

The Digital Economy: New Business Models and Key Features

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Abstract: New business models in digital economy, discusses the spread of information and communication technology (ICT) across the economy, provides examples of business models that have emerged as a consequence of the advances in ICT, and provides an overview of the key features of the digital economy that are illustrated by those business models. All sectors of the economy have adopted ICT to enhance productivity, enlarge market reach, and reduce operational costs. This adoption of ICT is illustrated by the spread of broadband connectivity in businesses, which in almost all countries of the Organisation for Economic Co-operation and Development (OECD) is universal for large enterprises and reaches 90% or more even in smaller businesses. As digital technology is adopted across the economy, segmenting the digital economy is increasingly difficult. In other words, because the digital economy is increasingly becoming the economy itself, it would be difficult, if not impossible, to ring-fence the digital economy from the rest of the economy. Attempting to isolate the digital economy as a separate sector would inevitably require arbitrary lines to be drawn between what is digital and what is not. As a result, the tax challenges and base erosion and profit shifting (BEPS) concerns raised by the digital economy are better identified and addressed by analysing existing structures adopted by MNEs together with new business models and by focusing on the key features of the digital economy and determining which of those features raise or exacerbate tax challenges or BEPS concerns, and developing approaches to address those challenges or concerns.

Keywords: BEPs, ICT, MNEs, OECD, Tax Challenges.

1. Introduction

All sectors of the economy have adopted ICT to enhance productivity, enlarge market reach, and reduce operational costs. This adoption of ICT is illustrated by the spread of broadband connectivity in businesses, which in almost all countries of the Organisation for Economic Co-operation and Development (OECD) is universal for large enterprises and reaches 90% or more even in smaller businesses. The widespread adoption of ICT, combined with the rapid decline in price and increase in performance of these technologies, has contributed to the development of new activities in both the private and public sector. Together, these technologies have expanded market reach and lowered costs, and have enabled the development of new products and services. These technologies have also changed the ways in which such products and services are produced and delivered, as well as the business models used

in companies ranging from multinational enterprises (MNEs) to start-ups. They also support activity by individuals and consumers, and have led to the creation of new payment mechanisms including new forms of digital currencies. The advent of the Internet brought major changes first to the entertainment, news, advertising, and retail industries. In those industries, the first major digital players initially started from traditional business models, adapting them to better end-user equipment (both inside and outside organisations) and more extensive interconnection through the Internet. For example, online retailers initially adapted the business model of brick-and-mortar stores by selling traditional physical goods (for example, books) digitally. Online intermediaries that allowed the discovery, sale, and purchase of goods and services such as vehicles, homes, and jobs were another early category. Other digital players specialised in the online selling of traditional services (for example, online insurance brokers). Retailers then began selling digital products and services, like downloadable and streaming music and movies, executable code, games, and services based on data processing, increasingly blurring the line between goods and services as businesses continued to develop. Online advertising similarly started from traditional advertising business models, becoming more sophisticated as the potential of digital technology became fully integrated into the industry.

The spread of ICT across business sectors: the digital economy

Sectors as diverse as retail, logistics and education have changed and keep changing due to the spread of ICT:

Retail: The digital economy has enabled retailers to allow customers to place online orders (often fulfilled from a local store) and has made it easier for retailers to gather and analyse data on customers, to provide personalised service and advertising. It has also enabled retailers to manage logistics and supply stores with products, which has had a significant, positive impact on productivity.

Transport and Logistics: The logistics sector has been transformed by digital economy, which enables the tracking of both vehicles and cargo across continents, the provision of information to customers and facilitates the development of new operational processes such as Just In Time delivery in the manufacturing sector. Vehicle telemetry also helps maximise fuel efficiency, ensure efficient use of the transport network and

support fleet maintenance activities. The information collected by fleets can also be used to create datasets with commercial value.

Financial Services: Banks, insurance providers and other companies, including non-traditional payment service providers, increasingly enable customers to manage their finances, conduct transactions and access new products on line, although they still continue to support branch networks for operations. Better use of data also allows growth in customer insights and associated products, such as personalised spending analysis, which can be used to generate advertising revenue. The digital economy has also made it easier to track indices and manage investment portfolios and has enabled specialist businesses such as high-frequency trading.

Manufacturing and Agriculture: The digital economy has enhanced design and development, as well as the ability to monitor production processes in factories and control robots, which has enabled greater precision in design and development and ongoing product refinement. The products being produced are also increasingly knowledge-intensive. In the automobile industry, for example, it is estimated that 90% of new features in cars have a significant software component. On farms, systems can monitor crops and animals, and soil/environmental quality. Increasingly, routine processes and agricultural equipment can be managed through automated systems.

