Overview

Towards the digital economy: scenarios for business ☆

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1. Introduction

What strikes probably most readers of recent policy documents discussing the Internet is the extent of the wide ranging and growing expectations businessmen and policy makers have with respect to the impact of new forms of electronic, interactive, digital commerce, particularly when compared to the actual, limited occurrence of the phenomenon. There is probably no area where, considering the relatively limited technological improvement still required, the gap between the actual phenomenon and expected future use is so large as in the case of electronic commerce. Internet growth forecasts for Europe for the first millennium years in terms of on-line population and Internet revenues, are staggering: from just over $1 billion in 1998 to $64 billion in 2001. By comparison, US revenues are estimated at more than $200 billion in 2001.

Such dramatic forecasts lead one practically automatically to the presumption that there must be particular strong impediments of various sorts preventing the rapid diffusion of electronic commerce so far. These barriers or impediments can be of a technical (e.g. encryption), legal (regulations), economic (costs) or simply user-friendly nature (access through PC or TV and mobile phone). The essential assumption from the policy perspective is that governments can help private industry in overcoming many of these barriers. Furthermore, overcoming those barriers is likely to involve finding international solutions, the real growth potential of elec-


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tronic commerce involving in the first instance “global” access of firms and individuals to suppliers of goods and services of all kinds. Hence, and not surprisingly, this has been to some extent the bread and butter of many of the most recent policy reports on the subject, whether from national authorities or international organisations.

In this paper, I will not enter the many technical barriers. They are by now relatively well known and evolve rather quickly because of new technical solutions. There is an obvious tendency to reduce the debate to such technical issues: to finding appropriate technology solutions to the many security, privacy or consumer protection problems. In doing so, the basic premise is generally speaking that the current legal framework regulating “meatspace”, as some authors are calling real, physical commerce, can be adapted to “cyberspace”. While this will be certainly the case for a number of products and consumers, whether business or individuals there will also be many cases where such technical solutions will not really provide conditions of trust and transparency typical of physical, human interactions. From this perspective, not to open the “back box” of the more human, cultural and social barriers, pointing for instance also to the role of shopping as a social activity, seems to ignore some of the most essential features of “commerce” activities.

To avoid this critique, the assumption is often made that it is the business-to-business segment of electronic commerce that will take the lead, where such barriers are unlikely to play a significant role. For the first years of the next millennium, the business-to-business segment is indeed expected in most forecasts to be the driving force behind the expected rapid growth of e-commerce. This will allow for lower costs through international access to cheaper and more efficient suppliers, further opening up and enlarging market opportunities particularly with respect to small and medium-sized firms and better use of available capital. In short, it will change the business fundamentals of exchanges both internally and externally with suppliers and customers. From this perspective, it is likely that e-commerce will represent a flood of new market opportunities. However, in making these rather reasonable assumptions, one should not underestimate the relatively broad extent of electronic interchange that already exists between various supply chains from raw materials production down to retail sale businesses in highly developed economies such as the US, Japan or Europe. From this perspective, electronic commerce appears more like an evolutionary transformation, a further, undoubtedly more ubiquitous, efficiency-improving factor in a long series of improvements in logistics and wholesale and retail trade activities, from bar coding, EDI to e-commerce. As a consequence, and maybe somewhat paradoxically in terms of expectations of the huge growth and efficiency-enhancing effects of e-commerce, these appear to be more of the incremental type. This will be particularly the case in sectors with already large sophisticated multinational companies operating, as in the food or motor car sector, in a logistically sophisticated way; by contrast in sectors with many SMEs and a more outspoken domestic focus, e-commerce is likely to lead to a much more dramatic change in efficiency and competitiveness.
In the case of business-to-consumers e-commerce, the long-term growth impact of electronic commerce is likely to be even more significant given the greater opportunities for substitution of physical commerce for electronic commerce, the possibilities for greater market transparency allowing consumers to identify products at lowest price and the new opportunities for suppliers to “version” (Varian, 1997) goods more directly to consumers’ needs. The balance between these consumer-economic advantages versus possible social and cultural needs for shopping is likely to differ across different product categories. Hence the diffusion path of such new forms of electronic commerce is likely to be very differentiated, with some goods, such as software, computer games and other content programmes, CDs, books becoming rapidly traded on-line on the Internet, whereas others continue to rely on physical commerce. Here too, the likely growth impact in electronically traded product categories will be very high, becoming continuously enlarged both in the sort and variety of products and services offered.

