BANCA D'ITALIA
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Institutional Issues

Progress in the diffusion of information and communications technology within the payment system

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CONTENTS

Introduction

This report comes two years after its predecessor, "Innovation in electronic payments: advances and lags in the spread of information and communications technology". That report provided an initial overview of the demand for new technology in the different sectors of the economy (firms, households, public administration).[1]

The findings of that study were discussed at a conference at the Bank of Italy in January 2004 by representatives of public institutions, businesses and business associations. There was broad agreement on the report's analysis of trends and on the legal and regulatory, technological and organizational impediments to the diffusion of e-payment and e-commerce services. In particular there was consensus on the need to set guidelines and make strategic choices to facilitate access to online services and effective linkage between the various players in order to achieve – with due regard to the particular needs of all – scale, scope and network economies at the national system level. The first of a number of working groups formed on the theme was at the National Economic and Labour Council (CNEL). With the participation of academics and banking and business representatives the group dealt with the issues of developing electronic payments, the operation of company treasuries and accounting processes. It launched institutional cooperation to develop shared rules for broader use and diffusion of electronic documents in Italy.[2] The involvement of payment service users was essential in the framework of the project for the Single Euro Payments Area (SEPA). Here the discussion capitalized on the availability of Italian collection and payment services and made a major contribution to the European discussion between banks and firms.

This is the backdrop to the new surveys on the diffusion of information and communications technology (ICT). The surveys gauge the progress made, the obstacles overcome, and the remaining resistance to online operation and seek to adapt the guidelines for fostering the greatest possible diffusion of the new technologies within the payment system.

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[1] Available as "Le innovazioni nel sistema dei pagamenti elettronici: luci e ombre nella diffusione delle tecnologie dell'informazione e della comunicazione" at www.bancaditalia.it/Sistema dei pagamenti - Sorveglianza sul sistema dei pagamenti//Altre pubblicazioni.

[2] The results are available in CNEL, "La dematerializzazione dei documenti nelle attività di amministrazione, finanza e controllo", 28 April 2005.

1 Summary

Surveys on the diffusion and use of ICT by Italian households, firms and government at the start of the decade found an unsatisfactory situation. Recent surveys have shown unquestionable progress in the diffusion of ICT, which is now present in virtually all businesses with modest differences by size and geographical location and, among households, by age and income.

For firms, the importance of the Internet for the exchange of information and data is an accomplished fact. But there is more halting awareness that online procedures can cut costs and shorten execution times for commercial transactions. The difficulties for the diffusion of online transactions depend on the persistent perception of many risks, such as fraud, uncertainty as to the identity of counterparties, and poor network security, despite major advances in technology, especially with new online banking products and services.

For government, the obstacles to the increased used of ICT consist in persistent regulatory and organizational impediments, inadequate financial resources, and lack of trained personnel. Plans now being implemented are nevertheless beginning to produce positive effects both vis-à-vis users and, though more gradually, within the public administration.

The data on manufacturing and service firms show that 98 per cent of firms have Internet access, and almost two-thirds of respondents (and a higher proportion of manufacturers) have websites. The broad availability of information technology has not, however, led to its widespread use in the workplace, especially in traditional sectors.

Firms use their websites primarily to present and describe products and services, while e-commerce remains relatively uncommon; the share of sales and purchases effected online is very low, though here too substantial progress has been made. The clear preponderance of online purchases over sales is confirmed. Geographically, no significant differences were found, except for the relative backwardness of manufacturing firms in the South.

In the banking system, use of online information services remains widespread (checking account balances, outcomes of collection orders, etc.). Nearly two-thirds of all firms use the Internet to effect payments and collections via banks. The progress in this area has been notable, although there is still ample room for increasing the use of services complementary to payments and integrating the financial and administrative aspects of transactions. Significant steps have been taken in this segment in electronic invoicing, which is now used by nearly a third of all firms and by higher proportions of larger firms. Especially among larger firms, e-invoices received substantially outnumber those issued.

The hypothesis that e-invoicing is an indicator of high-quality firms within the sample proved to be correct. The sample firms that use e-invoicing appear to have greater propensity for the new online technologies than the average, both in online financial transactions and in e-commerce or booking.

Among the reasons why firms decide to initiate online activities, the survey notes the acquisition of new customers, reduction of marketing costs, and above all better company efficiency. Among the obstacles, it found the characteristic of the goods traded online, the difficulty of verifying the customer's identity and trustworthiness, and the uncertainty over the rules that apply to online transactions.

The panel of service firms surveyed both in 2002 and in 2005 showed an increase in the use of online commercial services and a broader range of more advanced services, but no significant increase in the more mature services such as e-banking. These findings offer confirmation for the conclusion of the 2002 survey, namely that once the technological leap has been made the diffusion of online services and the tendency to use the Internet in the entire production cycle is a natural next step, regardless of firm size, sector or location.

Although due caution must be exercised in comparing the two surveys, it can be said that firms' difficulty in translating online operations into gains in efficiency depends on such factors as: business volume too small to produce an adequate return in terms of sales or savings on supplies, the need to maintain traditional sales channels in any case, and insufficient networking economies because of the still small number of intermediaries operating online.

In government, the use of ICT to improve procedures and work methods as well as public services has scored significant advances. Important objectives have been attained in the use of networks to simplify relations between citizens, firms and the public administration (tax returns, customs statements, official forms, acquisition of information, and so on), but the road ahead is still long. In particular, enormous benefits could derive from the use of ICT for payments to and from government, especially local authorities.

The introduction of electronic data flows between governments and bank treasurers, the electronic local payment order, and the extension of the supply of online services are factors spurring the diffusion of ICT among households and firms as well. Moreover, a stronger effort to spread ICT in local government in the South of Italy would reduce the geographical gap in the quality of online services.

2 Industrial firms

This section examines the findings of a 2005 survey by the Bank of Italy on ICT use by industrial firms. The results are supplemented by information on the same topic drawn from Istat surveys, to provide a fuller assessment of the diffusion of the new technology in industry and its development between 2002 and 2004, with some results also for 2005.

2.1 Technological endowment

2.1.1. All the industrial firms with 20 or more workers surveyed by the Bank of Italy have a computer; the number of computers averaged 44 per cent of the number of workers in 2003 (the last year for which this data is available), up from 39 per cent in the previous survey. The ratio remained higher in the Centre and in the North (49 and 44 per cent respectively) than in the South (31 percent). By size, the increase was sharpest in the larger firms (over 500 workers), where computer incidence rose from 43 per cent of staff in 2002 to 54 per cent in 2003.

2.1.2 Increased use of computers between 2002 and 2005 was also found by Istat's sample survey of industrial and service firms with more than 10 workers, a much lower threshold than the Bank of Italy poll. In 2005, 95.6 per cent of firms had at least one computer (93.9 per cent in 2002); for firms with 100 or more workers, the figure was above 99 per cent. The increase was almost exclusively among the smallest firms (with a rise from 93.2 to 95.4 per cent), as the coverage of the larger ones is now almost universal.

However, the greater availability of IT tools does not seem to have produced their common application in the workplace. In 2005 only 38.4 per cent of workers used a computer as often as once a week, down from 41.8 per cent in 2002. This indicator is fairly uniform across size classes, but there is significant sectoral stratification; it is especially low in the South (25.3 per cent).

Network use, according to the Istat survey, was very widespread already in 2004, having jumped to 95.9 per cent of firms with IT and virtually 100 per cent of the larger firms, from 77.5 per cent in 2002. Nor are there significant differences by firm size or location, which confirms the thesis that once the cost of acquiring IT equipment has been sustained, the network becomes an everyday work tool.[3]

The proportion of firms with a website rose to 56.4 per cent in 2005, compared with 47.3 per cent in 2002. Common to all size classes, the increase was sharpest in the North, where the incidence is now over 60 per cent. Websites appear to be closely correlated with firm size, ranging from 53.2 per cent among firms with fewer than 50 workers to 88.2 per cent among those with 250 or more. There are also significant sectorial differences: those farthest above the average (with figures of over 80 per cent) are chemicals and

[3] E-mail has gained additional momentum over the past three years and now appears to be by far the main instrument for businesses. In 2005, 92.9 per cent of firms with IT used e-mail, up from 75.0 per cent three years earlier. The rate rises to 94.4 per cent in the North-West and to virtually 100 per cent for firms with at least 250 workers.

hotels. In construction, only a third of firms have websites, though here too growth has been rapid.

The proportion of firms with an intranet held basically stable over the three years at 31.6 per cent; for firms with 250 or more workers, the incidence is 83.5 per cent.

2.2 Online activities

2.2.1 The Istat survey reveals the low level of online activity by industrial firms. The company websites tend to be used mainly for purposes of advertising or for the marketing of products and services (95.3 per cent of the firms that have a site) and, to a lesser extent, to facilitate access to catalogues, product and price lists (41.6 per cent). By contrast, the Internet connection for access to banking and financial services is an established instrument (used by 77.9 per cent of the firms with an Internet link); it is more common among middle-sized than among large firms.

More than 31 per cent of the industrial firms surveyed by the Bank of Italy in 2004 used electronic invoicing. The pattern is relatively uniform over the country and is closely correlated with firm size, rising from 30.1 per cent of firms with fewer than 50 workers to 48.9 per cent of those with more than 250. The portion of sales that the respondent firms invoiced electronically was 32.2 per cent; there was greater variation in this item geographically (from 22.8 per cent in the South to 39.2 per cent in the Centre) and according to firm size (from 21.6 per cent of firms with 100 to 249 workers to 46.8 per cent of those with 250 or more).

2.2.2 The Istat survey found that industrial firms mainly used the Internet to publicize their products (95.6 per cent), to get information (65.8 per cent), and to allow consultation of their catalogues (40.1 per cent). It was also fundamental for relations with government (78.8 per cent). More and more firms are taking advantage of the increasingly broad range of public services available online, the most important being the possibility of downloading forms (68.7 per cent) and getting information (71.1 per cent). The pattern of use of these services is quite uniform throughout the country. There is still only limited use of the Internet to carry out administrative procedures by entirely electronic means (21.4 per cent).

Online use of banking services is also common, involving 78.2 per cent of the industrial firms surveyed, and over 85 per cent in some sectors marked by the presence of large companies.

2.3 Electronic commerce

2.3.1 The Bank of Italy survey found an increase in the share of industrial firms that effected online purchases and sales from 12.9 per cent in 2002 to 16.1 per cent in 2004. The increase in e-commerce came mainly among smaller firms and those in the South, completely closing the geographical gap and greatly narrowing the size gap that had been registered in 2002. In 2004 the smallest firms, traditionally little involved in electronic channels for sales and purchasing, actually had an e-commerce incidence higher than the average at 16.6 per cent (up from 11.3 per cent). At the same time the largest firms were less active than before (a decline from 22.2 to 20.4 per cent for firms with 200 to

499 workers and from 28.6 to 23.4 per cent for those with 500 or more). Southern firms engaging in e-commerce had been few in 2002 (8.2 per cent), but by 2004 the share had nearly doubled and was just 0.5 percentage points below the average.

By sector, online sales and purchasing were most frequent in 2002 in mechanical engineering; in 2004 the highest rates were turned in by chemicals, rubber and plastic, and other manufacturing industries; the limited use of this instrument by firms in textiles and footwear was confirmed.

The share of total payments settled online and of online purchases is in any case modest, and actually declined from 14.4 per cent in 2002 to 12.0 per cent in 2004. Even among firms with high potential for this kind of operation the incidence of e-commerce was still very low.

2.3.2 Istat found an increase in the share of industrial firms engaging in e-commerce over the three years from 2002 through 2004. Firms reporting having made online purchases in 2004 were 18.2 per cent of respondents. The share of active firms engaging in some e-purchasing activity nearly doubled in the three years, but online purchases as a percentage of the total value of purchasing fell to 1.2 per cent.

Firms effecting online sales accounted for just 2.3 per cent of the total in 2004, and by value such sales remained very modest at 2.2 per cent of total sales.

In assessing the possible benefits of online sales, 57.2 per cent of the respondent firms found that the possibility of winning new customers was very important, and almost half cited as the greatest advantages better service quality and the possibility of expanding their potential market geographically. The main benefit of online purchasing, according to three quarters of the firms, was speed, 62.7 per cent noted as a significant benefit the possibility of contacting a larger number of suppliers, and 51.5 per cent reported having obtained price reductions.

2.4 Banking services online

2.4.1 In 2004, 77.5 per cent of industrial firms with more than 20 workers used the Internet for collection and payment operations; for the largest firms, the percentage rises to 84 per cent. The use of online banking services is still uneven geographically, with a difference of nearly 20 percentage points between the North-West (82.4 per cent) and the Centre and South (64.7 per cent).

The survey also found very widespread interbank corporate banking, which was used by 69.3 per cent of the respondents in 2004 in connection with online payments and collections. The rate of use of this payment instrument ranged from 75.5 per cent of the firms located in the North-West to 56.8 per cent in the South. No significant size or sectorial differences were found.

2.4.2 Collection and payment services and information on current accounts are used more actively by the firms covered in the Istat survey, with incidence respectively of 64.4 and 76.1 per cent, up sharply between 2002 and 2004. Geographically, there are significant differences in the use of online banking services between the South and the rest of the country.

3 Service firms

The Bank of Italy conducted a new survey in 2005 on the presence and use of ICT by firms in the service sector. The sample numbered 3,807 companies with turnover above €2.5 million. Like the previous one in 2003, the survey excluded firms in monetary and financial intermediation, government, education and health, and social services. More than 1,900 firms were present in both samples, with broadly uniform distribution among the various sample strata.

The response rate was lower than in 2003 both in absolute terms (4,205 firms had been interviewed in 2003) and as a percentage of all firms (10 per cent, down from 13 per cent).[4]

The questionnaire was modified on the basis of the experience gained with the previous survey, with greater space given over to online invoicing, which is one of the activities from which companies expected the greatest benefits in terms of corporate efficiency and operating and administrative cost savings. The questions modified were those on the reasons why firms operate online, the factors that they perceive as impediments to the use of the new technologies, and the benefits attained thanks to online activities.

The results for the main question areas are given below. Again, they are compared with the findings of the Istat survey for the same sector.

3.1 Technological endowment

3.1.1 Personal computers are now present practically universally. In the service sector the ratio between computer workstations and staff rose from 56 per cent in 2003 to 62 per cent in 2005 nationwide, gains being made in all parts of the country and all types of activity. As in the 2003 survey, there was a positive correlation between the ratio and the firm's sales volume.

Internet links also increased and are now found in virtually all firms (98 per cent), with no appreciable geographical, sectorial or size differences. The share of firms with intranets also rose (from 38 to 45 per cent), while that linked to an extranet remained relatively unchanged (11 per cent in 2004 as against 13 per cent in 2002).

