

ICT for Economic Growth in Global Recovery

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Abstract: The intention of this paper is to examine the role of ICT for economic growth in global recovery. Focusing on the transformational opportunities posed by the global economic turmoil, information and communications technologies (ICT) can play a vital role in the pathway to an economic recovery. ICT must be used to accelerate the global recovery as it is the key infrastructure for the 21st century and a multiplier for economic growth. The paper concludes that the ICT sector will foster sustained growth and stability as it presents a tremendous opportunity for economic growth. ICT has the potential of a critical foundation upon which the global economic recovery will occur. All parties concerned must uphold their responsibilities to ensure healthy market-based relationships, where players both compete and cooperate.

Keywords: ICT, Economic Growth, Global Recovery.

INTRODUCTION

The global economy is experiencing complex and comprehensive challenges that have led to unemployment and economic hardship in both developed and emerging countries. Focusing on the transformational opportunities posed by the global economic turmoil, information and communications technologies (ICT) can play a vital role in the pathway to an economic recovery. A digital revolution can form the foundation of a sustainable global economy. With coordinated, conscientious leadership, new technologies will not only continue to fuel growth but if harnessed such advancements will also enable a digital revolution that can uplift parts of the world hitherto not reached by the agricultural and industrial revolutions. Achieving this kind of inclusive growth requires new mindsets [1]. Leading academics, global organizations and industry analysts agree that there is a direct correlation between the use of ICT and positive macroeconomic growth. This evolving global communications fabric is intelligent, adaptive and highly innovative and its impact can be felt at both the micro and macro-economic levels. ICT represents our collective nervous system—a platform for helping to solve some of our greatest economic, social and environmental challenges [2]. A fluid and ever-changing ecosystem, ICT touches nearly every industry sector with innovative, personalized and efficient solutions. Along with the growing impact of individuals, the ecosystem includes fixed and mobile network operators, Internet service providers, chipset design firms, device manufacturers,

application developers, content owners and infrastructure providers.

Without question, there are challenges ahead in the evolution of the ICT ecosystem. As business paradigms change, the issues of privacy, security and quality of service are becoming increasingly important. Continued commitments to open standards and interoperability are essential for “bottom up” innovation so entrepreneurs can offer new competitive services and applications. Yet in spite of these challenges, ICT’s ability to deliver an economic growth dividend is motivating. Yet to meet this potential, real-world economics must be applied to the ICT ecosystem. ICT infrastructure projects are some of the most capital intensive in the world and require a stable regulatory environment to ensure capital flows [3]. Economic growth can be seen as the basis of our material well-being. Our present-day wealth is in essence the accumulation of growth in the past. While growth can be realized by increasing labour efforts and the use of capital goods, it is in turn mainly determined by innovation, increased productivity, and the efficiency with which goods and services are produced. Because of demographic growth and great pressure on prices due to international competition, increasing efficiency by improving the production process and organization is key to maintaining competitiveness and ultimately our prosperity. Growth can also be achieved through the creation of new or improved products and associated markets. The importance of innovation and productivity puts knowledge and technology at the heart of the

policy debate. Many national and international policy initiatives focus on ways to improve knowledge generation and sharing, and on the creation and diffusion of new technologies. ICT has a special place in this debate, as it is an ever-renewing technology that has the potential to increase efficiency, facilitate knowledge sharing and enhance innovation [4].

ICT should be used to accelerate the global recovery as it is the key infrastructure for the 21st century and a multiplier for economic growth [5]. This can be seen most clearly in the area of trade. By making supply chains more efficient, collaboration richer, financial transactions faster, pricing more dynamic and processes transparent, ICT can accelerate the flow of goods and services across national borders. Underpinned by effective competition, ICT stimulates and improves trade by connecting people and places previously not connected and by bringing velocity to the progress of new ideas. Likewise trade protectionism can diminish the impact of ICT. The recently published 2009 Global Enabling Trade Report states that in the current economic situation protectionist measures can constrain growth with the cumulative impact causing damage to all nations [6].

ICT- An overview

ICT is any technology that enables communication and the electronic capture, processing, and transmission of information. There are wide disparities in the extent to which different developing countries, and different socio-economic groups within countries, benefit from ICT this is commonly refers to as digital divide The 'digital divide' commonly refers to the gap between those with access to ICT and those without; however, many factors besides physical access contribute to these disparities. Many factors could contribute to bridging the digital divide. National governments, NGOs, industry and international donors all play a role, often working together. National governments has a range of strategies, from cutting taxes on devices such as mobile phones, to liberalising markets, can increase ICT uptake. Developing country governments should encourage uptake of technologies such as mobile phones, which have proved popular among the poor. They say this is better than promoting ICT like the PC, uptake of which has been comparatively slower. There is consensus that education and IT skills training play a role in improving access to ICT.

