

THE OVERGROWN CORPORATE GARDEN

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WHY IS PRUNING LEGACY PRODUCTS SO HARD?



PRUNING

Removing legacy products from sales offering, to increase profitability and focus effort on new development.

Many companies are drowning in their own products. These are often outdated or legacy products still for sale, which contribute little to corporate net margins, but which have never been pruned. For example, Nokia insisted on keeping its Symbian Platform, as well as a Windows OS offering, while the remainder of the smartphone market converged on Android. Much of the overgrown garden hinges on a false assumption that more choices mean more satisfied customers.

BMW today offers tremendous variety in the market, to both traditional BMW drivers as well as new customers interested in micro-niches like mini-crossovers (X1) and performance SUVs (X4M). We believe that BMW's product offering has gone too far – many customers struggle to identify what the difference between a 3 Series and a 4 Series is: are they both available in four-door? Is the 4 Series the two-door coupe only? While incremental additions may well help the firm exploit niche markets (are X4M buyers performance-minded city dwellers who are actively avoiding the minivan transition?), the sum of these incremental decisions can harm the customer if the variety becomes overwhelming or lacks differentiation.

By contrast, in 2019, VW announced that they will stop making the Beetle, 81 years after it was first produced due to low demand (2018-2019). This begs the question: **when and where is it appropriate to stop selling existing products?**

HEDGE YOUR BETS WHEN REPLACING THE OLD WITH THE NEW?

A bird in hand is worth two in the bush, or so the saying goes. In a public corporation context, current product is

seen as a sure thing, compared with new products under development. Existing product sales represent a strong predictor of future sales, and it is often attractive to keep older products in the product catalog, as they provide consistency in revenue. Hence, we often keep the old while we also bring out the new. We have observed that there is an aggregate impact of this principle on both the firm's customers as well as the firm's cost structure.

IBM Lenovo, for example, missed out on the PC market in the early 2000s. They saw their current products (enterprise data storage and mainframes) as a more solid source of revenues compared to the new offering, the PC. IBM didn't realize the PC would be a huge market compared to selling mainframes and servers to corporations, and would also disrupt how corporations invested in technology. It took new leadership much of the next decade to rebrand IBM and to recover their strength in enterprise solutions.

PRUNING BENEFITS THE WHOLE, BUT HURTS THE FEW

The counter-arguments and corporate objections to pruning products are many. The firm has already paid for it, so selling it is pure profit. Old products keep us talking with our legacy customers, in the hopes that they may upgrade someday. Product support is core to our brand, and lines up well with our mantra of putting the customer first. Don't cut my product to free up resources.

A recent Harvard Business Review¹ study found that the

¹Centralized Decision Making Helps Kill Bad Products. John Joseph and Ronald Klingebiel. October 18, 2016.
<https://hbr.org/2016/10/centralized-decision-making-helps-kill-bad-products>

best companies kill development projects twice as fast as the worst companies. We believe the same is true for old products. Firms that obsolete their old products position themselves for growth rather than hold on to declining margins, and take a proactive approach to managing customer expectations in the transition.

Psychologist Barry Schwartz examined customer expectations of variety in his book *The Paradox of Choice*. Schwartz found that when buyers are faced with having to choose from a wide variety of options, their evaluation shifts from focusing on potential value of the product to worrying about missed opportunities. Offering too much variety causes customers to focus on the missed features and attributes, rather than on the value the product offers relative to their current use.

For example, a buyer in medical instrumentation might lament not having the benchtop convenience of the expensive miniaturized model, and also linger on the automation of the too-large-to-fit model, while missing the real value: they are buying capital equipment that will double throughput of lab samples relative to manual processing. Customers in many (but not all) types of transactions come away more satisfied if they are presented with a manageable and human-tradable set of factors.

The strongest companies TSP has worked with think very carefully about when to stop selling older products. They think about the sales opportunity that legacy product creates, the potential for customer productivity improvements from new products, as well as freeing up resources for potential transformational projects. They weigh these factors programmatically and regularly, and make obsolescence a part of their product strategy rather than a once-in-a-generation housecleaning.

One analogy is annual price increases. While this is potentially an uncomfortable conversation with customers in the short term, there are obvious bounds on waiting too long. For example, a company with 10% profit margin that failed to update its price over a 5-year period would realize 94% less profit due to inflation alone (at 2% inflation), in addition to the missed opportunity to conduct value-based pricing with customer on the basis of changing customer use cases. What works in some jurisdictions is to set expectations that the price will change annually, but by small amounts. In this analogy, we argue obsoleting older products should be a regular process, like annual price increases, lest the compounding effects of inventory and marketing complexity compound over time.