The survey found that 65 per cent of the firms had a website, 8 points more than in 2003 (Figure aB1). The importance of firm size as a factor in this decision diminished: 62 per cent of the firms with less than €5 million in sales had sites, compared with 49 per cent in 2002

As for security issues, about a quarter of the respondent firms had adopted techniques to protect the confidentiality of data, while nearly 30 per cent used electronic signatures to certify the identity of their counterparties. The presence of security measures is correlated significantly with firm size, presumably because of the high incidence of fixed

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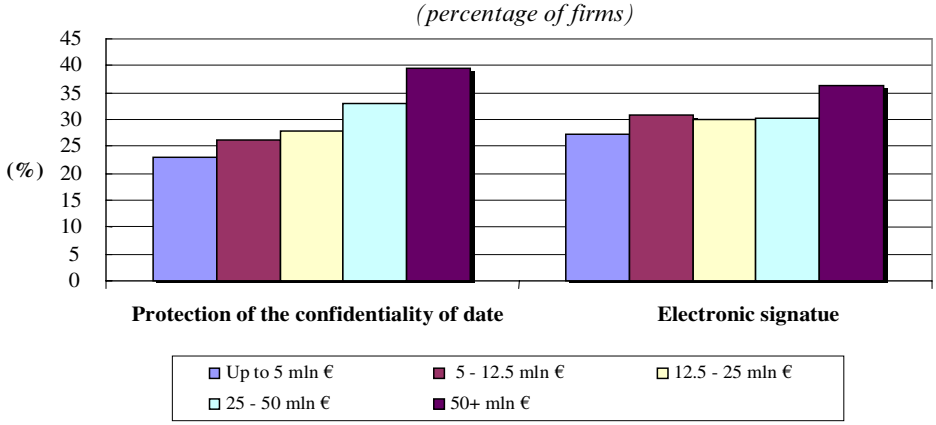
[4] The reduction in sample size was due to the decision not to repeat telephone pre-screening, which had kept the number of non-responses in the previous survey to a minimum. The screening consisted in a highly simplified interview aimed at getting preliminary information on the company's activities online to help in designing the survey questionnaire. This costly activity had resulted in more precise advance identification of the firms willing to participate in the survey itself.

costs. Firms with sales of more than €50 million were twice as likely to have security systems as those with sales between €2.5 million and €5 million. Similarly, firms in the information technology and R&D sector were appreciably better endowed than the average with such safeguards (Figure 1).

Figure 1

Technological endowment: network security measures

(percentage of firms)



Geographically, the regions of the Centre recouped the slight lag with respect to the North observed in the previous survey in endowment of the technology needed to operate online. The gap between the South and the rest of the country remained very wide at 10 percentage points (57 as against 67 per cent). Increments were broadly similar across sectors of economic activity, save in IT and R&D, where given the very high starting point the rise was more modest, from 86 to 89 per cent.

3.1.2. Istat's survey of the diffusion of ICT in service sector firms confirms that the simplest technologies, including Internet links, are found in all firms. The share of workers using computers is 44.2 per cent, and it should be recalled that the Istat sample covers firms with as few as 10 workers. Websites were present at 57.7 per cent of the firms, and 94.4 per cent of hotels. The expansion in the use of broad band technology by service firms has been appreciable, while the slowness of the South is confirmed.

Box 1

Results of Istat's survey on ICT use in financial intermediation enterprises [1]

In January 2006 Istat released the results of its survey on the use of ICT by firms with at least 10 workers in banking, finance and insurance in the years 2004 and 2005. The study confirms the virtually universal presence of this technology. In 2005, 99.4 per cent of financial intermediation enterprises had at least one personal computer (among insurance companies, firms with 50 or more workers and those located in the South, the figure was 100 per cent), 99.2 per cent had Internet links, 86.7 per cent had intranet and 99.1 per cent had e-mail. More than 69 per cent of firms with computers had web sites, with peaks in insurance (94.9 per cent), in banking (85.1 per cent), and among firms with 50 or more workers (91 per cent).

[1] Istat, *Statistiche in breve,* "L'uso delle tecnologie dell'informazione e della comunicazione nelle imprese di intermediazione finanziaria, Anni 2004 e 2005" (18 January 2006).

The new technologies are broadly used, with 98.4 per cent of all workers in the sector (and 99.1 per cent in banking) using a computer at least once a week, of which 66.6 per cent are linked to Internet (78.6 per cent for firms with 50 to 99 workers and 69.9 per cent for those located in the Centre).[2]

As to the activities performed online, 88.3 per cent of firms having websites use the web to publicize their products (99 per cent of those with 250 or more workers and 95.6 per cent of insurance companies); 86.4 per cent of the financial intermediation firms connected to the Internet use the web for access to online government services, and specifically to get information (83 per cent) or download forms (76.6 per cent) or to transmit filled-out forms (45.9 per cent).

Firms with ICT generally interact with their customers online (84 per cent; in credit, 95 per cent), 67.3 per cent via networks other than the Internet and 66.3 per cent via the Internet. The Internet channel is preferred by insurance and credit firms (85.5 and 69.5 per cent respectively), by large firms (91.7 per cent as against 57 per cent of small firms) and by those located in the South (78.9 per cent, as against 56.2 per cent in the North).

[2] The findings underscore the very substantial differences from Istat's surveys of ICT use in firms of the same size in other sectors (manufacturing, construction, retail and wholesale trade, hotels, transport, post and telecommunications, business services and audiovisual) in 2004-2005. Only 38.4 per cent of all workers in these sectors used a computer at least once a week, 24.8 per cent of them with Internet links. The gap in possession of Internet connection technology was less pronounced (95.9 per cent of the firms surveyed had it), as was that relating to websites (56.4 per cent); 31.6 per cent had Extranet links.

3.2 Online activities

3.2.1 The Bank of Italy survey found that the use of ICT was more common among larger firms, except for online administrative management, which displays no significant differences according to firm size (on average, 17.4 per cent of firms conduct such activity). The frequency of e-commerce has increased significantly, the share of firms having reserved, ordered, purchased or sold goods and services online rising from 23 per cent in 2002 to 32 per cent in 2004. This percentage of firms performing commercial transactions online brings the diffusion of e-commerce to about the same level as that of less complex services, such as the posting of catalogues of goods and services (33.2 per cent).

Online customer relationship management is less common but still significant; even less common (just 8 per cent) is the use of the Internet for staff recruitment.

3.2.2 The Istat survey found that service companies mainly use the Internet to publicize their products (94.9 per cent), to get information (63.0 per cent), and to post their catalogues for consultation (44.1 per cent). The web is also used in relations with government (79.7 per cent), to access a broad range of public services, the most important being downloading forms (70.6 per cent) and getting information (72.1 per cent). Use of these services is quite uniform nationwide. The performance of administrative procedures completely by computer is still limited (25.0 per cent).

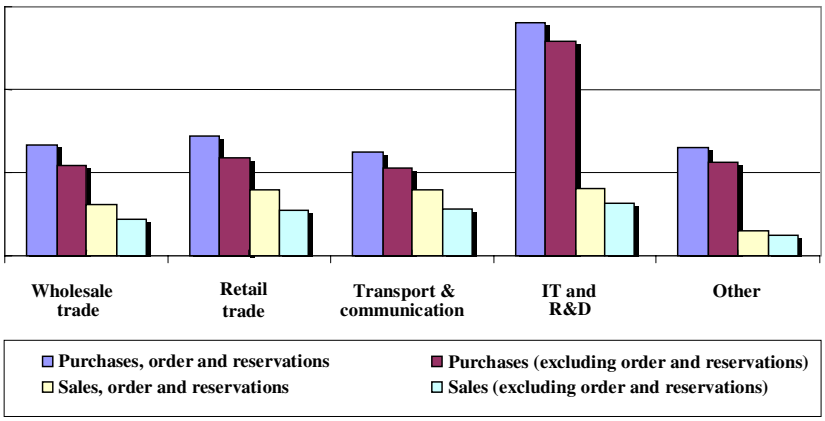
Online access to banking services is also quite common (77.4 per cent), with only modest differences according to firm size but a sectorial gap of over 10 percentage points between hotels and other services.

3.3 Electronic commerce

3.3.1 Online purchasing (including orders and reservations) continues to be more common than sales (also including orders and reservations), the former involving almost 30 per cent of the respondent firms and the latter just 12 per cen. Excluding firms stating that they used the Internet only to reserve/order goods and services, the shares engaging in e-commerce fall to 23 per cent for purchases and 9 per cent for sales (Figure 2). Breaking the responses down geographically, the North's modest lead over the rest of the country is confirmed.

Figure 2

E-Commerce
(percentage of firms)



The increase in the number of firms engaging in e-commerce between the two survey dates was not accompanied by a corresponding increase in the small volume of online transactions. On the purchasing side, as in 2002, for three firms out of four online transactions accounted for a tenth of total purchases, and the percentages for online sales were comparable. This pattern may seem somewhat paradoxical, but in fact the entry of new firms into e-commerce, with their initially low levels of activity, could lower the average incidence of e-commerce on total sales.

As to the channels used for e-commerce, the stylized facts that emerged from the previous survey stand confirmed. The channel of choice is a website, either one's own or the supplier's, and this goes both for purchases (over 90 per cent of the firms that made online sales) and for sales (over 80 per cent of those making purchases). Transactions via portals and electronic marketplaces are also relatively widely used, by 47 per cent of firms on the purchasing side and 42 per cent on the sales side. Specialized intermediaries served 23 per cent of the firms effecting purchases and 27 per cent of those making sales. The limited recourse to online auctions is confirmed, less than 15 per cent of the companies that engaged in e-commerce using this channel.

As to type of sales, more than two-thirds of the firms engaged in business-to-business operations, for an amount equal to 55 per cent of the total, and just over half (56 per cent)

did business-to-consumer selling, accounting for 42 per cent of online sales (compared with 47 per cent in 2002). Only 16 per cent made online sales to government bodies, with a volume of under 4 per cent of the total (under 3 per cent in 2002). By sector, as was to be expected retailers show a much higher-than-average rate of consumer sales (71 per cent), while firms in IT and R&D are distinguished by the high share (10 per cent) of their online sales that goes to government.

As to the type of relationship with counterparties, the latest survey showed a slight decline in the incidence of online transactions with regular suppliers or customers (from 70 to 67 per cent of purchases and from 60 to 55 per cent of sales), which implies scope for possible future expansion of e-commerce.

Turning to the perceived obstacles to the expansion of e-commerce, 84 per cent of the respondent firms believe that the goods and services they provide require direct relations with customers. The diffusion of this perception does not vary with location, firm size or economic sector. On the purchasing side as well, the need for direct relations with suppliers is perceived as an impediment by almost 76 per cent of the respondents, with modest differences according to geographical area, size and sector, save for IT and R&D firms, which consider this factor to be less important.

For 64 per cent, counterparties' difficulty in using e-commerce constitutes a significant obstacle to the initiation of online purchasing and sales. In general the importance of this factor diminishes as firm size increases and is least important among IT and R&D firms. Another widely perceived impediment is the trustworthiness of the counterparty; here, the percentages are higher among Southern firms. Less significant is the problem of security, which was cited by 53 per cent of the respondents; here again, the percentage was higher in the South.

Doubts on the protection of operational confidentiality, on the applicable laws and regulations, and on the capacity to reorganize the firm, by contrast, are not cited by the majority of firms (and especially by larger firms) as particular problems for the development of e-commerce.

More than two-thirds of the firms said that e-commerce had helped to improve their operational efficiency. The benefits were perceived most strongly in the South (76 per cent of firms) and in retailing (72 per cent). Almost half the firms reported that e-commerce had enabled them to reduce operating costs and expand their customer base. By sector, the percentage reporting cost reductions varied quite considerably: this objective was attained by nearly 60 per cent of the firms in transport and communications. Almost a third believed that e-commerce had furthered the relocation of production or the retention of market shares.

3.3.2 The Istat survey found that 22.1 per cent of service firms effected online purchases in 2004; the percentage for IT firms was 30 points higher and for retailers 7 points lower. The value of online purchases remains modest (3.2 per cent).

Online sales were effected by 6.9 per cent of all service firms in 2004, hotels leading the way with 39.3 per cent. The value of online sales remained low, equal to 2.1 per cent of total sales. Even for hotels the figure was no more than 4.6 per cent, indicating that the web serves mainly for reservations.

Among the expected benefits of online sales, 69.0 per cent of the firms surveyed considered the possibility of winning new customers to be most important, while over half cited improving the firm's image and enhancing service quality.

3.4 Modes of payment

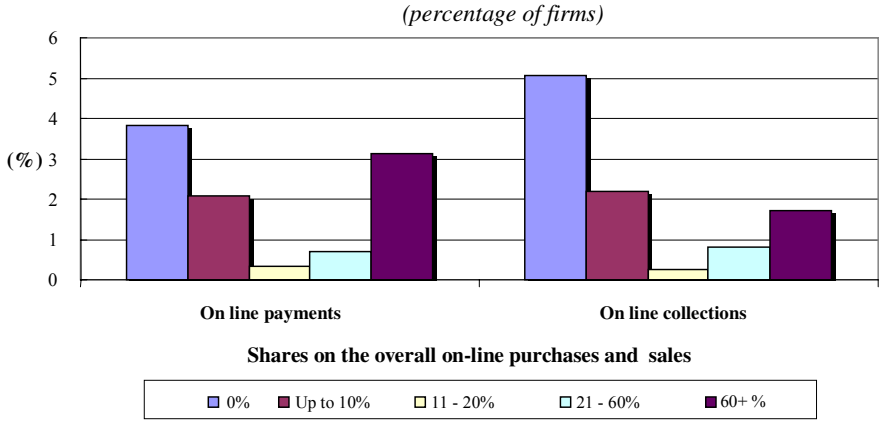
Payment for about a third of online purchases and a fifth of sales was made online. "Other services", in which consulting companies have significant weight, was again the sector in which online settlement of Internet transactions was most common. Geographically, the most dynamic area was the Centre of Italy (more than 10 percentage points above the average on sales). On the purchasing side, the Centre was flanked by the North-East.

The survey responses concerning online payments and collections in relation to e-commerce indicate a polarization on two extreme cases: firms that do not settle transactions online (38 per cent of e-purchases and over half of e-sales are not settled online) and those that do so very regularly (31 per cent of purchases and 17 per cent of sales; Figure 3).

Figure 3

E-commerce: on line transactions paid

(percentage of firms)



The most common payment instrument is the credit transfer, used for more than 45 per cent of purchases and almost 50 per cent of sales. Next come credit cards (41 and 33 per cent respectively) and bank account debits (13 and 14 per cent). Online use of debit cards remains marginal.

On the purchasing side, electronic settlement is especially common among IT and R&D firms and in the "other services" sector, where consulting companies are important. Significantly higher than average use of credit transfers is found among large firms (53 per cent), in the South (56.5 per cent) and among retailers (60 per cent). For credit cards, the largest deviation from the average is in IT and R&D (53 per cent). Bank debits are relatively common among small and medium-sized firms and in the distributive trades, especially retail.

On the sales side, online collections are effected more than proportionately by small firms, retailers and in the regions of the Centre. By type of instrument, credit transfers are most common among large firms in all sectors except retailing, where credit cards prevail (58 per cent). Bank debits are again the preferred instrument of small and medium-sized enterprises.

3.5 Banking services online

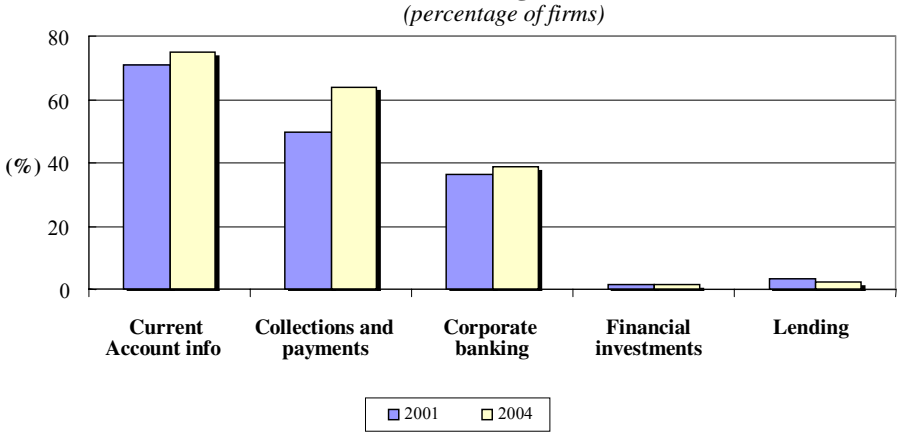
The use of the Internet for company access to banking services consists mainly in current account information, an option that is used to significant extent by 75 per cent of the respondent firms (compared with 71 per cent in the previous survey), and peaks of 82 per cent for large firms and in IT and R&D.