The international community plays a key role in stimulating access to ICT. Some major initiatives are: The Millennium Development Goals (MDGs), agreed at the United Nations Millennium Summit in 2000, aim to reduce world poverty and improve lives by 2015. World Summit on the Information Society (WSIS), a two

phase United Nations (UN) summit, aimed at overcoming the digital divide and creating an all inclusive Information Society. New Partnership for Africa's Development (NEPAD), is an African-initiated strategic framework for the continent's revival. It identifies ICT development as a priority action area. It focuses on two key areas: the rapid development of ICT infrastructure, and dissemination of ICT skills across the African population, by implementing an e-schools programme across primary and secondary schools. NEPAD has been widely praised for having placed ICT on the development agenda although some critics suggest it lacks the resources and infrastructure to fulfill its goals. Information Communication Technology (ICT) is increasingly seen as a means of enabling other developmental needs rather than as an end in itself. However there are wide disparities in access to ICT, with many new technologies out of reach of the poor. Reasons include cost, inappropriate design, lack of infrastructure, education, human resources and support from government. It is difficult to demonstrate that increasing access to ICT has a positive impact on development, when looking at the broader picture rather than at specific case studies. There is limited research in this area. Although such links have been established in developed countries (where, for example there is evidence of a link between telecoms development and economic growth) it is too early to observe this effect in developing countries. ICT has many social, environmental and economic impacts: environment and health, cultural and employment [7].

The impact of ICT on economic performance

The question remains now through what channels this improved access to ICT in nations will impact on enterprise performance for users and hence economy wide growth. Since the 1960s and 1970s, standard neo-classical theory based on the traditional assumptions of costless exchange at market clearing prices has given way to more refined analytical work that investigates, among other phenomena, the causes and consequences of transaction costs, uncertainty, incomplete markets and incomplete information. These developments have provided another perspective, i.e., the information-theoretic approach to understanding development.

Information asymmetries are one of the major causes for high transaction costs, uncertainty and therefore market failure. A reduction of the information gap also reduces the ability of the better informed to extract rents from the less informed be it buyers or sellers of goods or factors. As the poor population and small firms usually have less access to information this effect might help to reduce disadvantages and inequality. A reduction of information asymmetry will also create new opportunities and therefore enhance the

efficiency of resource allocation [8]. On a macro level this will then lead to faster growth and diversification of the economy. One of the central tenets of the information-theoretic approach and a feature noted by early observers is that acquiring information is costly, especially within the context of developing countries. These difficulties associated with information acquisition have numerous implications. The high costs of acquiring information may lead to behaviour that differs markedly from what it would have been if more information had been available. The lack of information may reduce the extent of mutually beneficial exchanges and lead to economy-wide Pareto inefficiencies. Furthermore, due to information constraints, there will be considerable uncertainty surrounding economic and administrative decisions in developing countries. This will have implications for the efficiency, productivity, and welfare of the various agents in the economy.

Small and Medium Businesses and ICT

About 99% of companies in the world are small and medium businesses (SMBs). They generate more than half of the global GDP. SMBs constantly look for ways to reduce costs and increase productivity, especially in times of crisis like the one we are currently facing. However, they often operate under very limited budgets and limited workforces. These circumstances make it extremely challenging to offer suitable solutions that bring important benefits, at the same time keeping investments and operational costs within budget. Perhaps, this is the reason why being an enormous market with almost infinite potential, technology vendors have traditionally shown scarce interest in developing solutions that adapt to the needs of SMBs. In general, enterprise solutions available on the market have been developed for large corporations and therefore their implementation requires considerable investments of time and resources, as well as a high level of expertise. In the server market, this has meant that until now SMBs have had few solutions to choose from and in addition, the available solutions have usually been too large. Considering the real needs of SMBs - too complex to manage and with high licensing costs. In this context it seems reasonable to consider Linux as a more than interesting SMB server alternative, since technically it has shown very high quality and functionality. The acquisition price, free, is unbeatable. However, the presence of Linux in SMB environments is symbolic and the growth is relatively small. How is this possible? The reason is simple: to adapt an enterprise level server to an SMB environment, the components must be well integrated and easy to administer. SMBs don't have the resources or the time required to deploy high-performance, but complex solutions. Similarly, the ICT service providers that work for SMBs also need server solutions that

require low deployment and maintenance time to stay competitive [9].

Effects of ICT on the Industry Sectors

As the global economy recovers, the ICT sector continues to unlock new efficiencies and capabilities across a range of key industry sectors. Healthcare, education, finance, and e-governance are just some of the vertical industry sectors where the impact of ICT is felt most significantly;

Eco-sustainability: The efficiencies of ICT can serve to help meet the challenge of low-carbon global economic growth. A recent study states that the ICT industry could deliver approximately 7.8 GtCO₂e of emissions savings in 2020, significantly below recommended standards and with cost savings of approximately €600 billion [10].