Education: As the digital economy spreads, universities, tutor services and other education service providers are able to provide courses remotely without the need for face to face interaction through technologies such as video conferencing and streaming and online collaboration portals, which enables them to tap into global demand and leverage brands in a way not previously possible.

2. The Digital Economy and the Emergence of New Business Models

The digital economy has given rise to a number of new business models. Although many of these models have parallels in traditional business, modern advances in ICT have made it possible to conduct many types of business at substantially greater scale and over longer distances than was previously possible. This section discusses several prominent examples of these new business models. Some of these business models may complement each other and in some cases overlap with each other (for example, payment services could be described under e-commerce or under cloud computing). The business models discussed below are by no means exhaustive. Indeed, just as innovation in the digital economy allows the rapid development of new business models, it can also quickly cause existing businesses to become obsolete. The types of business discussed include several varieties of e-commerce, app stores, online advertising, cloud computing, participative networked platforms, high speed trading, and online payment services.

A. Electronic commerce

Electronic commerce, or e-commerce, has been defined broadly by the OECD Working Party on Indicators for the Information Society as “the sale or purchase of goods or services, conducted over computer networks¹ by methods specifically designed for the purpose of receiving or placing of orders. The goods or services are ordered by those methods, but the payment and the ultimate delivery of the goods or service do not have to be conducted online. An e-commerce transaction can be between enterprises, households, individuals, governments, and other public or private organisations” (OECD, 2011). E-commerce can be used either to facilitate the ordering of goods or services that are then delivered through conventional channels (indirect or offline e-commerce) or to order and deliver goods or services completely electronically (direct or on-line e-commerce). Although e-commerce covers a broad array of businesses, this section provides an illustration of some of the more prominent types.

B. Business-to-business models

The vast majority of e-commerce consists of transactions in which a business sells products or services to another business (so-called business-to-business (B2B)) (OECD, 2011). This can include online versions of traditional transactions in which a wholesaler purchases consignments of goods online, which it then sells to consumers from retail outlets. It can also include the provision of goods or services to support other businesses, including, among others: (i) logistics services such as transportation, warehousing, and distribution; (ii) application service providers offering deployment, hosting, and management of packaged software from a central facility; (iii) outsourcing of support functions for e-commerce, such as web-hosting, security, and customer care solutions; (iv) auction solutions services for the operation and maintenance of real-time auctions via the Internet; (v) content management services, for the facilitation of website content management and delivery; and (vi) web-based commerce enablers that provide automated online purchasing capabilities.

C. Business-to-consumer models

Business-to-consumer (B2C) models were among the earliest forms of e-commerce. A business following a B2C business model sells goods or services to individuals acting outside the scope of their profession. B2C models fall into several categories, including, for example, so-called “pureplay” online vendors with no physical stores or offline presence, “click-and-mortar” businesses that supplemented existing consumer-facing business with online sales, and manufacturers that use online business to allow customers to order and customise directly. The goods or services sold by a B2C business can be tangible (such as a CD of music) or intangible (i.e. received by consumers in an electronic format). Through digitisation of information, including text, sound, and visual images, an increasing number of goods and services can be delivered digitally to customers increasingly remote from the location of

the seller. B2C e-commerce can in many cases dramatically shorten supply chains by eliminating the need for many of the wholesalers, distributors, retailers, and other intermediaries that were traditionally used in businesses involving tangible goods. Partly because of this disintermediation, B2C businesses typically involve high investment in advertising and customer care, as well as in logistics. B2C reduces transaction costs (particularly search costs) by increasing consumer access to information. It also reduces market entry barriers, as the cost of maintaining a website is generally cheaper than installing a traditional brick-and-mortar retail shop.

D. Consumer-to-consumer models

Consumer-to-consumer (C2C) transactions are becoming more and more common. Businesses involved in C2C e-commerce play the role of intermediaries, helping individual consumers to sell or rent their assets (such as residential property, cars, motorcycles, etc.) by publishing their information on the website and facilitating transactions. These businesses may or may not charge the consumer for these services, depending on their revenue model. This type of e-commerce comes in several forms, including, but not limited to:

(i) auctions facilitated at a portal that allows online bidding on the items being sold; (ii) peer-to-peer systems allowing sharing of files between users; and (iii) classified ads portals providing an interactive, online marketplace allowing negotiation between buyers and sellers.

