ER&D Lab with Open Structure to fit client needs



GROUND Lab is an ER&D company focused on designing, building and field-testing innovative sustainable solutions to social, humanitarian, conservation and energy challenges worldwide.

Through GROUND Lab we are working on developing **a social and technological structure** to bring back **small to mid size R&D** for real world problems.

GROUND Lab has designed and fabricated prototypes and solutions for a wide range of clients, from large organizations like UNICEF and Universities, to smaller NGOs, Research Groups, Conservationists, Inventors & Artists.



Business Factors

Client Needs, Available Capital, Labor & Skill Sets



Client Needs

- Our Client's ER&D needs are based around a **problem to be solved** and not **a specific product** to be developed.
- Most organizations don't have the budget nor the interest in a long term investment and are not looking for a new patent.
- This holds true for private inventors, University research labs and NGOs, which need something fast to test in the field in order to assess the feasibility of building a more reliable solution.



Available Capital

- Our average contract ranges from 10 to 100K \$ and lasts ~3 months.
- US Government and Defense funding for R&D efforts directed towards Universities and NGO's is diminishing.
- Most research funding now is directed towards new in-field patents for end-products in larger industries rather than towards the research for a solution to a challenge.

“During the period 2000-2008, the U.S. ranking in government-funded university R&D slipped from 18th place to 22nd place among the 30 major economies tracked by the Organization for Economic Co-Operation and Development (OECD)... Also, the increases in federal support were partially offset by a 2% average decline in state funding of university research.”

<http://www.todaysengineer.org/2011/Jun/Academic-RandD.asp>



Available Skills

- There has been a 30% increase in independent contractors and freelance workers between 2009 and 2010 alone.

A new small to medium size manufacturing force in the US resembles more the cottage industry of the 1800 than a corporate structure and it is mainly composed of independent contractors and small businesses.

<http://www.thefiscaltimes.com/Articles/2011/01/02/Permalancing-The-New-Disposable-Workforce.aspx#page1>

Development Strategies

How can we make development feasible for our clients?



Capital

“\$ makes \$” → ownership of knowledge

- Based on IP rights and capital ownership through legal bureaucracy
- Makes Angel Investing feasible because of higher return margins
- More expensive labor costs to compensate for lack of ownership
- Some ventures can only happen through large investments (large manufacturing systems, etc.)
- Needs to produce big returns
- Produces Cinderella stories

