Co-operating with open source

Distributed heterogeneous development is an economic imperative

Open-source software offers new solutions

Open-source software (OSS) provides new options to solve the problem. COSI examined the approaches, business models, architectures, processes and priorities appropriate to control and manage ownership in such scenarios. The project studied commodification and its implications for competitiveness with both large and small company partners from the European software-intensive sector, complemented by research institutes.

Because much software is no longer product specific, various trends towards networked collaboration are emerging: through subcontracting and integration; in coalitions – for example, around open platforms; and, to a lesser extent, by direct co-operation with OSS communities.

Practical experiences detailed

A series of case studies illustrated lessons learned from entering into open sharing arrangements.

- COSI partners Philips Healthcare and Agfa Healthcare, as early protagonists of the Digital Imaging and Communications in Medicine (DICOM) standard for hardware-independent sharing of diagnostic images, developed an interoperability validation toolkit known as DVTk. Launched as freeware, it initially conferred commercial advantage on the authors. But, as more competitors adopted the standard, DVTk became increasingly commodified.
The originators therefore released the source code as OSS, and motivated participation by hosting community events. Development continued, sustaining product viability and extending functionality in new areas.

- Nokia Siemens Networks (NSN) uses Linux and open source, both previously considered disruptive technologies by the telecommunications industry. In 2002, Nokia joined forces with other major players to define carrier-grade Linux (CGL) as an open-architecture alternative to proprietary platforms in the Internet Protocol (IP) environment. NSN created its performance Network Database Benchmark tool that was first distributed to database vendors under non-disclosure agreements and later made open source. When this proved successful, NSN produced an application-specific OSS macro-benchmark, the Control-Plane (C-plane) Benchmark, for monitoring communication to establish connections and ensure correct payload routing and logging.

Taking intermediate steps

‘Inner-source’ development offers an intermediate step towards full integration of OSS. Further COSI case studies presented different inner-source models, in which internal teams co-operated using open-source processes and tools within a restricted ecosystem. This implies distributed ownership and control of code, but exploits existing organisational mechanisms for roadmapping, prioritisation and conflict resolution.

Such sharing with external partners must be based on mutual trust, whether or not competition is involved. Big companies should determine where to draw the boundaries to open source, and what level of investment is to be committed.

While most partners focus on technical infrastructure, key social aspects must also addressed, such as attracting contributors and obtaining the right contributions. Co-operation provides access to a pool of developers with talents that might not otherwise be available. Furthermore, it offers a safeguard against third-party vendor lock-in that can occur with COTS, and opens the door to use of other related software.

For new or smaller enterprises, involvement enables them to be part of large, complex development projects and helps them build new business opportunities. Academic institutions can contribute more knowledge content and innovation – vital to Europe’s global competitiveness.

**European strength**

As the volume of OSS grows, it is in industry’s economic interest to incorporate its benefits into their products. Europe leads this field; maintaining and strengthening this position should help combat the dominance of its US competitors in the global marketplace.

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**Major project outcomes**

**Dissemination**

- More than 50 publications by COSI members, including 22 conference papers and 12 workshop papers at international conferences
- 4 main events organised, with participation in many more events
- Significant internet-based dissemination. Website has been maintained alive and full of content

**Exploitation**

Companies (small & large):

- Improved engineering models, methods and techniques
- Improved distributed heterogeneous software development process
- Adopted OS practices and are involved in OS developments
- Introduced policies

Academia

- Use results in software engineering courses and programmes