Product Deletion in the Information Technology Industry

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Abstract—*IT companies invest substantial monetary and nonmonetary resources in introducing or acquiring new products and managing them. However, not all of these IT products remain profitable, valuable, and strategic for a company. It is beneficial for the IT company to delete weak products from the product portfolio and re-channelize the freed resources to strong products in order to improve financial performance. Three internal factors influencing product deletion in IT companies are (1) deleting an existing product to introduce a new one; (2) deleting a relatively new product to merge it with an established product; or (3) merging multiple products into one product. Alternatively, three external factors that impact product deletion decisions in IT companies are (1) privacy concerns and issues; (2) unfavorable reviews from technology experts; or (3) mergers and acquisitions. Understanding these unique factors that trigger product deletion in IT firms can facilitate the decision-making process and aid managers in successfully implementing the product deletion. If managed appropriately, product deletions could help a company redeploy its valuable resources to strong products in the portfolio, create a superior competitive position in the market, and bolster growth and financial performance.*

Key words: Information technology industry, product deletion, product portfolio management

PRODUCT DELETION IN THE INFORMATION TECHNOLOGY INDUSTRY

> "New products have glamor. . .Their successful introduction promises growth in sales and profits that may be fantastic. But putting products to death—or letting them die—is a drab business, and often engenders much of the sadness of a final parting with old and tried friends. . . But while deletion is an uninspiring and depressing process, in a changing market it is almost as vital as the addition of new products."—[Alexander, 1964]

This statement is especially true in the dynamic, fast-paced, and ever-changing information technology[1] (IT) industry where product lifecycles are measured in weeks or months and keeping pace with this time pressure is crucial [Meares & Sargent, 1999].

IT companies invest substantial monetary and nonmonetary resources in introducing or acquiring new products and managing them. However, not all of these IT products remain profitable, valuable, and strategic for a company. Over time, some products fail to achieve the purpose for which they were created, reduce the value of the company's

[1] This includes data processing services, computing services, internet search engines, computer gaming, electronic networks, internet services email services, computer data storage, internet hardware and software providers, and other similar companies. Some examples include Google, Amazon, Facebook, Yelp, Seagate, and Dropbox. (SIC)

product portfolio, and efficiently utilize the company's valuable resources [Shah, 2015]. It is beneficial for the company to delete—discontinue— such weak products from the product portfolio and re-channelize the freed resources to strong products in order to improve financial performance ([Kumar, 2003]; [Shah, Laverie, & Davis, 2017]; [Varadarajan, Defanti, & Busch, 2006]).

Companies delete products when products (1) do not perform well on financial parameters; (2) do not meet consumer needs; (3) do not fit with the company's strategic direction; or (4) do not fit well with other products in the company's product portfolio [Shah, 2017a].

Companies also delete products in precipitating circumstances such as: (1) complying with government policies and regulations; (2) responding to competitive actions; (3) dealing with raw materials and parts issues; (4) reducing variety in the product portfolio; (5) maintaining a fit with company image and capabilities; (6) channelizing resources to new product development; and (7) rationalizing the portfolio due to mergers and acquisitions [Avlonitis, 1987].

In addition to these situations, there are unique factors that trigger product deletion in the IT industry. Understanding how these factors influence the product deletion in IT firms can facilitate the decision-making process and aid managers in successfully implementing the product deletion. These factors are internal and external in nature. Internal product deletion factors are strategic and arise within the company. External product deletion factors stem from forces outside the company.

Internal Factors Influencing The Deletion of IT Products

Deleting an existing product to introduce a new one. The deletion of existing products to introduce new products is the most frequently occurring situation in the IT industry. An existing product which is no longer relevant, profitable, or strategic is deleted and replaced with a more relevant and strategic product with a profit-maximizing goal. For example, Google Notebook, a free online software application that enabled users to keep notes, clip text and images, save weblinks, and organize and share information, was launched in 2006. Google announced in 2009 that it will discontinue Notebook, and Google Docs would be available to export user contents from Notebook [Krishnan, 2009].

Obsolete IT products are also deleted to make room for newer models possessing better features and designs with the goal of shortening the replacement cycle and inducing repeat purchases. This process is known as planned obsolescence ([Bulow, 1986]; [Meng, Thörnberg, & Olsson, 2014]). Examples include the launch of newer smartphone models every year making older models obsolete and introducing newer versions of software applications and discontinuing support for the older versions.

Deleting a relatively new product to merge it with an established product. IT companies are also known to delete relatively new products—in their introduction or growth phase. To retain the users of this new product, they offer an established mature product as a substitute by merging some features of the new product into the mature product. This situation occurred when Google launched Inbox in 2014.

The purpose of Inbox was to help users improve the productivity and organization of emails. Some capabilities included bundling emails with similar themes, providing reminders and snooze features, *undo send* and *smart reply* features, and previews of certain types of emails. Inbox was gaining popularity and positive reviews. However, with an aim of focusing resources on one strong email platform, Gmail, Google discontinued Inbox in 2018. It merged many Inbox features into Gmail. Gmail has been an established product since 2004 and has over a billion users worldwide [McCracken, 2018].

Merging multiple products into one product. IT companies are continuously innovating. In this process, they sometimes end up with multiple products that are either redundant or complement one another. Consolidating them into one single product could create a *win-win* situation for a company and its consumers.

The company benefits by saving product management time, costs, and other valuable resources invested in multiple products. It can redeploy these resources into managing one stronger product. Consumers would gain from a better user experience because now the various benefits from multiple products are available in one product. Google Play Newsstand and Google News & Weather are an example. In 2018, these two major offerings were deleted and merged into one product called Google News. Interestingly, Google Play Newsstand was a news aggregator and digital newsstand created in 2013 through an amalgamation of Google Play Magazines and Google Currents. Google News & Weather was also a news aggregator app that was launched in 2014. In 2018, Google decided to focus on a single news product called Google News—launched in 2002—so that its users can find curated news, magazines, headlines, weather forecasts, as well as blog posts, in one application [El Khoury, 2018].

