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National Dependability Policy Environments

BELGIUM

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Overview of the Country's Information Infrastructure

Although ICT takes a growing place in daily life, the diffusion of the new information and communication technologies is rather low in Belgium. The number of main telephone lines, mobile telephone subscribers, computers in use, internet hosts and people using the Internet, is lower in Belgium than in most neighbouring countries and is certainly lower than in the United States. B2C e-commerce is small in Belgium both in terms of value of transactions and the number of buyers. The lack of secure web servers does not encourage its development. One of the main reasons for this poor performance of ICT in Belgium is the high access charge: the country has one of the highest charges for the use of residential telephone, digital mobile services and access to Internet¹.

ICT expenditures of the Belgium government currently total 1,498 million EURO². According to EITO, in 2000 and 2001 Belgium showed an on-average IT growth of 10.7 percent and 11.2 percent respectively. Telecommunications spending had a growth of 13.6 percent in 2000 with a further 9.7 percent growth expected for 2001³. In hardware manufacturing, the estimated total market size in 2000 was 2,455 (US\$ Millions)⁴. The IT hardware market continued to grow in real terms at about 5.4 percent per year during 1999 and 2000. Computer hardware continues to be the biggest portion (49.3 percent) of total IT expenditures by Belgian companies, representing \$2.7 billion in 2000⁵.

With regard to software, and in particular the ICT security market, a rapid development has been seen since 1997. It is predicted to sustain growth of between 30 to 35 percent during the years ahead. This growth pertains especially to firewalls, intrusion detection software, Virtual Private Networks (VPN), digital certificates, and Public Key Infrastructure (PKI) market segments. Telecommunications equipment was estimated to have a total market size of 1,571 (US\$ Millions) in 2000. Mobile telecommunications is still the fastest growing segment of all telecommunications services. During 2000, the increase of mobile telephony amounted to 22 percent, totalling \$1.6 billion and representing more than half (52 percent) of fixed telephony. There are currently 3.7 million mobile telephone users in Belgium.

In total, it is estimated that 44 percent of all Belgians currently have access to the Internet, either at home or in the office⁶. Of households, 20 percent have or use an Internet connection at home, compared with an EU average of 18 percent and a much higher average of 46 percent in the Netherlands⁷. Over 47 percent of homes in Belgium have a PC. In 2000, about 1.7 million Belgians were reported to be regular Internet users. By 2003, it is expected that this will increase to one in three⁸.

As far as on line activities are concerned, 22 percent of Belgians perform their banking transactions, 7 percent buy and sell shares, and 11 percent have looked for a new job on the web. Around 70 ISPs offer their services in Belgium and many offer free Internet connections.

¹ Federal Plan Bureau: Benchmark Study Belgium

² Kable Limited, ITA.

³ European Information Technology Outlook, 2001

⁴ This section is taken from Virginie Desodt, : Information Technology Landscape in BELGIUM. December 2001. Available at: <http://www.american.edu/carmel/vd2394a/Belgium.htm> (visited on 21 March 2002)

⁵ Heliview

⁶ Virginie Desodt: Information Technology Landscape in BELGIUM

⁷ EITO 2001: 419

⁸ Research conducted by InSites (May 2000), available at www.insites.be

Percentages of private Internet use in Belgium are predicted to increase from 8.6 percent in February 2001 to 30 percent in 2003. At the end of 2000, 140,000 applications for “.be” address were registered and 41,509 addresses had been declared⁹. A critical factor with user’s statistics is that high telecommunications costs and a dearth of local information and services mean that half of Belgians with Internet access do not go online regularly. Furthermore, according to the latest Belgian Internet Mapping study from InSites, one in three Belgians with access never use it¹⁰.

Belgium is also experimenting in increase in electronic e-commerce transactions. The total e-commerce market in Belgium in 1999 was worth \$186 million and is expected to grow to \$13.8 billion by 2004. This growth will predominantly come from Internet-savvy SMEs. The SME sector in Belgium represents 73 percent of the country's total employment and 66 percent of the country's turnover. At the beginning of 2000, some 81 percent of the small and 84 percent of the mid-sized companies in Belgium were connected to the Internet¹¹.

