Foreign direct investment in a digital economy

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Abstract

Purpose – The analysis of the role of foreign direct investment (FDI) in the emergence and development of digital economy.

Design/methodology/approach – Examination of the developments of FDI and the new destinations explained by the liberalization measures undertaken by governments and inward investment agencies in globalization.

Findings – While FDI does displace some exports, it also creates a number of reverse imports. Companies are forced to improve their managerial efficiency. The elimination of internal barriers to trade and capital mobility has been accompanied by a rapid growth of multinational enterprises (MNEs) in EU.

Originality/value – The development of e-MNEs will bring different utilization of the production plants and use of logistics to distribute tangible goods, while intangible goods will be distributed by very advanced technology centres based on home locations. The digital economy should not be confined just to e-business and e-commerce.

Keywords International investments, Multinational companies, Electronic commerce, International economics

Paper type General review

1. Introduction

Globalisation is formed and fashioned in and through particular political economies and techno-economic relations. Additionally, globalisation is characterised by structural reforms such as trade and investment liberalisation and increased trade and international investment flows promoting growth, altering the composition and geographical distribution of economic activities, stimulating competition and facilitate the international diffusion of technologies having significant effects, both positive and negative, for sustainable development. Multinationals are the vehicles for much of this globalized economic activity, and in turn, foreign direct investment by multinational corporations accounts for an increasing proportion of global economic activity. The escalation in international investment means that a country’s sustainable development is progressively more influenced by multinational enterprises (MNEs). Economists define as multinational enterprise any company, which “owns, controls and manages income generating assets in more than one country” (Dunning, 1992, p. 34). This definition distinguishes between an enterprise that engages in direct investment, which gives the enterprise not only a functional stake in the foreign venture but also managerial control, and one that engages in portfolio investment, which gives the interesting enterprise only a financial stake in the foreign venture without any managerial control. A MNE is a corporation that owns or licenses its business activities both at home and in host countries. There are three major entry strategies for a MNE entering a foreign market: FDI, JV and Licensing.
Cyberspace is a global network of computers linked by high-speed data lines and wireless systems strengthening national and global governance. Hence, cyberspace joins a long historical heritage of new information technologies threatening to upset the existing nature of politics within nation-states. Can an e-MNE be defined as a firm that has facilities in a number of countries and its management achieved via cyberspace? An e-MNE can be defined as a virtual enterprise that has production facilities in various countries concerning tangible goods and an advanced network dealing with intangible goods and services achieved its management via cyberspace by humans or some actions be made by electronic agents such as electronic contracts and automated sales. Of course, the programming of the electronic agents in order to deal with electronic transactions is made by the humans. Therefore, an e-MNE can control and manage income generating assets in more than one country by the means of a network spread around the world and an electronic base located in a single building or place. An e-MNE can be engaged in direct investment outside its home country either on traditional plant or on electronic networks selling globally intangible goods and services. The worldwide production and consumption of goods and services become more and more internationalised. Has globalisation brought forward the emergence of digital economy? At present time the emerging digital economy works in tandem with the traditional forms of economy including the partly use of e-commerce and its technology. Aim of the analysis is the examination of the role of FDI in the development of digital economy.

2. The role of FDI
Foreign direct investment (FDI) is the vehicle by which firms achieve their strategic objectives. A company must possess some asset such as product and process technology or management and marketing skills that can be used beneficially in the foreign affiliate in order to invest in production in foreign markets. According to Kindleberger (1969 p. 13), “for direct investment to thrive there must be some imperfection in markets for goods or factors, including among the latter technology, or some interference in competition by government or by firms, which separates markets”. The industrialized nations have remained the major contributor as well as the major recipient of FDI though FDI flows to the developing world have more than doubled between 1990 and 1999. According to Chakrabarti (2002) in 1999, nearly 58 per cent of 30 global FDI flows went to the industrial countries, 37 per cent to developing countries, and just 5 per cent to the transition economies of Eastern Europe. FDI embodies two typical assets: first, capital and second, technology or a number of intangible advantages. So, FDI is more likely to be important in industries with significant firm-specific, intangible, knowledge-based assets (KBAs). MNEs are in actual fact exporters of KBA, including technology, engineering, management, marketing, and financial services. Human capital skills are significant in generating KBAs. Moreover, multinationals sell the services of devices that protect the value of their KBAs, including patents, trademarks, trade secrets, and copyrights (Maskus, 1997).

