

Executive Summary

In light of the i2010 initiative, the Commission has adopted initiatives to further develop the Single European Information Space—a Single Market for the Information Society. However, much existing research has suggested lower levels of ICT adoption in Europe compared to its major trading partners. Given the ability of ICT usage to blur borders and overcome obstacles to trade, ICT adoption has significant potential to strongly reinforce the Single Market. Given this potential, an investigation into the contribution of e-Business to economic integration in the EU was needed. After the introduction and a first chapter on relevant definitions, this study collects and analyses evidence on the state and development of e-Business take-up in the EU compared to its main economic partners (Chapter 3). Among these issues, the economic impact of e-Business and e-Commerce—itself a vital aspect of e-Business—on the Single Market is focused upon and placed within a wider context of overall EU economic integration. In Chapter 4, international developments in e-Commerce are described and its impact on consumer prices within the single market is analysed. Chapter 5 studies the impact of e-Business on international trade flows within the EU and Chapter 6 explores the links between e-Business, e-Commerce, competitiveness and the Single Market.

The Terms of Reference (ToR) required the analysis to focus on e-Business in general as well as on e-Commerce in particular. Additionally, the ToR addressed the need to collect data from various sorts of databases. Therefore, data has been collected from a multitude of sources that range from publicly available databases (OECD, National Statistical Offices, Eurostat etc.), private databases (Forrester Research etc.) to self-collected data (mainly online and offline prices). Due to differing concepts, definitions and methodologies of publicly available data, a degree of harmonisation was needed. To counter this, the analysis of publicly available data (where data harmonisation is most needed) rests on the construction of composite indicators which allow for broad investigations and meaningful comparisons. Additionally, a large amount of analysis is conducted using private data from only a few data providers which is much more comparable. Almost all of the data regarding B2C e-Commerce and its effect on prices comes from a single data source.

The ToR also stated that the impact of e-business will have to be mainly based on existing evidence, but could be complemented by additional empirical work or macroeconomic modelling. While a significant portion of the analysis is based on existing evidence, several sections of the report involve further empirical work as well. The construction and analysis of composite indicators, which allow for aggregating and comparing the numerous variables on the development of ICT infrastructure and usage for households and businesses across

different countries, is used as key method to study international developments in e-business take-up and usage (Chapter 3) as well as to explore the link between ICT and competitiveness (Chapter 5). In addition, statistical and econometric models as well as economic modelling are used in Chapters 4 and 5 to analyse self-collected data on online and offline prices as well as the impact of e-Business on trade flows within the EU.

e-Business

Given the background of this study, the Commission wished to analyse the overall take-up of e-Business in EU Member States compared to major trading partners. As stated in the ToR, an overall description of the take-up of e-business (state and developments) in the EU members states compared to indicators for the United States, Japan, Canada, Korea and Australia is needed, in addition to analysis that highlights the differences in e-Business up-take in the EU and the other geographical areas. This work is outlined in Chapter 3 by use of an indicator analysis which outlines the growth of e-Business infrastructure and usage from 2003 to 2008 and highlights the differences over time.

Furthermore, the analysis was required to cover different e-business applications. These are e-commerce, online payments and automated exchange between businesses. Further requirements were an assessment of drivers and obstacles to the take-up of e-business and the separation between small & medium enterprises (SMEs) and large enterprises.

E-Commerce was further to be distinguished between Business-to-Business (B2B) and Business-to-Consumer (B2C) e-Commerce. The required analysis is presented in Chapters 3 and 4. A comprehensive comparison of international developments in B2C and B2B for the required countries and regions is presented in section 3.2. In addition, B2B e-Commerce developments are further outlined in section 3.3 with a distinction made between SMEs and large enterprises in France, Germany, the UK, the US and Canada. Additionally, specific developments in B2C e-Commerce are further investigated in section 4.2, including a differentiation between cross-border and domestic transactions.