According to a recent study by Insites (the Belgian Internet market research bureau), during 2000, some 730,000 Belgians made a purchase via Internet, which represents 36 percent of the regular surfers. This shows an increase of 59 percent from 1999 when Belgium counted 460,000 e-shoppers. Online shoppers spent \$445 million in one year, a very small fraction of the normal business channels. However, this does mean that the online turnover has increased by 40 percent in half a year. Travel (\$111 million), financial services (\$80 million), and computer hardware and software (\$67 and \$49 million) are popular online purchases. Together they make up 70 percent of the online sales. In all, 3.5 million orders were placed via the Internet, including 1.5 million books and CDs. Insites expects that by the end of 2001, the cap of 1 million online buyers will be surpassed.

Another example. In 1994, the five largest Belgian banks established Isabel, a B2B electronic banking network that is now the largest certification authority in Belgium. One of the first B2B electronic market places in Europe, Isabel connects about thirty banks (including 15 foreign institutions) with more than 45,000 client companies through one multi-bank interface. The Isabel certificate, combined with RSA and Smart Card technology, is one of the most secure systems in the world for B2B e-commerce transactions¹².

The number of secure web servers is a key indicator of the necessary infrastructure for the development of e-commerce. Since 1997, the number of secure servers has increased in all OECD countries. In Belgium, the number of secure servers per 1 million inhabitants raised from 2.1 in September 1997 to 23.6 in March 2000. But this was still lower than the number in Germany (34.5), the Netherlands (29.4), the average of the European Union (29.16) and the United States (170.4)¹³.

From 1998 to 1999, Business to Consumer e-commerce sales experienced an extremely high growth rate in the EU member countries. Belgium, for instance, reached a growth rate of 420 percent. 11 percent of Belgian Internet users use their technology to do business (B2C), although this is less than those in the Netherlands and Germany (both 13 percent). The main difference this indicator highlights, however, is that between the European and American attitudes towards B2C e-commerce: Whereas in the United

⁹ Virginie Desodt: Information Technology Landscape in BELGIUM.

¹⁰ “High Costs Deter Belgian Users”, InSites (www.insides.be), May 29 2000

¹¹ Virginie Desodt: Information Technology Landscape in BELGIUM. December 2001.

¹² Virginie Desodt: Information Technology Landscape in BELGIUM. December 2001.

¹³ OECD (2000), Local access pricing and e-commerce

States almost 40 percent of the Internet users purchase over the Internet, this figure is only about 11 percent in the EU area¹⁴.

The Internet sales volume of Belgian business lags well behind that of its neighbouring countries. In 1999, less than 2 percent of business sales took place over the Internet in Belgium, compared with 3 percent in the Netherlands and 2.31 percent in Germany. The Bathwick Group (1999) expects that the Belgian position will get even worse. In 2001, Belgian business is expected to have sold 4.47 percent over the Internet, less than France (4.67), Germany (5.42) and the Netherlands (6.95).

Main ICT Regulatory and Legal Developments¹⁵

Prior to 1997, the Federal State's policy concerning Information Society was conducted in the framework of support programs for the diffusion of telecommunications and multimedia. In May 1997, the Federal State started an umbrella policy with its Federal Action plan for the Information Society. In 1999, the new Federal Government announced several new structuring projects for the development of the Information Society and presented its position concerning "Belgium in eEurope".

There were also several other initiatives. In 1999 for example Prime Minister Guy Verhofstadt presented his Declaration of Federal Policy in which he insisted on the necessity of modernising public administration through the use of ICT and electronic services.¹⁶

A National Consultative Committee was created in 2000, with the task to propose legal, technical and organisational solutions that should help to remove obstacles to Information Society development within the next 2 years. Particular attention was paid to the modernisation and accessibility of the public sector and the development of electronic government (electronic signature and public key infrastructures, PKI, electronic identity card, national registry, privacy, security, electronic public services etc.).¹⁷

Also in the field of public administration, a project was approved in 2000 extending the use of the provisional electronic signature system for social security so that declarations and communications with social security system can be signed electronically. Yet another initiative is the implementation of a number of projects concerning the application of ICT in the Justice System. The "e-justice" project will consist in launching pilot projects in Hasselt and Charlerol, providing judges and lawyers with ICT based tools such as videoconferencing and form digitisation.¹⁸

Traditionally, however, actions and initiatives concerned with the transition to the Information Society have been mainly undertaken at the regional and community level.

