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THE DIGITAL ECONOMY

-- Issues Note by the Secretariat --

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HEARING ON THE DIGITAL ECONOMY

-- Issues Note by the Secretariat --

1. Introduction

1. The digital economy, generally speaking, is the part of an economy that enables and conducts the trade of goods and services through electronic commerce on the Internet. It is a very substantial driver of growth. According to the management consulting firm McKinsey, the Internet has generated as much economic growth in the past 15 years as the Industrial Revolution did in 50 years.¹ Given that rate of progress, as well as the expanding reach of the Internet through mobile devices, the Competition Committee decided to take a fresh look at the digital economy now that 11 years have passed since it held a roundtable on e-commerce (Competition Issues in Electronic Commerce, DAFPE/CLP(2000)32).

2. To begin to understand the nature of competition in the digital economy, we need to understand why it has grown so quickly. In the mature economies studied by McKinsey, Internet-related expenditure and consumption accounted for 21 percent of GDP growth during the past five years.² Undoubtedly, a significant factor behind that growth is the relative ease of communicating, buying, selling, playing and working online. But there is much more to it than just ease of use. Consider online music sales. For many consumers, the ideal medium for music is digital and online. That medium offers several advantages over compact discs, including cheaper and faster distribution, far smaller physical space requirements, less packaging waste, and greater choice and control over the quality of the sound reproduction. Online music stores offer more music than even the largest brick-and-mortar stores, as well as customer reviews, recommendations, and the ability to sample every song in the store. The advantages of digital, online music, coupled with the ease and efficiency of online purchasing generally, have helped online music stores become the leading form of music distribution. Many of the same points can be made with respect to downloadable books, movies, and of course, software. Most importantly, the companies that sell these digital products are competing in ways that their brick and mortar predecessors never did and never could have.

3. To begin exploring those methods of competing and their implications for competition law enforcers, the Committee will initially focus its discussion on four topics: access to and interoperability with proprietary software/platforms; supplier-imposed restraints on e-commerce; the importance of network effects; and the competitive implications of open versus closed platforms for mobile applications developers.

¹ McKinsey studied the correlation between Internet maturity and growth in per capita GDP, concluding that “an increase in Internet maturity similar to the one experienced in mature countries over the past 15 years creates an increase in real GDP per capita of [US]\$500 on average during this period. It took the Industrial Revolution of the 19th century 50 years to achieve the same results.” McKinsey Global Institute, “Internet Matters: The Net’s Sweeping Impact on Growth, Jobs, and Prosperity” (May 2011), Executive Summary at 3.

² Id. at 2.

2. Access to and Interoperability with Proprietary Software/Platforms

4. Information technology infrastructures and systems have an obviously important role in the digital economy. Customers are often tied to the same systems for many years, though, because they invest substantial amounts of time and money implementing them and integrating them with their businesses. Customers may also become comfortable with a particular solution and resist having to learn how to use a different one. Alternatively, or in addition, the owner of the solution may have substantial market power. In any case, platform owners might strengthen the lock-in effect by denying rival firms access to key interface and interoperability information. That can increase switching costs, raise entry barriers, hinder market development, and retard innovation.

5. However, companies in most jurisdictions do not have a general duty to deal with other companies or to ensure that their own software is accessible to others or interoperable with their products. The situation can be different for dominant firms operating in jurisdictions where a dominant position brings with it a special responsibility not to distort competition. (See Refusals to Deal, DAF/COMP(2007)46.) Even in those jurisdictions dominant companies may not be required to deal, however, if their refusals to grant access or interoperability do not destroy or prevent competition.

6. Moreover, if a dominant firm can offer a reasonable justification, an otherwise unlawful refusal to deal may be permitted. A platform owner may have plausible arguments about why it needs to make access to and interoperability with its system difficult or impossible. Typically, the rationales in such cases focus on the need to preserve a system's functionality, integrity, ease of use and/or reliability. Such arguments might be most persuasive when they involve software that business customers consider to be mission-critical, such as a retail company's online sales platform (if a significant portion of its sales are made on the Internet) or a manufacturer's real-time database of sales contacts and sales lead status reports. It may not be easy for competition authorities to assess the merits of technical justifications without the help of knowledgeable industry consultants.

7. Challenging issues might also come up when a software platform owner integrates downstream and acquires or develops software applications that were previously developed only by other companies. When doing so, the platform owner might disable access for downstream companies that had been its partners but that have now suddenly become its rivals. This is a high-stakes issue in the digital economy. In the first half of 2011, investors showered US\$500 million on start-up companies that develop apps for the Twitter platform alone. Meanwhile, established companies spent about US\$1 billion to buy such start-ups outright.