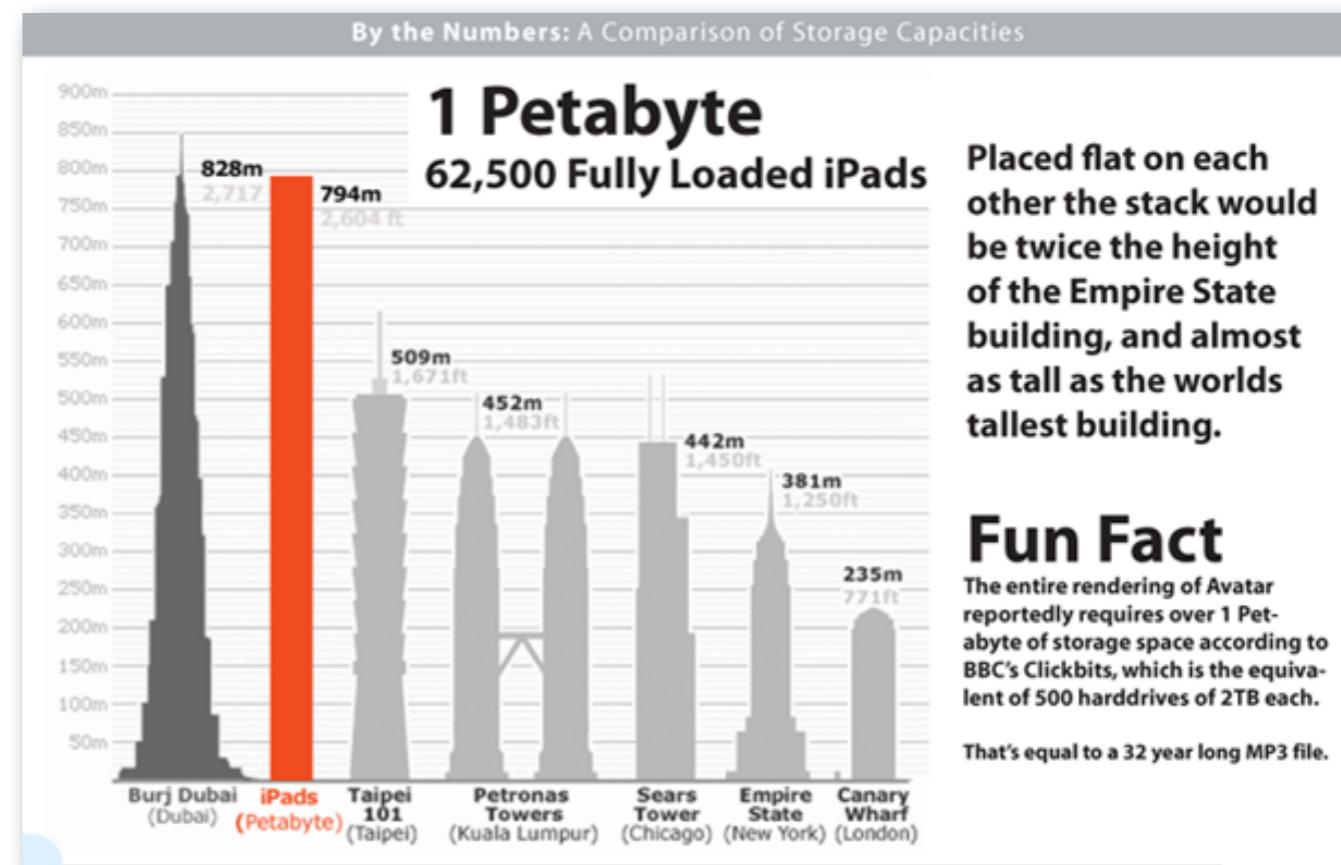
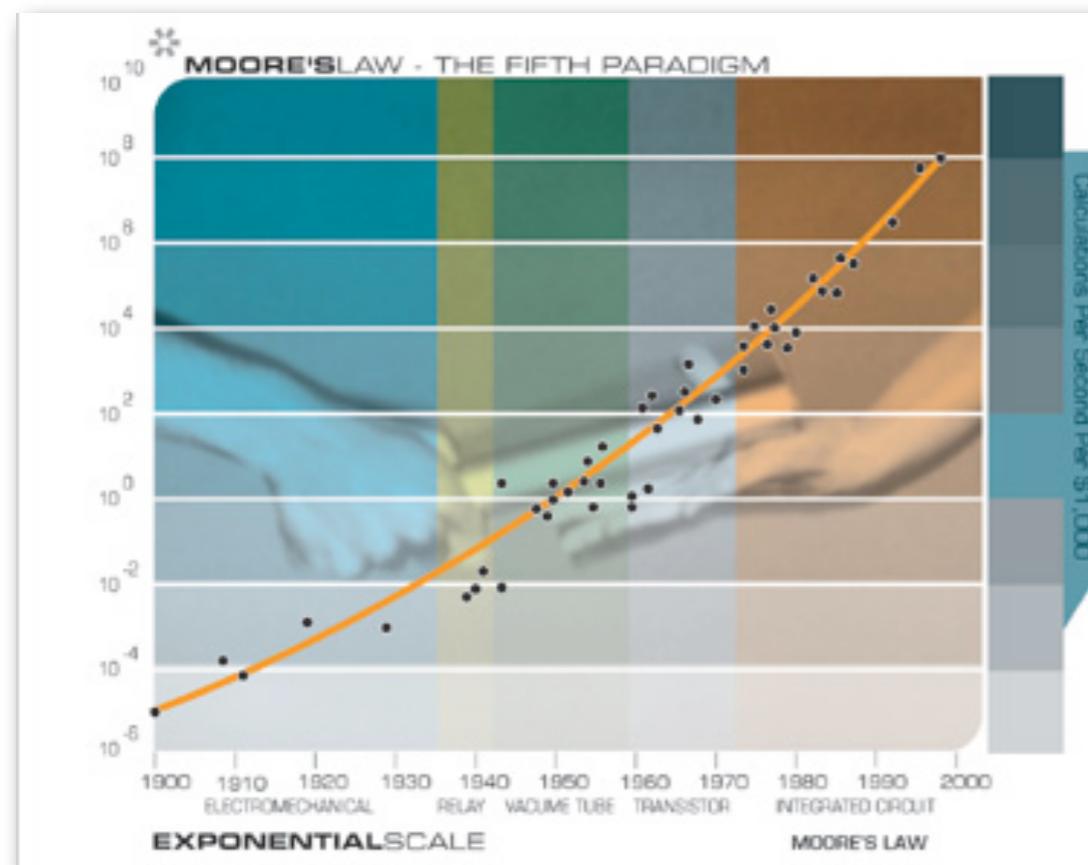
Labor

