

# Business models for software

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## Software is a challenge

- Software market is open for new players
- It becomes more and more complex
- Key factors
  - Time-to-market
  - Customer satisfaction
  - Integration, interoperability, standards
  - Quality
- You need to obtain these results and make profits

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## Home-made production

- May be OK if the domain is VERY specific and unknown outside the organization
- Business here is not sw but performance improvement of the organization
- Plus: deep knowledge of the domain and of the solution (sw), improved maintainability
- Minus:
  - hard to keep with evolution of technology
  - tendency towards reduced interoperability

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## Examples

- Banks, insurance companies
- Embedded systems
  - Telephones
  - Domestic appliances

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## Custom software

- Business is in software
- Customer involved only (mainly) in analysis and specification phase and acceptance testing
- Typically intellectual property owned by customer: source programs, preparatory docs, ecc. are given to customer along with the rights of exploitation
- Plus: customer may become a long-term, strategic partner (may be a "prison" for customer though!)
- Minus: interoperability, reinvent-the-wheel syndrome

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## Examples

- Software houses
- Evolution
  - From "custom made" software
  - To "system integration"

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## Production for the market (1)

- Specific customer does not exist
  - Market analysis needed
- Usually software is licensed, and the license states the conditions for use/exploiment
  - various kinds of licenses
- Interoperability usually taken seriously
- ... although sometimes lack of interop. used on purpose to dominate market

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## Production for the market (2)

- Other forms of licensing
  - Open source: source code is public. E.g. Linux, SourceForge.net
  - Community sourcing: code is proprietary, others are allowed to improve it, for ex.. E.g., Sun
  - Freeware and Pro versions: a "light" version of is distributed for free. The professional version must be purchased. E.g., RealPlayer
  - Shareware: software is freely distributed to facilitate its evaluation. Users pay for it if they decide to keep it. E.g., WinZIP
  - Adware: software is free. Interface displays advertisements. E.g., Crystal FTP 2000

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# Looking into open-source

## --history--

- In 1984 Richard Stallman founds the *Free Software Foundation* (FSF)
- Goal: a complete platform (O.S., office applications, personal entertainment, ...) which can be used, copied, modified freely and distributed under the *GNU Public Licence* (GPL)
- GPL is a **copyleft** license
  - any modified copy must be distributed only with GPL
- Tremendous effect of the **free software** resulting from the diffusion of the Internet and the success of free kernels (Linux, FreeBSD)
- A market for free software is born. Business and revenues possible also from free software!

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# Copyleft

- Copyleft is a form of licensing
- Copyright law allows an author to prohibit others from reproducing, adapting, or distributing copies of the author's work
- Copyleft gives every person who receives a copy of a work permission to reproduce, adapt or distribute the work as long as any resulting copies or adaptations are also bound by the same copyleft licensing scheme
- GPL is a widely used and originating copyleft license

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# Open source and licenses

- Many licensing schemes defined "free software"
- Bruce Perence created a brand: *Open Source Initiative Certified*. It is awarded to licenses which comply with the definition of open source given next, which focuses on:
  - **Use:** any restriction on use, users, application field?
  - **Copy:** can it be copied?
  - **Modification:** any limits on modifications?
  - **Distribution:** how can copies be distributed, under which licenses?

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# Definition of open-source

- Doesn't just mean access to the source code. The distribution terms of open-source software must comply with the following criteria:
  - Free Redistribution
    - The license shall not restrict any party from selling or giving away the software as a component of an aggregate software distribution containing programs from several different sources. The license shall not require a royalty or other fee for such sale.

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#### – Source Code

- The program must include source code, and must allow distribution in source code as well as compiled form. Where some form of a product is not distributed with source code, there must be a well-publicized means of obtaining the source code for no more than a reasonable reproduction cost preferably, downloading via the Internet without charge. The source code must be the preferred form in which a programmer would modify the program. Deliberately obfuscated source code is not allowed. Intermediate forms such as the output of a preprocessor or translator are not allowed.

