



Open Source and Software Industry Development

Implications for Greece

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Goals

- Open a dialogue about technology industries in Greece, beginning with the software industry.
- Provide a brief overview of the Open Source movement and its implications to business.
- Describe some fundamentals of software economics and foreseeable industry trends.
- Explore potential synergies between Greece's strengths and potential paths for its software industry.

Keys to the Future of Digital Business

- Digital businesses are the private sector component of the Information Society.
- What will happen with Microsoft's products, strategic leveraging, and the pending antitrust inquiries?
- Is the Open Source development model real and viable, and will it lead to successful business models?
- Will digitization and software continue to migrate outward from a single industry to take over multiple industries?
- What is the true significance of the Internet?

We will focus on the non-Microsoft questions.

Open Source Basics

- What is Open Source Software?
 - Source code is *not* maintained as a trade secret.
- Who Creates Open Source Software, and Why?
 - Hobbyists & hackers trying to solve problems, educators, governments, and businesses seeking profits.
- How can a business based on Open Source software be profitable?
 - By viewing itself as a service industry; by mixing secret and open development; by developing in secret, and then opening as security.
- What are some popular Open Source projects?
 - Linux & Apache are crucial. Also, GNOME, Perl, KDE, OpenOffice, Mozilla,...
- Who uses Open Source software?
 - By now, almost everyone—including many who don't know it.

Understanding Open Source

- Began as academic “free software” movement in 1980s.
- Instead of developing proprietary, secret software, post a partial solution for all to see.
- Generated useful, powerful software tools. Led to few if any non-hacker products until mid-90s.
- Internet expanded scope of shared community to entire world. Recast software as an “emergent property,” a bazaar rather than a cathedral.
- Linux operating system started making headlines in mid-1990s.
- Graphics, desktop, consumer focus catching up. Still used more heavily by IT professionals.
- Key issues still lie in infrastructure software.
- Many big players, including IBM, Sun, HP.

Open Source Licensing and Related Issues

- Things you need to know about before bringing Open Source software into your organization...
 - GNU Public License (GPL)
 - Copylefting
 - Other Licenses (BSD, etc.)
 - Open Source Initiative (OSI) and Definition (OSD)
 - “Fear, Uncertainty, and Doubt” (FUD)
- Most OS licenses are unrestricted for *users*, but place some limits on developers and distributors.
- Perspective on Open Source:
 - Capitalism vs. Communitarianism *or*
 - The Cathedral vs. The Bazaar *or*
 - Central Planning vs. Free Markets

Software Market Basics: Platforms & Network Economics

Effect	Complementarity	Switching costs	Commitment	Licensing terms	Bundling	Network effects
Definition	The value of an operating system depends on availability of applications.	The cost of switching any one component of an IT system can be very high.	Vendors may promise flexibility or low prices in the future but not deliver.	A perpetual license involves a one-time payment; a subscription involves a yearly payment	Vendors will want to sell software in bundles to make future entry into the market difficult.	The value of an application or operating system may depend heavily on how many other users adopt it.
Implication	Consider the entire system of needs before making choice.	Make choices that preserve your flexibility in the future.	Look for firm commitments from vendors, such as a commitment to open source.	Subscription licenses can be particularly pernicious when switching costs are high.	Purchasing a bundle now may reduce your future costs, but will also limit your flexibility and choices.	For a closed network of users, standardization within the network is more important than choosing an industry standard.

The Software Life Cycle

- All software procurement is guided by shared concerns:
 - Total Cost of Ownership (TCO), or lifecycle costing.
 - Currently comparable for Windows & Linux, but could change. Appears highly contingent on wages.
 - Switching Costs
 - Vendors can increase or decrease to suit *their own* needs. Consumers beware.
 - Quality = Reliability + Maintainability + Usability + Security + Flexibility
 - Complicated, interrelated measures.

Open Source and Public Policy

- Governments have begun to consider the relationship:
 - Government as Large Adopter
 - Poised to help break the “applications barrier to entry.”
 - Education and Training
 - Open source code eases learning about “real” programs.
 - Openness and Transparency
 - Demonstration of various democratic values.
 - National Security
 - Cuts reliance on foreign corporations.
 - Treaty Obligations
 - Reduces IP piracy.
 - Economic Development
 - Can help direct types of software ventures that emerge.
- Legislative proposals include OS only; OS for infrastructure; and a general preference for OS.
 - Mostly minority parties; few enacted.

Characteristics of Software Industry

- Relatively low capital requirement for entry.
- “High” fixed costs, relative to negligible variable costs.
- Invariably subject to network effects.
- Decent educational system required.
- Internationally competitive.
- Product component and service component.
- Software companies often cluster into areas of excellence.
- Concept of “software company” is becoming archaic. Many industries now develop software.

Significance of the Internet

- Reduces costs of exchanging information.
- Leads to consumer savings.
- Creates opportunities for sellers/producers:
 - Reduced transaction costs;
 - New information products;
 - New business models.
- Threatens the stability of existing distributors.
 - Creates the temptation for regulatory protection.

Open Source + Software + Internet =?

- Digitization can translate any industry into software.
 - Key lies in identifying industry's "information content."
- Newly digitized businesses require new business models.
 - OS development is an example of a new business model.
- Profits shift from products to services.
 - Parallels development of ASP model.
- Premium placed on reliability of service provider:
 - Participation in development community;
 - Nothing to hide;
 - Comparable to source code escrow.
- OS can promote confidence in small players.

Leveraging into Software

- Much software development is migrating outward, into niche companies, communities, and clusters.
- Identify target niche markets.
 - What are areas of national/regional/local strength?
 - In which industries is local knowledge greatest?
 - Has technology yet reshaped a key local industry?
 - What is the information content of key local industries?
- Industries with high information content and significant local expertise suggest opportunities to leverage into software excellence.

Potential Targets for Greece

- GOAL: Develop a niche software presence that both improves domestic industry and provides know-how with export potential.
- Some obvious industries:
 - Tourism
 - Complicated products, high information content, sizable transaction costs.
 - Shipping/Maritime
 - Basic OR. Also communications, tracking, etc.
 - Agriculture
 - Crop planning; co-ops and consortia; Agrinet?
 - Inter-island Communications
 - Software end of developments in electronics & communications.
 - Other Industries?
 - You know better than I do...

Charles River Associates

- International Economic Consulting Firm
 - Growing EU presence; offices in London and Brussels.
- Broad Expertise in:
 - Understanding competitive environments;
 - Business plan analysis;
 - Valuation;
 - Exploiting reduced transaction costs.
- Broad industry expertise, including software & Internet, telecom, energy, minerals, transportation, sports business, distribution & logistics, etc.
- Experience working for public & private sector, in regulated, unregulated, and deregulating environments.

Summing Up

- The Greek economy is at a challenging juncture:
 - EU expansion; Balkan development; possible Middle Eastern liberalization.
- Increasing numbers of industries are becoming information industries.
- Open Source may become important to *anyone* developing software:
 - Lower development costs;
 - Easier entry;
 - Open standards;
 - Service oriented.
- Greek companies and policymakers need to understand the relationships among Open Source, software economics, and industry development:
 - Take advantage of reduced costs;
 - Leverage from local expertise;
 - Promote innovators and entrepreneurs;
 - Overcome status quo and regulatory roadblocks.
- Today's talk was intended to open a dialogue, not to finish it.