MNEs locate production or market activities abroad where they can benefit from market power expansion and location specific advantages. So, market expansion and cost reduction are the two advantages that MNEs pursue through FDI. Foreign direct investors’ advantage stems from their special experience and know-how in a particular industry outbidding other investors for the top productivity firms (Razin and Sadka,
Developing countries with weak financial institutions, and low corporate governance and accounting standards catch the attention of a higher share of their capital inflows in the form of FDI (Loungani and Razin, 2001). A company must possess an ownership advantage, such as a patent, which it wishes to exploit in foreign markets, locational considerations, such as tariffs and transport costs, dictate the supplying foreign markets by foreign production. According to Bagwell and Staiger (2002, p. 19), “the location of production facilities abroad directly informs rival firms of an entrant’s production costs, and the case of firm-specific informational asymmetries where the decision to locate production facilities abroad signals the costs of the entrant”.

When does FDI contribute most to the development process? Foreign direct investment contributes most to the development process when the affiliate is wholly owned and fully integrated into the global operations of the parent company. Once the parent investors commit themselves to incorporate the output from a host country into a larger strategy to meet global or regional competition – there is evidence of a dynamic “integration effect”, which provides newer technology, more rapid technological upgrading, and closer positioning along the frontier of best management practices and highest industry standards, than any other method for the host economy to acquire such benefits. There is evidence of more intensive coaching for suppliers in quality control, managerial efficiency, and marketing than any other means for firms in the local economy to gain these skills (Nunez, 1990).

FDI will improve competitiveness and, thus, create employment and increase the welfare of the host nation (Dunning, 1994). This is a result of inward investment increasing the number of entrants in the indigenous industry which forces all competitor firms in the industry to become more competitive by reducing costs and improving efficiency and quality. Much FDI activity is achieved by way of a joint venture between a foreign company and an indigenous company and this may bring advantages such as risk diversification, capital requirement reductions and lower start-up costs (Perlmutter and Heenan, 1986). Indirect impact will manifest itself in the creation of spillovers and linkages – typically in suppliers and customers – whereas the dynamic impact will affect the competitive environment. Inward investment is likely to stimulate the production of global competitors in the recipient country (UN, 1995). Moreover, FDI is no longer flowing to the established destinations, and that its determinants and purpose have changed to new destinations and cannot wholly be explained by the liberalization measures undertaken by governments, or its institutions, like the inward investment agencies (IIAs) (Mudambi, 1999). The levels of development in different countries, and their governments’ policies, also differentially influence FDI decisions. It should be taken into account that MNEs might move to an unattractive location, even without incentives, if their rivals were entering that market. The theory of capital movements (portfolio investments) was the earliest explanation for FDI (Iversen, 1935). Unlike portfolio investments, transferring knowledge, and other intangible firm assets, to organize production abroad did not surrender ownership or control. Companies set up production facilities abroad for products that had already been standardized and matured in the home markets (Vernon, 1966). It should be taken into account that company’s knowledge and skills comprise implied ownership advantages that take time to develop, and the MNEs, with their capacity to formulate and handle complex organizational structures, control these advantages through worldwide investments in order to sustain them. Market size and
growth, barriers to trade, wages, production, transportation and other costs, political stability, psychic distance and host government’s trade and taxation regulations, performance requirements, cultural distance, GDP per capita and infrastructure are factors affecting FDI location (Dunning, 1993). Large MNEs cannot afford to give up emerging markets to their competitors by default, and so follow their rivals into the developing countries’ markets. Besides, the developing countries, take various institutional measures for attracting FDI through liberalization, infrastructure improvement, human capital development and investment incentives.