By comparison with the previous survey, the largest increases were recorded for collection and payment services (up from 50 to 64 per cent of firms). Again, large firms recorded a significantly higher than average figure (72 per cent), as did IT and R&D firms, among which the sharpest increase was recorded in the North-East.[5]

Interbank corporate banking is used by 39 per cent of the sample firms, up from 36 per cent. It is most common among larger firms (rising from 48 to 57 per cent). The online placement and settlement of financial products remains extremely limited at 2 per cent (Figure 4).

Figure 4

On line banking services
(percentage of firms)



A factor in the increasing use of banking services online seems to have been the waning importance of some of the difficulties reported in the previous survey. By comparison with the 2002 survey, respondents in 2004 were less likely to cite the cost of online transactions (down from 28 to 23.1 per cent), the complexity of using the services (from 33.9 to 24.8 per cent), problems of assistance from banks (from 43.7 to 35.3 per cent), and above all security in data transfer (from 56.8 to 44.3 per cent). There was an increased perception (54.2 per cent up from 49 per cent) that the main obstacle to the growth of online banking services is the persistence of accounting and administrative practices based on paper documents and the physical presence of bank branches. This problem is cited more frequently in the Centre (57.7 per cent of respondent firms) and especially the South (61 per cent).

[5] The data confirm the tendencies observed in Internet payments, in particular the share of online credit transfers (5.7 per cent of all credit transfers) in total payments in the Italian payment system (Bank of Italy *Annual Report* for 2004). These trends are explained by the comparative advantage of bank charges for online transactions (an average of 50 per cent lower than those for in-branch or telephone transactions).

3.6 Electronic invoicing

3.6.1 The progressive definition of the legal framework for the dematerialization of commercial documents and the confirmation of government's commitment in this sphere in Italy and Europe have not yet had significant impact on firms' organization and management of accounting and commercial flows online. The crucial point here is electronic invoicing. E-invoicing is widely used in some countries (in Finland, one of every two firms uses it), thanks to the sharp reduction in the costs of handling accounting documents.[6] In Italy, surveys have found only marginal use of e-invoicing (Box 2). More than 73 per cent of firms said they make no use of it at all. The problems are mostly with small firms and in the Centre and South of the country. Firms capable of receiving invoices online ("passive" invoices), usually large-scale suppliers, made up 21 per cent of respondents; those that both issued and received e-invoices were just 3.8 per cent, or 6.2 per cent for the largest firms. E-invoicing accounted for more than 20 per cent of sales in just over a third of the sample. It involves a limited number of customers and suppliers: 26.6 per cent of firms issued over 60 per cent of their e-invoices to the five largest customers, while only 9 per cent of the firms received over 60 per cent of incoming e-invoices from their top five suppliers. Most of the sample, in any case, reported no special innovative activity vis-à-vis their primary customers: 22 per cent of respondents issued no e-invoices at all to their five largest customers, and another 31.4 reported a very low amount. Nearly half the sample reported nil or marginal incoming e-invoices from their top five suppliers.

3.6.2 The firms that do e-invoicing account for only 5.5 per cent of the sample and show a strong inclination for innovation and new network technologies, especially in their relations with the financial sector, and as a consequence a high level of confidence in the potential of ICT. The firms that count most heavily in this "segment of excellence" are the largest firms, those in wholesale trade and, of course, those in IT and R&D. The level of use of the new technologies is well above the sample average: online collections and payments are found in over 80 per cent of the cases (against a sample average of 64 per cent), 60 per cent use interbank corporate banking services (sample average, 39 per cent), and online lending and investment are respectively 3 and 5 times more frequent than the average.

For online collections and payments, this set of "excellence" firms shows extremely high percentages in the South (95 per cent) and in transport (95 per cent) and R&D (97 per cent). For online lending, it is firms in the Centre that are notably above average (12 per cent).

As in e-banking, so in e-commerce the firms that have begun the dematerialization of accounting documents relating to invoicing are distinguished by much more frequent use of the new technology than the average of firms surveyed, both as regards online purchases and reservations, which were effected by 47 per cent of these firms (against a sample average of 28 per cent) and for online sales and reservations (36 per cent as against 13 per cent).

Finally, the greater propensity for innovation among these firms of "excellence" is further confirmed by their greater use of data protection techniques and digital signatures (twice the sample average).

Taking account of the findings of early surveys on the diffusion of ICT for e-payments and e-commerce,[7] the Bank of Italy has increasingly emphasized the study

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[6] It is estimated that the cost-saving potential of e-invoicing within the SEPA area is better than €100 billion a year (Bank of Finland, *Financial Markets and Statistics*, January 2006).

[7] Banca d'Italia, *Le innovazioni nel sistema dei pagamenti elettronici: luci e ombre nella diffusione delle tecnologie dell'informazione e della comunicazione*, Tematiche Istituzionali, 2003.

of the processes whereby innovative modes of invoicing are diffused (Box 2), given its crucial role in the integration of trade and financial flows and, thereby, in the efficient use of online payments by firms.[8]

Box 2

The development of electronic invoicing in Italy

Large firms have been using electronic transmission of invoices for years now, but so far these systems have not been integrated with automated collection and payment cycles. However, the transformation of the legal framework[1] and the advent of new technologies have now created the conditions for going over to electronic document management for the entire transaction cycle, progressively eliminating the manual intervention still necessary today to match invoice data with collections and payments. In 2004 the Bank of Italy conducted a survey of large industrial and service firms' familiarity with and utilization of electronic invoicing.

The respondents account for about 7 per cent of domestic production (sales) value. The average number of invoices issued and received per firm varied widely by sector: from 10,000 for consulting and IT firms to 300,000 for industrial firms and more than 1 million for telecommunications firms (including the consumer side). In all, the invoices issued by the respondent firms, including outsourcing and issues on account of third parties within preformed networks, came to no more than 1 per cent of all invoices in Italy (which number some 2 billion a year). In these firms, the staff for invoice handling (issuing and receiving sides) amounted to about 1 per cent of total staff. The cost of a paper invoice is evaluated at about €30 by these firms, while that of an electronic invoice is estimated at no more than €10. The degree of concentration of the sample firms' trade partners is not especially great, but not negligible either. On average, somewhere between 10 and 15 per cent of the invoices issued or received involve the five largest customers or suppliers.

The incidence of ICT expenditure on sales averages between 5 and 10 per cent, with higher figures for firms specializing in online services. The perceived cost of a paper invoice is highest among firms investing more heavily in ICT.

The survey made a number of interesting findings:

a) *Integration of collections/payments with the electronic exchange of invoices and documents is still marginal by comparison with its potential; for the most part, trade and exchange of documents is effected using traditional paper-based supports.*

b) *The dematerialization of documents in the invoice cycle and consequent payment and matching activities is proceeding more slowly than had been expected, even among the most technologically advanced firms (especially on the seller side).*

c) *The respondent firms have not yet performed proper cost/benefit analysis of the failure to integrate invoicing and payment processes.*

In particular, the interviews brought out two factors significantly affecting these aspects: the lack of system-wide mechanisms for the adoption of single technical standards and the reluctance of some firms to take part in the changes that electronic documents entail for organizational processes.

[1] *Legislative Decree 52 of 20 February 2004 transposing Directive 2001/115/EC, aimed at simplification, modernization and harmonization of the invoicing procedures for VAT.*

[8] For a description of the activities of the Bank of Italy, see Banca d'Italia, *Relazione Annuale sul 2004*, Chapter H, *La sorveglianza e l'offerta diretta di servizi di pagamento* (May 2005).

This issue was also dealt with by the National Economic and Labour Committee (CNEL) starting in 2004,[9] with an intersectorial analysis of the problems of dematerialization of documents in administrative and financial activities in Italy.[10] The study found broad consensus on the strategic necessity for completely automated, integrated processes between banks and firms in the various phases of trade and finance.[11] With a view to making the most of the supply of Italian payment services in the SEPA framework (Box 3), measures were designed to adapt the interbank corporate banking infrastructure, with a new configuration that by the end of 2006 will allow firm not only to use the bank's collection and payment services but also to exchange e-invoices in integrated mode with those services (e.g., payments, collections, and advances on bills).

3.7 Panel survey, 2003-2005

3.7.1. Thanks to the large number of firms present in both surveys, we can glean some preliminary indications on how operating online affects company efficiency and on the ways in which the diffusion of resort to online services and technology proceeds. Moreover, we can assess the validity of firms' perceptions of the factors impeding the expansion of e-commerce and e-banking. The panel of firms surveyed both times shows no significant variations in stratification from the whole sample. As to technological endowment and e-banking in particular, the levels of diffusion among panel firms were practically identical to those of the entire sample. Some differences, albeit moderate, were found in resort to e-commerce, of which panel firms were more frequent users; 30 per cent of the firms surveyed both times effected purchases and reservations online (as against 28 per cent for the entire sample), 15 as against 12 per cent effected sales and reservations, 36 as against 33 per cent posted their catalogue, and 19 as against 16 per cent conducted operational management online. In short, the panel firms displayed a positive bias for advanced services that can be performed online, while there was no significant difference for the more mature services, such as e-banking (checking current account data, collections and payments, and interbank corporate banking).

The relationship between e-commerce and production efficiency was studied by determining whether the firms engaging in e-commerce had higher sales per worker than those still using only traditional channels. The empirical evidence from the two surveys does not support the thesis of efficiency gains from e-commerce. Controlling for size, sector and location, the level and change in sales per worker do not vary significantly with the extent of online operations.

Even taking account of the partial nature of the analysis and the need for more study owing to the fact that the panel firms are less representative and to the possibility of

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[9] Commissione V – Grandi Opere e Reti Infrastrutturali, Proposal for an enlarged working group on "E-Value Chain Management nei rapporti Banca-Impresa. L'uso del documento digitale: cooperare per cogliere i benefici del nuovo paradigma della società della comunicazione e accrescere la competitività del sistema economico italiano".

[10] In addition to the Bank of Italy, the enlarged working group included representatives of ABI, ENI, Politecnico University of Milan and University of Rome III.

[11] The findings are set out in a document containing observations and proposals approved by the CNEL assembly, "La dematerializzazione dei documenti nelle attività di amministrazione, finanza e controllo", 28 April 2005.

company discontinuities between the two surveys, firms' difficulty in translating online operations into efficiency increments would appear to depend on a set of factors: volumes too small to produce adequate returns in terms of sales and savings on purchases; the need to retain traditional sales channels in any case; and insufficient savings from online operations because there are still too few intermediaries doing online business.

More generally, the lack of a clear correlation between e-commerce and company efficiency may be due to the presence, in the product chain, of processes based on paper documentation, and in particular the lack of dematerialization of invoices.

In extremely stylized fashion, the adoption of new technology may come according to two different scenarios. One assumes the gradual diffusion of technologies within companies, which begin to operate online with low value-added activities with limited impact on operations and gradually extend the range and intensity of their use of e-services. In this scenario the adoption of experimental, not firmly established solutions could produce technological legacies and diminish the gains from the investment. In the second scenario, the decision to operate online represents a sharp discontinuity, triggering thorough-going reorganization of company activities and the pervasive use of ICT. In this case, late-comers to e-operations would derive significant benefits from the introduction of established, mature technological and organizational solutions, operating on a broader range of activities and using the new technologies more intensively.

To examine the diffusion of ICT, the panel firms were broken down into subsets according to the types and intensity of their online activities in 2001; the mode of online operation of those same subsets were then examined in 2004. First, the firms that had not engaged in e-commerce in the first survey were divided into two sub-groups depending on whether they had a website in 2001; 34 per cent of those that did reported having effected some e-commerce operations in 2004, compared with 22 per cent of those that did not.

In similar fashion, 30 per cent of the firms that had been active in e-banking in 2001 engaged in e-commerce in 2004, compared with 22 per cent of the others.

Focusing on firms that reported having engaged in e-commerce in 2004, the incidence of online purchases, reservations and sales on their total business is correlated with the number of years of online activity. For 68 per cent of the firms that had begun e-commerce after the first survey, online purchases had a very modest impact (less than 5 per cent of total purchases); for those that were already active online in 2001, the comparable share was 54 per cent. Similar trends are observed on the sales side: over 70 per cent of the firms that had not effected online sales in 2001 reported that less than 5 per cent of their total sales in 2004 came online, compared with 54 per cent of those that had effected such sales in 2001.

By contrast the diffusion of online sales in 2004 among the panel firms does not appear to have been greatly affected by whether or not they had made online purchases in the past. The percentage of firms that had not effected online sales in 2001 but did in 2004 was 15 per cent among those that had made online purchases in 2001 and 10 per cent for those that had not.

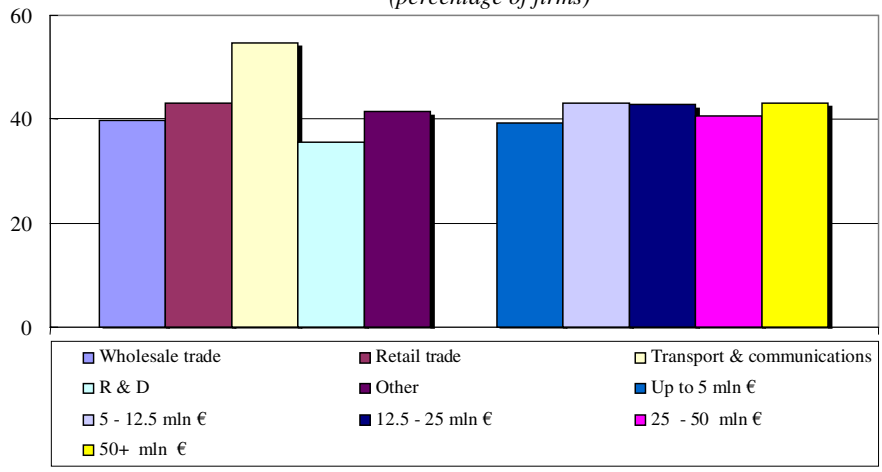
The non-marginal share of firms that had been active in e-commerce in 2002 and had ceased that activity by 2004 (about 40 per cent of the panel, quite evenly distributed by sales volume and with limited geographical differences) is indicative of the trouble

e-commerce encounters in becoming an established company practice (Figure 5). The percentage of firms abandoning e-commerce – even with due caution owing to the less representative panel sample and the possibility of company discontinuities – is very high. Most of these firms had made only purchases online, and for small amounts (most for less than 5 per cent of total purchasing). A signal of firms' interest in online purchasing and/or sales is the relatively large number of firms (one out of three) that initiated e-commerce during the period.

Figure 5

E-commerce: firms that had ceased their activity

(percentage of firms)



The questions concerning the factors impeding the development of e-commerce offer insight into the reasons why firms elected to continue, initiate, cease or not undertake e-commerce activities between the two surveys. As expected, the firms that were active in e-commerce in 2004 generally had a more positive attitude as regards the various obstacles. More interestingly, the survey found that the obstacles perceived by firms a priori tended to be worse than they turned out in practice; i.e., that actual experience with e-commerce mitigates firms' negative perceptions of the importance of some factors.

Firms that did no e-commerce business in either survey, in fact, tend to view the various obstacles as more severe, not only by comparison with those that continue to operate online but also by comparison with those that were active in 2002 but not in 2004, which presumably abandoned the e-commerce segment. In the same way, the firms that made online purchases and/or sales in both survey years judged some factors as less important (relations with counterparties, reorganization) than those who first reported online operations in 2004.

The behaviour of the panel firms in the field of e-banking (in addition to checking current information) was studied, splitting the sample according to whether they had or had not used online current account information services in 2002. Again, there were significant differences in behaviour. Online collection and payment services and interbank corporate banking were adopted for the first time by 75 and 33 per cent of the firms that had used information services in the first survey. For those that had not, these percentages fall to 41 and 21 per cent. The evidence thus confirms that for e-banking as well, learning-by-using begins from the simplest activities and spreads later to the more complex.

