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Obsolescence

Obsolescence is the state of being which occurs when an object, service, or practice is no longer wanted even though it may still be in good working order. Obsolescence frequently occurs because a replacement has become available that has, in sum, more advantages compared to the disadvantages incurred by maintaining or repairing the original. **Obsolete** refers to something that is already disused or discarded, or antiquated.^[1] Typically, obsolescence is preceded by a gradual decline in popularity.



Ending the Depression Through Planned Obsolescence by Bernard London, 1932

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Consequences

Driven by rapid technological changes, new components are developed and launched on the market with increasing speed. The result is a dramatic change in production methods of all components and their market availability. A growing industry sector is facing issues where life cycles of products no longer fit together with life cycles of required components. This issue is known as obsolescence, the status given to a part when it is no longer available from its original manufacturer. The problem of obsolescence is most prevalent for electronics technology, wherein the procurement lifetimes for microelectronic parts are often significantly shorter than the manufacturing and support life cycles for the products that use the parts. However, obsolescence extends beyond electronic components to other items, such as materials, textiles, and mechanical parts. In addition, obsolescence has been shown to appear for software, specifications, standards, processes, and soft resources, such as human skills. It is highly important to implement and operate an active management of obsolescence to mitigate and avoid extreme costs.^[2]

Types

Technical obsolescence

Technical obsolescence usually occurs when a new product or technology supersedes the old, and it becomes preferred to use the new technology in place of the old. Historical examples of superseding technologies causing obsolescence include bronze replacing flint in handtools, higher-quality multimedia DVD over videocassette recorder and the telephone, with audio transmission, over the telegraph's coded electrical signals. On a smaller scale, particular products may become obsolete due to replacement by a newer version of the product. Many products in the computer industry become obsolete in this manner; for example, Central processing units frequently become obsolete in favor of newer, faster units. Singularly, rapid obsolescence of data formats along with their supporting hardware and software can lead to loss of critical information, a process known as digital obsolescence.

In many cases a new technology does not imply a complete obsolescence of the old technology, because of technical reasons. For example vacuum tubes got obsolete in TV and radio receivers in the 1960s (or nineteen sixties) after transistors were available, they were much longer used for powerful transmitters as transistors for these power levels were not available and even today one has to use multiple transistors for a purpose only a single tube was required.

Another complementary reason for obsolescence can be that supporting technologies may no longer be available to produce or even repair a product. For example, many integrated circuits, including CPUs, memory and even some relatively simple logic chips may no longer be produced because the technology has been superseded, their original developer has gone out of business or a competitor has bought them out and effectively killed off their products to remove competition. It is rarely worth redeveloping a product to get around these issues since its overall functionality and price/performance ratio has usually been superseded by that time as well.

Some products are rendered technologically obsolete due to changes in complementary products which results in the function of the first product being made unnecessary. For example, buggy whips became obsolete when people started to travel in cars rather than in horse-drawn buggies.

Functional obsolescence

Items become functionally obsolete when they can no longer adequately perform the function for which they were created. For example, while one could theoretically adapt an Avro Lancaster to deploy modern JDAM bombs, the situations in which it could actually succeed at doing so against modern air defenses would be so few that it would be essentially useless.

Manufacturers and repair companies will typically cease support for products once they become obsolete as keeping production lines in place and parts in storage for a shrinking user base becomes unprofitable. This causes scarcity of spare parts and skilled technicians for repairs and thus escalates maintenance costs for obsolete products. This ultimately leads to prohibitive expense in keeping old technology functioning.

Architectural obsolescence

The term "obsolescence" was first applied to the built environment in 1910 in an attempt to explain American skyscrapers sudden loss of value.^[3] New York engineer Reginald P. Bolton attributed this phenomenon to "something new and better out-competing the old" and calculated the average architectural lifespan of varying building types in order to formulate a rough estimate for their impending obsolescence.^[3] For example, he suggested that hotel's obsolescence will occur faster than banks due to their ever-changing functions and tastes.^[4]

Planned obsolescence

Sometimes marketers deliberately introduce obsolescence into their product strategy, with the objective of generating long-term sales volume by reducing the time between repeat purchases. One example might be producing an appliance which is deliberately designed to wear out within five years of its purchase, pushing consumers to replace it within five years.

Style obsolescence

When a product is no longer desirable because it has gone out of the popular fashion, its style is obsolete. One example is flared leg jeans; although this article of clothing may still be perfectly functional, it is no longer desirable because style trends have moved away from the flared leg cut.

Because of the "fashion cycle", stylistically obsolete products may eventually regain popularity and cease to be obsolete. A current example is "acid-wash" jeans, which were popular in the 1980s, became stylistically obsolete in the mid to late 1990s, and returned to popularity in the 2000s.

Obsolescence management

Obsolescence management, also referred to as "Diminishing Manufacturing Sources and Material Shortages" (DMSMS), is defined as to the activities that are undertaken to mitigate the effects of obsolescence. Activities can include last-time buys, life-time buys, and obsolescence monitoring.

See also

- Commodification
- Deprecation
- Disruptive innovation
- DMSMS
- Moore's law
- Planned obsolescence
- Sustainable design



Jimi Hendrix's bell-bottoms

References

1. Fowler HW and Fowler FG (1st ed.), Thompson Delia (ed.) (1995). The Hardy Boyz use the term "obsolete mule" at times. *The Concise Oxford Dictionary of Current English*, 9th Ed., Clarendon Press, Oxford. [ISBN 0-19-861319-9](#).
2. Bjoern Bartels, Ulrich Ermel, Peter Sandborn and Michael G. Pecht (2012). *Strategies to the Prediction, Mitigation and Management of Product Obsolescence*, 1st. Ed., John Wiley & Sons, Inc., Hoboken, New Jersey. [ISBN 1-11-814064-8](#) .
3. Abramson, Daniel (2012). "From Obsolescence to Sustainability, Back Again, and Beyond". *Design and Culture*. **4** (3): 279–298.
4. Bolton, R.P. (1911). *Building for Profit: Principles Governing the Economic Improvement of Real Estate*. New York: De Vinne.

Further reading

- Bjoern Bartels, Ulrich Ermel, Peter Sandborn, and Michael G. Pecht: *Strategies to the Prediction, Mitigation and Management of Product Obsolescence*, 1st. Ed., John Wiley & Sons, Inc., Hoboken, New Jersey, 2012, [ISBN 1-11-814064-8](#), (*online copy (Google)* (<https://books.google.com/books?id=rgaUwTQIV6gC>) at [Google Books](#))

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