The line taken in this paper is that the Internet and electronic commerce issue has been too much dominated, as is often the case, by the search for technological solutions to cyberspace, assuming rather quickly that physical and electronic commerce are perfect substitutes. In doing so, one is likely not only to be confronted with overestimation of the substitution possibilities of physical commerce with electronic commerce, one is also likely to underestimate the new growth possibilities of electronic commerce outside of traditional commerce fields. It is in this sense that the word e-com seems particularly badly chosen and very reminiscent of previous technological transformations such as “the wireless” (Rosenberg, 1998) expected in their impact only to substitute by now old, nearly forgone human activities. More than in such previously, primarily technologically driven cases, the discussion of Internet and electronic commerce will have to acknowledge to a much greater extent the particular features and relative merits of physical versus electronic communication and exchange including money exchange. This discussion will also have to address the more fundamental question, as a number of economists dealing with information economics have done for some time now, whether the various technological and legal attempts to create such familiar market relationships will imply the same market optimality and social welfare outcomes. We turn to this issue in Section 2.

However, as we will discuss in Section 3 of the paper, to limit the debate on e-commerce to the distribution of goods and services would seem to miss the essence of what the information highway is all about. From this perspective, the real growth of electronic commerce does not seem to lie in the simple substitution of physical commerce with electronic commerce. Rather, it seems to lie in what we will call “e-exchange” here, i.e., the opportunities offered by electronic networks for new

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1 Even though in some countries the use of post-order, telephone or television shopping is already quite well diffused.
forms of exchange and communication across businesses, between businesses and consumers, and between consumers. The main “commerce” challenge is to generate value out of such new forms of exchange. From the perspective of Europe’s current, relative lagging position in e-commerce, two areas appear to be of special relevance. E-banking, which in the European context of Euroland might become the leading sector, establishing new conditions of security, trust, even tax compliance and information services, including both private as well as public media, libraries and other information services. In the latter case, it might be argued that in the European context of many such public information services, e-exchange might become an enabling factor for broad public access to information highways, as discussed in Section 4.

If these challenges are not addressed, the new opportunities of Internet are likely to become part of the underground part of the economy. They may become part of that contribution to overall well-being economists have little grip on, not being measured, not being paid for, only contributing in a virtual sense to economic growth, national income, or tax revenues. I conclude this paper by arguing that while unfortunate, this trend might actually force economists to readdress some of the old well-being and “happiness” issues. Issues which were eliminated long ago, when microeconomics turned utilitarian, but probably of growing importance in a society in which the immaterial satisfaction of easy information and communication becomes an intrinsic part of well-being and happiness.

2. On the nature of electronic exchange markets

There is little doubt that one of the main achievements of economics has been the pervasive illustration that prices in well-functioning markets lead both in a static and in a dynamic sense to “optimal” outcomes. In a static sense, “free-market” prices solve in a better way than any other system the distribution of scarce commodities between consumers – anyone not willing to pay the market price will simply not be allowed to consume the commodity. In a dynamic sense, prices also signal profit opportunities to potential suppliers, their entry and competition with the incumbent, bringing prices in line with production costs. Under the well-known assumptions of free, well-functioning open markets, such market price systems will create the maximum amount of socialist surplus. It could be argued from this perspective that the failure of the plan-based, socialist system was in the first instance a failure to cope with the dynamic challenges. It failed to increase social surplus, precisely at a moment (the 1970s and 1980s) when changes in new production methods and new product opportunities were also challenging the capitalist market system.