Table 1

***E-commerce.* Perceived obstacles and actual obstacles**

	Percentage of firms that considered the different obstacles as relevant and that declared to conduct *e-commerce:*			
	In 2001 and in 2004	Only in 2004	Only in 2001	None of the two surveys
Goods and services offered require a direct relationship with clients [a]	65.5	81.0	77.3	86.9
Goods and services demanded require a direct relationship with suppliers[b]	62.8	72.9	75.1	81.0
Lack of capability of using *e-commerce* by counterparties	64.1	61.3	61.8	66.4
Uncertainties about ensuring the privacy	44.4	43.0	45.7	53.2
Lack of online security	46.8	46.8	44.9	58.0
Uncertainty about the law applicable to online transactions	44.7	46.5	40.1	55.0
Uncertainty about the trustworthiness of counterparties	54.9	51.8	59.1	59.2
Difficulties in reorganizing the firm	30.9	44.2	45.5	46.1

[a] Percentages calculated with reference to on-line sales. [b] Percentages calculated with reference to on-line purchases.

By comparison with e-commerce, there is more continuity in e-banking. Virtually all the firms active in e-banking in 2002 continued to be so in 2004. There is less divergence between ex-ante and ex-post perceptions of the obstacles to e-banking than of those to e-commerce. Firms operating online with their banks do not perceive great difficulties in the complexity of the services or purported lack of security.

4 Households

4.1 Changes in technological endowment

Here we present the findings concerning consumers' use of ICT from the Bank of Italy's survey of households' income and wealth for 2004 and for 2002.[12] The survey documents the increase in Italian households' possess and use of digital technology. In 2004, 38 per cent of the respondent households had a computer, nearly 4 percentage points more than in 2002, and those using a computer, including outside the home, rose from 40 to 42 per cent.

Geographically, the ownership of computers was most common in the Centre, which moved up sharply to overtake the North (44 and 43 per cent, respectively, in 2004). In the South, though rising the values remained below the national average, with only a quarter of the households interviewed having a computer.

The technological endowment of the sample households changes marginally with size, except for the difference between two-member and three-member households, confirming the prevalence of children in the use of computers. Pensioner households continue to show very limited possession and use of computers (15.5 and 16.3 per cent respectively).

The share of households using computers to link in to the Internet rose modestly from 30.2 to 32.3 per cent. The households with the greatest propensity to use information technology were those headed by persons younger than 50, well educated, and with jobs in teaching or white-collar and managerial positions. The use of Internet rises to 47.9 per cent for households with heads aged 41-50 (46.4 per cent in 2002), compared with 39.3 per cent for those under 30 and 40.0 per cent for those aged 51-65. Use of the computer to access the web involved 74.8 per cent of households headed by university graduates (72.3 per cent in 2002) and just 28.0 per cent of those headed by persons with only lower secondary education (26.1 per cent in 2002. Where the head is a manager, about 80 per cent of households navigate online (77.3 per cent in 2002), for teachers 68.6 per cent, for white-collar workers 58.5 per cent and for production workers just 22.6 per cent.

4.2 Changes in use of online services

Though still very low, the percentage of households making online purchases nearly doubled between 2002 and 2004 (from 4.4 to 7.0 per cent). The sharpest rises in e-commerce came among households headed by persons with university degrees (from 13.8 to 26.0 per cent) or managerial positions (from 17.9 to 28.2 per cent). For households headed by production workers and persons lacking an upper secondary diploma, the percentage was negligible.

As to the number of online payments by households that made online purchases, the survey found an average increase from 2.6 to 3.9 a year. The sharpest rise was in the Centre of Italy (from 2.8 to 4.1) and the South (from 1.6 to 3.6), bringing these regions

[12] See the statistical appendix.

roughly into line with the North (where the number of online payments rose from 3.1 to 3.9 per year).

By instrument, there was a relative decline in the use of credit cards (which served for 80 per cent of online payments compared with 93 per cent in 2002), as direct current account debits rose from 5 to 10 per cent of the total and e-money from 0.2 to 3.7 per cent.

The obstacles to online purchasing perceived by households were essentially the same as in 2002; 43 per cent said that the chief impediment was the impossibility of inspecting the product (42 per cent in 2002), and 41 per cent the danger of fraud (40 per cent in 2002). Among households headed by persons lacking the lower secondary school degree, 60 per cent cited fear of fraud. This reason is also correlated with age; it is more common among household heads over 50, less common for those under 30. The percentage of households citing the complexity of the transactions rose from 6 to 7 per cent. The proportion of households that were unaware of the possibility of online purchases was practically nil.

5 Local government

5.1. Developments

The priority set in the e-europe plan of 2005 was to extend the benefits of electronic networks and the Internet to all citizens and firms by 2010. So it is essential to have an overall strategy to realize the information society based on innovation and knowledge. The e-government plans adopted by government and the regulatory framework (now supplemented with the approval of the Digital Administrative Code) were thus fundamental prerequisites to increased use of ICT within government and in its external relations, to provide better and more readily accessible services to citizens and businesses.

The results have been significant, but much remains to be done to attain the objectives of the e-government plan.[13] One gets the impression of underutilization of the new technology, difficulty in translating the potential of ICT into operational applications and new digital services. What is lacking is widespread use of Internet applications and, as for firms, difficulty in integrating innovations into administrative processes, which would in any case require a structural renovation, the strategic repositioning of administrations through re-engineering of procedures, internal processes and the modes in which services are provided. But there is the awareness that the computerization of administration and the provision of e-government services could be a driving force for competitiveness and national development.

Obviously the extent of ICT utilization varies with type of government, within each entity, and geographically, as is demonstrated by the Bank of Italy's 2005 survey of computerization in local government. For our present purposes, we present that survey's findings concerning the instruments of financial management, relations with the banks performing treasury services, and the position of the individual government bodies vis-à-vis the Internet. The intention was to measure the preparedness of the government bodies for the start-up of the new procedure for recording payment and collection data of public entities, the Information System on Public Entity Transactions (Box 3). An indispensable corollary to optimal operation of the system is fully automated handling of the payment system (computerized local government payment orders). The questionnaire was sent to a sample of regional, provincial and municipal governments plus local health units located in regional capitals.

5.2. Technological endowment and use of online services

The use of ICT was quite common for personnel management and accounting, confirming the percentages of computerization found in earlier surveys. As for regional governments in particular, the most highly computerized activities are budget management (more than 80 per cent computerized in 18 of 20 regions), personnel management (more than 80 per cent computerized in 10 regions, between 50 and 80 per cent in 8, and less than 50 per cent in just 2).

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[13] The EU Commission's benchmarking for e-government, which was based on the percentage of totally online services provided by governments, ranked Italy 8th in 2004 (it had been 12th in 2001) of the 18 European countries surveyed (the EU-15 plus Iceland, Norway and Switzerland).

Box 3

Information System on Public Entity Transactions

The Information System on Public Entity Transactions provides the Ministry for the Economy detailed, homogeneous data on general government collections and payments. The data are gathered rapidly via the ICT channel between Bank of Italy and the banks providing treasury services and coded uniformly for coordination of the public accounts to check compliance with European budget rules. The system allows for significant analyses of spending trends in some major segments (goods and services, investments). Government entities will have a broad database on public accounts, enabling each one to compare its budget performance with those of other entities in its class and assess its operational efficiency[1]

The Finance Act for 2003 laid the basis for the creation of the Information System. Its realization was assigned to the Ministry for the Economy and to the Bank of Italy by a separate convention from that for the State treasury service.

The data are transmitted to the System at the end of each business day. The data for the central government are transmitted to the database by the Bank of Italy. Those for other government bodies are transmitted by the treasury service banks via the National Interbank Network. Coding was introduced by decrees of the Ministry for the Economy, which the Bank of Italy helped to draft. The entities subject to the rules were identified on the basis of ESA95 for the definition of general government. Each entity was assigned a single code, developed jointly by Istat, the State Accounting Office and the Bank of Italy.

The Information System on Public Entity Transactions, after trials by bank treasury services in the fourth quarter of 2005, went operational on 1 January 2006. It is fed by the collection and payment data of some 3,000 entities (regions, provinces, municipalities, universities and university departments). Work has now begun on the coding of the transactions of local health units and hospitals, research entities and social security entities, which – together with municipalities with population of under 20,000 and all other public entities – will be required to transmit their data starting in 2007.

The System's objectives of operational and informational efficiency will be fully achieved if its realization is accompanied by introduction of the computerized payment order in the exchange of information between local government bodies and the bank providing treasury services. The technical procedures for the diffusion of the local computerized payment order, which utilizes digital signatures, have already been agreed between Bank of Italy, State Accounting Office, the national committee for the computerization of public administrations and ABI, with the contribution of a group of banks.

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[1] At present, the cash flows of central government revenues and expenditures are observed daily through the Bank of Italy's treasury service, with an economic and functional classification. The data on other government bodies are available only quarterly and mostly paper-based. The revenues and expenditures of these bodies on a cash basis were not uniformly classified, making aggregation and comparison of the data difficult. To overcome these problems it was decided that every transaction will be classified using uniform criteria based on a single code and that treasurers may effect a transaction only if it carries the required code. Collections and payments are classified consistent with Eurostat criteria. Expenditures for goods and services and for investment will be integrated, respectively, with the Common Procurement Vocabulary, i.e. Eurostat's products classification, and with the Single Project Code, which identifies public investment projects and is obligatory for all Italian public entities under Law 3/2003, Article 11. This will permit tracking the intermediate consumption spending of government entities (the breakdown of individual items will make it possible to gauge total spending for goods and services in given product classes) and timely monitoring of public investment expenditure.

Provincial and municipal authorities report a high degree of computerization in the same areas indicated by the regions and also in territorial information systems, tax management and provision of certificates. For the health units, management control is also highly computerized. For all these government bodies, the least computerized areas are property management and public works.

Nearly all the regions and most provinces and local health units reported that there was a network by which they could be linked with other local bodies within the region and, in the future, with the public computer link system (Sistema Pubblico di Connettività). Only half of the municipalities interviewed had such a network available.

There is also a dedicated network linking regions and health units with non-local government bodies such as ministries (Economy, Interior) and local units of central government bodies (including INPS, Sogei, and ACI, the Italian Automobile Club). Only a third of provinces and municipalities have such a network. Those that did have one reported the possibility of links with the motor vehicles bureau, ACI, and the public employees pension administration. Nearly half the entities interviewed belonged to Territorial Service Centres for smaller municipalities.

Though the use of electronic networks for transactions between government bodies and their treasury service bank is not satisfactory, we can observe that there is an increasing tendency to electronic dialogue. The latest survey found increased used of the computer connection for collections and payments compared with previous surveys.

About half the regional governments use the network, the rest conduct transactions with their treasury service bank either through electronic supports (floppy disks, e.g.) or paper. The utilization of ICT does not vary between North, Centre and South.

The results for the provinces are the same. About half use the ICT connection for relations with their treasury service, while a third use paper supports. Among provinces in the Centre and South there was an increase in ICT use for links with treasury service banks.

Municipalities, unlike the other government entities interviewed, used paper more than ICT (which only 30 per cent of the respondent municipalities used) or magnetic supports (15 per cent). Comparable percentages were found for ICT links between local health units and the treasury service bank, with a high proportion still using paper supports (40 per cent).

As to the computerized payment order, about 40 per cent of the regions interviewed had this procedure in place for payments and collection orders and the rest planned to introduce it in 2006 or 2007. About a third of provinces and municipalities and 40 per cent of the local health units already use the computerized payment order and most of the rest foresee its use within two years.

No improvement was found since the previous survey in the mode of reporting by the bank performing treasury services. Forty-five per cent of the regions had an ICT link, 35 per cent of provinces and a smaller share still of municipalities and local health units. The distinct prevalence of paper-based reporting (over 50 per cent for provinces and 70 per cent for municipalities), like the failure of the computerized payment order to really take off, suggests that stronger action will be required. On the whole the state of implementation of projects for coding collections and payments for the Information System on Public Entity Transactions is not very advanced, though with variations by

category and by scheduled launch of the system. Fifty per cent of the regions surveyed had completed coding in 2005 and more than 40 per cent will have adopted the codes for the Information System by the end of 2006. Use of coding tends to diminish with the size of the entity, with no significant geographical disparities. In any case, taking account of the launch dates of the Information System (2006 for regions, municipalities larger than 20,000 inhabitants and provinces; 2007 for smaller municipalities), most of the coding projects are scheduled for 2006 and 2007.

6 Promoting the diffusion of online services

6.1. Strategy choices

In an extremely schematic representation of economic phenomena, the adoption of new technology may come about in two alternative ways. One is gradual diffusion within firms, initially for low-value-added activities with limited impact on operational processes and then increasing both the range and the importance of online services. In such a situation experimental solutions could produce a technological legacy, with benefits from the utilization of the web coming only in the medium term. Alternatively, the decision to operate online could come as a radical discontinuity, triggering a drastic reorganization of company processes and making pervasive use of ICT. In this case late-comers would draw significant benefits from the adoption of already established, mature technological and organizational solutions, used for a wider range of activities and at greater intensity. In both cases, the spread of ICT will be slow if it is up to the initiative of individual enterprises.

Recent studies have confirmed that the second model produces greater benefits, but it encounters considerable resistance, especially from SMEs. Firms do perceive the advantages of online services, but they remain laggard and diffident both because of reluctance to reorganize and because of uncertainty over the sharing of a strategy for online services on the part of customers and suppliers (product chain, industrial district, etc.).

It emerges that the banking system has succeeded in sharing an online service strategy with its customers, owing to the clear benefits in terms of the speed, security and cost of transactions. In fact, while all firms have data processing and network technology, online activities are not equally widely diffused, except to interact with banks and acquire information.

The panel of firms present in more than one survey offers interesting confirmation. Once having gone online, these firms tend to amplify the range and importance of the services used. In other words, once they have made the technological leap, the diffusion of online services becomes a sort of natural evolution even though, as the surveys appear to show, the efficiency gains are not manifest and the organizational problems bound up with computerization have not been completely overcome. This is the best reading of the significant number of panel firms that opted to abandon e-commerce (about 40 per cent of the firms that had engaged in it in 2001 had dropped it by 2004).

Electronic invoicing is a feature common to a group of firms oriented to a sharply innovative strategy. It is confirmed as a key factor in driving the spread of ICT.

6.2 The players and their roles

Government is proceeding with change and innovation in structures, procedures and work methods, focusing on ICT and online services to firms and households. The increased supply of online services should induce firms to factor this capability into their own innovation projects (this, for instance, is the presumed effect of e-procurement). There must also be concrete initiatives to induce local government to institute the electronic payment order. Here, a crucial role is played by the banks that perform treasury services, which must computerize their collection and payment service for local authorities.

The diffusion of ICT in firms' production processes and their interlinking with the banking system have been powerfully sustained by the Bank of Italy. Based on its experience, the Bank is promoting the most innovative procedures available in Italy in the integration of the retail markets for euro payments. There are two principal reasons for this action. First, the integration of financial and trade flows is essential to enhancing the efficiency of the Italian system, as is shown by the ongoing development of interbank corporate banking. And second, the Single Euro Payments Area project, sustained by the European banks grouped in the European Payment Commission, aims at innovation as a decisive factor in development and will have a powerful impact on the economies of the individual Member States.

The banks can help overcome the reluctance of firms to use online services and start up e-commerce. They can convince businesses that the risks of electronic transactions are no greater than those of traditional sales; and at the same time they can promote and finance online service infrastructures, integrating them with the payment system network.

Large enterprises can foster the growth of business-to-business services online, exploiting their market power to induce suppliers and customers to effect e-transactions. This implies an incentive for e-invoicing and its integration with online settlement. The legal problems have now been overcome, and the remaining problem of finalizing the technical rules can be resolved by agreement between the parties and an active presence at Community level of high-level representatives.

Banks, firms and government can all help to improve online security, still a controversial point, with a joint project for certainty of execution of transactions and certified identity of counterparties. Such an agreement would create scope for the growth of online service firms. For instance, the need to guarantee data security and privacy of online operators could be served by independent firms or entities. These entities largely coincide with the new players of the information society (certifiers of digital signatures, of quality, of data security).