While economic growth, and technology transfer to the host country are important consequences of FDI, development of technological infrastructure and human capital are critical prerequisites, and so antecedents for FDI (Noorbakhsh and Paloni, 2001). Moreover, while psychic distance has been pertinent so far in FDI decisions (UNCTAD, 1997; UN, 1998), its importance might gradually reduce with increasing globalization and development of new/digital economy. According to Sethi et al. (2002 p. 701), “institutional and strategic factors into theory ... need to be considered in tandem to explain the change in trend of FDI flows”. The inflow of FDI includes a raise in the production base, the introduction of new skills and technologies and the creation of employment. Foreign investors increase productivity in host countries and FDI is often a catalyst for domestic investment and technological progress. Increased competition associated with the entry of an MNE upgrades the competence and product quality in national companies, and opens up possibilities for export (Ahn and Hemmings, 2000).

Is there a transition from multinational enterprises that take advantage of labour cost differentials in different countries to global network enterprises? Global production networks lead to companies that integrate their dispersed supply, knowledge, and customer bases into global (or regional) production networks. According to Ernst and Kim (2002 p. 12), “network participation may provide new opportunities for effective knowledge diffusion to local firms and industrial districts in developing countries, provided appropriate policies and support institutions are in place that enable local suppliers to exploit the opportunities and pressures that result from network participation”. On the one hand, companies engage in product or process specialisation in order to utilize international differences in locational comparative advantages and integrate them with other activities performed in another place through intra-firm trade. On the other hand, FDI and trade are flourish in different activities and industries, suggesting a discrepancy between the competitiveness of companies and their home countries.

Foreign investment may benefit host countries through transfers of technology, stimulation of technology diffusion from new competition, and provision by foreign firms of worker training and management skill development (Harrison, 1994). More technology spillovers were evident when there existed small technology gaps between the foreign investor and the host economy (Kokko, 1994). For instance, foreign firms locate plants in the USA to gain access to existing technologies, but also spur new technological development within those clusters with which they are involved (Almeida, 1996). Innovation or introduction of something entirely new and unexpected is a non-linear act of unpredictable consequences and cannot be planned. Innovation is usually expensive, risky, disturbing, destabilising and expectant with conflicts and in return, innovation creates a new, normally unknown faculty, which introduces a value diverse from the customary system of social values. The world consists of information just as it contains material and energy. According to Szanto (2001, p. 689), “There is a
race going on between human innovative intelligence and the general regression we are witnessing, causing and participating in. The human being is in a desperate contest with himself. Actually, this is what the problem of sustainability really means”.

Foreign investors increase productivity in host countries and FDI is often a catalyst for domestic investment and technological progress (De Mello, 1999). Increased competition associated with the entry of an MNE upgrades the efficiency and product quality in national firms, and opens up possibilities for export (Markusen and Venables, 1999). Foreign investment plays an important role in the dissemination of gains from innovations, especially for developing countries (Ahn and Hemmings, 2000). Furthermore, foreign direct investment stimulates growth and has a larger impact than investment by domestic firms (Borensztein et al., 1998). Developing countries need to have reached a certain threshold of development before being able to capture the benefits associated with FDI (Saggi, 2000). Vertical production processes are being fragmented, with discrete pieces of these processes being outsourced to countries that have advantages in providing the inputs that fragments use, whether this be unskilled workforce, capital, or cheap energy sources. The costs involved in fragmentation have declined spectacularly, including not only transportation costs, but also the costs of monitoring deliveries and coordination, the costs of delivering information, and the costs involved in dealing in arms-length transactions with foreigners (Jones, 2000a). An export position can be established for those products in which the country’s comparative productivity is highest, even if this means that the country exports those goods to other nations in which the total level of input productivity is even higher (Davis, 1998).

Government regulations and taxation can affect the productivity or net returns of inputs (Jones, 2000b). On the one hand, investment liberalisation may lead to increased production and consumption of polluting goods or to an expansion in industrial activity. On the other hand, FDI can improve structural efficiencies and make new investments in environmental protection possible.

