BSA
BUSINESS SOFTWARE ALLIANCE

THE DIGITAL AGENDA: A SOFTWARE INDUSTRY PERSPECTIVE

February 2010

The software sector contributes directly and significantly to Europe's economic competitiveness. With overall market revenues of €200 billion, the sector is a key driver of high-skill, high-wage jobs – accounting for 54% of the total IT employment in Europe, despite representing only 20% of total spending on IT. The software sector also makes many indirect contributions to European economies, including via tax revenues, upstream and downstream employment and, more generally, by increasing business efficiency and productivity.

With growth rates of between six to eight percent forecast, the sector is poised to continue to generate employment and revenue opportunities in the coming decade. These economic contributions cannot be taken for granted, however. A robust software sector depends on a policy framework that promotes innovation, competition and growth. This paper describes Europe's software ecosystem and explores the essential elements of an effective digital innovation agenda.

Europe's evolving software marketplace

In order to develop effective, forward-looking public policies that foster innovation, it is necessary that policy makers have an accurate picture of Europe's software marketplace as it exists today and understand how this market will evolve over the coming decade. This is a difficult task. Europe's software marketplace is highly diverse and highly dynamic, and the way software products are developed, deployed and used is constantly changing.

What is clear, however, is that in the past few years the software paradigm has begun to shift in significant ways. The pace of this change will only accelerate in the coming decade.

If we look at the software sector at the start of this century:

- Software providers worked independently, employing either proprietary or open source development and distribution models; cross-vendor and cross-business model interoperability was limited, and achieved primarily through licensing and standards implementation

- Operating systems and applications were closely connected and in large part deployed and accessed locally via PCs and local networks/servers

- The Internet was used primarily for simple communications (e-mail, instant messaging, etc), or to upload or download static files

This model of software and Internet usage is quickly being transformed, however. First, there is substantially greater **hybridisation** – the mixing of business models bridging the gap between open source software (OSS) and proprietary software – today than five years ago. Similarly, there is also significantly greater **interoperability** among competing software-based products today than previously.

- So-called '**mixed source'** applications – applications that combine both open source and proprietary code – are becoming increasingly prevalent. Open-source technologies can now be found in mainstream proprietary software applications developed by companies like Adobe, Real Networks and McAfee among others, for example. And when distributing their innovations, software providers often employ similarly mixed models. Some proprietary software, for example, allows users to access the source code; conversely, some free software – such as the popular database software MySQL – is offered under both open source and proprietary terms.

- At the same time, with customers increasingly using a heterogeneous mix of software solutions, interoperability has become a consumer expectation and a market imperative. To achieve interoperability, competing firms frequently work together in the pursuit of new innovation, disclosing information, licensing technologies and building on one another's solutions to develop and market complementary product offerings. The results of this focus on interoperability are dramatic; currently, for example, there are over 80,000 OSS applications running on Microsoft's Windows operating system.

The second and equally important transformation is the role of the Internet in computing and the rise of **software as a service** (SaaS).

- Increasingly, the PC is no longer the only or primary point for software access and use. There has been an explosion in recent years in the number, diversity and capability of software-driven devices, including mobile phones, eBook readers, smart TVs, DVRs and tablets. This variety means that users want – and need – to be able to access applications and data from a variety of devices and locations.

- To satisfy customer demand, software providers and others in the ICT sector are turning to the Internet to deliver software functionality. The Internet has quickly become the hub that connects users to software applications and computing devices.

- Of course, some applications and services have been in the **cloud** for some time – web-based e-mail is a prime example. But these services were primarily consumer-facing. Today, enterprises are moving to the cloud as well. In fact, many major public and private sector organizations are in the early stages of transitioning from using their own enterprise data centres to **virtualised computing:** applications and data are stored at off-site data centres rather than on the user's own device or PC, or at an organization's on-site data centre and then delivered to users over the web.

- This shift to distributed computing involves not only software applications. Hardware, operating systems and development tools are also increasingly moving

from the product to service category, with a range of **platform as a service** and **infrastructure as a service** solutions now available.

The new computing landscape

These two market trends – increased hybridisation/interoperability and increased use of software as a service – are converging to fundamentally transform the IT landscape for business and individual users.

In this new world, software users are no longer tethered to the PC or local network. Software applications and operating systems will no longer be tightly coupled together, but instead will be – and in fact are now being – replaced by loose federations of cooperating systems and solutions. Among other things, this means even greater interoperability – one cloud solution working with other software and hardware platforms, applications, or clouds – regardless of provider or business/development model. Data is also becoming more portable, with users able to move their data among SaaS providers and services, as well as across geographic boundaries.