A number of other alternative online payment options are in use as well, including:

Cash payment solutions, in which a customer buys online, and pays in cash with a barcode or payment code at participating shops or settlement agencies, offering a way for customers unwilling to use other online payment methods to make online purchases in a secure manner.

E-wallets or cyber-wallets, which are previously charged with credits and can be spent online as an alternative to the use of a credit card. These are often used for micropayments because the use of a credit card for frequent small payments is not economical.

Mobile Payment Solutions, which encompass all types of technologies that enable payment using a mobile phone or smartphone, including, among others, mobile card processing using card readers connected to smartphones, in-app payments for virtual products, and near-field communications solutions which use short-range wireless technology to exchange information. As discussed in section 3, the digital economy has also given rise to virtual currencies that can be used to purchase goods and services from businesses that agree to accept them, acting as an alternative to payment services. In some cases, exchanges have arisen to allow purchase and sale of these virtual currencies for real currency.

3. Key Features of the Digital Economy

There are a number of features that are increasingly

prominent in the digital economy and which are potentially relevant from a tax perspective. While these features may not all be present at the same time in any particular business, they increasingly characterize the modern economy. They include:

- Mobility, with respect to (i) the intangibles on which the digital economy relies heavily, (ii) users, and (iii) business functions as a consequence of the decreased need for local personnel to perform certain functions as well as the flexibility in many cases to choose the location of servers and other resources.
- Reliance on data, including in particular the use of so-called “big data”.
- Network effects, understood with reference to user participation, integration and synergies.
- Use of multi-sided business models in which the two sides of the market may be in different jurisdictions.
- Tendency toward monopoly or oligopoly in certain business models relying heavily on network effects.
- Volatility due to low barriers to entry and rapidly evolving technology.

A. Mobility of intangibles

Development and exploitation of intangibles is a key feature of the digital economy. This investment in and development of intangibles is a core contributor to value creation and economic growth for companies in the digital economy. For example, digital companies often rely heavily on software, and will expend substantial resources on research and development to upgrade existing software or to develop new software products. This heavy reliance on intangibles can be present even where technology is incorporated into a business model primarily to manage wholly tangible resources. For example, an online retailer may develop a multi-layer digital activity to manage a logistic platform including warehouses and shipping capacity. As businesses evolve, the relative importance of these intangibles frequently grows, resulting in further concentration of value in the intangibles. Under existing tax rules, the rights to those intangible assets can often be easily assigned and transferred among associated enterprises, with the result that the legal ownership of the assets may be separated from the activities that resulted in the development of those assets.

B. Mobility of users

Advances in ICT and the increased connectivity that characterizes the digital economy mean that users are increasingly able to carry on commercial activities remotely while traveling across borders. An individual can, for example, reside in one country, purchase an application while staying in a second country, and use the application from a third country. Challenges presented by the increasing mobility of consumers are exacerbated by the ability of many consumers to use virtual personal networks or proxy servers that may, whether intentionally or unintentionally, disguise the location at which the ultimate sale took place. The fact that many interactions on the Internet remain anonymous may add to the difficulty of the

identity and location of users.

C. Mobility of business functions

As noted above, improved telecommunications, information management software, and personal computing have significantly decreased the cost of organising and co-ordinating complex activities over long distances. As a result, businesses are increasingly able to manage their global operations on an integrated basis from a central location that may be removed geographically from both the locations in which the operations are carried out and the locations in which their suppliers or customers are located.

One impact of these changes has been an expansion of the ability to access remote markets, which has substantially increased the ability to provide those goods and services across borders. This has been illustrated by the dramatic growth of international trade in ICT services in recent years. In particular, since 2000, the share of Computer and Information services on world exports of services doubled from 3% to 6%, while that of Telecommunication services increased from 2.2% to 2.3% (OECD, 2013). For the OECD, the combined share of Computer and Information and Communication services rose from 5.7% to 9.0% of total service exports. Several important shifts in the provision of ICT services have occurred in recent years. India has quickly become the leading exporter of ICT services, followed by Ireland, the United States, Germany, and the United Kingdom. China as well became one of the major exporters. These six countries together represent about 60% of total exports of ICT services. In addition, technological advances increasingly make it possible for businesses to carry on economic activity with minimal need for personnel to be present. In many cases, businesses are able to increase substantially in size and reach with minimal increases in the number of personnel required to manage day-to-day operation of the businesses (so-called “scale without mass”). This has been particularly true in the case of Internet businesses,

The McKinsey Global Institute Report notes five broad ways in which leveraging big data can create value for businesses:

- i. Creating transparency by making data more easily accessible in a timely manner to stakeholders with the capacity to use the data.
- ii. Managing performance by enabling experimentation to analyse variability in performance and understand its root causes.
- iii. Segmenting populations to customise products and services.
- iv. Improve decision making by replacing or supporting human decision making with automated algorithms.
- v. Improve the development of new business models, products, and services.