#### – Derived Works

- The license must allow modifications and derived works, and must allow them to be distributed under the same terms as the license of the original software.

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#### – Integrity of The Author's Source Code

- The license may restrict source-code from being distributed in modified form only if the license allows the distribution of "patch files" with the source code for the purpose of modifying the program at build time. The license must explicitly permit distribution of software built from modified source code. The license may require derived works to carry a different name or version number from the original software.

#### – No Discrimination Against Persons or Groups

- The license must not discriminate against any person or group of persons.

#### – No Discrimination Against Fields of Endeavor

- The license must not restrict anyone from making use of the program in a specific field of endeavor. For example, it may not restrict the program from being used in a business, or from being used for genetic research.

continues

– Distribution of License

- The rights attached to the program must apply to all to whom the program is redistributed without the need for execution of an additional license by those parties.

– License Must Not Be Specific to a Product

- The rights attached to the program must not depend on the program's being part of a particular software distribution. If the program is extracted from that distribution and used or distributed within the terms of the program's license, all parties to whom the program is redistributed should have the same rights as those that are granted in conjunction with the original software distribution.

continues

– License Must Not Restrict Other Software

- The license must not place restrictions on other software that is distributed along with the licensed software. For example, the license must not insist that all other programs distributed on the same medium must be open-source software.

– License Must Be Technology-Neutral

- No provision of the license may be predicated on any individual technology or style of interface.

- See [www.opensource.org](http://www.opensource.org)

end



## The license Tower of Babel (1)

License	Use	Copy	Modification	Distribution	OSS	Copyleft
public domain	free	free	free	free	yes	no can be re-licensed by anyone
shareware	free for limited time	free	no	no-profit	no	no
proprietary software	restricted	restricted	no	no	no	no

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## The licence Tower of Babel (2)

License	Use	Copy	Modification	Distribution	OSS	Copyleft
GPL	free	free	free	free	yes	yes
BSD	free	free	free	every adv. has to mention original developer	yes	no
NPL	free	free	free	free	no	no
IBM public license	free	free	free	free	yes	yes
Sun Community source	free	free	free	no	no	no

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## Where is business? (1)

- Per se, open source sw can be sold, but profit is not in product sales. They come as a "side effect":
  - **Services:** the real added value is technical competence, additional consulting, assembling solutions...
  - **Accessories:** manuals, courses, gadgets...
  - **Brand:** guarantees, conformity certificates...

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## Where is business (2)

- **Hardware:** additional computers and devices, peripherals and device drivers
- **Application development:** on open source infrastructures
  - open source clients may ask for (proprietary) servers
- **Market strategy:** may be used to weaken competitors

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## Warnings

- Similar arguments hold also for proprietary software, but:
  - additional profits are significant only in the case of quasi-monopolistic situations (Microsoft, SAP)
  - courses and certifications not well received for proprietary knowledge
  - brand is not perceived as such

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## Will proprietary software survive?

- Cusumano [Comm. of ACM Oct. 2004]:
  - We will continue to see free, open-source, and proprietary software
  - Open-source will cause price cuts and/or market exits...
  - ... but additional niche products and new players will enter the scene
  - Those who bet on the "induced market" of open-source will have a hard time differentiating among themselves
    - They must have also "their own" product/technology
  - Open-source is not for everybody, but only for the elite!

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## Another business model (1)

- Application Service Provisioning:
  - Software available at the provider's site
  - Users access the service via the Internet (Intra/ Extranet)
  - Users pay for usage, not for purchase. E.g., mySAP.com
- Web services support the development of services that are accessible via standard technology through the Internet
- Basic services may be used create and deliver complex (compound) services

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## Another business model (2)

- ...A new scenario in which what is reused is not a component, but some remote running software, which is first discovered
- Implications
  - Applications may grow incrementally
  - Even with parts that are unknown in advance
  - Trust is needed among partners. Monitoring is necessary.

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