Online payment is given a special focus in Chapter 4 (section 4.2), where country-specific differences in online payment preferences of EU member states are discussed. Automated exchange is addressed in Chapter 3 (section 3.3.3), where the usage of several e-Business technologies – all based on the internal and external automated exchange of data – is discussed and analysed separately for SMEs and large enterprises in different countries. Finally, drivers and obstacles of e-business take-up are addressed in Chapter 6 (section 6.3).

The collection of above mentioned data is to test the hypothesis that larger European companies compare to the US in terms of e-Business take-up and that larger Member States compare to the US, while major obstacles remain in small Member States and for SMEs. The business aspect of the hypothesis is the bulk of section 3.3, where the usage of different e-Business technologies used by firms in different size classes and in different countries is analysed. The results show that the large European companies engage in as much or sometimes more e-Business usage as their North American counterparts and SMEs are struggling in all countries. France's firms, for example, outperform North American firms in every firm size class.

The second part of the hypothesis is addressed in section 3.2. To conduct a cross-country analysis, an additional analytical approach was taken to compare the up-take and usage of e-Business across different countries based on separate B2B and B2C indicators (with further differentiation for e-Business infrastructure and usage). The analysis demonstrates that countries of the EU are at very different stages. For example, countries such as the United Kingdom, Sweden and Denmark exhibit relatively high levels of performance. Others like Bulgaria, Romania, Greece and Italy perform rather poorly. This result is seen for both B2B and B2C. Most importantly, though, is that those countries with the highest levels compare to or have higher levels of development than the EU's major trading partners (Australia, Canada, Japan, Korea, and the United States) and that the main characteristic which differentiates strong and poor performers within the EU is not a country's size but rather its overall level of economic development.

A further objective of the analysis on e-Business developments across countries was to find evidence on the extent to which the observed differences can be attributed to legal or structural differences, in particular those related to internal market issues. The report addresses this issue at various parts. For example, the discussion on international B2C developments in Chapter 4 demonstrates that structural differences such as variations in country-specific consumer preferences can well explain a substantial part of the observed differences in cross-border purchases (section 4.2.1 and 4.2.2, respectively). Likewise, the discussion of barriers and obstacles to e-Business in Chapter 6 (section 6.3) identifies further structural differences that constrain e-Business and in particular B2C developments, such as language barriers or individual concerns about giving credit cards or personal details. On the other hand, the same analysis shows that legal differences and uncertainties as well as related issues such as the difficulty to agree to common standard are perceived as similarly important barriers. Moreover, the top-down analysis in the same chapter demonstrates that a Member State's integration into the Single Market is positively linked with ICT usage and

thus, its e-Business take up and usage (section 6.2). In other words, countries that are well integrated into the single market tend to also show high levels of e-Business usage. It thus follows that the successful implementation of EU regulations aiming at improving the Single Market through legal integration is also a mean to support further take-up and development of e-Business in the EU.

e-Commerce

As it is a vital component of total e-Business, e-Commerce is an essential aspect of the report. The ToR required the study to differentiate between B2B and B2C e-Commerce and to outline trends and developments in both for the various geographical areas covered. To this end, Chapter 3 includes a presentation of main developments of B2B e-Commerce in the EU and North America (section 3.3) and compares the findings with those for the Asia-Pacific region (section 3.4). A comprehensive economic analysis on the impact of e-Commerce on trade flows between all countries and regions covered in this report is then presented in Chapter 5. The analysis finds a significantly positive connection between a country's intensity of e-Business usage (mainly B2B e-Commerce) and its trade flows with other countries, in particular its exports. Moreover, the more intensively two particular countries engage in B2B e-Commerce, the stronger the resulting effect on bilateral trade flows due to the presence of positive network effects.

Regarding B2C e-Commerce, main international developments are discussed and analysed in Chapter 4. This includes an analysis on sales volumes as well as the underlying driving forces and differences among key countries in cross-border purchases (section 4.2). Overall, the analyses show that consumers in North American countries are much more likely to purchase cross-border than their European counterparts. Again, the European countries have differing levels of cross-border purchases.