A FRAMEWORK FOR PLANNED OBSCULENCE

Some of the most gratifying projects we have seen at TSP have turned around firms that were tremendously overweight on product offerings. We have seen clients with long tails of product sales, down to 1 to 2 units sold per year. In other cases, clients were spending a majority of R&D budgets supporting legacy product in a declining market, while lamenting the lack of funding to address growing adjacencies.

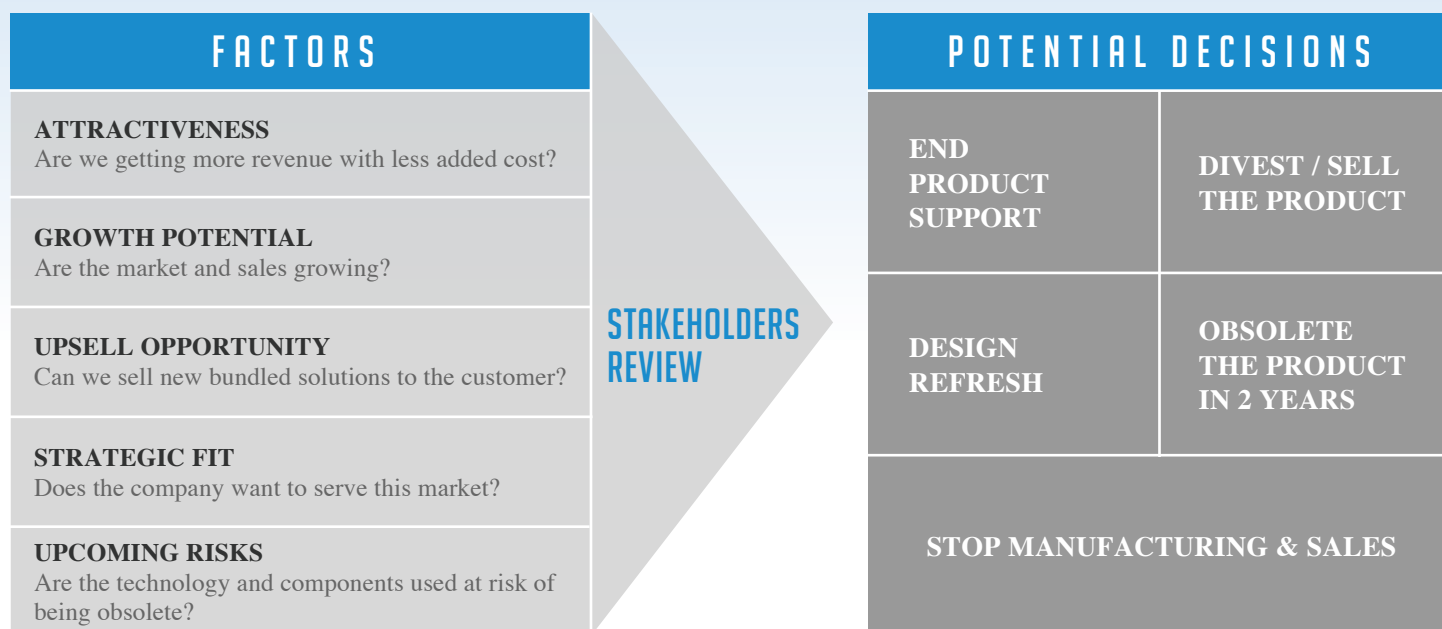
To scope planned obsolescence, we consider existing products on sale and products supported in the field. We exclude from our scope mergers and acquisitions (M&A) and opening / closing of whole divisions. We also exclude considerations of design lifetime & durability (such a 6 year design lifetime for a car), which is a related upstream choice, but planned obsolescence deals with the existing products, not the future set of products. Remaining in scope is the question of when

to stop selling or supporting products, whether because they do not make economic sense for the company, they see low demand, they have fallen out of the target markets of the company, and a multitude of other considerations. To organize decision-making around potential obsolescence decisions, we have identified five factors for systematically analyzing the product portfolio.

firms, there is a hypothesis that complexity costs (chiefly fixed costs and overhead allocations) are undervalued. If the company as a whole feels decision-making has not resulted in appropriate obsolescence, the question is often why doesn't our cost-basis and our decision-making reflect the need for obsolescence? .

