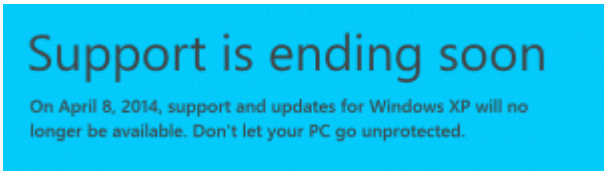
By Eva-Maria Scholz, 25 March 2014

Planned obsolescence in the digital age



In about two weeks, on April the 8th, Microsoft is ending its support services for its popular operating system (OS) Windows XP. With the date drawing closer, one can increasingly read the claim that Microsoft's move is yet another example of a company to adopt a business strategy of planned obsolescence. This debate is fueled by the fact that at present Windows XP users still account for a market share of almost 30 percent.

Planned obsolescence is not a new concept. Typically, definitions refer to it as the incentive of durable good suppliers to *artificially* shorten the economic lifespan of their products in the context of the Coase conjecture. Loosely speaking, the Coase conjecture states that a monopoly supplier of a durable good has no monopoly power. Why so? The monopolist faces a commitment problem. Ex-ante he would like to set the monopoly price, while ex-post – once the first units of the durable good are sold – he would like to decrease the price to also capture consumers with a lower willingness to pay. Consumers, however, anticipate this and by postponing their consumption put downward pressure on the price. Assuming that the consumers' *waiting period* is short enough, the monopolist is then forced to adopt the same pricing strategy as a competitive firm, i.e., marginal cost pricing. To overcome this commitment problem, one obvious strategy, among many others, is to reduce the durability of the product.

Already Bulow (1986) acknowledges the fact that planned obsolescence is a more complex, multidimensional concept and as such not limited to the mere physical durability of a product; "*planned obsolescence is much more than a matter of durability; it is also and perhaps primarily about how often a firm will introduce a new product, and how compatible the new product will be with older versions*" (Bulow (1986), p.747). Hence, the (perceived) durability of a product may be reduced by the presence of other, qualitatively superior versions of it or by incompatibilities between different generations of products (Choi (1994)). And indeed, in our digital age planned obsolescence may take on very sophisticated and diverse forms.

To begin, let me come back to the example of Microsoft and Windows XP. It is in my eyes safe to assume that consumers who are loyal to Microsoft, and thus do not switch to other OS providers, will sooner or later adopt a more recent OS or purchase a new PC featuring the latter. This is not only driven by security concerns, but also – and probably to a larger extent – by the fact that Windows XP users will increasingly encounter compatibility issues with other software products or devices. In other words, the presence of demand complementarities, which creates an interaction between the OS and other products, pushes consumers toward upgrading to a more recent OS.

Notice that upgrading to a more recent OS may only be the beginning of a long series of updates.

This observation is also made by Dominic Basulto in The Washington Post.

> *One product upgrade forces your hand to upgrade another product or service. This type of obsolescence is all about leveraging an entire ecosystem to get you to upgrade multiple ways at one time.*

What is more, after an upgrade to the latest OS you may discover that your PC, tablet or smartphone just does no longer work as smoothly as it did before. Or, that its battery lifetime is shortened substantially (this last point is illustrated by Catherine Rampell in The New York Times). All in all this implies that an OS upgrade is likely to entail further upgrades, among other, of the corresponding hardware.

Catherine Rampell mentions another aspect of planned obsolescence in the digital age. Taking the example of Apple she argues that the company succeeds in shortening the lifespan of its products by shaping consumer taste toward perceiving products as "*uncool for aesthetic rather than functional reasons*". Dominic Basulto summarises this point in a way some of us might relate to (not only in relation to Apple products).

> *If you're still hanging on to the original iPad, you probably feel like you're holding on to an artefact from the dark ages of the tablet era. Which, by the way, was all of two-and-a-half years ago.*

In this context, one might rightfully point out that the regular and frequent introduction of new versions of a product may very well be driven by other factors. As such, they may reflect a company's efforts of keeping its product portfolio up-to-date or represent a response to consumers' taste for variety and novelty. Moreover, the rate at which incumbents introduce new versions of their products is likely to be influenced by the extent of present or future competition on the product market. For instance, whereas Apple dominated the early smartphone industry, it now faces increased competition from companies such as HTC or Samsung.

> *Much so-called planned obsolescence is the working of the competition and technological forces in a free society – forces that lead to ever-improving goods and services. (Philip Kotler in The Economist)*

At this point it is important to make a distinction between software and hardware. In contrast to the latter, software is not subject to wear and tear and thus has – in theory – an infinite lifetime. Nevertheless, OSs or other software products are undeniably linked to hardware or, via the previously described demand complementarities, also to other software. As a result, depending on the rate at which other companies, in the same or related industry sectors, introduce new products, a company may be required to adapt its own products accordingly. Take, for example, the introduction of Windows 8 which to a large extent was motivated by the developments in the smartphone and tablet industry.

Irrespective of whether one terms such business strategies planned obsolescence or not, their implications for economic welfare deserve further attention.

First, notice that due to the presence of demand complementarities, a frequent introduction of new versions of a product may force a rate of innovation upon other industry sectors which may not be optimal for the latter. Being unable to keep up, this may lead to the exit of firms in those other industries, as they fail to periodically provide e.g. software, which is compatible with a new OS.

Nevertheless, a strategy of planned obsolescence may also benefit consumers and the economy as a whole. For instance, it allows companies to relocate their resources and focus their attention on new projects. As a result we may see the introduction of products that are valued highly by consumers, for instance, due to their superior quality.

> *Microsoft has provided support for Windows XP for the past 12 years. But now the time has come for us, along with our hardware and software partners, to invest our resources toward supporting more recent technologies so that we can continue to deliver great new experiences.*

Also, products such as OSs involve high switching costs. Just think of the time spend familiarising yourself with the new interface and features of a new OS, downloading and installing relevant programs or transferring your data after a clean update or the purchase of a new PC. Those switching costs may imply a suboptimal adoption rate on sides of the consumers that lags behind technological progress. Thus, *forcing* consumers to adopt a new OS may make them better off in the long run.

Judging from the discussion in blogs, articles or forums, opinions on Microsoft's strategy regarding Windows XP are highly divided. This is why I would be interested in your opinion on this topic. With the previous elements of analysis in mind, you may want to address the following questions. Do the strategies adopted by companies such as Microsoft or Apple correspond to a practice of planned obsolescence or may their frequent introduction of new product versions be explained by other factors? Moreover, do the former companies have too high incentives to introduce new products, compared to what would be optimal in terms of economic welfare?

As a final point one may wonder whether planned obsolescence in the software industry soon will be a concept of the past? Various Cloud Computing solutions such as e.g. SaaS (software as a service) give consumers the possibility to rent required software on demand. By this, durability concerns become irrelevant and planned obsolescence maybe itself obsolete.