However, for markets to function well three essential structural conditions need to exist: excludability, rivalry and transparency. These conditions are to some extent intrinsic to the exchange of material goods.
Thus, the exchange between seller and buyer needs to involve the exclusive exchange of ownership over the particular product. Once traded the latter is no longer the property of the seller but the exclusive property of the buyer. It is this feature which is of course behind the notion of economic scarcity and provides the impulse for new output activities on the part of the seller. Another feature typical of material production and open markets is the notion of rivalry. While significant economies of scale are likely to exist in the production of most material goods, the selling of a single will still imply that the same cannot be sold to another buyer. At the same time, while there might be significant entry barriers, the threat of new entry will imply that suppliers will not be in a position to keep prices substantially above costs. Rivalry is in other words a major and essential condition for markets to generate optimal outcomes. Finally, the exchange of material goods involves a high degree of transparency: the buyer can see, feel, smell, test, in some cases even taste the product on offer.

In the case of the exchange of a pure information “electronic” item, it can be argued that none of these conditions hold. The owner of the digital commodity selling his product on the marketplace will have difficulty in preventing buyers or anyone else for that matter from copying and reselling it. Excludability will typically be difficult if not impossible to achieve. Rather than a purchase and sale relationship, the nature of the exchange will look more like a gift. The creation and enforcement of excludability is hence an absolute and first condition for such markets to exist. Hence the focus on encryption, watermarks and various other forms of tracing and monitoring property rights is a central focus of most policy documents on e-commerce. Without these rules creating excludability, no optimal level of production can be achieved and little indication can be obtained of the sort of products that are wanted by potential buyers.

Yet the creation and strengthening of such property rules has of course immediate implications for the openness and the degree of competition in such markets. If property protection will be absolute, whereas at the same time marginal production costs are minimal, possibly even nil as typical for many digital goods, many potential users will not consume, and compared to the social optimum, too little will be produced (as in the case of the virtual monopolist). At the same time, the individual producer is now being guaranteed a fixed property income and has little to fear both from competitors and consumers who can only choose to buy the particular product from him. This non-rivalry characteristic directly challenges the optimal market outcome. It raises a very large set of welfare questions characteristic of what has been called network economics and involving competition policy, regulation – for instance price control in the case of natural monopoly – standards and interconnectivity, etc.

Finally, despite the tremendous opening up of trading possibilities and the increase in market transparency, the actual exchange of a digital commodity will involve almost by definition a high degree of information asymmetry between seller and buyer. Many of the new forms of markets emerging on the Internet are typical
illustrations of such problems of information asymmetry and well-known in information economics. New intermediaries emerge assisting buyers in their search; alternatively goods might be offered for free, paid for by advertising or by subsequent upgrades; a limited preview of the goods might be offered for free; etc. We will return to some of these new forms of markets and intermediaries in the section below. Yet, what is clear is that the traditional physical marketplace is being replaced by a far more complex and diversified set of exchange methods in which the value of what the content seller is offering, is likely to differ strongly amongst individual consumers – hence the crucial importance of so-called versioning (Varian, 1997) – and becoming distributed amongst many intermediaries that have brought buyer in contact with supplier – with significant shifts in the value chain highlighted in so-called attention or click economics.

On all three accounts it is difficult to simply subscribe to the notion that the newly created markets will, as in the exchange of physical goods, guarantee optimality. As De Long and Froomkin (1998) put it forcefully: “What used to be second-order “externality” corrections to the invisible hand have become first-order phenomena” in the cyberspace world. Nowhere else is this more clearly illustrated than in the artificial creation of excludability. In contrast to the old notion of the invisible hand of the market, excludability is human made. Its length, its height, its breadth as in the case of patent protection, is likely to have major implications for market structure, competition, and more generally welfare. Furthermore, while national rules might be enforced and hence domestic excludability succeed in generating an optimal outcome, international differences in the protection of property rights might undermine such domestic attempts at strengthening intellectual property. In other words, the human-made rules of excludability involve practically by definition particular sectoral and/or national lobbies. 2

The variety of new forms of markets and exchange on the Internet also illustrates that it is very difficult to draw a distinction between electronic “commerce” and electronic exchange whereby the former would be limited to purely commercial transactions. As different forms of information markets emerge, it will be clear that many different forms of electronic exchanges will have an (in)direct impact on consumer satisfaction and costs. 3 The electronic commerce debate therefore needs to be broadened to include all forms of electronic exchange. In so doing it brings to the forefront that the emerging information society is much broader than an electronic commerce economy and that the policy challenges are similarly much more

2 The extension of copyrights from 50 to 70 years is a good case in point. The US became instrumental in making the case for this extension, many early Hollywood movies being in danger of falling into the public domain.

pervasive. Before entering into this discussion we focus on some of the more narrow “commerce” issues.