How is the labor market in the home country affected by outward foreign direct investment (FDI)? In case that there is a big degree of complementarity between activities moved abroad and activities remaining in the home country, it is possible that the firm and the home country workers agree whether it is preferable to undertake FDI. Besides, if there is a big degree of substitutability between activities in foreign affiliates and activities in the home country, it is probable that the firm gains but the workers lose from FDI. Zhao (1998) states that FDI gives rise to lower wages, whereas we discover that it depends on the degree of substitutability between activities in the home country and the host country. Is a positive elasticity of substitution between parent employment and employment in foreign affiliates? Brainard and Riker (1997) quote cross-elasticities of substitution between labor in parent US firms and foreign affiliates and between labors in various affiliates. A high degree of complementarity between host country activities and home country activities reduces the employment loss in the home country when a company expands activities in the host country, and, if the wage costs in the host country are adequately low, employment in the home country may actually increase. Hence, since the wage is lowest in the multinational case, the firm always prefers to be multinational. According to Skaksen and Sorensen (2001, p. 389), “The higher the degree of substitution between activities in the host country and the home country, the more likely it is that the trade union and the firm disagree whether the firm should become multinational”. Moreover, List (2001) indicates that stringent environmental regulations do not have a negative impact on FDI inflows.
The European Union is both the largest “home” and the largest “host” region, accounting for about 40 per cent of global flows; the USA, with about a quarter of world FDI flows, is the largest single host nation and the largest single home nation for FDI (UNCTAD, 1997; Dunning, 1981). Towards the end of the 1980s, FDI flows to the European Union (EU) increased dramatically (Eurostat, 1995). Most of these FDI flows came from third countries such as the USA and Japan (Dunning, 1997a,b). Market size and market growth have been shown to be important determinants in the attraction of FDI. Increased market size favours geographically dispersed FDI, whilst economic integration via better market accessibility is more likely to lead to intra-regional platform FDI. Third country firms will invest inside the customs union and supply the other union members by exporting from the plant located inside the union. Economic integration will lead to centralisation of FDI by third country firms inside the customs union. Furthermore, firms originating from the customs union may be induced to switch from intra-regional FDI to intra-regional exporting (Motta and Norman, 1996). For instance, Svensson (1996) considers that Swedish MNEs’ affiliates in the EU are more export oriented than their affiliates in other parts of the world, and that their exports to third countries have a strong effect of replacing parent exports to third countries. Increased regional integration can lead to increased intra-regional FDI flows (Sanna-Randaccio, 1996). If European integration significantly reduces trade costs, then vertical MNEs are expected to concentrate their activities further. Forces leading to more concentration of activity are economies of scale and vertical integration between parent and subsidiary (Aristotelous and Fountas, 1996).

Are trade and FDI complements rather than substitutes? While FDI does displace some exports, it also creates a number of reverse imports (Baldwin and Ottaviano, 1998). Multinationals must have some sort of advantage over local firms. FDI does not completely displace exports since the overseas factory buys intermediate goods from the home-based factory. For instance, intermediate goods are indeed responsible for the complementarity of trade and FDI in the case of US–Japanese trade and investment in cars and car parts (Horstmann and Markusen, 1987). Firms producing multiple differentiated varieties have an incentive to use trade costs to reduce inter-variety competition. Countries separated by low transport costs are more likely to be capable of maintaining a free trade agreement than countries separated by high transport costs (Maggi, 1999). The cost of transporting goods across distance is one component of the cost of delivering a product to a foreign market (Brecher and Diaz Alejandro, 1997). Exports from the MNE’s home country may be adequate to prompt reverse engineering that is often recognized as one of the main sources of involuntary technology dissemination (Zander, 1991). The majority of channels for the dissemination of modern, advanced technology are external effects or “spillovers” from foreign direct investment, rather than formal technology transfer arrangements (Blomström, 1989). Removal of trade barriers will entail more concurrent business cycles, since a higher level of trade will allow demand shocks to more easily spread across national borders (Frankel and Rose, 1998).

European companies have a high percentage of revenues being international and also have a longer history of moving managers around the world (Scullion and Brewster, 2001). National history has affected the general order of entry into international markets and European MNEs were the first to internationalise (Yip, 1997). European MNEs built up overseas subsidiaries that enjoy a large degree of autonomy (Dowling et al., 1999). Thus, European MNEs have limited ability to switch
from the direction of local autonomy towards global integration. Bartlett and Ghoshal (1989) state that American MNEs stress formalization of structure and process while European MNEs place greater importance on socialization. The dismantling of barriers to the movement of goods, capital and labor within Europe led to a rapid increase in cross-border trade and higher levels of intra-European foreign direct investment that has intensified the trend toward regional integration. A growing emphasis on regionalization as the route to globalization for many MNEs is observed and international corporations more and more treat the European market as a single entity and seek to integrate production, marketing, and human resource strategies at the European regional level. The Single European Market facilitated a rapid growth in the number of large cross-border mergers and acquisitions that ever more became the most important foreign market entry strategy for many larger European companies in the late 1980s and 1990s (Bonache and Brewster, 2001). The elimination of internal barriers to trade and capital mobility during the single market programme has been accompanied by a rapid growth in multinational activity in the European Union (EU) both by European and non-European firms, inspiring research into the policies available to national governments to affect location decisions and the potential benefits of inward investment (Barrell and Pain, 1997). The taking away of barriers to trade and capital mobility within the European Union has changed the locational advantages of member states and the Union as a whole. According to Barrell and Pain (1999), FDI has risen significantly in all the major European economies.