As the ToR required, section 4.2.3 outlines the difference in online B2C business models in the United States and the EU. While Amazon is the market leader in both markets and a pure-play internet retailer, the brick-and-click retailers in the United States have a larger market share than the European counterparts. Europe's online market leaders are mainly pure play retailers and pure play dominates the market, consisting of 83% of internet revenues for the top ten internet retailers compared to just 37% in the United States. In other words, the distribution in the United States is much more equal compared to Europe. Additionally, the report looks at the growth of e-Bay, one of the most successful online auction houses. These results highlight the differing business models in the various geographic areas.

A further area of study emphasised by the ToR is the impact of e-commerce on the level of competition, both in domestic markets and within the internal market. Theoretically, it could be expected that increased use of e-Commerce on a national as well as on an international level decreases prices due to increased transparency so that the market moves to "frictionless" perfect competition. Section 4 presents an in-depth analysis on this issue, including the impact of e-Commerce on the price levels of selected consumer goods (section 4.3.6) as well as on price dispersions (section 4.3.5). The analysis reveals that price differences across countries are mildly statistically significant, while the variation in prices is significantly higher online when compared to offline variation. Furthermore, fragmentation of B2C markets within the EU is reflected by ambiguous effects on price levels which appear to depend on the sophistication of the online market. Concerning price dispersion, the assessment shows that national markets are rather fragmented and that a single market with comparable levels of price dispersion across individual member states still does not exist. However, differences in dispersion levels are clearly lower for Eurozone member countries, suggesting that the existence of a single currency positively contributes to market integration.

Another hypothesis mentioned in the ToR was that different national regulatory regimes make direct cross-border selling more complicated. The various results presented in this report can be combined to support this expectation. e-Commerce is found to have a positive and statistically significant effect on cross-border trade, with network effects resulting in higher levels of trade when both countries use e-Business more intensively (Chapter 5). Furthermore, intensive usage of e-Business is generally correlated with higher levels of EU integration (Chapter 6). This implies that there is also a connection between EU integration and cross-border trade flows through e-Business or – more specifically – through e-Commerce. Hence, differences in national regulatory regimes which counter economic integration between member states also hamper the potential for e-Business and e-Commerce. In fact, this is consistent with the conclusion that a successful implementation of EU regulations aiming at improving the Single Market through legal integration is also a mean to support further take-up and development of e-Business, as mentioned above.

Finally, the study analyses obstacles for enterprises and customers to engage in e-Commerce activities in section 6.3. The most commonly reported barriers either involve privacy or trust concerns or exist because individuals and enterprises are not aware of potential benefits. The results of this analysis are further supported by specific findings from the analysis of e-Commerce developments in Chapter 4, such as the important role of

payment preferences in explaining differences in cross-border shopping of private consumers.

Conclusions

Overall, the level of e-Business uptake in the EU varies wildly across the member states and the e-Commerce markets of Europe remain highly fractured. However, countries with the highest level of infrastructure and usage (mainly Northern and Western Europe) are those countries which are the most innovative and integrated into the EU. Additionally, in many regards, these countries perform similar levels of e-Business and e-Commerce as the United States. Much can be done to further support and develop the level of infrastructure and usage in the smaller under-performing countries.

However, many new challenges arise for consumers, firms and policy makers as usage becomes more widespread. For example, both privacy and data protection concerns arise and copyright laws acquire new meanings and interpretations with the rise of digital content, as the social and technological context is now vastly different from the context of the time in which the laws were adopted. Thus far, public and private efforts to reinforce the uptake of e-Commerce have only focused on the availability of infrastructure, which is absolutely necessary but not sufficient. From a policy making perspective, the development of new rules that meet the challenges of the online world are essential. The creation of new frameworks for rules and institutions through adequate cost-benefit analyses of potential policy scenarios and the participation of all interested parties is needed.