Education: ICT has enabled tremendous growth in the online-education sector and thousands of libraries across the globe can now be accessed online. The New Zealand Digital Library Project has developed open-source, multilingual software to help universities, libraries, and public service institutions throughout the world build digital libraries [11].

E-government: As more government services become available online for businesses and citizens, these public agencies promote a virtuous circle of adoption and investment and become conduits of technology, users of ICT infrastructure and promoters of ICT services. Further, as government usage stimulates demand for ICT solutions, it helps promote investment in the supply of additional infrastructure and services.

Finance: The adoption of mobile money services is quickly emerging as a fundamental tool for financial inclusion. In terms of the addressable opportunity, approximately 1 billion people currently have mobile phones but no access to banking services [12].

Healthcare: E-health has evolved as an innovative solution for transforming the delivery and cost structure of healthcare. Local officials in emerging markets, such as Rwanda, now use mobile phones to input health data that provides real-time information on potential disease outbreaks and medicine shortages. Since 2005, a small village clinic in Peru has served more than 55,000 patients and conducted more than 600 surgeries via networked communications technologies [13].

ICT and the role of external drivers of growth

In general, strict regulations or "red tape" may hamper the flexibility of firms and are therefore bad for productivity. In this respect ICT-intensive firms may be more flexible, and firms that rely more on ICT can cope

more easily with changes in the regulatory environment. Moreover, ICT has changed the nature of competition [14].

It affects the ways in which firms produce, gather information and communicate with customers, suppliers, and competitors. Firms that use ICT can effectively escape competition and achieve greater profitability through more efficient production, better information on market developments and the flexibility to react to them. Moreover, given lower search cost and more transparency about quality and prices due to the internet, ICT has the potential to enhance market selection [15]. Profits tend to become more concentrated. In markets with homogeneous products, customers tend to seek out the highest quality product at the lowest price (although suppliers of inferior products can engage in price competition to attract customers). The market for information goods itself is an extreme example of an industry where profits become concentrated. This is mainly because of the economies of scale (i.e. high fixed production costs and low or zero replication cost), and the existence of network externalities. Here we see a phenomenon known as Metcalfe's law, where using particular types of software or social media becomes more valuable as more people use it [6]. These network externalities also apply to communication equipment. Policy in such cases has to draw a line between allowing standardisation and preventing anti-competitive behaviour. Moreover, firms may collaborate as products must be compatible, which is good for knowledge sharing but holds a risk of collusion.

Competition can also be a driver to adopt new technology while there may be feedback effects from competition to ICT adoption. In all, ICT and competition are key determinants of productivity, but while we can zoom in on specific aspects of the relation between the two, the overall picture is very complex. ICT allows firms to gather and process information faster and more easily. The hypothesis is that ICT-using firms tend to gain earlier and greater benefits from spillovers. In digital markets or markets that rely heavily on ICT, the costs of copying or replication may be so low that the knowledge from spillovers can easily be capitalized [17]. The use of ICT itself, e.g. different types of e-business systems and e-commerce, maybe subject to network effects, in the sense that the value of ICT (and hence the payoff to adoption) increases if the firm's suppliers and customers also use ICT. The role of ICT in trade is at least twofold. Due to the advances in communication and the introduction of the internet and e-commerce it has become easier to buy and sell abroad. At the same time, production has become more fragmented over different producers. As ICT developments enhance

communicating and monitoring over the entire production chain, it facilitates the outsourcing and offshoring of particular business functions.

CONCLUSION

Ensuring that the ICT sector will foster sustained growth and stability, while the global economy experiences a period of extreme difficulty, the ICT sector presents a tremendous opportunity for economic growth. Without a doubt, ICT is a critical foundation upon which the global economic recovery will occur. But to ensure this potential, all parties must uphold their responsibilities to ensure healthy market-based relationships, where parties both compete and cooperate. Make no mistake; the ICT industry sector is strong and economically healthy, its' infrastructure will not only leverage and enhance the value of other private and public infrastructure investments, it also has the potential to directly impact the worldwide creation of 1.2 million new jobs and indirectly 25.3 million new jobs [18]. However, government interventions should largely focus on lowering investment costs through investment-friendly regulatory principles while ensuring fair competition. As an ecosystem, the ICT sector is an ever-evolving constellation of players who interact to ensure balance, collaboration, interdependency and sustainability. Because the ICT sector thrives on rapid innovation and the introduction of new technologies, it encourages a collaborative spirit for all other sectors with which it interacts. With clear government action at local, national, continental and global levels, ICT can continue as a dynamic driver for sustainable global economic growth.

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