¹⁴ OCED 2000, [E-commerce: Impact and policy changes](#)

¹⁵ The following is a short version of: GBDE e-government: Belgium. Available at: <http://www.gbde.org/egovernment/database/belgium.html> (visited on 21 March 2002)

¹⁶ <http://premier.fgov.be> (visited on 21 March 2002)

¹⁷ http://www.mazfp.fgov.be/fr/modernisation/belgique/public/commission_socinfo/intro.htm. (visited on 21 March 2002)

¹⁸ <http://www.just.fgov.be/> (visited on 21 March 2002)

1.1.1 Flanders Government initiatives

Prior to its installation mid 2000, the new Government of Flanders drew up a global coalition agreement presenting the policy priorities for the period 1999-2004.¹⁹ The first line of action set out was the integration of ICT in public administration, in order to create customer-orientated services. Further provision of computers in education, to avoid ICT illiteracy, was also highlighted, as was the need to increase the finance available for technological research. The fourth priority was to strengthen Flemish scientific and technological potential and develop the content of the Flemish Innovation policy in the context of the Innovation Act.

An integrated innovation policy will encompass a focus on development, the distribution and use of new technologies, particularly for SMEs, and the combination of non-technological knowledge and technology. In this respect, the autonomous nature of the Institute for the Promotion of Innovation by Science and Technology in Flanders (IWT) will be reinforced as well as its support for SMEs.

Moreover, the Government has announced the introduction of a Digital Action Plan, which will significantly strengthen the position of Flanders in the digital economy. The digital action plan will have five main objectives: to stimulate the use of ICT in industry through easier access to ICT; to overcome the bandwidth problem of information networks and ensure suitable peripheral conditions, so that investments in the knowledge-based infrastructure will become more attractive; to encourage new developments in the field of ICT, and the integration of these new developments in Flemish industry; to make one quarter of all government services accessible via the Internet by 2002; and to establish a code of conduct for electronic commerce and Internet business within one year.

1.1.2 Walloon Government

The development of ICT and the creation of an "Integrated Knowledge Society" are one of the four key priorities defined by the Walloon Government in the "Contract for a future for Wallonia", adopted in 1999. During the contract's first phase, twenty measures are planned which include measures for the development of the Information Society. Among them are support for the creation of business networks using ICT and fibre optic networks and support for e-business and e-commerce; the creation of an Internet one-stop shop (Portal) allowing citizens to access information and services offered by all Wallonian ministries; the integration of ICT with R&D policy including specific support measures; and the development of new technologies in environmental fields.

Further measures include establishing the Cyberecoles network and achieving the goals of the schools equipment plan; awareness raising and dissemination of ICT amongst the general public, with the view to democratising access and ensuring a high level of service quality; the creation of an inter-universities Intranet and the economic development of the Win network (www.win.be). Finally, the development of the Information Society at the local level, in particular in municipalities, has been highlighted.

With regard to this latter measure, the Minister for the Public office released a budget for municipalities to enable them to develop a citizen-oriented Internet site - the objective being that all the Walloon municipalities have their own site by 30 November 2001. In order to accompany the communes in this

¹⁹ <http://www.flanders.be/public/authority/government/policy/index.asp> (visited on 21 March 2002)

step, a guide of a hundred pages was developed by the Walloon Region. It details the procedures to be followed to conclude the tasks relating to the creation and the exploitation of an Internet site.²⁰

1.1.3 e-commerce

Belgian financial service companies have been innovators in Europe in the on-line trading of securities. Keytrade²¹ has been offering on-line trading since 1998. Belgium has also been in the forefront of the development of electronic banking. It was one of the first countries in Europe to introduce electronic funds transfer at point of sale (EFTPOS) through the use of debit cards and has pioneered the use of electronic purses. It is the only European country where these are widely used and will be the first (with the Netherlands) to run trials of electronic purses that can be used across borders. At present, these purses can be loaded with EUROS, but cannot be used outside Belgium.