6.3 Integrated approach

Electronic commerce has considerable room to grow and can be spurred by coordinated public/private decisions. Otherwise, if the process of change were left to individual operators, the diffusion of online activities would be slower and the saturation point would be low.

To capitalize on the opportunities of ICT, it is essential to shift to a strategy of providing online services to a well-defined community and network service governance based on the sharing of objectives and risks. The strategy of diffusion by economic sector may be carried out via the tactic of selective introduction of "applications with widespread effects" for digitalization projects that can trigger "emulative innovation". Surveys suggest that one such application is e-invoicing and its integration with online collections and payments, owing to the potentially very large number of firms involved, to the fact that it will initiate integration among different corporate functions and between firms, and to the unquestionable economic and technological benefits for the firms and banks involved.

Since e-invoicing enhances the transparency, certainty and correctness of commercial transactions, it might be appropriate to urge tax and economic incentives for this instrument for processing and transmitting documentation. The tax incentives could resemble those that customs offices offer to reliable firms of proven efficiency and demonstrably adequate audit procedures. The economic incentives could consist in lower fees for online payment via integrated e-invoicing.

The most effective strategy for bringing SMEs into system-wide integrated online service projects seems to be to institute incentives for the organization assigned to realize the online services for all the firms participating in the project, which play an essential role in the governance of the entity responsible for the project's success and management. In the strategy of innovation for a product chain or an industrial district, the incentive should provide a benefit for the broader community. The individual business must be induced to participate by economic and organizational benefits from the diffusion of online services and the awareness that no free-riding will be possible.

METHODOLOGICAL NOTES

The survey of service firms

The reference population for this survey consists of the private and public companies in the service sector reporting more than €2.5 million in sales in 2002 (over 36,000 firms). The survey excluded firms in monetary and financial intermediation, general government, health care and education, and social and home services, as well as extraterritorial bodies. The sample stratification used three classifying variables: economic sector (wholesale trade, retail trade, hotels and restaurants, transport and communications, research and development and information technology, and other), volume of sales, and geographical area (North-West, North-East, Centre, and South and Islands). The survey sample consisted of 3,807 private and public companies, of which about 1,900 – more or less evenly distributed among the various strata – had been interviewed in the previous survey. The sample contained a larger than proportional representation of larger firms because of their importance and their greater heterogeneousness by comparison with smaller firms. By location, just over 60 per cent of the sample firms were in the North, 18 per cent in the Centre and 20 per cent in the South. By economic sector, wholesale and retail trade and restaurants accounted for just under two-thirds of the total, transport and communications and "other" for 15 per cent, and R&D or IT for 8 per cent. In the estimates, the number of firms interviewed in each stratum was weighted according to the share of the reference population. Sample variability, as always, requires caution in interpreting the results, especially as regards the values for the smaller domains.

Survey on computerization of local government bodies

This survey was conducted with the assistance of the branches of the Bank of Italy, which submitted the questionnaire to the head of the information system or Internet unit of each body. Budget directors were also involved, in their areas of responsibility. The sample comprised all regional and all provincial governments and a significant number of municipalities of various sizes, and the local health units of the regional capitals only. The questionnaire had six sections:

1 Reasons for use of ICT

2 Extent of use of IT

3 Structure of the telecommunications network used

4 Electronic networks forming links among local bodies and between these and other government units

5 Management of relations the with bank providing treasury services

6 Security safeguards.

STATISTICAL APPENDIX

SURVEY OF INDUSTRIAL FIRMS

Table 1

Computers per 100 workers and online sales and purchases, year 2003

(values per 100 workers and percentages values)

	Computers per 100 workers	Firms effecting online:		Share of sales and purchases made online	
		Sales	Purchases	Sales	Purchases
	Industrial firms				
Geographical area					
North West	45.3	5.1	11.1	0.8	1.4
North East	43.3	5.9	11.1	1.5	2.0
Centre	49.3	6.5	7.6	2.2	4.5
South and Islands	30.8	4.3	7.1	0.6	0.7
Number of workers					
20 – 49	41.5	5.2	9.2	0.7	0.7
50 – 199	38.0	5.4	10.7	0.7	0.9
200 – 499	43.7	9.3	15.2	1.5	1.4
500 +	54.1	13.8	18.0	2.1	4.4
Economic sector					
Textiles, clothing, leather, shoes	31.4	4.3	5.9	1.0	0.7
Chemicals, rubber, plastic	52.1	5.2	9.6	0.5	1.9
Metal and engineering	45.6	5.7	11.8	1.5	1.9
Other manifacturing	38.6	6.2	9.6	1.0	0.8
Energy, mining and quarrying	74.8	2.7	14.4	2.9	7.6
Share of exports					
Less than one-third	44.0	4.5	7.6	1.2	2.2
From one to two-thirds	43.0	8.7	11.7	1.2	1.9
More than to two-thirds	44.9	4.9	16.6	1.9	2.4
Total industrial firms	**43.9**	**5.5**	**9.9**	**1.3**	**2.1**
	Service firms				
Geographical area					
North West	53.6	8.8	11.5	0.9	1.2
North East	45.9	9.4	18.3	1.8	1.3
Centre	61.6	12.6	8.3	2.2	6.4
South and Islands	39.4	8.0	14.4	7.6	8.1
Number of workers					
20 – 49	67.6	8.8	11.6	1.6	2.3
50 – 199	49.7	11.5	17.2	2.3	3.8
200 – 499	34.6	8.9	10.8	4.6	1.3
500 +	46.1	17.0	19.9	1.1	3.9
Economic sector					
Trade, hotels bars and restaurants	38.8	14.5	11.3	2.5	2.7
Transport and communication	46.3	6.4	8.4	1.6	4.4
Other business and h.hold services	74.7	3.2	19.6	1.3	2.3
Total service firms	**51.4**	**9.6**	**13.1**	**2.1**	**3.0**
Total	**46.8**	**7.1**	**11.1**	**1.6**	**2.5**

Table 2

IT usage for invoicing, payments collections

(percentages values)

	E-invoice	Sales/purchases online					Network usage for payments/collections vis-à-vis banks	
		Total	Of which: payments / collections online	Of which: instruments used:				
				Direct debit	Credit transfers	Credit cards	Total	Of which: CBI
				Industrial firms				
Geographical area								
North West	31.4	17.5	11.2	4.4	7.0	5.2	82.4	73.3
North East	33.3	15.6	13.0	6.7	7.9	6.9	84.1	75.5
Centre	28.2	14.6	11.0	5.6	7.9	4.7	64.6	58.9
South and Islands	28.6	15.6	12.9	6.3	9.2	3.5	64.7	56.8
Number of workers								
20 – 49	30.1	16.6	12.2	6.4	8.0	4.9	77.1	68.3
50 – 199	31.4	13.9	10.9	3.4	6.8	6.3	78.1	71.4
200 – 499	38.6	20.4	14.2	7.5	8.5	7.8	78.7	72.5
500 +	48.9	23.4	15.8	6.7	11.2	6.4	84.0	76.6
Economic sector								
Textiles, clothing, leather, shoes	27.1	8.1	5.4	3.3	3.0	1.7	74.5	65.2
Chemicals, rubber, plastic	37.1	19.4	14.0	4.7	7.8	8.1	83.6	76.1
Metal and engineering	30.5	17.6	13.3	5.7	9.0	7.2	78.4	70.3
Other manifacturing	33.0	18.1	14.2	7.5	9.4	4.7	76.6	69.2
Energy, mining and quarrying	28.1	15.4	8.4	5.1	6.4	1.8	72.0	60.7
Share of exports								
Less than one-third	33.4	17.0	12.4	6.4	9.4	4.8	77.6	69.2
From one to two-thirds	27.1	13.9	10.2	3.4	4.9	7.0	79.8	74.4
More than to two-thirds	27.0	15.4	12.6	5.4	5.1	6.0	74.7	64.3
Total industrial firms	**31.1**	**16.1**	**12.0**	**5.6**	**7.8**	**5.4**	**77.5**	**69.3**
				Service firms				
Geographical area								
North West	41.6	30.8	27.6	17.1	18.7	15.9	77.4	67.3
North East	34.9	31.8	28.3	16.5	17.9	16.9	81.0	73.0
Centre	41.6	27.6	23.9	13.3	19.4	11.9	76.3	68.7
South and Islands	30.3	25.6	22.2	9.7	16.3	12.0	57.4	45.2
Number of workers								
20 – 49	38.2	30.6	27.8	16.7	19.5	15.5	72.5	63.0
50 – 199	39.3	29.1	24.8	11.6	17.4	14.2	79.4	70.3
200 – 499	21.3	14.3	9.0	7.4	7.4	4.4	78.9	68.2
500 +	36.2	21.8	13.1	4.1	8.3	11.0	75.0	67.1
Economic sector								
Trade, hotels bars and restaurants	38.4	26.8	22.0	13.4	14.5	13.4	71.6	60.5
Transport and communication	37.6	27.5	25.7	15.7	19.7	5.9	79.8	73.4
Other business and h.hold services	36.5	34.9	32.9	16.6	23.6	21.6	76.2	67.7
Total service firms	**37.7**	**29.4**	**26.0**	**14.7**	**18.2**	**14.5**	**74.6**	**65.2**
Total	**33.7**	**21.4**	**17.6**	**9.2**	**11.9**	**9.0**	**76.4**	**67.7**

SURVEY OF SERVICE FIRMS

Table 3

Composition of the sample and the reference population

(numbers, percentage)

	Firms interviewed		Population	
	Number	Percentage	Number	Percentage
Geographical area				
North West	1432	37.6	13873	38.1
North East	923	24.2	9362	25.7
Centre	677	17.8	7641	21.0
South and Islands	775	20.4	5768	15.8
Number of workers				
20 – 49	1506	39.6	-	-
50 – 199	996	26.2	-	-
200 – 499	724	19.0	-	-
500 +	581	15.3	-	-
Sales				
Up to 5 million euro	1334	35.0	17310	47.5
5 – 12.5 million euro	881	23.1	11830	32.5
12.5 – 25 million euro	854	22.4	4118	11.3
25 – 50 million euro	384	10.1	1843	5.1
50 million euro +	354	9.3	1543	4.2
Economic sector				
Wholesale trade	1450	38.1	15799	43.4
Retail trade	895	23.5	9912	27.2
Transport & communication	564	14.8	4050	11.1
IT and R&D	323	8.5	1304	3.6
Other	575	15.1	5580	15.3
Total	**3807**	**100.0**	**36444**	**100.0**

(*) Source: CERVED for data reffering to population.

Table 4

Technological endowment collections

(percentages of firms)

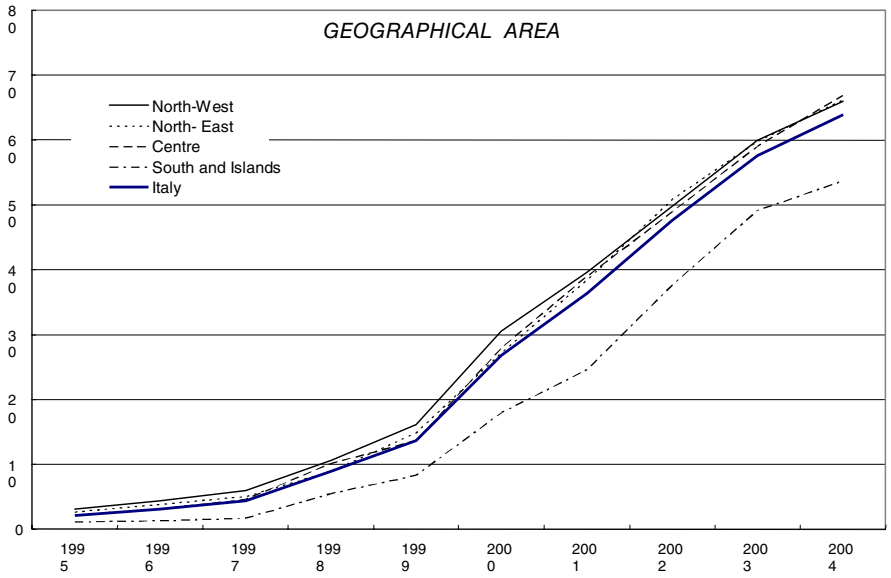
	Internet	At least one network activity	Website(*)	Techniques to protect the confidentiality of data	Electronic signature
Geographical area					
North West	98.0	86.2	67.2	26.7	28.7
North East	98.0	88.9	67.2	27.4	27.4
Centre	97.7	85.9	67.8	23.7	31.0
South and Islands	97.0	82.3	54.7	23.4	31.7
Number of workers					
20 – 49	96.7	83.0	57.0	21.7	26.6
50 – 199	98.6	88.4	74.0	26.8	28.7
200 – 499	99.6	91.5	74.9	34.1	35.1
500 +	99.4	88.4	82.2	38.9	44.6
Sales					
Up to 5 million euro	96.6	83.4	62.3	22.9	27.3
5 – 12.5 million euro	99.0	87.2	64.7	26.1	30.9
12.5 – 25 million euro	98.4	90.3	71.9	27.8	30.0
25 – 50 million euro	99.0	90.2	70.2	33.0	30.4
50 million euro +	99.0	94.2	81.7	39.6	36.3
Economic sector					
Wholesale trade	98.0	87.5	64.6	24.2	28.5
Retail trade	97.0	83.1	62.3	25.2	27.5
Transport & communication	99.1	87.3	67.4	25.5	33.1
IT and R&D	98.6	94.0	89.2	39.9	35.2
Other	97.2	85.5	65.8	27.6	30.5
Total	**97.8**	**86.2**	**65.4**	**25.7**	**29.3**

(*) Firms with no internet linked workstations have been classified as not having a website.