“Burn it to earn it” → application of knowledge

- Based on a more organic combination of research, development, fabrication and capital
- Less capital necessary to enter into development field
- Acquired knowledge and the use of that knowledge dictates the next steps and projects
- Can employ open source and public knowledge to operate
- Lower labor costs in development because people retain use of their innovation
- Public funding, organizational funds and grants are more feasible than Venture Capital given the more modest returns

Patenting Today

Patent Wars, Patent Trolls and the Bureaucratic balloon



Accelerating Change

Ray Kurzweil and his singularity theory and the accelerating change (or perception of).

"An analysis of the history of technology shows that technological change is exponential, contrary to the common-sense "intuitive linear" view. So we won't experience 100 years of progress in the 21st century – it will be more like 20,000 years of progress (at today's rate)."

$$20 * 200 = 4000$$

<http://www.kurzweilai.net/the-law-of-accelerating-returns>

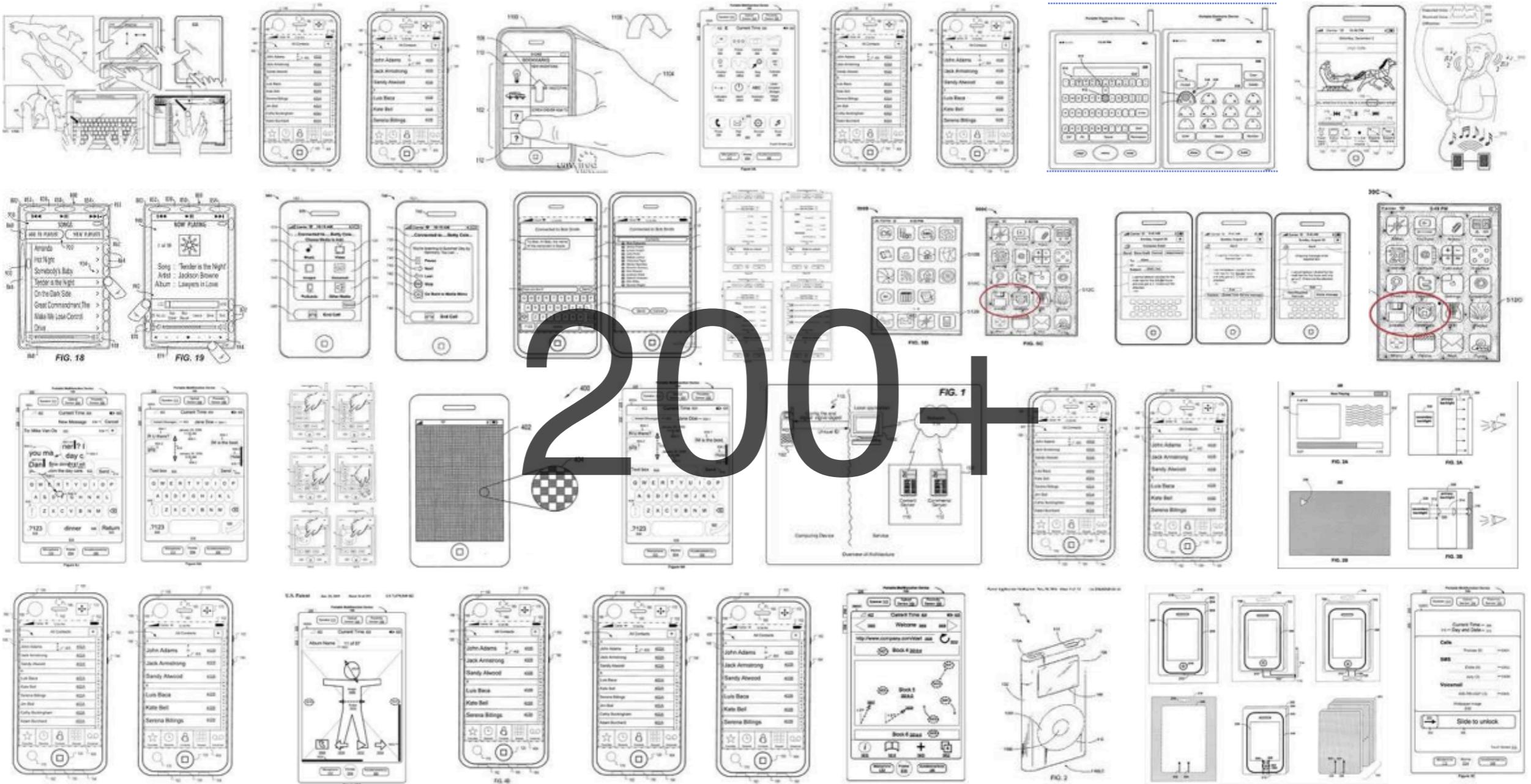
Data Retention

We are generating an incredible amount of data and are now documenting any piece of information and advancement.