Industry is working hard today to achieve this interoperability and data portability. Efforts include a range of industry collaborations; standards-setting activities aimed at developing relevant technology standards; and solutions that are designed to be interoperable out of the box and that support a variety of standards, protocols, languages and technologies. Zend Technologies' Simple Cloud application programming interface (API) initiative, for example, is an open source project backed by IBM and Microsoft designed to provide an API will allow OSS developers to implement cloud services on multiple cloud platforms. Leading international standards organizations such as ISO, ETSI and W3C are all engaged in developing early-phase open cloud standards, as vendors focus on delivering innovation and interoperability at the same time in this evolving area.

The ability to develop and deploy applications to different platforms regardless of business model also means – as we are seeing already – increased business opportunities for proprietary and OSS developers. As one leading European cloud solutions provider has explained, "the rapid adoption of software as a service creates a huge opportunity for open source software. . . . Online users are willing to pay for service, whether the code is open source or proprietary. A growing set of companies is addressing this market for hosted applications like Asterisk, SugarCRM, vtiger, Drupal and Zimbra. Users pay for not having to install and manage applications, for ensuring updates are installed, and for having applications available 24x7. And, of course, they also pay for support. . . . [F]or the first time open source developers can make money on Internet scale."[1]

[1] DNS Europe, *Bringing Open Source Online*, available at http://www.dnseurope.net/gridhosting/virtual-data-centers/solutions/open-source.htm

Benefits for Europe

The impact of this evolution in computing promises to be profound, extending well beyond enhanced choice and enhanced interoperability.

Disruptive software and hardware technologies offer critical opportunities for new IT sector players to emerge – particularly small and medium-sized enterprises (SMEs). These opportunities are in software innovation, but also in web-based services, infrastructure, IT support and related sectors. Providers like Huddle, Dezineforce, Cognidox, Lokad, TradeFacilitate, Zimory and WAYN are just a few of the many European innovators in the cloud services space today. With IDC anticipating that Europe's cloud market will grow from 971 million euros in 2008 to 6,005 million euros in 2013, there is clearly significant opportunity – and need – for additional providers in this sector.

Beyond the IT sector, by enabling companies large and small to outsource IT, SaaS models promise both cost savings and productivity gains. Organizations can scale their IT capacity up or down without having to invest in new infrastructures or IT support, and at the same time have readier access to new technologies without having to make significant upfront software or hardware investments. The shift away from standard software licenses to new consumption models such as pay-as-you-go and subscription services also facilitates cost efficiencies. These economic benefits – which reduce the cost of market entry – are particularly helpful to start-ups and small businesses. Indeed, one recent study concluded that EU adoption of cloud computing could create hundreds of thousand of new SMEs in Europe.[2]

Equally important, because this new software model is one that transcends national borders – seamlessly enabling data to be created in one market, stored in another, and accessed in a third – it offers Europe the opportunity to make the Digital Internal Market a reality. This transformation is also taking Europe closer to achieving important social objectives, including more efficient delivery of public sector services such as healthcare and education across the EU's 27 Member States.

Europe's digital innovation model

To fully reap the benefits of the new software paradigm will require a new way of thinking about Europe's software innovation model. Old innovation policies, based on simplistic dichotomies – 'OSS' versus 'proprietary' and 'open' versus 'closed' foremost among them – have little relevance in this new world. Moving forward, the software industry believes Europe's digital innovation policy should work toward achieving the following objectives:

[2] Etro, *The Economic Impact of Cloud Computing on Business Creation, Employment and Output in Europe*, available at: http://www.intertic.org/Policy%20Papers/CC.pdf

1. Promote user trust and confidence in the online world

Many in industry – including ENISA's group of experts – agree that SaaS models like the cloud offer important security benefits, including enhanced security controls and greater security expertise. That said, as more users move toward virtualised computing models, and as more data shifts from the desktop or local servers to the cloud, the need for robust, sensible approaches to user security and privacy is enhanced. Users will only embrace new computing models if they have faith that their data, no matter where stored, will be private and secure.

Some of this responsibility falls on industry, which will need to have strong privacy and security practices with regard to the online services they offer, and to communicate those services clearly to consumers so that users can make informed choices. At the same time, policymakers must also focus on how best to secure data and protect users in this new computing paradigm. For example, as ENISA has flagged, the EU should consider whether entities, in addition to electronic communications service providers, should have an obligation to notify their customers of data security breaches. EU guidance to users in assessing the privacy and security protections and practices of SaaS providers could also be helpful.

Of course, while providing a high degree of consumer protection, EU rules must also be flexible enough to allow for innovation. The EU may need to reconsider rules such as those governing the international transfer of data, for example, to ensure that they are adequately up-to-date to facilitate the data flows that new computing models will involve.

Security breach notification obligations should be created for all online entities and the rules which govern the international transfer of data should be reconsidered.

2. Ensure a level playing field, to promote competition and drive innovation among existing and emerging market players

The best way to incentivize innovation is through a competitive and diverse marketplace that allows software developers to offer a broad choice of products to meet consumer needs. This in turn requires that Europe's innovation policies be neutral as to solution, supplier and business model, enabling all innovators to compete on equal ground.