3. From e-commerce to e-exchange value

For the commercial exchange of goods to take place there are a number of prerequisites well known in economic theory. Specialised infrastructures for the organisation of commercial transactions are obviously needed as they have existed since the Middle Ages, such as marketplaces or trade fairs, particular trade sub-areas in towns (one may think of Shinjuku in Tokyo with respect to electronics), and more recently malls of various sorts in suburbs of cities. As argued by Chandler and others, the organisation of commerce through wholesale distribution, various intermediaries from representative agents, importers down to retail sale shops has aimed at reducing the investment costs associated with the organisation of commerce so as to better adjust to the sometimes erratic movements of final demand. Such infrastructure costs will, however, only be recuperated if commerce actually takes place. Another essential cost feature associated with commercial transactions is of course the information search cost preceding a possible transaction. In transaction theory these are called the ex ante transaction costs.

On both accounts, information highways are likely to significantly reduce costs. The emergence of virtual malls is likely to replace the physical infrastructure; the information search costs are similarly likely to become significantly reduced due to the ease of electronic access and the available databases on products and suppliers. Transaction costs are thus likely to fall and existing intermediary costs decline. This argument appears to be valid both for intermediary as well as final demand.

Alongside these immediate short-term impacts, there are of course longer-term impacts that are more associated with new possibilities for trade and commercial exchange. Electronic exchange is likely to lead to a substantial reorganisation of markets with the value chain shifting across business. The phenomenon of outsourcing is typical of such reorganization. As witnessed in the rapid growth of business services, activities that are not part of the core manufacturing or service production of the firm can now be carried out more efficiently outside of the firm, in specialised companies. Similarly with respect to final demand, goods and services can become more versioned to the particular needs of the consumer. In the extreme case “untradable” services – “untradable” because of the physical presence of the service delivery – can now become effectively traded, raising dramatically the tradable value of such services.

Table 1 classifies these impacts for both intermediary and final demand: short-term cost impacts associated with reduction in transaction costs and the disappearance of intermediaries (disintermediation) and long-term growth impacts associated with the reorganisation of production and markets and new commercial transactions.
Most of the high expected growth impact of electronic commerce is associated with this typical dual feature of technological advance: a significant cost reduction impact increasing efficiency and freeing resources and a more direct growth-enhancing impact associated with new growth opportunities.

The critical questions raised with respect to the actual growth likely to occur are twofold.

First, the discussion on electronic commerce, particularly in the business-to-business segment, seems to ignore the quite common existence of various forms of electronic exchange between businesses such as electronic data interchange (EDI) or bar-coding systems. These systems in operation in many sectors (the food sector being probably the most developed one) have existed for over 15 years and have to some extent formed the basis for the trend towards outsourcing. While these forms of electronic data interchange can be viewed as early forms of electronic commerce, their widespread use across businesses puts somewhat in perspective the immediate, additional growth impact of further reductions in transaction costs associated with the emergence of information highways at least in the business-to-business segment.

Of course in many countries EDI systems have remained limited in their use to only a couple of sectors, many of the networks used because of their proprietary nature have remained very costly and their compatibility often limited. It is most likely that the open standard, compatibility and low costs associated with Internet will significantly expand the possibilities for more extensive and widespread use of EDI across sectors. Particularly with respect to small and medium-sized firms and new access possibilities to international customers and suppliers, a significant new impulse can be expected. At the same time it is important not to underestimate the widespread nature and integration of use of EDI and bar-coding in many sectors. The bar-coding system, for example, has been continuously upgraded, allowing systematic integration of inventory data, payment systems, and even sales or VAT tax reporting. The security and reliability of the system is well accepted in many sectors and often contrasts sharply with the, at least perceived, insecurity of Internet and the new forms of electronic commerce. Similarly, most business transactions are already the subject of various forms of electronic final transfer. The guaranteed security and trust in such systems is likely to be an important factor in slowing down the use of other more open, Internet-based solutions.