Whether the two foreign locations are substitutes or complements depends critically on the initial level of transport cost and the level of FDI in one country depends in part on the policies and characteristics of its neighbors, but the nature of these interdependencies varies with industry characteristics (Markusen and Venables, 2000). The key to achieving firms’ objectives lies in defining the needs and desires of the targeted customer segment and in satisfying these needs more effectively than competitors contributing to the definition of marketing strategy and competitive advantage (Caves, 1996). Effective leadership requires an executive to employ a style and behaviours that match the context dependent upon the exceptional requirements of each organisation’s personnel, life stage and environmental setting (Goleman, 2000; Park and Campbell, 2001). Are the characteristics that characterize leadership in traditional bricks and mortar organizations equally applicable to the e-world environment? E-leaders need to be innovative, risk-taking individuals. Technical skills are necessary for managers to solve problems, evaluate performance and direct subordinates. Global connectivity means that time and space are no longer constraints to organisations, which are inherently cross-border and effortlessly able to enter into alliances with several partners. Information on new competitors, products and services is instantly and worldwide available and barriers to entry are normally low and connectivity and flexibility transforms the way new companies can build networks and reach market scale in short timescales (Dussart, 2001). E-leaders must have a greater technical awareness of the capabilities and limitations of IT and generate shared visions of the future and a widely held set of central corporate values. Moreover, e-leaders must display less control-oriented behaviours and focus on the inspirational vision. With the onset of a financial crisis investors adjust expectations regarding growth in domestic demand, exchange rates, and cash flows for repatriation, capital may be repatriated or allocated to other markets that yield higher risk-adjusted returns.
3. Information technology and FDI

ICT is the result of a sequential stream of introduction of new complementary technologies aligned along a technological path shaped by comparable characteristics in terms of the prevailing output elasticity of production factors (Antonelli, 2001). Which are the direction of the new technologies introduced and the structural characteristics of the economic systems into which the new technologies are being introduced? What the key role of technological change in assessing the effects in terms of total factor productivity growth? ICT is a superior technology worldwide in a great array of products and factors markets and to the extent to which this new technology is superior and its consequences in terms of productivity growth vary across regions according to their endowments and relative prices. The strong effects of ICT in terms of profitability of adoption and rates of increase of total factor productivity are far from homogenous across countries. Moreover, the increase of total factor productivity differ thoroughly across countries, according to their idiosyncratic characteristics and the specificity of their endowments, with respect to the characteristics of the innovating countries (Freeman and Louca, 2001). Companies working in different factors markets and in dissimilar products markets can take advantage of ICT (Ruttan, 2001), engendering major asymmetries and escalating variance in the economic performances of trading partners in the global economy. Hence, the foreword of ICT has momentous effects in terms of a quick reduction of technological variety affecting the source of comparative advantages of countries where most productive inputs are more expensive at least in relative terms engendering new relevant asymmetries among them, not only with respect to the pace of diffusion, but also and principally in terms of the competence of each country to extract appropriate economic benefits from their necessary adoption.