On-line banking, including the use of automated teller machines for paying utility or other bills, is well developed in Belgium. Supermarket chain *Delhaize* has introduced on-line shopping (though payment has to be by cash-on-delivery) as well as the self-scanning of purchases in supermarkets. Remote reading of electricity metres by customers was introduced by the dominant electricity producer, *Electrabel*, in April 2000. The government announced in early-2000 that it plans to create a single portal with access to government sites and a one-stop-electronic-shop for transactions involving the government sector. This will be limited to providing information until legislation on electronic signatures is passed.²²

Assessment of Phenomena Undermining Dependability

In general, about three fourths of Belgian companies have implemented some form of security measure. The most popular form is anti-virus software with 97 percent market penetration and the second is firewalls with 67 percent. The applications of more complex PKI or VPN solutions are less popular and the market penetration is less than 10 percent.²³

The financial sector in Belgium was one of the earliest adopters of ICTSEC systems, resulting in numerous local initiatives for the banking sector. Banksys is the primary example in the field of secured payment products and services in the Belgian market. The use of electronic payment in Belgium is very popular. The Banksys network, BANKNET, connects every ATM and point-of-terminal in Belgium with the operational service at Banksys.

Banknet has converted all networks to Internet protocol and has the lowest number of fraud-cases in the world. Banksys guarantees its clients a high level of safety in each stage of the electronic payment, from the entry of the PIN-code until the transaction data is saved. The company has also developed the first JAVA-based terminal, the C-ZAM/SMASH. Banksys plays an important role in the discussions of international standards in cash card-technologies, such as EMV and CEPS. In 2000, Banksys launched Banxafe™, a solution that guarantees secure e-commerce and allows payment with Proton (an electronic purse smart card, cash card, or credit card that uses the bank's secret code).

²⁰ <http://www.awt.be/cgi/fr/vad/vademenu.asp> (visited on 21 March 2002)

²¹ www.keytrade.be (visited on 21 March 2002)

²² Andrew Rathmell & Kevin O'Brien. *Information Operations - An International Perspective - Special Report*. Jane's Information Group, December 2000

²³ Virginie Desodt: *Information Technology Landscape in BELGIUM*. December 2001. Available at: <http://www.american.edu/carmel/vd2394a/Belgium.htm>

The Belgian market has been chosen by PSINet to launch a European pilot project for its e-scan Managed Security Services, a distributed total solution for outsourcing of e-mail security. PSINet is providing a centralised super-filter, in which the electronic mail is analysed, filtered, treated, and subsequently forwarded or not forwarded to the addressee. The service e-scan is part of their “Smart Global Office” offering that also includes VPNs. Within 3 years, PSINet hopes for 1500 e-scan clients in Europe or 200,000 users (300 clients in Belgium). The e-scan service was developed in cooperation with Activis, the European Managed Security Services specialist.

Government Initiatives Aimed at Tackling Cyber-security

In response to the ‘I love you’ virus at the beginning of May 2000, Minister Daems of Telecommunications set up a virus-reporting centre in cooperation with the business community. The idea behind this reporting centre is to track down serious viruses in time and to make the broad public aware of them. This virus-reporting centre is housed at the Belgian Institute for Postal Service and Telecommunications (BIPT), the Belgian regulatory authority for the postal services and telecommunications. It is intended to act as a filter for the flood of virus reports. This makes it possible to distinguish between bogus reports and serious threats. About 30 specialists at the BIPT check out the virus reports and rate them. In February that year, the virus-reporting centre made use of the traffic information slot on the radio to warn Internet users about the Anna Kournikova virus.²⁴

In addition, on May 1999, the Belgian government and the Belgian ISPs, represented by their association ISPA Belgium, signed a co-operation protocol in order to combat illegal acts on the Internet. The Belgian ISPs have adopted a code of conduct stipulating that they will co-operate with the Belgian government in the fight against illegal information. The criminal offences specifically mentioned are child pornography, racism, and gambling.

A Belgian law related to computer crime was published in February 2001. In this law, offences against the confidentiality, integrity and availability of IT systems and data that is stored, processed or transferred through them is defined as criminal. Specific criminal offences were consequently added to the penal code to protect Internet users from misuse of information. This also implies new obligations for telecommunication networks and operators.