8. The boom in applications (or "apps") that work with popular online platforms like Facebook and Twitter has magnified tensions between the platforms and the developers regarding whether they are partners or rivals. Facebook and Twitter were rather basic services when they debuted. For that reason, they encouraged developers to design apps that made the platforms more functional, fun, and easy to use. The app developers used the platforms' technology, sometimes at no charge, and a symbiotic, virtuous circle between the platforms' rising popularity/network effects and the app developers' innovations worked to everyone's advantage. But both Twitter and Facebook can quickly change from being an upstream partner to being a downstream rival by building their own apps that might do the same things that their developers' apps do. What is more, since they own the platforms and can give themselves superior access to their technical details, they can in principle ensure that they build better apps. Or they might simply acquire a developer's app, or eliminate its ability to interoperate with the platform.

9. This is not a new phenomenon. Other companies like Microsoft, Google, and Apple have been in similar positions with respect to third party developers. Furthermore, the tension between platforms that become very successful and the developers that helped to propel that success is likely to reoccur in the digital

economy. Consequently, competition authorities can expect to confront questions about the competitive implications of vertical integration and interoperability/access denials by platform owners repeatedly.

10. Again, there is no universal duty to deal in such situations. Even if a platform operator is dominant, it may have valid reasons for acquiring former partners, cutting off their access to the platform, or building its own version of a former partner's app. For example, the platform owner might be able to show that the third-party software was buggy and unreliable, or that it had security problems, leading to a poor user experience that worsened the platform's competitive position in relation to rival platforms (or potential rival platforms).

What role does competition for the market (platform competition) as opposed to competition in the market play in digital markets? Is interoperability less important if there is competition between platforms?

If courts and/or competition authorities contemplate forcing a platform owner to provide access/interoperability to other firms, how should they go about balancing the parties' incentives to innovate?

What motivates platform owners' decisions about whether to integrate vertically or not? What are the implications for customers/consumers under various scenarios? What factors are relevant to the analysis? Possibilities include: market definition (e.g. is there a platform-specific relevant market for apps?), the platform's market power, and whether anyone other than third-party developers suffers when the platform owner integrates downstream (i.e. has competition actually been harmed?)

Isn't there a consistency problem if courts and competition authorities have no objections to a platform that is closed or vertically integrated from its inception, but they are sceptical about a platform that is only upstream and open at first and then becomes vertically integrated and closed?

3. Supplier-imposed Restraints on E-commerce

11. E-commerce is usually assumed to widen geographic markets and increase competition. However, restraints imposed by suppliers on distributors could hinder that process. For example, suppliers might place limits on the proportion of sales that a distributor can make online, or they might require distributors to pay a higher price for units sold online than for those sold offline. Alternatively, suppliers might demand that distributors automatically reroute online customers located outside their territory. Given that e-commerce is an increasingly popular way to do business, the issue is highly relevant for competition authorities.

12. While the types of restrictions just mentioned might seem designed to limit price competition, suppliers may have legitimate reasons for imposing restraints on e-commerce – reasons that might have nothing to do with a desire to harm competition. The same types of motivations that underlie lawful resale price maintenance, for example (in jurisdictions where it is subject to the rule of reason), may be behind supplier-imposed restraints on e-commerce. In other words, suppliers might wish to restrict intrabrand price competition in order to enhance interbrand non-price competition.

13. In the digital economy, though, it is also possible that a very different set of considerations might be driving the restrictions. Returning to the example of digital music, consider that music piracy is not in the interest of legitimate music sellers, nor is it in the long run interest of music consumers. Some music sellers have therefore attempted to fight piracy by imposing certain restraints on their online customers.

One can argue that those restraints promoted innovation and consumer welfare by protecting intellectual property rights, thereby stimulating the creation of more commercial music.

14. However, some of the restraints could be anticompetitive nonetheless. Apple, for instance, implemented a proprietary digital rights management (“DRM”) system that prevented audio downloads bought from the iTunes Store from playing on portable media players other than an Apple iPod, claiming that it was a measure that would reduce digital piracy. That approach met resistance on competition law grounds in several jurisdictions. In 2006, the competition authorities of Denmark, Norway, and Sweden filed a complaint against Apple concerning the iTunes download restrictions. The German and French authorities eventually added their weight to the complaint, as well. In 2007, a group of private plaintiffs filed an antitrust lawsuit against Apple in a U.S. District Court in California, alleging that Apple’s DRM system was unlawfully helping it to maintain a monopoly in the digital music market. To ease such concerns, Apple stopped selling music with its DRM restrictions in 2009.³

Why do suppliers impose restrictions on e-commerce? Under what circumstances should such restrictions be considered unlawful on competition policy grounds? Which is more appropriate, a per se approach or a rule of reason approach?