Figure 1

Firms with website endowment collections

(percentages, cumulative)



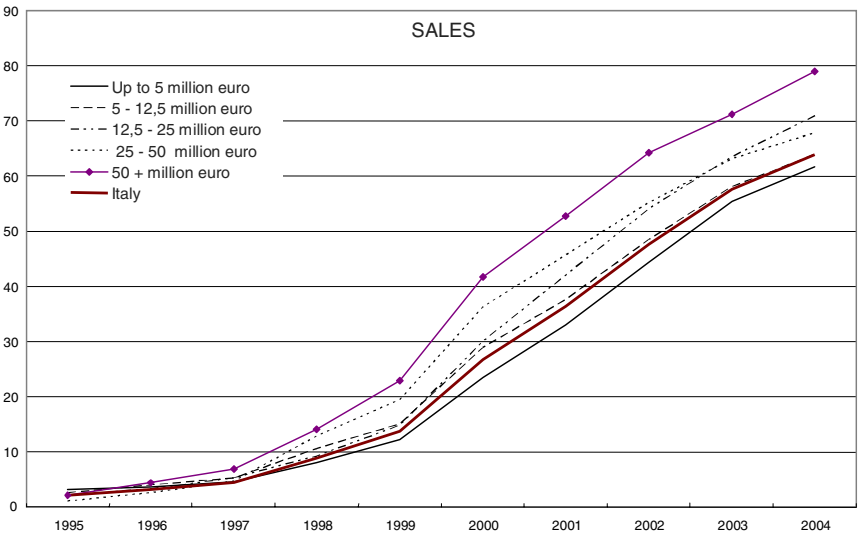


Table 5

Activitis performed online

(percentages of firms)

	E-banking	Rectruiment	Customer relationship management	Presentation of catalogue	Administrative management	Purchases or sales (including online reservation)	Purchases or sales (including online reservation)
Geographical area							
North West	77.3	10.7	18.5	34.9	18.4	33.1	8.8
North East	80.3	7.4	19.0	37.7	18.8	34.4	9.7
Centre	76.7	7.9	19.1	32.4	15.9	29.8	8.0
South and Islands	72.8	5.0	16.0	22.8	14.9	29.5	7.5
Number of workers							
20 – 49	74.1	3.5	14.4	27.9	16.4	26.6	6.3
50 – 199	79.3	8.6	20.7	37.6	19.3	37.6	11.6
200 – 499	83.1	19.4	26.8	42.6	17.9	41.2	11.7
500 +	82.9	28.1	23.1	38.6	16.2	36.7	9.4
Sales							
Up to 5 million euro	74.5	6.7	16.7	29.9	16.3	29.8	8.1
5 – 12.5 million euro	78.0	7.9	17.6	36.5	19.5	34.1	8.4
12.5 – 25 million euro	81.7	10.8	22.9	34.1	17.2	31.6	9.4
25 – 50 million euro	81.2	10.0	21.0	34.1	16.0	37.4	8.5
50 million euro +	85.9	22.5	27.2	42.3	16.4	39.7	14.9
Economic sector							
Wholesale trade	80.0	6.2	17.0	35.0	16.5	29.7	9.4
Retail trade	70.2	6.6	20.7	33.2	17.9	35.6	9.0
Transport & communication	81.6	6.4	17.4	26.1	16.1	30.4	10.5
IT and R&D	85.1	34.1	40.7	51.6	24.5	59.4	12.8
Other	76.7	13.2	13.5	29.1	18.6	28.3	3.6
Total	**77.7**	**8.3**	**18.4**	**33.2**	**17.4**	**32.2**	**8.7**

Table 6

E-commerce

(percentages of firms)

	Purchases and reservations	Purchases (excluding online reservations)	Sales and reservations	Sales (excluding online reservations)
Geographical area				
North West	28.6	24.0	13.3	10.0
North East	30.2	27.2	14.1	10.0
Centre	25.3	20.1	12.5	8.7
South and Islands	26.9	20.4	10.0	6.8
Number of workers				
20 – 49	23.7	19.8	9.3	6.8
50 – 199	33.5	27.7	15.6	10.1
200 – 499	33.3	27.7	20.0	15.5
500 +	30.3	26.9	13.9	10.5
Sales				
Up to 5 million euro	26.3	21.9	11.7	8.0
5 – 12.5 million euro	29.2	24.9	13.4	10.3
12.5 – 25 million euro	28.4	23.0	12.6	8.9
25 – 50 million euro	33.2	27.7	12.7	8.7
50 million euro +	32.7	25.8	21.8	15.2
Economic sector				
Wholesale trade	26.8	21.9	12.3	8.8
Retail trade	28.9	23.6	15.7	10.9
Transport & communication	25.0	21.1	15.9	11.3
IT and R&D	56.0	51.6	16.2	12.6
Other	25.8	22.6	6.1	4.9
Total	**28.1**	**23.4**	**12.8**	**9.2**

Table 7

Volume of online purchases and sales

(percentages of firms)

	Online purchases on total purchases				Online sales on total sales			
	Up to 10%	11-20%	21-60%	>60%	Up to 10%	11-20%	21-60%	>60%
Geographical area								
North West	81.4	4.8	4.0	9.8	79.7	9.0	6.2	5.2
North East	77.5	6.9	4.3	11.2	83.3	10.6	5.2	0.8
Centre	71.9	10.8	4.9	12.4	75.5	11.9	10.0	2.6
South and Islands	71.4	9.7	8.0	10.9	85.6	8.0	4.1	2.2
Number of workers								
20 – 49	79.2	6.9	3.8	10.1	80.3	10.0	6.3	3.3
50 – 199	70.0	8.4	5.7	15.9	81.0	6.7	8.1	4.3
200 – 499	81.9	6.5	4.8	6.8	79.5	12.4	5.9	2.2
500 +	88.2	4.6	7.2	0.0	84.7	15.3	0.0	0.0
Sales								
Up to 5 million euro	78.6	7.1	4.6	9.7	81.1	9.1	6.2	3.6
5 – 12.5 million euro	76.7	7.5	4.5	11.4	79.5	11.0	7.2	2.3
12.5 – 25 million euro	72.3	9.2	5.2	13.4	78.8	8.6	10.2	2.4
25 – 50 million euro	76.6	5.3	4.9	13.2	78.8	17.8	0.0	3.3
50 million euro +	80.0	4.1	7.5	8.5	87.0	5.7	1.8	5.5
Economic sector								
Wholesale trade	80.1	6.2	4.4	9.4	82.9	5.9	6.9	4.2
Retail trade	63.0	10.0	5.8	21.2	76.8	14.9	7.3	1.0
Transport & communication	88.5	4.7	2.4	4.4	77.7	15.3	3.6	3.4
IT and R&D	69.7	10.3	11.0	9.1	75.5	12.7	7.1	4.7
Other	91.8	4.9	2.3	1.0	90.8	0.0	4.6	4.5
Total	**77.2**	**7.2**	**4.8**	**10.8**	**80.6**	**9.9**	**6.4**	**3.1**

* Percentages referred to those firms effecting purchases or sales on line (excluding those firms having only effected online reservations).

Table 8

Channels for online procurement

(percentages of firms)

	Website		Portal		Online auctions		Specialised intermediaries	
	Often	Rarely	Often	Rarely	Often	Rarely	Often	Rarely
Geographical area								
North West	76.6	12.0	32.7	23.2	2.6	11.5	3.6	19.2
North East	83.1	10.9	25.5	18.9	1.8	14.0	3.9	20.6
Centre	80.7	9.5	21.3	15.9	1.4	10.2	8.0	16.6
South and Islands	85.1	8.8	22.9	17.8	2.3	8.3	1.8	15.4
Number of workers								
20 – 49	79.2	10.7	25.2	20.7	1.9	9.4	3.7	17.2
50 – 199	83.2	10.2	24.8	19.1	1.6	15.0	5.6	19.6
200 – 499	80.3	12.2	35.2	18.7	2.3	10.7	2.4	20.2
500 +	74.7	10.6	32.3	20.3	6.5	12.6	5.4	20.7
Sales								
Up to 5 million euro	81.3	11.1	26.0	20.1	1.6	9.3	4.4	16.8
5 – 12.5 million euro	81.4	10.2	26.4	21.7	2.0	14.0	3.7	20.0
12.5 – 25 million euro	78.7	10.6	26.0	17.6	3.0	10.7	6.1	18.6
25 – 50 million euro	79.0	14.1	39.4	11.2	3.9	16.3	1.8	26.9
50 million euro +	71.0	8.5	31.2	20.2	3.1	11.3	5.1	15.8
Economic sector								
Wholesale trade	82.1	9.0	26.6	22.2	1.6	14.1	2.9	19.7
Retail trade	79.4	12.3	23.8	16.6	1.7	10.1	5.6	16.2
Transport & communication	74.3	16.5	36.9	18.2	1.4	16.8	7.9	19.0
IT and R&D	87.1	8.9	24.9	21.9	3.4	6.9	4.8	18.3
Other	78.3	10.3	29.8	19.4	3.9	6.3	2.3	20.3
Total	**80.4**	**10.8**	**27.2**	**19.9**	**2.1**	**11.6**	**4.2**	**18.7**

* Percentages of all firms having effected some sales online.

Table 9

Channels for online sales

(percentages of firms)

	Website		Portal		Online auctions		Specialised intermediaries	
	Often	Rarely	Often	Rarely	Often	Rarely	Often	Rarely
Geographical area								
North West	77.0	10.0	29.7	20.7	5.8	14.1	7.7	20.1
North East	77.3	12.9	24.8	10.2	0.4	6.0	6.0	20.2
Centre	69.9	14.1	20.9	14.0	3.9	3.0	20.5	8.9
South and Islands	77.9	14.4	23.7	16.2	2.8	8.7	13.6	14.4
Number of workers								
20 – 49	73.1	10.7	24.4	15.2	4.9	8.3	11.2	9.9
50 – 199	81.5	10.4	22.0	15.9	1.5	10.9	6.7	18.9
200 – 499	76.1	17.3	31.1	14.6	4.7	8.2	13.3	25.2
500 +	62.4	7.7	35.4	28.2	0.0	8.9	12.2	25.6
Sales								
Up to 5 million euro	80.0	9.7	21.0	20.2	2.5	8.3	11.4	15.6
5 – 12.5 million euro	73.9	14.6	25.5	15.6	5.0	10.0	11.4	18.9
12.5 – 25 million euro	72.4	16.7	31.4	6.8	2.7	6.0	11.5	14.2
25 – 50 million euro	74.8	6.9	27.5	10.0	6.3	10.0	2.5	19.5
50 million euro +	66.6	9.7	47.6	11.1	1.7	12.4	3.4	20.9
Economic sector								
Wholesale trade	83.3	7.6	22.3	17.2	5.4	9.7	3.4	12.7
Retail trade	74.0	15.2	33.8	13.3	2.4	6.7	11.5	25.1
Transport & communication	61.0	16.6	20.3	10.0	1.1	9.4	24.2	11.4
IT and R&D	79.3	15.2	23.9	23.9	8.6	8.0	9.8	17.7
Other	67.8	13.2	23.7	25.2	0.0	15.3	19.0	19.4
Total	**75.8**	**12.1**	**25.9**	**15.9**	**3.6**	**9.1**	**10.5**	**17.3**

* Percentages of all firms having effected some sales online.

Table 10

Distribution of online sales by counterparty

(percentages of firms)

	Firms	Consumers	Governement
Geographical area			
North West	61.9	33.9	4.2
North East	50.7	46.1	3.2
Centre	45.7	52.1	2.1
South and Islands	52.2	42.6	5.2
Number of workers			
20 – 49	65.1	30.4	4.5
50 – 199	55.5	39.7	4.8
200 – 499	44.9	53.6	1.6
500 +	38.8	58.8	2.5
Sales			
Up to 5 million euro	56.0	40.4	3.6
5 – 12.5 million euro	51.8	43.2	5.1
12.5 – 25 million euro	55.6	43.5	0.9
25 – 50 million euro	58.4	39.2	2.5
50 million euro +	54.7	43.3	2.0
Economic sector			
Wholesale trade	74.3	21.7	4.0
Retail trade	25.0	71.6	3.4
Transport & communication	61.8	36.8	1.4
IT and R&D	69.6	20.7	9.8
Other	51.5	45.7	2.8
Total	**54.5**	**41.9**	**3.7**

Table 11

Distribution of online purchases and sales by type of supplier/customer

(percentages values)

	Purchases		Sales	
	Regular	Not regular	Regular	Not regular
Geographical area				
North West	65.3	34.7	59.1	40.9
North East	66.2	33.9	47.2	52.8
Centre	69.8	30.2	54.6	45.4
South and Islands	67.4	32.6	55.5	44.5
Number of workers				
20 – 49	66.3	33.8	54.3	45.6
50 – 199	69.3	30.7	57.6	42.4
200 – 499	66.3	36.1	53.4	46.6
500 +	63.9	34.9	50.0	50.0
Sales				
Up to 5 million euro	67.0	33.0	46.0	54.1
5 – 12.5 million euro	66.8	33.2	60.4	39.6
12.5 – 25 million euro	64.2	35.8	57.4	42.6
25 – 50 million euro	70.9	29.1	55.4	44.6
50 million euro +	62.7	37.3	70.5	29.5
Economic sector				
Wholesale trade	65.1	34.9	69.5	30.5
Retail trade	71.6	28.4	38.0	62.0
Transport & communication	65.8	34.2	50.2	49.8
IT and R&D	70.1	29.9	68.1	31.9
Other	60.4	39.6	44.7	55.3
Total	**66.7**	**33.4**	**54.5**	**45.5**

* Percentage of all firms having effected some sales/purchases online (excluding those firms having only effected online reservations).

Table 12

Obstacles to development of e-commerce

(percentages of firms)

	Need for a direct relations with customers		Need for a direct relations with suppliers		Counterparties' difficulty in using e-commerce		Doubts on the protection of operational confidentiality	
	Important	Unimportant	Important	Unimportant	Important	Unimportant	Important	Unimportant
Geographical area								
North West	84.3	15.7	76.2	23.8	61.3	38.7	48.5	51.5
North East	86.6	13.4	77.1	22.9	67.6	32.4	45.8	54.2
Centre	84.1	15.9	74.4	25.6	66.7	33.3	44.6	55.4
South and Islands	81.7	18.3	75.0	25.0	61.7	38.3	49.9	50.1
Number of workers								
20 – 49	85.5	14.5	78.6	21.4	66.6	33.4	48.9	51.1
50 – 199	85.4	14.6	74.0	26.0	63.5	36.5	44.9	55.1
200 – 499	80.6	19.4	71.8	28.2	60.5	39.5	45.3	54.7
500 +	76.5	23.5	69.2	30.8	50.6	49.4	47.6	52.4
Sales								
Up to 5 million euro	84.0	16.0	76.6	23.4	65.2	34.3	48.3	51.7
5 – 12.5 million euro	86.1	13.9	76.7	23.2	64.6	35.4	46.6	53.4
12.5 – 25 million euro	84.4	15.6	73.5	26.5	59.0	41.0	47.5	52.5
25 – 50 million euro	78.9	21.1	71.1	28.9	62.8	37.2	43.9	56.1
50 million euro +	81.0	19.0	73.5	26.5	57.6	42.4	43.8	56.2
Economic sector								
Wholesale trade	85.4	14.6	78.8	21.2	69.7	30.3	46.5	53.5
Retail trade	83.9	16.1	71.7	28.3	61.5	38.5	48.2	51.8
Transport & communication	80.2	19.8	77.0	23.0	60.9	39.1	49.3	50.7
IT and R&D	83.0	17.0	64.9	35.1	52.5	47.5	42.6	57.4
Other	85.5	14.5	76.5	23.5	57.7	42.3	47.0	53.0
Total	**84.3**	**15.7**	**75.9**	**24.1**	**64.1**	**35.9**	**47.2**	**52.8**

Table 13

Obstacles to development of e-commerce

(percentages of firms)

	Poor network security		Uncertainty over applicable laws		Uncertainty on identity and trustworthiness of counterparty		Difficulty in reorganising internal processes	
	Important	Unimportant	Important	Unimportant	Important	Unimportant	Important	Unimportant
Geographical area								
North West	51.8	48.2	48.4	51.6	55.8	44.2	42.3	57.7
North East	51.6	48.4	50.6	49.4	58.1	41.9	42.0	58.0
Centre	53.2	46.8	47.7	52.3	60.5	39.5	45.0	55.0
South and Islands	57.8	42.2	53.0	47.0	61.9	38.1	45.6	54.4
Number of workers								
20 – 49	54.3	45.7	50.4	49.6	58.9	41.1	45.2	54.8
50 – 199	49.1	50.9	46.0	54.0	57.4	42.6	39.2	60.8
200 – 499	55.3	44.7	53.6	46.4	58.3	41.7	42.8	57.2
500 +	52.5	47.5	47.1	52.9	56.1	43.9	46.7	53.3
Sales								
Up to 5 million euro	54.1	45.9	51.4	48.6	60.2	39.8	44.6	55.4
5 – 12.5 million euro	52.3	47.7	47.6	52.4	56.7	43.3	42.7	57.3
12.5 – 25 million euro	53.1	46.9	51.0	49.0	59.8	40.2	43.1	56.9
25 – 50 million euro	45.7	54.3	44.5	55.5	53.4	46.6	40.9	59.1
50 million euro +	54.6	45.4	45.8	54.2	50.8	49.2	37.6	62.4
Economic sector								
Wholesale trade	53.5	46.5	49.3	50.7	59.9	40.1	44.8	55.2
Retail trade	51.3	48.7	49.4	50.6	57.9	42.1	45.6	54.4
Transport & communication	55.3	44.7	55.5	44.5	59.9	40.1	42.3	57.7
IT and R&D	49.5	50.5	48.6	51.4	55.4	44.6	32.4	67.6
Other	53.7	46.3	46.3	53.7	53.9	46.1	38.4	61.6
Total	**53.0**	**47.0**	**49.5**	**50.5**	**58.3**	**41.7**	**43.3**	**56.7**

Table 14

Reasons for undertaking e-commerce initiative

*(percentages of firms) **

	Delocalising	Lower costs	Reach new customers	More efficient internal processes	Defend market share
Geographical area					
North West	19.6	52.0	48.2	65.0	21.1
North East	19.6	53.8	48.6	65.6	26.1
Centre	20.8	55.7	47.1	74.5	24.5
South and Islands	29.5	59.1	46.4	77.0	25.6
Number of workers					
20 – 49	20.9	48.9	44.0	68.3	20.6
50 – 199	21.6	58.2	51.4	67.9	27.2
200 – 499	20.6	57.5	52.8	72.8	27.9
500 +	24.2	63.0	41.0	62.6	152
Sales					
Up to 5 million euro	23.5	53.2	47.4	65.5	25.2
5 – 12.5 million euro	18.6	53.8	48.2	70.6	23.4
12.5 – 25 million euro	17.5	53.6	48.1	70.2	22.3
25 – 50 million euro	22.9	52.9	42.7	77.5	18.6
50 million euro +	25.5	67.9	53.9	68.8	22.9
Economic sector					
Wholesale trade	20.7	57.1	48.8	65.5	26.5
Retail trade	19.6	47.3	52.9	70.6	29.5
Transport & communication	25.4	64.7	52.0	70.2	19.3
IT and R&D	26.6	61.7	40.8	77.5	16.5
Other	20.6	49.1	33.7	68.8	9.9
Total	**21.2**	**54.2**	**47.9**	**68.7**	**23.8**

* Percentage of all firms having effected some sales/purchases online.