The new knowledge-intensive-business service industries are global in character with a direct access to international markets characterized by the pervasive use of advanced communications and information processing services as key intermediary inputs (Abbate, 1999). The interaction between technological complementarities and technological convergences and the strategies of companies, exposed both to constant cross-entry from nearby markets and adjacent technologies, has provided significant insight both on the understanding of the generation of the new technological system and to rapid and systemic technological changes characterized by high levels of interdependence in the production and use of new products and processes (Shapiro and Varian, 1999). The introduction of ICT acts as an authoritative factor towards increased segmentation and asymmetries of the labor markets within the economy of advanced countries, well ahead in the process of introduction and adoption (Quah, 2001). Additionally, ICT requires specific innovations that consist in the elaboration of specific applications and in the usage of new intermediary inputs and of course new capital goods. The digital divide is rising with growing effects in terms of total factor productivity differentials and average production costs and so diminishing opportunities for expansion in the global economy and recombination of external and domestic technological knowledge in order to apply the general knowledge available to the local structure of endowments and the consequent introduction of contingent technologies is stronger and stronger (Mansell, 2001). High levels of fungibility of ICT are key input to a technology strategy at a company level and a technology policy at a country level. According to Antonelli (2003):
The extensive use of microelectronics and computer based networks as information and communication technologies (ICT) have enabled knowledge to become the “key” economic engine (Soete, 1999: “...new intangible features of international transactions appear to form the essence of what the ‘new’ economy is all about.”) but evidence from traditional trade and foreign direct investment flow data show no increase in globalisation. Microelectronic technological revolution is the route by which capitalism has evolved from the mass production manufacturing base to the new information and knowledge base (Lavoie, 1992). Keynes (1930) said that waves of investment expenditure are stimulated by new technology. Moreover, radical innovation generates structural change, powerful burst in economic growth and strong susceptibility to cyclical downturn (Kalecki, 1954; Courvisanos, 1996). Global operations and international strategic alliances are integral components of organizational strategy. So, strategic alliances can better meet the needs of global products and customers.

4. Digital economy
Cyberspace is both an effect and a cause of the new economy. Is there a transition of global economy to electronic commerce? Companies have to master the use of information technology, and e-commerce not only to better manage their own affairs but also to compete and thrive in the emerging digital economy. Management of internal change will be a key factor in success of companies in the electronic commerce.

The new economy is shaped not only by the development and diffusion of computer hardware and software, but also by much cheaper and rapidly increasing electronic connectivity helping to level the playing field among large and small firms in business-to-business e-commerce and making it easier and cheaper for all businesses to transact business and exchange information.

Cyberspace can improve the productivity by lowering prices and search costs (Sichel, 1999). The internet is especially useful in reducing international communication and searching costs and makes entry into several markets easier by lowering entry costs. Both lower search costs and lower entry barriers result in a greater market competition, and productivity can be improved by intensified competition. Second, cyberspace use can cut the cost of holding inventories by allowing large suppliers to bypass retailers and contact customers directly contributing to the improvement of productivity. Lastly, cyberspace usage can improve the transparency of the host countries and make it comfortable to do business. Consequently, it is very natural that international direct investors may prefer to invest in a country with a well-established cyberspace infrastructure. International direct investors may well choose the country with more cyberspace availability.

There is a distinction between two types of dot com companies – digital and physical. Digital dot coms are cyberspace-based companies such as Yahoo!, Ebay and America Online, whose products and services are digital in nature and are delivered directly over cyberspace. By contrast, the physical dot coms sell physical products,
books, CDs, toys that are shipped to consumers. Information technology (IT) capital such as computer hardware, software and networking equipment contributes drastically to financial performance measures for the digital dot coms. However, the IT contribution for physical dot coms is less significant because physical dot coms, beyond the digital customer interface, are not deeply different from traditional business operations. Physical dot coms hold and manage inventory, and handle packaging and shipping processes by themselves, citing customer service excellence as the primary reason. By contrast, the digital products companies manage content inventory in a straight line through their web sites and related applications. Physical dot coms need to adopt more digitization in their extended value chain in order to function as virtual organizations, whose heart competency is customer relationship and knowledge. Digital and physical dot coms respectively contribute to spectacular growth of online commerce activity.