4. The Importance of Network Effects

15. Network effects are common and powerful in the digital economy. From cementing Windows as the dominant PC operating system for decades to their role in the rise of Facebook, network effects have bestowed rapid growth on some firms and created formidable entry barriers for their competitors. Network effects can be fickle, though, hopping from one business to another. The same companies that once profited from them may find themselves struggling against them later, sometimes even being destroyed by them. (Consider Facebook’s decimation of MySpace, which had fared well in the social networking market until Facebook appeared and seized control of the market’s strong network effects.) Network effects can tear down entry barriers and uproot dominant positions as well as bring them into existence.

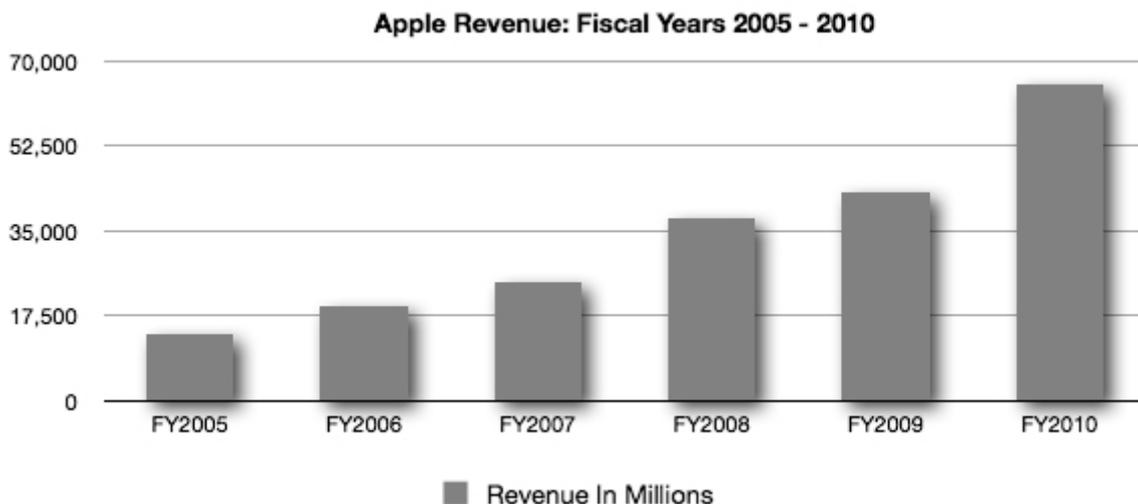
16. Google’s annual revenues over time demonstrate how remunerative network effects can be. In 2001, the company’s revenues were essentially nil. Over the next several years the popularity of its internet search engine shot past Yahoo’s (and everyone else’s, in most countries) to become the market leader. The more people used it, the more accurate and useful its results became, which further increased its popularity, leading even more people to use it, and so on. Meanwhile, as the user base grew, so did advertisers’ desire to buy Google’s advertising services. By 2009, the company’s total revenues had climbed to nearly US\$18 billion.

17. Network effects can also help to bring about very notable reversals in a company’s fortunes. Apple is an excellent example because network effects had marginalised the company for years, but when it found a way to master them, it became one of the most successful companies in the world. In the 1980s, Apple made a number of decisions concerning its personal computer hardware and software that put the company in a position where it was struggling against network effects. Among them was its decision not to allow anyone outside Apple to manufacture hardware that would run on Apple’s operating system. That resulted in relatively expensive machines, whereas Microsoft licensed its operating system to multiple hardware manufacturers. Strong competition among those manufacturers led to relatively inexpensive machines and soon more people were using the Microsoft OS than the Apple OS. Software developers quickly sensed a more lucrative opportunity in writing for the Microsoft platform than for the Apple platform, so there was more software available for Microsoft-compatible PCs. That caused even more users to favour the Microsoft platform. Scale economies started to work for the Microsoft platform and

³ The Apple DRM example also applies to the interoperability topic.

against Apple's, and the end result was a near-monopoly in the operating system and productivity suite software markets for Microsoft and near-death for Apple.

18. That is essentially how things remained for Apple through the 1990s and early 2000s. But after it introduced the iPod, the iTunes Store, and especially the iPhone, Apple went from being a victim of network effects to being a beneficiary of them. The following chart shows Apple's annual revenues in US dollars from 2005 to 2010. On average, financial analysts following Apple currently expect the company to earn US\$109 billion in fiscal year 2011.