Similarly, Picassa Desktop and Web Albums were deleted, and all the content was merged into one product called Google Photos. The purpose of gathering relevant content into one place was to enhance user experience and to better utilize company's resources.

External Factors Influencing The Deletion of IT Products

Privacy Concerns and Issues. In this digital age, personal information about individuals is easily acquired and used to provide personalized benefits to these individuals. However, if not managed carefully and responsibly, it can be a concern for privacy issues such as illegal collection, unauthorized secondary use, improper access, or errors [Smith, Milberg, & Burke, 1996]. IT products have faced media backlash when they have failed to maintain security and privacy.

Some IT products are even deleted due to privacy issues. In 2018, Google shut down Google Plus due to the exposure of its users' private data [Wakabayashi, 2018]. Similarly, users of Google Glass felt they were losing control of their privacy and using it felt like invasive surveillance. Google Glass which was launched in 2013 targeting individual users was discontinued in 2015. A high price point also played a role, but major privacy concerns were a tipping point for deletion [Garcia, 2019]. Now its enterprise edition is marketed only to businesses.

Unfavorable Reviews From Technology Experts. Professional reviews provided by technology experts help a new product establish reputation, trigger word of mouth, and disseminate product information [Zhou & Duan, 2016]. These professionals serve as opinion leaders influencing user decisions [Reinstein & Snyder, 2005].

Popular examples of professional technology review websites include CNET, TechCrunch, Wired, Gizmodo, Mashable, and TechRadar. When a new IT product is launched, many consumers visit these technology review websites to gain more product knowledge and expert opinions; informing their purchase and usage decisions [Zhou & Duan, 2016]. If a product has received unfavorable or negative professional reviews, it could reduce the purchase and usage of the IT product. Typically, in this event, the product is deleted.

This happened to Google Nexus Q, a streaming media player launched by Google in 2012 at a price tag of $299. It received, unfavorable professional and expert reviews, and Google deleted the product immediately. Nexus Q was not made available for sale ([Hartmans, 2019]; [Moorhead, 2012]).

Mergers and Acquisitions. The IT industry encounters several mergers and acquisitions each year. High tech environments face rapid technological change, and therefore require radical innovation, novel solutions, and applicable complementary knowledge. Many IT companies use the mergers and acquisitions route to function in this dynamic environment and gain competitive advantage in the market [King, Slotegraaf, & Kesner, 2008]. A majority of these mergers and acquisitions fail due to varying strategic, organizational behavior, and financial reasons [Straub, 2007].

When mergers and acquisitions are unsuccessful, the buying company may decide to divest a business or delete a product. Reasons for this product deletion include (1) losses from the acquired business; (2) a lack of strategic fit with other products from the acquired business' portfolio; or (3) an aim to consolidate competition [Hitt et al., 2009].

In 2009, Cisco acquired Pure Digital Technologies, manufacturers of Flip, a popular small pocket-sized video camera that shot and stored up to an hour of video. In 2011, Cisco stopped making and discontinued the Flip mini camcorder stating that it is "strategically realigning its business to focus on selling its core products" [Reardon, 2011].

Similarly, Google acquired Sparrow, an email client software, in 2012 and deleted the product [Lunden, 2015]. Another example is the Pebble smartwatch, which was discontinued in 2018 after acquisition by Fitbit [Goode, 2018].

The Road Forward for Management

In addition to the various financial and strategic reasons for which companies delete products from their portfolios, there are six factors which influence the product deletion decisions in IT companies. Three internal factors influencing product deletion in IT companies are (1) deleting an existing product to introduce a new one; (2) deleting a relatively new product to merge it with an established product; or (3) merging multiple products into one product. These internal factors trigger strategic and proactive product deletion decisions which benefit the company and enhance its financial performance.

Alternatively, three external factors that impact product deletion decisions in IT companies are (1) privacy concerns and issues; (2) unfavorable reviews from technology experts; or (3) mergers and acquisitions. Usually these product deletion decisions are reactive to external forces and aim to save the company from further financial losses or reduce adverse effects on image and reputation.

Managers in IT companies need to understand this difference between internal and external factors influencing their product deletion strategic decision-making. They should also recognize instances when these factors overlap or influence one another. This in turn will enable them to plan and implement a successful product deletion without losing customers or market share, without damaging the company's image and reputation, and without incurring financial losses [Shah, 2017b]. If managed appropriately, product deletions could help a company redeploy its valuable resources to strong products in the portfolio, create a superior competitive position in the market, and bolster growth and financial performance. If managed poorly, a company may lose competitive advantages, or no longer exist.

Many additional questions, related to product deletion, need to be addressed: (1) how do postmerger integration challenges impact product deletions in IT companies? (2) how do various stakeholders respond to the announcement of product deletion in the IT industry? (3) what are the success factors and outcomes of IT product deletions? (4) what is the impact of a product deletion decision on the other functions of an IT company? (5) what are the interactions between internal and external factors influencing IT product deletions? and (6) what is the impact of these interactions on the financial and nonfinancial outcomes of the product deletions?

To this end, it is imperative that product deletion in the IT industry is considered critical and planned effectively, right from the beginning. Many practitioners and companies, with their optimistic outlooks, may not accept or consider product deletion as a crucial element of their strategic toolkit. Every IT organization is urged to consider the costs and benefits of its product deletion decisions. This is a crucial subject matter, demanding managerial attention, thought, and time.

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