OBSOLESCENCE FRAMEWORK

FIVE FACTORS FOR SYSTEMICALLY ANALYZING THE PRODUCT PORTFOLIO



Attractive to Serve Today is the classic company view of profitability – how do today's costs of offering the product compare to the revenue generated? For example, if a firm selling ultrasounds identified the cost of goods (COGS), overhead contributions, and service costs at \$26,500 per machine, whereas the current price in the market was \$22,400, then clearly the product is underwater. It is rare for products to be identified for obsolescence based singularly on this factor. In many

Growth Potential is an analysis of the market's future attractiveness. This analysis examines whether the market is growing, whether the product can grow with the market to sustain its market share, and whether the product could grow in spite of market stagnation or decline by stealing market share from competitors. For example, the demand for Boeing's 50-year old 747 jet has been on the decline in the global passenger travel market, with the last US carriers retiring the 747 in 2017.

However, the 747 has seen a growing demand in the cargo market as a result of global online shopping growth.

Upsell Opportunity is whether obsolescence can catalyze a new product sale to existing customers. For example, resins for use in pharmaceuticals and research markets are sold in bulk containers as well as in prepacked columns. Could obsoleting the bulk containers prompt the adoption of pre-packaged columns? This would solve both the customer headache of resin packing and storage issues, while also transitioning customers to a value-based pricing (resin per test) model as compared with cost-based pricing in bulk containers.

Strategic Fit evaluates whether the product in question helps the company serve a target market. Products that align with the firm's strategic goals and which maintain the firm's core competency should stay. Products that have drifted away from the company's strategy pose a distraction from the company's goals, and could be unloaded to distributors or other partners.

Upcoming Risks includes evaluating whether any of the constituents used in the product is likely to become unavailable in future. This can include whether the technology will become obsolete relative to competitor offerings, or the likelihood of regulatory changes that would affect the product. For example, Kodak is a classic case of failure to recognize technology disruption.

We developed the world's first consumer digital camera but we could not get approval to launch or sell it because of fear of the effects on the film market.

Don Strickland, former VP, Kodak².

CASE STUDY: BOEING 747

As an illustrative example: Should Boeing stop selling the famous 747? We exercised our obsolescence framework on public data from Boeing, the airline market, and fictional values.

Attractiveness: Let's assume that 747s are being sold at 20% gross margin (without accounting for overhead cost allocation). If the overhead cost per airplane is assumed to be 10-15% depending on the number of units manufactured per year, then the programs would still be net positive at 5-10% net margin.

Another important aspect to consider is the fact that the 747 program may share overhead cost of the Everett, WA Boeing plant and thus lower the burden on newer programs.

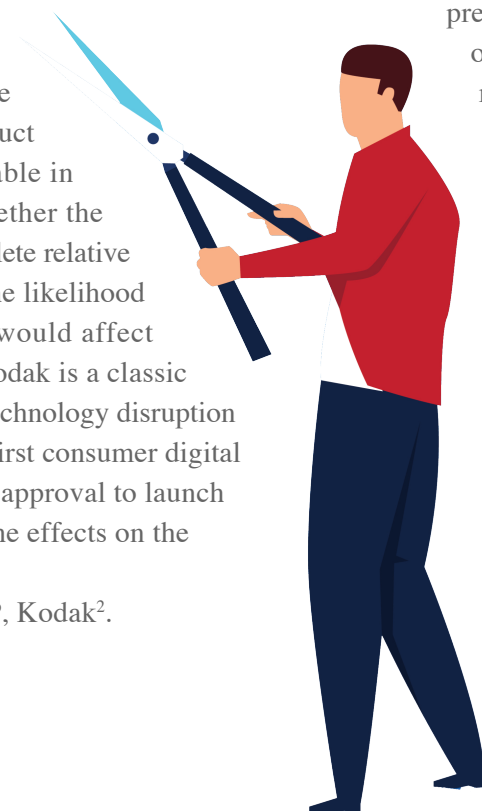
Growth potential: The 747 program has seen declining orders (down by 60% decade over decade) and pricing pressure³. It has witnessed a decline in hub and spoke operations in the international passenger travel market as airlines have shifted to point to point operations, benefitting the 787 program. On the other hand, there has been a growing demand on the freighter version of the 747 in recent years. If we assume the air cargo market is growing at 1% per year and hub and spoke operations at >500 seats will be zero by 2025, we might conclude there is limited growth potential.

²The Moment It All Went Wrong For Kodak. The Independent, 20 January 2012.