In other words, many of the impacts described with respect to reduction of transaction costs as a result of electronic commerce in intermediary demand have

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Table 1
Impacts for both intermediary and final demand
often already taken place. While further growth is likely, growth will rather be incremental than exponential.

Second, and with respect to final demand, the reduction in transaction and intermediary costs is undoubtedly also being accompanied by new information search costs. The dramatic growth in access to information has also led to new search costs. As a result, the reduction in intermediaries and transaction costs is likely to be accompanied by the emergence of new intermediaries, selecting relevant information. The emergence of these intermediaries, so-called intelligent agents, while likely to solve some of the new search costs for final consumers, will also raise transaction costs. Furthermore, to the extent that such agents also take away some of the more “desirable” search activities of consumers, they are likely to become confronted with social and cultural barriers. For some products and services, commerce will remain in the first instance a social activity where personal contact, search, and experimentation continue to be an essential feature. As the limited success of post-order selling, at least in Europe, has illustrated the pleasure of acquiring something will remain for many products something people like to be directly involved in themselves, whereby personal contact remains an essential feature. In other words, electronic commerce might well continue to be constrained by human beings’ desire to be personally and directly involved in consumption.

Yet, there is little doubt that the emergence of information highways and the Internet has led to an explosion of new activities involving the search for information: data, facts, new items in all forms available at ones fingertips and stored in millions of books, articles, databases, libraries, websites, etc. Such new possibilities for data-mining and more information are not just leading to better informed judgements in commercial buying and selling but in all kind of activities. Some of these are essential for one’s work, others are purely of the hobby type, and still others simply contribute to one’s personal general knowledge, or interest in democratic control and so on. On the other hand, the emergence of the Internet has led to new opportunities for communication. Not just for business or private family communication as in one-to-one ‘commercial’ telephone conversations, but in all kind of forms of one-to-many communications such as virtual video conferences, debating clubs, chat rooms, and so on, identifying people somewhere on the globe with similar work, leisure, hobby, personal and political convictions. Such forms of exchange do not appear to have any more commercial ‘value’ than is being paid for in terms of Internet access charge and telephone costs. Nevertheless, it is obvious that such electronic communication activities represent a large part of the increased welfare associated with information highways and that they indirectly contribute to economic performance and feelings of well-being.

This explains why, in the current debate on Internet and the information society, limiting the relevant economic discussion to e-commerce – the commercial exchange of the selling and buying of goods and services – appears so minimalistic. It reduces the relevant growth and welfare parameters to only economically directly measurable concepts, such as lower costs and larger markets.
4. Generating e-exchange value

There are two areas of economic activity which in essence involve only handling of information and appear from the outset crucial “enabling” areas for the more narrowly defined e-commerce to take off: financial services and information services, whether public or private.

Financial services have a long history in the use of information and communication technologies. They have been at the forefront in the 1960s of a rapid process of automation becoming rapidly one of the main customers of the large mainframe computer sector. Similarly, with the advent of the minicomputer followed by PC, the financial sector has been quick in picking up these new technologies, adjusting rapidly its organisational structure to the new, more decentralised opportunities offered by the personal computer. As opposed to these more process-driven uses of information and communication technologies, the advent of the ATM has allowed banks to respond also more directly to consumer needs for easier, 24 h access to money. Under pressure of its large customers, concerned by security reasons, banks have also become instrumental in the immaterial exchange of money between businesses, salary and wage payments and increasingly final consumer payments (pin codes, credit cards and electronic purse cards).

With respect to electronic banking, most banks now offer home banking services to their clients, who can log in from their computer through a modem onto the bank’s computer using a specific protocol. Such forms of PC banking can be best compared in line with our discussion above on EDI. While there is digital electronic interchange, it is a closed system. One cannot shift from one bank to another to transfer savings to another bank offering better rates. Internet banking involving open access and use of the Internet is still relatively limited, the exception being probably Finland and Sweden, and more focused on financial services of all sorts each searching for the elusive market niche.