Another important issue for safe and regulated Internet transactions concerns digital signatures, necessary for securing the confidentiality of information transferred through the Internet. The Belgian law on Electronic Signatures was published on 22 December 2000, to become effective in September 2001. A White Paper has also been published, which reviews current legislation and covers the recognition of digital signatures.²⁵

Public-Private Partnerships

At the end of 2000, the Belgian government announced its e-government plan. This plan entails the development of a central government digital platform to which national, regional, provincial, and local

²⁴ Internet vulnerability. <http://www.minvenw.nl/dgtp/home/docs/intvul.pdf>. see also Virginie Desodt: Information Technology Landscape in BELGIUM. December 2001. Available at: <http://www.american.edu/carmel/vd2394a/Belgium.htm>

²⁵ Other data for digital Signatures taken from the Digital Signature Survey, available at: <http://rechten.kub.nl/simone/ds-lawsu.htm> (visited on 21 March 2002)

administrations will be seamlessly connected. In addition to the new platform, the back office and front office will be reorganised, including the introduction of a portal site and PKI functionality that offers unique personal services to citizens in the front office. This BelPKI-project mainly covers the creation and certification of a Belgian e-ID card.

The development of e-government is based on a public-private partnership, and companies will be invited to participate in a vast consultation. According to a press article, the Belgian Post Group, formerly the Belgian Postal Service, is being considered as a possible manager of the portal site. The BPG has currently set up four subsidiaries, two of which are involved in e-services and e-business solutions. However, another prospective manager is Intrasoft International, a Greek-Belgian IT company.²⁶

Another example of PPP is the MM Fund. This programme was launched by the Flemish government in 1997-98 in order to stimulate the private sector to produce multimedia services for the general public, using information from the government which is useful for the general public. It had a budget of BEF 50 million for the year 1998-99.

PC/KD, launched by the Flemish government, is a programme that aims to equip every school with PCs, Internet connection and related software. The target for 2001 was one PC for every ten students. PC/KD's budget for 1998-2001 was estimated at BEF 2.6 billion. Good conditions have been obtained through special agreements with equipment and software manufacturers, but every school is free to choose its supplier. Complementary programmes from the telecommunication operators Belgacom (I-line project) and Telenet (Pandora) supply the schools with Internet connections at favourable rates - BEF 20,000 a year.

Research and Development

Although Belgium is not actively involved in discussions concerning the global information society, the high level of research and development conducted by independent organisations - private research and at universities - ensures that Belgian expertise plays a useful overall role.²⁷ The Belgian IWT (Institute for the Promotion of Scientific/Technical Research in Industry) has been particularly active in the EC innovation programme, as well as playing an important role in EU Research and Development programmes, most notably the European Union ICT Framework programme and EUREKA.²⁸ Half of IWT's budget is devoted to R&D in ICT, including telecommunications, software and microelectronics. Different formulas exist. One encourages the introduction of R&D projects irrespective of their subject, in other words, a bottom-up approach. Selection is based on general R&D quality. The EUREKA project, Tessi and Media belong to this category. Another is more top-down, with the government fixing a number of strategic themes for industrial R&D projects. The main topics in this approach include multimedia and communication (for example the ITA programme II, with a budget of roughly BEF 1 billion), non-technological aspects of IT (such as Medialab with BEF 134 million), language and speech processing (the Corpus project in co-operation with the Netherlands has BEF 200 million), and microelectronics and embedded software, both of which are part of the EUREKA programme.²⁹

²⁶ Virginie Desodt: Information Technology Landscape in BELGIUM. December 2001. Available at: <http://www.american.edu/carmel/vd2394a/Belgium.htm>

²⁷ OECD, *Information Technology Outlook 2000*, available at <http://www.oecd.org> (visited on 21 March 2002)

²⁸ Andrew Rathmell & Kevin O'Brien: *Information Operations - An International Perspective - Special Report*.

²⁹ OECD: IT policy Belgium. <http://www.oecd.org/oecd/pages/home/displaygeneral/0,3380,EN-documents-13-nodirectorate-no-3-no-13,FF.html> (visited on 21 March 2002)

Notwithstanding these activities, Belgium seems to have devised a strong expertise concerning the legal and socio-political implications of information and network security and dependability. The close location of the country's academic institutions to the EU institutions has clearly facilitated this trend. In particular, the Interdisciplinary Centre for Law and Information Technology (ICRI) of the Catholic University of Louvain is extremely active in this domain. Over the years, ICRI has led several projects sponsored by telecommunication and information service providers, the Belgian government and the European Commission. In particular, ICRI has been involved in initiatives concerning legal aspects of digital signatures, Belgian approaches to cybercrime, telecommunication convergence and its privacy and security implication.