Table 15

Benefits obtained from e-commerce

*(percentages of firms) **

	Delocalising	Lower costs	Reach new customers	More efficient internal processes	Defend market share
Geographical area					
North West	28.7	44.6	46.4	66.3	29.0
North East	31.2	50.7	49.5	68.3	33.5
Centre	31.4	53.3	48.3	67.7	28.6
South and Islands	36.9	49.5	49.2	76.2	36.0
Number of workers					
20 – 49	31.5	45.0	46.9	68.9	29.0
50 – 199	28.4	50.4	49.1	68.2	33.5
200 – 499	31.2	53.6	51.7	69.3	28.6
500 +	35.2	49.9	38.1	67.2	36.0
Sales					
Up to 5 million euro	31.9	49.8	50.5	72.2	31.9
5 – 12.5 million euro	31.5	47.5	46.6	65.7	30.5
12.5 – 25 million euro	30.8	46.2	46.5	68.8	32.6
25 – 50 million euro	21.7	44.8	38.3	57.0	25.3
50 million euro +	31.9	56.0	50.5	68.7	32.5
Economic sector					
Wholesale trade	30.0	47.7	48.4	66.0	30.4
Retail trade	31.8	46.0	56.9	72.7	36.2
Transport & communication	43.5	59.2	43.1	69.5	33.6
IT and R&D	30.1	54.9	41.6	69.3	24.9
Other	23.4	46.1	34.7	65.7	23.1
Total	**31.1**	**48.7**	**48.0**	**68.5**	**31.1**

* Percentage of all firms having effected some sales/purchases online. Firms which having reported e-commerce had helped to get the expected gains, fully or partially.

Table 16

Online settlement of online purchases

*(percentages values) **

	Purchases settled on line	Share of online collections			
		Credit transfers	Credit cards	Direct debits	Debit cards
Geographical area					
North West	36.7	44.5	44.5	9.5	1.5
North East	32.0	42.5	41.1	15.7	0.6
Centre	36.1	44.2	41.8	12.7	1.3
South and Islands	27.2	56.5	24.9	15.7	2.9
Number of workers					
20 – 49	32.1	48.4	35.0	15.1	1.5
50 – 199	36.8	42.8	42.6	13.0	1.4
200 – 499	31.7	40.5	50.6	7.5	1.4
500 +	35.5	47.7	40.3	10.7	1.3
Sales					
Up to 5 million euro	33.3	45.0	37.5	16.0	1.5
5 – 12.5 million euro	36.8	43.4	44.5	10.5	1.6
12.5 – 25 million euro	28.2	50.2	40.2	8.6	1.1
25 – 50 million euro	32.0	43.8	48.2	7.6	0.4
50 million euro +	34.3	53.2	34.0	11.2	1.7
Economic sector					
Wholesale trade	36.1	41.6	43.0	14.9	0.5
Retail trade	20.3	57.9	25.0	16.6	0.6
Transport & communication	34.6	48.3	40.9	10.1	0.7
IT and R&D	39.7	38.8	53.4	5.7	2.2
Other	48.7	39.3	48.2	7.9	4.6
Total	**33.9**	**45.2**	**40.8**	**12.6**	**1.4**

* Average percentages referred to all firms having effected some purchases online.

Table 17

Online settlement of online sales

*(percentages values) **

	Sales settled on line	Share of online sales			
		Credit transfers	Credit cards	Direct debits	Debit cards
Geographical area					
North West	19.9	53.6	31.0	10.7	4.6
North East	19.2	42.2	35.4	21.9	0.4
Centre	31.7	53.0	38.9	5.2	2.9
South and Islands	11.2	40.5	24.0	32.6	2.8
Number of workers					
20 – 49	14.1	63.0	18.1	16.4	2.5
50 – 199	28.2	41.5	37.0	16.7	4.8
200 – 499	21.4	39.8	52.0	6.1	2.1
500 +	20.5	53.6	27.9	16.6	1.9
Sales					
Up to 5 million euro	24.5	47.1	32.3	16.9	3.8
5 – 12.5 million euro	21.0	48.6	35.0	14.2	2.3
12.5 – 25 million euro	11.2	55.2	34.1	7.2	3.6
25 – 50 million euro	15.1	54.1	38.9	4.1	3.0
50 million euro +	16.7	60.0	28.1	10.6	1.3
Economic sector					
Wholesale trade	16.8	56.5	17.0	25.2	1.2
Retail trade	24.2	32.2	58.0	4.8	5.1
Transport & communication	17.3	56.9	30.4	10.1	2.6
IT and R&D	24.3	76.5	14.4	8.3	0.8
Other	31.2	54.8	29.9	10.5	4.8
Total	**20.9**	**49.4**	**33.4**	**14.2**	**3.0**

* Average percentages referred to all firms having effected some sales online.

Table 18

E-commerce payments and collections

*(percentages of firms)**

	Online purchases paid online				Online sales with online collection			
	Up to 10%	11-20%	21-60%	>60%	Up to 10%	11-20%	21-60%	>60%
Geographical area								
North West	35.3	20.5	3.6	5.6	35.1	47.8	28.9	2.2
North East	39.1	22.8	2.3	7.7	28.1	53.3	17.9	0.8
Centre	34.8	20.0	3.9	8.0	33.2	44.8	13.9	4.5
South and Islands	48.5	17.9	2.1	8.3	23.2	63.2	18.4	4.4
Number of workers								
20 – 49	42.7	20.1	1.8	5.5	29.9	59.1	19.5	0.2
50 – 199	34.7	20.2	3.8	7.4	33.8	42.4	25.3	0.0
200 – 499	34.6	21.8	3.9	10.8	28.9	45.1	22.7	7.3
500 +	30.2	26.3	6.5	5.1	31.9	60.6	14.8	12.7
Sales								
Up to 5 million euro	38.5	20.8	3.0	8.2	29.4	45.9	20.1	3.9
5 – 12.5 million euro	33.6	21.9	3.2	6.3	35.1	49.5	25.7	0.0
12.5 – 25 million euro	47.3	18.1	2.7	5.5	26.5	64.7	18.7	3.2
25 – 50 million euro	42.8	20.8	1.6	6.5	28.3	53.3	25.3	4.0
50 million euro +	40.1	17.7	5.5	4.4	32.3	60.4	15.8	5.4
Economic sector								
Wholesale trade	40.5	14.6	3.3	8.5	33.1	53.6	24.3	0.0
Retail trade	49.1	26.2	2.6	4.0	18.1	45.8	23.1	4.2
Transport & communication	34.9	24.4	3.4	5.6	31.6	64.3	9.9	2.5
IT and R&D	21.6	26.9	5.2	12.0	34.3	42.9	25.6	4.5
Other	22.8	21.8	2.0	6.7	46.7	36.6	21.8	7.3
Total	38.1	20.7	3.1	7.0	31.1	50.5	21.9	2.5

* Percentage of all firms having effected some sales/purchases online.

Table 19

Benefits obtained from e-commerce

(percentages of firms)

	Current account info	Collection/ payment	Corporate banking	Financial investment	Lending
Geographical area					
North West	75.1	64.5	40.9	2.2	2.4
North East	76.9	68.5	43.5	1.3	2.8
Centre	74.9	62.7	34.2	1.2	2.4
South and Islands	71.3	57.8	32.2	1.2	1.9
Number of workers					
20 – 49	71.8	61.0	34.3	1.5	2.7
50 – 199	77.5	65.4	41.4	1.3	1.7
200 – 499	80.5	70.5	46.0	2.0	3.0
500 +	76.6	70.4	48.7	3.5	1.5
Sales					
Up to 5 million euro	72.5	62.3	35.2	1.7	2.4
5 – 12.5 million euro	75.7	64.8	39.6	1.7	2.1
12.5 – 25 million euro	79.3	65.3	43.1	1.7	2.8
25 – 50 million euro	77.1	67.3	42.7	1.5	3.2
50 million euro +	81.7	72.4	56.4	2.4	2.4
Economic sector					
Wholesale trade	77.1	65.7	42 .1	2.0	2.3
Retail trade	68.8	58.1	34.1	1.2	4.0
Transport & communication	79.6	70.8	38.7	1.2	0.7
IT and R&D	81.4	75.0	48.8	1.2	1.6
Other	74.8	62.8	35.5	1.5	1.5
Total	**74.9**	**64.1**	**38.8**	**1.6**	**2.4**

Table 20

Obstacles to use of online banking services

(percentages of firms)

	Cost of transactons		Lack of assistance from banks		Complexity of services		Necessity to go/use of paper documents to branch		Network security	
	Important	Unimportant	Important	Unimportant	Important	Unimportant	Important	Unimportant	Important	Unimportant
Geographical area										
North West	23.8	76.2	37.4	62.6	24.9	75.1	54.5	45.5	41.8	58.2
North East	23.3	76.7	34.0	66.0	24.4	75.6	49.0	51.0	44.4	55.6
Centre	21.9	78.1	35.0	65.0	24.2	75.8	57.7	42.3	45.4	54.6
South and Islands	22.8	77.2	32.8	67.2	25.9	74.1	60.9	39.1	48.7	51.3
Number of workers										
20 – 49	23.9	76.1	36.4	63.6	25.9	74.1	56.0	44.0	44.5	55.5
50 – 199	23.3	76.7	34.2	65.8	22.7	77.3	55.2	44.8	44.9	55.1
200 – 499	201.	79.9	31.5	68.5	24.4	75.6	50.3	49.7	41.6	58.4
500 +	23.1	76.9	40.5	59.5	24.9	75.1	51.5	48.5	46.9	53.1
Sales										
Up to 5 million euro	23.5	76.5	35.5	64.5	25.9	74.1	54.8	45.2	44.4	55.6
5 – 12.5 million euro	22.2	77.8	35.3	64.7	23.9	76.1	54.6	45.4	43.2	56.8
12.5 – 25 million euro	25.8	74.2	35.9	64.1	24.5	75.5	57.5	42.5	48.6	51.4
25 – 50 million euro	19.1	80.9	31.1	68.9	20.6	79.4	50.6	49.4	42.4	57.6
50 million euro +	23.6	76.4	37.0	63.0	24.8	75.2	52.3	47.7	42.7	57.3
Economic sector										
Wholesale trade	22.8	77.2	34.3	65.7	24.8	75.2	53.6	46.4	43.8	56.2
Retail trade	26.2	73.8	37.2	62.8	26.6	73.4	57.4	42.6	44.1	55.9
Transport & communication	24.9	75.1	37.5	62.5	26.6	73.4	52.7	47.3	49.0	51.0
IT and R&D	20.6	79.4	33.9	66.1	21.2	78.8	54.7	45.3	38.7	61.3
Other	18.0	82.0	33.6	66.4	21.0	79.0	54.5	45.5	44.1	55.9
Total	**23.1**	**76.9**	**35.3**	**64.7**	**24.8**	**75.2**	**54.2**	**45.8**	**44.3**	**55.7**

Table 21

E-invoices issued/ received

(percentages of firms)

	Current account info	Collection/ payment	Corporate banking	Financial investment	Lending
Geographical area					
North West	2.6	22.0	4.4	70.8	0.2
North East	1.0	24.5	3.7	70.7	0.1
Centre	1.6	15.5	3.7	79.1	0.1
South and Islands	0.9	20.2	2.6	76.3	0.0
Number of workers					
20 – 49	1.3	19.9	3.3	75.5	0.0
50 – 199	2.0	23.0	4.4	70.4	0.3
200 – 499	1.7	22.9	4.3	70.7	0.4
500 +	4.5	16.0	4.0	75.0	0.5
Sales					
Up to 5 million euro	1.1	20.6	3.1	75.1	0.0
5 – 12.5 million euro	1.9	22.3	3.8	71.7	0.3
12.5 – 25 million euro	2.0	20.9	5.4	71.7	0.0
25 – 50 million euro	1.7	21.0	4.5	72.6	0.2
50 million euro +	6.5	15.1	6.2	71.9	0.4
Economic sector					
Wholesale trade	2.2	21.7	5.0	70.9	0.1
Retail trade	0.8	22.9	2.7	73.7	0.0
Transport & communication	1.6	18.3	2.4	77.6	0.0
IT and R&D	4.1	21.1	5.3	67.9	1.6
Other	1.4	17.5	2.9	77.9	0.2
Total	**1.7**	**21.0**	**3.8**	**73.4**	**0.1**

Table 22

E-invoices issued: concentration levels

*(percentages of firms)**

	Percentage of e-invoices issued on total purchases				Percentage of e-invoices sent to the first 5 customers on total invoices sent to first 5 customers				
	Up to 10%	11-20%	21-60%	>60%	0%	Up to 10%	11-20%	21-60%	>60%
Geographical area									
North West	54.4	7.1	20.6	18.0	24.1	26.8	10.0	11.6	27.5
North East	56.7	7.4	16.4	19.5	22.7	38.3	4.4	5.5	29.2
Centre	55.5	4.8	14.1	25.6	16.3	29.4	12.3	17.2	24.8
South and Islands	73.5	14.3	5.1	7.1	22.8	45.6	0.0	11.7	19.9
Number of workers									
20 – 49	59.3	8.1	15.4	17.3	14.1	37.3	5.6	11.3	31.7
50 – 199	62.0	5.4	18.8	13.8	32.1	26.9	15.6	9.2	16.3
200 – 499	45.1	11.4	16.4	27.2	24.5	26.2	5.4	8.2	35.7
500 +	51.1	3.0	19.5	26.3	21.8	27.8	0.0	29.3	21.1
Sales									
Up to 5 million euro	56.5	8.1	14.4	20.9	11.9	31.4	14.5	11.9	30.2
5 – 12.5 million euro	62.9	7.0	19.6	10.5	33.3	26.9	7.5	7.7	24.7
12.5 – 25 million euro	48.4	8.4	22.0	21.3	25.2	40.4	3.3	10.0	21.1
25 – 50 million euro	63.2	6.1	19.3	11.4	16.8	44.2	0.0	23.2	15.8
50 million euro +	50.5	6.3	8.3	34.9	22.2	25.7	0.0	18.1	33.9
Economic sector									
Wholesale trade	51.3	5.4	19.4	23.9	15.0	33.7	8.4	10.4	32.5
Retail trade	67.2	15.7	11.5	5.6	30.9	28.9	13.5	3.3	23.4
Transport & communication	62.3	0.0	13.6	24.1	24.8	23.5	2.6	29.4	19.6
IT and R&D	60.7	6.6	24.6	8.2	31.1	20.5	6.6	27.9	13.9
Other	66.5	12.3	9.9	11.3	37.7	36.2	6.5	5.5	14.1
Total	57.1	7.5	16.8	18.6	22.1	31.4	8.4	11.5	26.6

* Percentage of firms having issued e-invoices.