By itself, as Fig. 1 illustrates, there is little doubt that there are substantial cost advantages to banks in shifting from physical interchange to electronic interchange. But as Fig. 1 also illustrates and in line with some of the arguments set out in the previous section with respect to the incremental nature of e-commerce as opposed to EDI and bar-coding, the cost advantage of the final step from PC banking to Internet banking is relatively small. As in the case of e-commerce, the real benefit of Internet banking will in the first instance be linked to increased competition and consumer satisfaction. Traditionally, these features are not what existing banks are particularly interested in. Even today, Internet banking and, more generally, Internet-based financial service provision has been provided by the small player, such as in Finland, or newcomers.

This is why the combination of the introduction of the Euro and its major impact of financial restructuring and competition in the banking sector and Internet banking looks so promising in the European context. The shift in trust, habits, national identity which is being brought about by the replacement of a national
currency for a new, unknown Euro is in many ways rather similar to the shift in trust and habits required to shift to purely on-line Internet banking and other financial transactions. At the same time, the transparency brought about by prices, wages, rates being dominated all across the 15 member states in a common currency is likely to provide a major impetus to European commerce and exchange whereby the Internet is likely to provide the tool to realise and bring about such transparency and growth. With the structural change occurring in the banking sector, Internet banking as an area where such on-line exchange can become complete is likely to become the major growth area of such electronic commerce and exchange. At present, many of the existing Internet banking services are typically limited to national or domestic clients. In the foreign country, the bank will typically operate through its physical retail banking presence. The combined effect of the Euro and information highways makes such electronic pan-European services attractive to both existing banks, opening up their national markets and enabling clients to access their bank wherever they are in Europe (Lavin, 1998).

A second area that might become a “pulling” factor for Internet uptake and e-commerce is information services.

Characteristic of Europe is the enormous institutional variety in the provision of such services, obviously linked to Europe’s variety in language, culture, public and private involvement in media and broadcasting and more generally public services including health, education, transport, government services, public utilities.

First, these services are first and foremost information services, often involving many private and public information features. This raises other issues than just problems of excludability and rivalry typical of commercial markets but similarly important questions about privacy, access and democratic control, also of direct

Fig. 1. Internet banking is cheaper for banks (source: Booz-Allen & Hamilton, Inc. February 1996 as quoted in “The Emerging Digital Economy”, US Department of Commerce, April 1998, p. 29).
relevance to many of the new forms of e-commerce and e-exchange. It is actually here that Internet use has really taken off, often raising many “new” legal and moral issues about collective responsibility, e.g., of Internet Access Service Providers (IASP), privacy and security.

Second, because the physical and human capital investments in such activities have often been substantial, there are many policy issues raised about (universal) access, connectivity, standard setting etc. Many of these services were in the past dominated by public provision. Given the liberalisation and deregulation trends in such public sectors and the high risks involved in investing in new, interactive information systems, there are new market opportunities for private partnerships in the development, execution and maintenance of new information systems. To provide sufficient incentives for investing and maintaining the underlying information infrastructure, a clear and appropriate regulatory framework will need to be established, both for “owners” as well as for operators of the Internet infrastructure.

Third, the “public administration” sector is probably the ideal sector for internal organisation experiments, bringing to the forefront the many organisational bottlenecks in bureaucratic organisations, and enabling diversity at the local administration level. Such experiments and pilot projects, in the courtyard of government so to say, are likely to be much more promising in revealing more immediate solutions for and insights into some of the practical organisational and local problems associated with the introduction of information highway and electronic exchange. Here too, the variety of European experience could well be an asset. This can to some extent be viewed in parallel with the discussion in Section 3: electronic exchange allowing not just internal re-engineering processes to take place in the public sector, but allowing also for new forms of external outsourcing and public private partnerships. It could be argued that the efficacy and efficiency of the public sector would become, similarly to infrastructure provisions, a key variable in the competitiveness of countries.

Fourth, many areas dominated by public authorities and public service providers such as education, health, culture, media, social services, immigration, police, libraries and other local services are typically bound by the geographical limits of the country, province, region or town within which they operate and are administered.