The level playing field must extend to government procurement. To maximize choice, competition, and innovation in the marketplace, government procurement policies and practices should be merit-based and not discriminate among products or vendors based on business, development, or licensing model. In procuring software, hardware and services, the governments' goal should be to acquire the best tools for

the job, based on objective criteria such as performance, security, interoperability, and total cost to users.

One potential obstacle to emerging and existing players alike is the incoherent or fragmented national regulatory regimes in the EU's Member States. Divergent requirements with regard to rules relating to data retention or law enforcement access to data, for example, can hinder the roll-out of pan-EU software services. Together with industry, the EU should consider whether additional harmonisation and clarification may be needed in the relevant regulatory frameworks.

Government procurement policies should be merit-based and non-discriminatory. Additional harmonization and clarity should be created in the relevant regulatory frameworks.

3. Stimulate innovation through IP protection and enhanced VAT compliance

The software industry has relied throughout history on strong intellectual property (IP) protection as the basis for creating sustainable and innovative business models. In fact, all innovative industries, including consumer electronics, automobile, medical, pharmaceutical and biotechnology, rely on IP protection to succeed.

A sensible patent system that allows innovators large and small to protect their inventions is essential in order to ensure start-ups and SMEs can compete effectively against established players. At the same time, the EU should also focus on ensuring that the quality of patents granted in Europe remains high. In addition to a workable system of substantive rights, robust enforcement of IP rights – online as well as offline – is essential to enable innovation.

With the increased availability of SaaS and the growing trend to combine traditional software applications deployed and accessed locally (via PCs and local networks/servers) with 'cloud-based' applications and services, new ways of ensuring license compliance in enterprises are required to protect investments in new applications and services. Aside from traditional copyright protection methods, governments should explore the possibility of incorporating package and service-based software licences in regular corporate VAT compliance checks. By creating VAT audits for business software, enterprises will be compelled to use lawful services and software packages while, at the same time, contributing much needed revenue to government budgets. In Europe government treasuries lose an average of 20 euro cents for each euro of unlicensed software package or services used in enterprises.

The quality of European-granted patents must remain high and robust enforcement of IP rights is essential for innovation. A review of packaged and service-based software licenses should be incorporated into regular corporate VAT compliance checks.

4. Allow innovation to happen bottom-up, rather than be driven top-down

Many of the most exciting innovations in today's software market have come not from major incumbents, but rather from start-ups who have been quick enough and nimble enough to recognise and respond to consumer demand. Europe's innovation framework must be sufficiently flexible to allow these innovators to respond to the market, rather than constraining innovation via mandates, preferences and other similar policies.

Market-led innovation is particularly important with regard to the development and deployment of technology standards. Most of the widely adopted technology standards in existence today have been developed through voluntary, supplier-led efforts, following the direction of the marketplace. In contrast, government mandates in the standards space can freeze the development of new technologies and disadvantage certain market competitors.

The same holds true with regard to the method of development of a standard. As the EU reviews its ICT standardisation framework, it should bear in mind that preferences for particular standards development models – as with preferences for particular technologies – can impede innovation. The EU should continue to allow standards development organizations and industry participants to define the terms and conditions governing standards development, rather than seeking to prescribe these top-down.

Standards development organizations and industry participants should be free to define the terms and conditions which govern standards development.

5. Tackle infrastructure needs and related challenges

Access to and adoption of high capacity broadband is a crucial component in any plan to spur economic growth, particularly in areas of Europe that are currently underserved by broadband technologies. The gap between those consumers and businesses with affordable and effective access to advanced information and those with limited or no access must be eliminated if we are to give all individuals and communities a chance to participate in Europe's digital economy. Bridging this gap requires deployment of fixed and mobile broadband networks, as well as initiatives to encourage consumer adoption of broadband technologies such as programs to increase PC ownership and education.

6. Promote barrier-free trade in IT

The software industry derives a significant portion of its revenues from non-EU markets. For that reason, open, foreign markets governed by enforceable, non-

discriminatory trading rules are essential to the current and future success of the software and IT industries.

To achieve open markets, the EU must remain focused on ensuring that third country governments avoid technology policies that favour domestic industry and/or disadvantage European competitors. Similarly, the EU must also encourage foreign governments to establish transparent, technology-neutral and competitive government acquisition policies that do not discriminate against European goods and services. China's indigenous innovation policies are particularly concerning and should be an initial focus for the EU.

In this regard, Europe must lead by example, embracing rules that are neutral as to provider, technology and business model.

Foreign governments should be dissuaded from technology policies that favor domestic industry, putting European competitors at a disadvantage. Transparent, technology-neutral, and competitive government acquisition policies should be applied by governments in Europe and around the world.