D. Network effects

Networks effects refer to the fact that decisions of users may have a direct impact on the benefit received by other users. A simple example of this is the introduction of the fax machine.

While a single fax machine had no utility by itself, users choosing to purchase a fax machine received the benefit of the decisions of earlier users to purchase a fax machine, in the form of the ability to communicate through this new technology with an existing network of potential counterparties. These network effects are an important feature of many businesses in the digital economy. Network effects are seen whenever compatibility with other users is important, even where the primary purpose of a particular technology may not be to interact with others. For example, a widely-adopted operating system will generally have a larger amount of software written for it, resulting in a better user experience. These effects are known as positive externalities, meaning situations in which the welfare of a person is improved by the actions of other persons, without explicit compensation. For example, when additional people join a social network, the welfare of the existing users is increased, even though there is no explicit agreement compensation among the users for this improvement. Externalities can also be negative. For example, as an increasing number of persons use a communications network at the same time, congestion may decrease the value to each user of the network, with no compensation among the affected parties (Easley and Kleinberg, 2010). Where a business model encourages interactivity among users, it tends to encourage these network effects. For example, in certain business models, network effects come from a competitive advantage gained from the critical mass of buyers and sellers. A retail site may develop an architecture that encourages users to review and tag products. These user reviews enhance the ability of users to make informed choices, while product tagging improves their ability to find products relevant to their interests.

E. Multi-sided business models

A multi-sided business model is one that is based on a market in which multiple distinct groups of persons interact through an intermediary or platform, and the decisions of each group of persons affects the outcome for the other groups of persons through a positive or negative externality. In a multi-sided business model, the prices charged to the members of each group reflect the effects of these externalities. If the activities of one side create a positive externality for another side (for example more clicks by users on links sponsored by advertisers), then the prices to that other side can be increased. An example of a multi-sided business model involving positive externalities for different sides of the market is a payment card system, which will be more valuable to merchants if more consumers use the card, and more valuable to consumers if more merchants accept the card. Similarly, an operating system is more valuable to end users if more developers write software for it, and more valuable to software developers if more potential software purchasers use the operating system.

Flexibility: The nature of digital information and the infrastructure of the Internet greatly expand the facility to design and implement multi-sided business models. Resources such as content, user data, or executable code can be stored to

create value long after they have been produced. This specific nature of digital resources makes them an asset in business models where the different sides of the market can be created then dynamically adapted based on evolving technology, the latest expression of consumer demand, and a firm's position on the market. In addition, as discussed below, digital technology has enhanced the ability to collect, analyse and manipulate user and market data, which has allowed platforms to enhance the value to one side of a market of the participation of the other side of the market.

Reach: The digital economy also makes it easier to locate the different sides of the same business model in different countries. Whereas many traditional multi-sided business models such as broadcasting paid for by advertising, or shopping malls were confined to a limited perimeter due to physical constraints or to regulations, over-the-top businesses in the digital economy can more easily connect two sides that are located far from one another to maximize value on each side. For instance, resources designed to collect data can be located near individual users, whereas the infrastructure necessary to sell this data to paying customers can be located elsewhere.

4. Conclusion

The digital economy features two prominent categories of multi-sided business models. First, a business can operate several applications that provide complementary services. This creates two types of synergy: on the one hand, the various activities pool their resources such as executable code, content, or user data; on the other hand, the activities may be put into a package that is more attractive for users. Second, vertical platform models are used to make resources available for third-

party developers so as to attract their creativity as part of open innovation strategies. A platform is often the result of the large-scale development of an application that gets commoditized. For example, a company may develop a social networking service, using internally produced applications to attract consumers and funding operations through the sale of advertising. The company may also choose to open an application programming interface (API) which allows developers to easily implement applications using the platform. Access to the API minimizes the developers' initial investment and facilitates their access to the market of consumers that use the platform. The participation of the developers, in turn, enhances the user experience, thereby further strengthening the company's position in the marketplace.

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