This has also contributed to how a device is now made of many patents or a technology cluster (patent webs among companies) instead of a single patent.

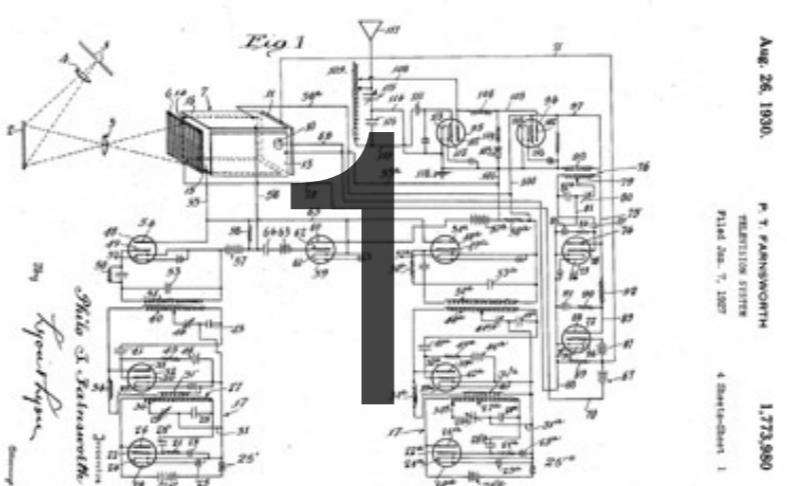
1.2 Zettabytes of data or 75 Billion fully loaded iPads

<http://wikibon.org/blog/unstructured-data/>



iPhone by Apple

VS



CRT TV by P.T. Farnsworth

Patent Wars

Google CEO Larry Page characterized the recent defensive move as one that would "strengthen Google's **patent portfolio**, which will enable us to better protect Android from anti-competitive threats from Microsoft, Apple and other companies."

http://www.huffingtonpost.com/2011/08/15/google-motorola-mobility_n_927670.html



Patent Trolls

This system allows for Patent Trolling to be viable and for people to organize businesses around aggressively enforcing patents to collect licensing fees and ultimately stifle innovation and challenge small tech start-ups.



All of this now translates into roughly **200 times** the legal cost of IP for developing a **single product** than before.

TomTom CEO: "We spent more money on patent litigation than R&D"

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TomTom CEO: "We spent more money on patent litigation than R&D"

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Our clients don't have that kind of budget for R&D, they certainly don't have it for IP cost.