<https://www.independent.co.uk/news/business/analysis-and-features/the-moment-it-all-went-wrong-for-kodak-6292212.html>

³Fifty years on, Boeing's 747 clings to life as cargo carrier. Reuters, February 8 2019.

<https://www.reuters.com/article/us-boeing-747-anniversary/fifty-years-on-boeings-747-clings-to-life-as-cargo-carrier-idUSKCN1PX17L>



Upsell opportunity: We have to evaluate whether halting the sale of the 747 would have a positive impact on the sale of other Boeing variants. Do we believe that there are customers who approach Boeing because of the 747 today, who could be pointed at the 777 or 787? In the airline market, given the size of the purchase and thin margins, we would remove upsell as a factor for Boeing: customers are well informed of available options.

Strategic fit: The 747 program is clearly a part of Boeing's legacy, and played an enormous role in profitable international operations. However, Boeing's success with the 787 in point-to-point operations, challenges with the 737 market, and stated priorities in developing products for the middle of the market⁴ all point to 747 being outside the strategic focus of the firm.

Upcoming risks: Given the low sales rate, it seems unlikely that 747 obsolescence would pose a key account risk. FAA regulations are largely focused on new derivatives, but challenges from the 737 could potentially cascade into needed revisions to the 747. However, given the 747's long history, it is possible that low production rates create continuity of supply risks. In sum, Boeing faces relatively minor upcoming risks, and it seems unlikely these risks alone would force obsolescence.

Taking all these factors into consideration, this analysis suggests Boeing may want to consider obsoleting the 747 program, dominated by low market growth. However, this is primarily a cost argument—the upside benefits of obsoleting to drive new unit sales are unlikely to spur new product sales.

OBsolescence IMPLEMENTATION PATHWAYS

There are a variety of potential paths to realize obsolescence. Once a decision has been made, the firm can choose between ending product support, halting manufacturing to sell off inventory, or selling the product rights to a partner. Regardless of the decision, obsolescence communications must be phased across a window to enable customers to transition, and should be positioned around the opportunities in sales, rather than emphasizing "we're sorry."

Obsolescence has to be done with empathy. Done wrong, obsolescence will feel like a cash-grab, or can disrupt critical customer operations. The customer has to be willing to undertake the short-term pain of changing over, and has to feel like they will benefit from the new system. In oil and gas, for example, if ending product support results in significant downtime, the operator has to have visibility to how the new system will improve oil recovery and earn a return on investment.



⁴Boeing pivots towards prioritizing larger NMA version first. Aviation Week, June 17 2019.

CONCLUDING THOUGHTS: WHAT WOULD A REGULAR PROCESS FOR OBSOLESCENCE LOOK LIKE?

When considering launching an obsolescence process, there are a host of signs to watch for:

- ☐ **The firm has overlapping products competing against each other, targeting the same customers**
- ☐ **Customer sales are concentrated on a small fraction of the portfolio**
- ☐ **R&D resources are spread too thin, or a majority of spending is on product support**
- ☐ **Return on R&D dollars is below market median**
- ☐ **Costs of producing and handling legacy products are overcomplicated and growing**

In implementation, obsolescence has to become part of the regular cadence. Having an annual or every other year obsolescence review is critical to keeping a healthy, resilient product portfolio. The more an obsolescence candidate product is left hanging, the more resources it will drain. Pruning the portfolio once every 10 years leads to a zigzag in portfolio size and is likely not the right approach. It's hard to admit, but the reality is that many firms are better at creating products than killing them. The good news is that obsolescence brings real benefits on a short time horizon.

BIOGRAPHIES

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Alicia McNeill is a Consultant with Technology Strategy Partners, where she has worked closely with clients in medical devices, consumer products, and oil and gas. Previously, Alicia was responsible for budgeting and corporate finance at Vertex Pharmaceuticals. Earlier in her career, Alicia worked in aerospace and defense in a variety of roles including program management, system engineering, and business development. Alicia holds a master's degree in System Design and Management from MIT and a B.S. in Operations Research & Industrial Engineering from Cornell University.



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Bruce Cameron is a Partner with Technology Strategy Partners, where he leads the consumer products and high tech practices. He has worked with more than 60 Fortune 500 firms in high tech, aerospace, transportation, and consumer goods. Dr. Cameron has taught system architecture and technology strategy at the Sloan School of Management and in the School of Engineering at MIT. Previously, Dr. Cameron worked in high tech and banking, where he built advanced analytics for managing complex development programs. Earlier in his career, he was a system engineer at MDA Space Systems, and has built hardware currently in orbit. He is a past board member of the University of Toronto.