E-commerce represents a flood of new market opportunities but it should be taken into consideration the comparatively broad extent of electronic interchange that already exists between a range of supply chains from raw materials production down to retail sale businesses in highly developed economies such as the USA, Japan or Europe. Is electronic commerce 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? The internet provides an immeasurable array of new information and communication access opportunities (OECD, 1998). Is digital economy becoming global? The digital economy is generating considerable and unforeseen increases in productivity that have motored our recent surge in economic growth and that have enlarged the margin for monetary policy. The economic transformation is about structural transformation and developments that carry interference and alteration. So, the information technology revolution is transforming economy. The technological explosion of the invention of the semiconductor and following productivity gains in making semiconductors has produced and will produce a spectacular advance in information-processing power. The explosion in computing power had as result that the Digital economy has emerged earlier, diffused more rapidly and more widely throughout the economy than prior technological revolutions (David, 1991). Productivity growth and technological change in the main sectors of the information-processing revolution have been enormous. It should be taken into consideration that sweeping technological developments and applications from semiconductors through the personal computer and the cyberspace were developed and commercialised by start-ups, not by established organizations. Large companies are not eager to contemplate the risky development of a new technology and characteristically they will doubt the feasibility, the reliability, and the marketability of the potential technology. For instance, Microsoft (Ferguson, 1999) came late to the web browser, web server, and web development tools. The rapid technological advance makes it possible that the share of ICT industries in gross domestic product increases while ICT prices decline. The trade of ICT products, intermediate goods, and components has quickly increased as a consequence of the new production modes and distribution systems. According to Pohjola (2002 p. 144), “A thriving New Economy requires a high degree of diversity in institutions, investments and forms of control”. Clustering does not necessarily obey national borders. The productivity gains not only reflect increased investment in ICT, but also
corresponding innovations in business organization and strategy (Jalava and Pohjola, 2002). In accordance with Koski et al. (2002, p. 157), “availability of high-skilled labour is indeed one of the key reasons for a firm to locate within a cluster of similar businesses, and that the high-IT industries are not directly comparable to the ICT sector, not least because the latter is largely comprised of manufacturing-related activities”. Moreover, according to Ivarsson and Vahlne (2002, p. 1), “A logistic regression analysis showed that coordination and integration of technology in MNEs is positively correlated with the length of time the affiliates have been a part of the parent corporation, while dynamic technological integration was positively correlated with affiliates operating in competitive Swedish industry clusters”.

The key fundamentals of the new/digital economy include an innovative information technology service sector that is organized in network firms of organization, rather than traditional firms or markets, high rates of economic growth and share prices on stock markets in America have plummeted, leading to a medium-term volatility in share prices unprecedented in the second half of the last century. Especially, internet service providers are amongst the companies with the highest volatility in stock market capitalization. If a company is tied into its network of customers and suppliers and sustains a course of innovation that maintains its position within existing markets and technologies, then it is likely not to undertake radical innovation and will be blindsided by breakthrough technologies. Start-ups have been the drivers of much of the radical innovation in the transition to a digital economy. Fundamental production innovations that meant that lower cost could also bring higher quality forced American and European producers to reorganize deeply their production and business practices. The market advantages of many innovations are vanished if the innovating company cannot also be world-class producers, or at least have close access to world-class production. Leading companies lower their costs by concentrating on what they did best, and contracting to buy the rest from producers with a firm-specific advantage in productivity or a nation-specific factor cost-based comparative advantage. Cyberspace is establishing a completely new retailing channel that is already affecting traditional retail industry. Building successful cyberspace retail web sites is extensively more complex than merely moving a catalog online creating a feeling that it is the place to go to buy something. Goods and services in the digital economy typically are not rival, excludable, or transparent. In the absence of rivalry, excludability, and transparency, policy makers will not be able to replicate the ideal market of neo-classical economics through the design of a legal and regulatory framework. Given the escalating pace of innovation that rests on new ideas and the importance of information-based products, the question of intellectual property becomes central. Cyberspace is no longer a free zone it is a focus for difficult policy making including not only narrowly technical problems but also through the narrowly legal into fundamental questions of how to organize markets and society (Zekos, 2002a,b).