In other words, the wide European variety of information services provides a number of opportunities for information-led growth, whereby such services might become both a cost reduction factor for business and at the same time provide some of the “killer applications” for new consumer-led growth, opening up new market opportunities for private partnerships in the development, distribution and maintenance of new information systems. At the same time, the public sector can help to guarantee reliability, trust, legal security and access and become a model of electronic service provision. The assumption that private parties and the market will by themselves take care of the many new growth opportunities induced by the information highways is, as I argued in Section 2, seriously flawed.
5. Conclusions

The focus in most recent documents on Internet and e-commerce has been on the challenge both for business and policy makers to bridge the gap between the enormous growth potential offered by the Internet and the limited amount of electronic trade still taking place on the information highways. As argued in Section 2 of this paper, this challenge goes far beyond some of the new technical solutions offered for encryption, watermarks, certification authorities, etc., all aimed at organising new property rules in markets characterised by lack of excludability. Whether one likes it or not, the development of markets in cyberspace requires a substantial amount of human-made intervention. To what extent such markets still correspond to the economist’s ideal of social optimal must therefore be questioned.

As a result, the scope of relevant policy issues must be broadened. E-commerce will increasingly raise questions about competition policy with a tendency for “winner takes all” features in the production of many digital, non-rivalry goods. Questions about open standards, compatibility and inter-connectivity will increasingly influence existing competition rules, as will issues about dynamic efficiency; new questions about data protection and consumer privacy will have to be addressed with the emergence of new intermediaries competing in their access to customer data; attempts of firms at creating artificial rivalry through, for example, continuous upgrading, versioning of goods and services will raise new policy issues; and many other directly policy-relevant issues going beyond traditional economic policy concerns.

A discussion on the digital economy can indeed not be limited to just issues involving the organisation of electronic commercial activities. The Internet provides a vast array of new information and communication access opportunities. The largest part contributes only indirectly to increased efficiency in economic production and distribution, but involves in the first instance increased consumer satisfaction, increased welfare and freedom of communication and exchange. It is in this sense that the notion of an Information Society emerging takes on its true value. A society in which the ease of communication and access to information and data are not just essential ingredients of economic activity – in the production, distribution and consumption, increasingly of digital goods and services – but also of leisure, of household and other so-called “non-work” activities, of social interaction and democratic expression. I would argue that the easy access to this variety of new “immaterial” goods and services, the largest part of which are not commercially traded, represents to some extent the new wealth of the 21st century.

Typically, these are goods and services that in their consumption do not lead to the sort of happiness paradox first identified by Tibor Scitovsky in the 1960s that is characteristic of material consumption. The consumption of material goods with its dramatic growth in product innovation, in product differentiation (consumer's love of product variety) has become characteristic of the consumption societies of the 1970s and 1980s. As Frank (1997) has argued forcefully, such a consumption pattern
has also led to a spiral of over-consumption in which individual consumers define happiness ultimately in terms of relative consumption. Happiness is from this perspective closely linked to excludability and rivalry, possessing a more recent car than one’s neighbour, wearing a new more fashionable dress than one’s colleague or possessing a more up-to-date computer than one’s boss. By the same token, unhappiness can increase even if one’s own consumption remains the same simply because of other people’s consumption patterns. Consumption has, in other words, negative externalities.

By contrast, immaterial network goods and services, I would argue, are typically characterised by positive externalities. Having seen the same movie, read the same book, listened to the same band, opera, performer, all of these create positive externalities. Consumption of such goods increases social cohesion, or, to put it differently, leads to a desire to communicate, to exchange information, to share common impressions. Even if the widespread diffusion of electronic exchange and communication does not in the end add to the creation of additional value in a narrow economic commercial sense, it could significantly increase well-being and happiness. From this perspective, the Information Society could well represent the trend towards a society less based on material production and consumption, hence providing a solution to the unsustainable nature both from an environmental and personal perspective of material based output and consumption growth. It is in this sense that the emerging “new economy” should be understood. New global opportunities for information-based, primarily immaterial, production and consumption, whereby some might be measured and find their expression in GDP or productivity growth, but most evaporate in the virtual cyberspace simply increasing the opportunities for visiting, learning, interacting and exchange of ideas and views.

References