Table 23

E-invoices received: concentration levels

*(percentages of firms)**

	Percentage of e-invoices received on total invoices received				Percentage of e-invoices received to the first 5 suppliers on total invoices received from the first 5 suppliers				
	Up to 10%	11-20%	21-60%	>60%	0%	Up to 10%	11-20%	21-60%	>60%
Geographical area									
North West	85.3	5.8	6.7	2.2	49.6	34.5	4.3	4.5	7.1
North East	89.3	2.8	6.6	1.3	48.7	36.2	2.9	4.5	7.7
Centre	78.0	4.9	10.1	7.0	46.8	28.7	2.0	10.6	11.8
South and Islands	66.6	5.7	19.7	7.9	35.0	28.5	6.4	15.3	14.8
Number of workers					47.1	35.9	3.0	5.4	8.6
20 – 49	85.4	5.4	6.0	3.3	46.7	32.5	2.6	8.9	9.3
50 – 199	79.4	3.3	13.8	3.5	45.9	27.9	8.3	8.3	9.6
200 – 499	81.3	4.9	9.0	4.8	47.8	27.4	2.8	8.5	13.5
500 +	74.8	7.8	14.9	2.5	47.1	35.9	3.0	5.4	8.6
Sales									
Up to 5 million euro	86.1	4.4	6.9	2.6	46.6	37.3	3.9	5.1	7.3
5 – 12.5 million euro	81.5	5.0	10.7	2.8	46.6	33.7	3.8	7.4	8.6
12.5 – 25 million euro	79.4	4.4	10.5	5.7	52.9	21.3	4.0	9.6	12.2
25 – 50 million euro	77.7	6.5	6.3	9.6	40.8	29.9	4.4	9.7	15.1
50 million euro +	65.5	6.3	21.6	6.6	41.3	22.1	1.3	16.8	18.5
Economic sector									
Wholesale trade	89.6	3.1	5.4	1.9	48.7	34.6	3.5	5.8	7.5
Retail trade	63.4	7.0	20.9	8.7	37.5	26.2	5.2	13.8	17.3
Transport & communication	91.6	4.1	4.3	0.0	54.5	41.2	0.5	1.6	2.1
IT and R&D	84.3	5.3	7.7	2.7	50.3	31.9	4.0	8.0	5.8
Other	91.1	6.6	1.2	1.1	53.6	37.9	4.4	0.4	3.8
Total	**82.6**	**4.8**	**9.1**	**3.5**	**46.8**	**33.2**	**3.8**	**7.1**	**9.1**

* Percentage of firms having received e-invoices.

Table 24

Invoices issued/received to/from the first 5 customers/suppliers

*(percentages of firms)**

	Percentage of invoices sent to the first 5 customers on total invoices sent to first 5 customers				Percentage of invoices received to the first 5 suppliers on total invoices received from the first 5 suppliers			
	Up to 10%	11-20%	21-60%	>60%	Up to 10%	11-20%	21-60%	>60%
Geographical area								
North West	34.6	10.4	15.0	40.0	36.0	7.2	25.0	31.8
North East	55.2	7.0	16.4	21.4	49.8	6.9	16.5	26.8
Centre	20.1	1.2	37.5	41.1	29.3	6.9	22.5	41.4
South and Islands	45.9	5.8	19.2	29.1	19.7	8.1	27.6	44.6
Number of workers								
20 – 49	45.6	3.3	18.8	32.4	38.2	7.3	21.3	33.3
50 – 199	29.5	7.2	17.9	45.3	37.0	4.9	20.8	37.2
200 – 499	33.7	12.6	22.2	31.4	29.6	12.3	28.4	29.7
500 +	24.8	26.4	31.4	17.4	40.5	4.5	28.5	26.5
Sales								
Up to 5 million euro	40.5	2.1	13.8	43.6	40.7	8.4	21.7	29.2
5 – 12.5 million euro	41.3	11.1	16.6	30.9	33.8	6.1	22.3	37.8
12.5 – 25 million euro	38.9	12.3	21.3	27.5	28.8	7.1	25.7	38.5
25 – 50 million euro	61.9	7.1	26.2	4.8	40.9	6.1	19.8	33.2
50 million euro +	34.0	15.1	22.0	28.9	31.6	4.1	27.1	37.1
Economic sector								
Wholesale trade	39.5	5.6	17.1	37.9	39.9	6.1	19.9	34.2
Retail trade	45.8	10.5	11.2	32.5	26.6	6.3	28.0	39.2
Transport & communication	21.2	2.6	46.4	29.8	47.0	7.6	18.9	26.5
IT and R&D	27.1	3.4	32.2	37.3	30.7	7.7	29.7	31.9
Other	31.5	21.0	18.8	28.7	42.9	13.8	19.5	23.9
Total	**37.2**	**7.5**	**20.0**	**35.3**	**36.6**	**7.2**	**22.5**	**33.7**

* Percentage of firms having issued/received e-invoices.

Table 25

Estimated cost-saving from adopting e-invoices

*(percentages of firms) **

	Current account info	Collection/ payment	Corporate banking	Financial investment	Lending
Geographical area					
North West	71.2	17.9	5.3	1.3	4.2
North East	70.0	20.8	4.1	0.5	4.5
Centre	68.0	17.6	8.9	1.8	3.7
South and Islands	74.8	18.9	4.5	0.6	1.3
Number of workers					
20 – 49	71.8	18.4	5.2	1.2	3.4
50 – 199	72.7	17.9	4.6	0.6	4.3
200 – 499	69.2	19.8	7.0	1.0	3.0
500 +	53.9	26.7	8.6	2.1	8.6
Sales					
Up to 5 million euro	73.2	18.5	5.0	0.8	2.5
5 – 12.5 million euro	71.6	18.2	5.0	0.6	4.6
12.5 – 25 million euro	70.8	18.7	4.8	1.6	4.2
25 – 50 million euro	65.8	17.3	9.3	1.8	5.8
50 million euro +	96.8	56.7	21.3	10.3	14.9
Economic sector					
Wholesale trade	69.2	19.6	6.8	1.2	3.1
Retail trade	72.5	17.1	4.5	0.3	5.5
Transport & communication	74.2	15.8	4.8	1.8	3.3
IT and R&D	63.8	25.0	6.4	1.0	3.8
Other	73.3	19.7	2.5	1.4	3.1
Total	**70.9**	**18.8**	**5.4**	**1.1**	**3.8**

* Percentage of firms having issued/received e-invoices.

HOUSEHOLD SURVEY

Table 26

Use of computer, Internet and Remote Banking

(percentages of households)

Characteristics *	Use of computer	Ownership of computer	Use of Internet	Purchases over Internet	Use of Remote Banking
Sex					
Male	46.6	42.3	35.9	8.3	6.5
Female	30.4	26.3	23.9	4.0	3.1
Age					
Up to 30 years	50.6	46.4	39.3	8.6	6.3
31 - 40	55.2	47.0	42.0	11.4	9.2
41 - 50	63.5	57.3	47.9	9.8	7.9
51 - 65	49.2	46.0	40.0	8.4	5.4
Over 65	8.2	7.3	6.1	0.5	1.0
Education					
None	1.3	1.2	0.6	0.1	0.3
Elementary school	11.3	9.6	6.8	0.6	0.2
Middle school	39.7	35.9	28.0	4.0	2.7
High school	69.9	61.8	56.0	12.8	10.6
University degree	81.7	77.4	74.8	26.0	20.8
Branch of activity					
Agriculture	26.2	23.2	17.7	4.5	2.7
Industry	52.9	48.7	39.0	8.8	5.3
Public administration	69.2	62.8	56.1	11.9	9.4
Other	62.2	53.2	49.0	11.8	11.1
Not employed	16.6	15.5	12.7	2.1	1.5
Work status activity					
Employee					
Blue collar worker	35.2	31.6	22.6	2.5	2.0
White collar worker	72.5	63.4	58.5	12.5	9.4
Manager/executive	90.9	86.3	79.2	28.2	24.5
Total	56.8	50.6	43.6	9.3	7.3
Self-employed indipendente					
Sole proprietor, m.of professions	82.6	73.6	67.8	21.4	17.8
Other self-employed	52.2	47.1	40.1	8.9	5.9
Total	65.6	58.8	52.3	14.4	11.2
Not employed					
Retired	16.3	15.1	12.5	2.1	1.6
Others	20.5	19.6	14.7	2.0	0.3
Total	16.6	15.5	12.7	2.1	1.5
Household size					
1 member	23.2	19.4	19.6	6.1	4.8
2 members	28.9	24.9	22.7	5.1	4.1
3 members	57.4	52.8	45.7	9.4	8.7
4 members	63.2	58.7	45.9	8.1	5.8
5 members or more	50.7	46.1	36.3	7.9	2.5
Number of earners					
1 earner	31.0	27.1	23.2	5.0	3.7
2 earners	49.8	45.3	38.6	8.3	7.2
3 earners	59.5	53.9	49.7	11.4	7.7
4 earners or more	69.0	65.6	52.3	12.0	5.2
Town seize					
Up to 20,000 inhabitants	38.0	34.5	28.3	5.3	3.2
20,000 – 40,000	43.1	38.5	31.5	6.1	4.2
40,000 a 500,000	43.6	38.3	33.7	8.4	7.5
500,000 +	49.4	45.5	43.9	11.2	10.5
Geographical area					
North	48.2	43.1	37.8	9.0	7.8
Centre	48.1	44.2	38.1	9.6	6.4
South and Islands	28.0	24.9	20.2	2.4	1.4
Total	**41.7**	**37.5**	**32.3**	**7.0**	**5.5**

* Individual characteristics refer to the head of household who is defined as the person earning the highest income.

LOCAL GOVERNMENT SURVEY

Table 27

Technological endowments and use of online services

(percentages values)

	Personnel Admin.	Registry Office	Certificates	Budgeting	Economic and Financial accounting	Management Control	Real Estate Management	Public works	Local Inform. System	Taxes
Regions										
<20%	-	-	-	-	-	10	30	15	15	-
<50%	5	-	-	-	-	45	35	35	10	15
<80%	40	-	-	10	25	30	25	30	30	50
>80%	55	-	-	90	75	15	10	20	45	35
Provinces [1]										
<20%	4	-	-	-	-	23	33	24	13	21
<50%	16	-	-	6	7	20	23	31	19	23
<80%	39	-	-	24	26	22	25	28	32	22
>80%	40	-	-	70	67	34	19	18	36	31
Municipalities [2]										
<20%	12	-	3	1	3	38	35	31	40	3
<50%	18	6	9	5	7	18	22	31	18	14
<80%	31	26	29	22	25	21	23	25	21	26
>80%	40	68	59	73	65	22	19	14	21	58
Local Health Units										
<20%	-	6	22	-	-	13	28	30	22	17
<50%	6	7	19	6	-	13	28	15	26	9
<80%	37	19	33	22	17	24	20	28	30	39
>80%	57	69	26	72	83	50	24	28	22	35

[1] 1 Province not responding.

[2] 4 Municipalities not responding.

Table 28

Networks available

(by geographical area – percentage values)

	LAN (Local Area Network)	Internet	Mobile Network	Local public Network	Freephones	Call center
Regions	**95**	**100**	**60**	**85**	**55**	**75**
North	100	100	75	88	75	75
North West	*100*	*100*	*75*	*100*	*100*	*100*
North East	*100*	*100*	*75*	*75*	*50*	*50*
Centre	100	100	60	80	60	60
South and Islands	86	100	43	86	29	86
Provinces	**98**	**95**	**62**	**42**	**49**	**21**
North	98	93	60	63	47	26
North West	*100*	*91*	*59*	*55*	*41*	*18*
North East	*95*	*95*	*62*	*71*	*52*	*33*
Centre	96	96	71	29	63	29
South and Islands	100	97	58	23	42	10
Municipalities [1]	**85**	**87**	**38**	**22**	**24**	**7**
North	83	87	36	23	23	6
North West	*78*	*91*	*43*	*28*	*21*	*4*
North East	*92*	*81*	*25*	*15*	*25*	*10*
Centre	84	88	45	22	29	12
South and Islands	88	85	36	20	24	4
Local Health Units	**100**	**81**	**54**	**46**	**44**	**43**
North	100	92	75	50	67	54
North West	*100*	*100*	*93*	*64*	*57*	*50*
North East	*100*	*80*	*50*	*30*	*80*	*60*
Centre	100	86	36	36	29	57
South and Islands	100	63	38	50	25	13

[1] 2 Municipalities not responding.

Table 29

Collection/payments – relations with treasury bank

(percentage values)

	ICT connection		Electronic supports	
	2002	2005	2002	2005
Regions	**36**	**47**	**57**	**26**
North	75	75	13	13
North West	*75*	*75*	-	-
North East	*75*	*75*	*25*	*25*
Centre	-	25	100	50
South and Islands	20	29	80	29
Provinces	**44**	**46**	**32**	**20**
North	54	53	32	14
North West	*39*	*36*	*44*	*23*
North East	*68*	*71*	*21*	*5*
Centre	29	38	43	38
South and Islands	23	42	23	16
Municipalities	**29**	**30**	**29**	**15**
North	39	35	24	12
North West	*26*	*27*	*31*	*13*
North East	*50*	*48*	*18*	*8*
Centre	26	35	48	27
South and Islands	7	20	29	13
Local Health Units	**-**	**36**	**-**	**25**
North	-	63	-	13
North West	-	*43*	-	*14*
North East	-	*90*	-	*10*
Centre	-	15	-	31
South and Islands	-	13	-	38

Table 30

Local computerized payment order and electronic collection voucher

(percentage values)

	ICT connection			
	Operating on 30 June 2005	Forecast for 2005		Forecast for 2007
Regions	**37**	**21**	**32**	**11**
North	29	28	28	14
North West	*25*	*19*	*38*	-
North East	*33*	*17*	-	*17*
Centre	80	-	20	-
South and Islands	14	28	43	15
Provinces	**32**	**13**	**15**	**15**
North	33	15	17	9
North West	*27*	*13*	*20*	*17*
North East	*38*	*18*	*15*	*3*
Centre	25	10	10	32
South and Islands	35	12	17	12
Municipalities	**28**	**9**	**17**	**24**
North	25	8	19	29
North West	*29*	*5*	*16*	*31*
North East	*17*	*16*	*24*	*27*
Centre	17	12	23	23
South and Islands	38	6	13	19
Local Health Units	**44**	**5**	**11**	**7**
North	46	4	9	-
North West	*36*	-	*13*	-
North East	*60*	*8*	*4*	-
Centre	57	-	18	-
South and Islands	31	13	4	30

Table 31

Reporting by the bank performing treasury services

(percentage values)

	ICT connection		Electronic supports	
		2005	2002	2005
Regions	**35**	**44**	**53**	**22**
North	50	63	38	13
North West	*50*	*75*	*25*	-
North East	*50*	*50*	*50*	*25*
Centre	33	25	33	25
South and Islands	17	33	83	33
Provinces	**21**	**35**	**21**	**11**
North	30	45	23	10
North West	*18*	*32*	*18*	*14*
North East	*42*	*57*	*29*	*5*
Centre	13	33	30	17
South and Islands	14	23	11	10
Municipalities	**13**	**21**	**11**	**10**
North	19	28	10	8
North West	*9*	*26*	*11*	*9*
North East	*35*	*31*	*12*	*6*
Centre	14	18	12	12
South and Islands	3	12	12	12
Local Health Units	**-**	**28**	**-**	**25**
North	-	42	-	17
North West	-	*29*	-	*7*
North East	-	*60*	-	*30*
Centre	-	23	-	38
South and Islands	-	13	-	25

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