19. First, Apple arranged to make a large selection of digital music available to consumers on its iTunes Store. It also introduced the iPod, which was able to play that music and quickly became the leading portable digital music player. The more iPods people bought, the more imperative it became for music companies to make their songs available in the iTunes Store, making the Apple music platform even more popular with consumers. Apple then introduced the iPhone, which integrated mobile telephony, portable music, still and video photography, and the internet. It also seeded the iTunes Store with a large number of applications for the iPhone, repeating the successful formula it had used with music for the iPod. The result has been an even bigger success for Apple than the iPod was. Developers began to churn out more and more new apps for the iPhone, driving its popularity higher, while traditional mobile phone powerhouses like Nokia saw their sales slump dramatically.

20. Interestingly, Apple has adhered to its strategy of keeping its hardware in-house. Whether Apple would have met with even greater financial success if it had licensed the iOS to other mobile handset manufacturers and opened the iTunes Store to their customers is an interesting question.

21. Companies in the digital economy have learned how important it is to be on the right side of network effects. Their business strategies usually reflect that. It is not unusual to see firms in the digital economy giving away their products or services (or heavily discounting them) when a new market is developing so that they can build up a critical mass of users more quickly. In fact, in two sided digital markets, such as online search/advertising, one side often remains free of charge to users. Exclusive dealing arrangements are also frequently used in the presence of network effects. Such strategies can help lead a digital company toward achieving a first mover advantage, which it hopes will place it in the "sweet spot" of network effects. That, in turn, can lead to advantageous scale economies, especially where marginal costs are negligible after the costs for the first unit has been incurred, as is often the case with

digital information products. Ultimately, the network effects and scale economies may place digital companies in a virtual fortress that their rivals have little hope of assaulting directly.

22. Competition law enforcers need to understand why network effects can lead companies in the digital economy to adopt particular strategies. Furthermore, sound competition policy has to take into account the advantages that consumers derive from network effects as well as the harm they may suffer if those effects are abused or manipulated in order to stifle entry.

Is Schumpeterian serial dominance inevitable in the digital economy, given the strength and frequency of network effects? If so, what are the implications for competitors? And what are the implications for competition policy?

At what point, if any, do the network effects barriers protecting dominant firms in the digital economy stifle near term competition so much that medium term competition is endangered, too? Or can enforcers safely assume that competition will never suffer long enough to make intervention appropriate?

5. The Competitive Implications of Open versus Closed Platforms for Mobile Applications Developers

23. The markets for smart mobile platforms and the software applications that run on them are large and growing rapidly. More than 1.3 billion mobile phones are sold annually now, and last year 20 percent of them were smartphones. That percentage will increase in the years ahead, as will the overall figure. In fact, not only will smartphones sales soon eclipse sales of ordinary mobile phones, they will also surpass netbook and notebook computer sales (on a unit basis). The rise of tablets will further erode sales of the older types of devices. Total mobile revenues, e.g. subscriptions with service providers, handsets, tablets, and applications, are expected to exceed US\$1 trillion in 2014. The market for mobile applications in particular was worth US\$4 billion at the end of 2009 and is expected to reach US\$25 billion by 2015. As companies vie with each other for shares of those revenue streams, the decisions they make about mobile platforms and the applications that run on them will be an important determinant of their success.

24. Mobile platforms (and perhaps ICT platforms generally) can be seen not just as stand-alone technologies, but as technology ecosystems that depend on the interactions among the actors that exist in them. Even companies that have a great deal of market power in one area of the ecosystem rely on the co-operation and innovation of others for their success. Thus handset manufacturers and mobile network service providers are interdependent, as are mobile operating system owners and app developers.

25. Like network effects, a platform's open or closed nature can have a mixed influence on competition, including competition in the market for mobile applications. Any developer can write, sell, or give away software for an open source platform. While the openness of the platform lowers entry barriers in that respect, it might raise them in another sense. With so many other actual and potential competitors on the platform, some of whom may not even be seeking a profit, for-profit developers might choose not to invest in creating an application at all, fearing that they would never be able to get enough scale to be profitable.

26. On a closed platform, the platform operator makes decisions about who is allowed to develop and sell what applications. It can also influence app prices, notably by demanding fees. In that environment, developers may have greater incentives to develop an app if they believe that further competition will be limited on the platform. But in that case consumers will not be able to benefit fully from price competition, and innovation may suffer, as well. On the other hand, the platform operator has greater power to ensure that the available applications work well and enhance the user experience.

27. Defining relevant markets at either the platform or apps level, and assessing whether a particular market participant is in a dominant position, may be quite challenging. Potential complexities include the possibility that an app developer may create the same app for multiple platforms, and the price to end users may not be the same on both platforms.

How do the open and closed mobile platform business models work? Which model is likely to generate more innovation? What are the potential competition policy issues for applications markets under each type of platform?

If mobile app developers can port their software from one platform to another, does it still matter whether the initial barriers to entering the app market on one platform are higher than they are on the other?