Our Approach

Platforms and High Level IP

1. Platform-centric Design



DeviceX (UNICEF) + Lion Collars (Lion Guardians) +



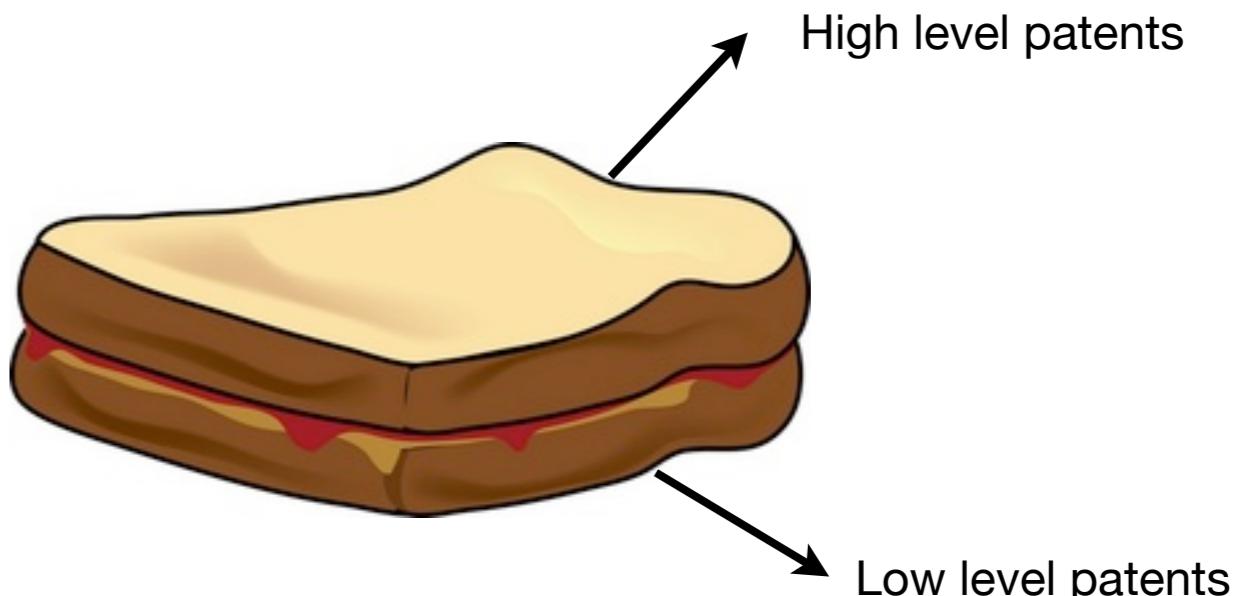
SharedSolar (Columbia University) =

Open M2M Platform

- This helps broaden work partnership and collaborations based on credit, reemphasizing labor and the application of knowledge.
- It lowers labor cost because developers retain use of the technology they built.
- It allows for faster turn around time and prototyping because you build off of an existing knowledge base.

2. Focus on High Level Rights

We focus our resources on ™, ® and © and on reputation based value for our company worth, while we focus on patents of applications for our clients, leaving the underlying hardware open source.



IBM the largest filer of patents and IP rights has nearly half (~100 B) of its net worth in brand valuation.

http://www.millwardbrown.com/global/news/pressreleases/Press_Releases_Details/11-05-08/Apple_Becomes_World_s_Most_Valuable_Brand_Ending_Google_s_Four-Year_Term_at_the_Top_says_WPP_S_BrandZ.aspx

Our Business In a Nutshell

Using this approach we have been able to develop solutions for a variety of unconventional challenges using ground-up methods for funding business-building as well as ER&D through labor and client's projects and budget.



TOGETHER

- Brand name is stored capital based on good reputation and documentation of developed technologies.
- Funding comes from the application of the technology, from consulting, R&D and fabrication services and Grants.
- Open sourced repositories create larger development pools and free advertising.
- An Open source development process is what allows us to stay flexible and grow.
- **You can do it**, you just need to work really really hard at it.

WE CAN DO IT!

Thank You!

From Justin & Benedetta of



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