The digital economy has brought about tools for thought, tools that transform every sector of the economy and there is a shift in the very terms and dynamics of market competition. Cohen et al. (2000) have stated that the new technologies “do not just amplify productivity in one sector but give all economic sectors new ‘tools.’ They are tools for thought that amplify brainpower in the way the technologies of the Industrial Revolution amplified muscle power.” Cyberspace surpasses any preceding
communications technology in diffusion speed by accomplishing the same penetration in less than seven years (Weber, 1997). So, cyberspace could be primarily deployed over the older, existing infrastructure for voice communication, telephones. The internet system that allowed and facilitated the new e-business strategies is in turn being shaped by the emergence of e-business including a more advanced technology. Miller and Wilsdon (2001) consider that despite the death of the dot-coms, there’s no doubt that the digital revolution is reshaping the way we do business and communicate to each other. By contrast, the author regards that the dot-coms need restructuring and new ways of doing business. The defining characteristic of the digital economy is not technology but innovation developing exclusively new ways to deal with old problems. E-commerce should be a vehicle for revitalising marginalized areas and communities by transforming existing social, environmental and economic maps. It is important to know that many times, even if the initial contact with an individual or organisation is electronic, it usually turns into a face-to-face relationship. Cyberspace can be used as the ideal tool for creating more inclusive, accountable models of business. Moreover, dot-coms, dot-orgs and dot-govs need to work together to embed sustainability in every area of the digital economy. Conceicao et al. (2001) estimate that by 2001, e-commerce in the USA will be almost 60 per cent of a combined 354.5 billion US dollars total internet-related market. The accomplishment of regional economic development based on new information technologies results from a combination of efforts from the private and the public sector. The way from e-commerce to an enriched e-business perspective suggests a change not only in the way outputs are sold (e-commerce), but also in a redefinition of offer types and procurement practices together with a one-to-one consolidation of the links with the target customers or suppliers. For instance, the application of e-commerce solutions on airlines has had a considerable positive impact on containing carriers’ costs by smoothing their dependence on computer reservation system (CRS) interfaces and on travel agents’ commercial practices (Slack and Rowley, 2002). Jarach (2002, p. 115) considers that “Today, internet potentially permits carriers to get significant economic and competitive benefits beyond those simply coming from e-commerce. A wider e-business perspective may assure a one-to-one relationship with target customers, with a consequential fine-tuning of a firm’s system offer”. Despite the slowdown of dot.coms the internet is continuing to grow strongly and internet connections, the number of secure servers (which are needed for e-commerce transactions), internet traffic and the volume of electronic commerce have all grown unabated, even as the NASDAQ and other stock market indicators have fallen back from a peak in the spring of 2000. The danger of a widening gap between countries that take advantage of ICT and those that do not is popularly known as the “digital divide”.

Can virtual enterprises be developed into e-MNEs? Virtual enterprises go much beyond electronic trading and imply complex production and value creation processes, which means that traditional MNEs can be transformed into e-MNEs. The move from traditional electronic data interchange (EDI), to new internet business applications is deemed to result in further cost savings. Joint product development emerges and companies collaborate to create value with partners worldwide. Digital economy is dependent on efficient logistics, which play an important role in increasing the efficiency of supply chains, and in implementing new e-marketplaces and new forms of collaborative commerce. Logistics have a powerful force in the digital economy not only
as a facilitator for other businesses, but also as a pioneer of the digital economy itself. Global logistics firms have moved into the management area and e-business services activities incorporate not only added functionalities, such as parcel tracking, tax collection, automated calculation of costs, but also the provision of one-stop-shop for e-business needs, such as market advice and provision of e-business systems. Competent logistics should reduce environmental and energy impact of developing e-business trade.

5. Conclusion
It could be said that nowadays the term “new/digital economy” signifies a non-inflationary growth model based both on heavy investment in new ICTs and on reforming the economy around these new technologies (OECD, 2000). Consequently, FDI will be focused on locations offering cheap high skilled workforce, clustering of information companies and JV and licensing will be the new forms of FDI applied by MNEs. The development of e-MNEs will bring different utilisation of production plants and use of logistics to distribute tangible goods while intangible goods will be distributed by very advanced technology centres based on home locations. At present the digital economy has proven to be less destructive than had been thought. The digital economy should not be confined just to e-business and e-commerce. The tangible goods will continue to be produced in factories, probably with a further use of logistics and e-logistics. It should be taken into account that the development of digital economy does not mean that all tangible goods will be transformed into digital ones but the prevailing element is the digitisation all the other aspects that can be digitised. The connotation of the digital economy cannot be gauged from start-ups, but rather from the transformations observed in the more traditional sectors of the economy.

References
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