

Your Service Business May not be What you Think.

What you need to know to be sure.

Crispian Sevenpiper &
Peter DiGiammarino

intelliVen

Intelligent Strategies. Successful Ventures.

795 Folsom St., 1st Floor
San Francisco, CA 94107

p. 415.848.2634

f. 415.848.2301

www.intelliven.com



Summary

Profitability (i.e., Profit divided by Revenue) is a measure of the efficiency with which a business turns revenue into profit. It is difficult to maintain profitability when the cost of producing revenue rises over time while the price charged for the associated good or service erodes, though new business models, innovation, and cost management can all help maintain profitability.

Introduction

Competition in the 1990's among [high value manufacturers](#) eroded product profit margins. Many of these manufacturers, [such as IBM](#), moved to service-focused "solutions" to maintain margins and grow revenue. [Companies have been pursuing services over manufacturing ever since \(see HBR's *Winning in the Aftermarket*\).](#)

Moves such as IBM's assumed that services can be managed similarly to manufacturing. However, in 2016, net margin in [computer equipment was 14% but was 13% in information services, only 6% in computer services, and 4% in business services.](#)

Service offerings differ from manufacturing in two important respects. Service costs rise over time while price can erode rapidly. To maintain profitability, cost, value, and price must all be managed.

- **Cost is the amount of money the provider spends** to produce a service.
- **Value is the benefit** of the service. For services, this may be influenced by customer perception. For example, in healthcare, diagnosis of a specialist may be valued more than the same diagnosis from a general practitioner.
- **Price is what is paid** by the service customer for a given value received. The price a customer is willing to pay may be driven by competition or substitution. Examples in healthcare might be diagnosis by telemedicine (competition) or self-diagnosis from the internet (substitution).

Cost Disease

Cost disease is when small improvements in output occur as costs grow steadily. Consider, for example, how much one would be willing to pay to listen to Beethoven's Ninth symphony:

- \$1 for an MP3 on iTunes?
- \$20 for the CD?
- \$200 to hear the NY Philharmonic live?

Differences in availability, fidelity, and/or delivery method drive the price one is willing to pay. But price has little to do with the cost of creating the performance.

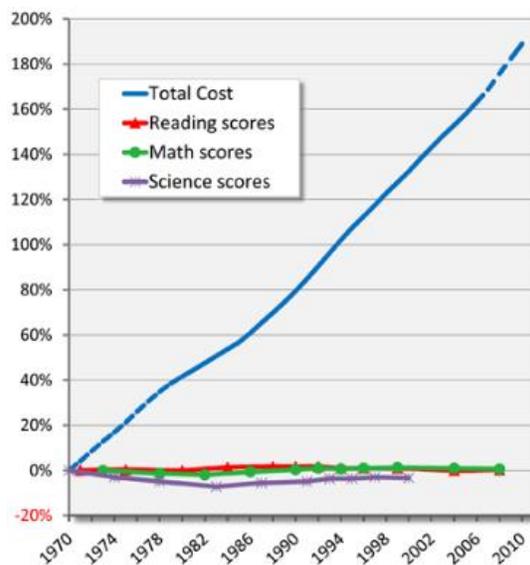
Consider that:

- It costs almost as much to create each of the three versions.
- Producing a high-quality performance of the Ninth is expensive as it requires a large chorus and a large group of highly trained musicians.
- It takes as many musicians in 2017 to perform the Ninth as it did in 1824. The cost of training musicians has increased over time and elite musicians are scarcer than ever; both of which drive higher costs to find and employ them.

The result is a small output improvement and steadily growing costs, or a case of "[Baumol's Cost Disease](#)" which was first described in the 1960's. Graphs showing small changes in output and steadily rising costs over time can be used to identify cost disease (see insert).

Cost disease is a problem in the arts and also in service segments of the economy:

- [Rapid increase in per capita healthcare costs](#) but [little relative change in population health](#).
- Education costs grow faster than inflation but show marginal test score improvements (as shown in the accompanying graph).



Cato Institute

"Total cost" is the whole amount spent on the K-12 education of a student graduating in the given year. We graph the percent change in that amount--and in test scores--over time.

Data sources

(test scores): NAEP, *Long Term Trends* reports, U.S. Department of Education (cost): *Digest of Education Statistics 2011*, Table 191, U.S. DOE, CPI adjusted to constant 2012 \$. Missing values linearly interpolated or extrapolated.

Prepared Sept. 2012 by:

Andrew J. Coulson,
Director, Cato Institute Center
for Educational Freedom

- [In spite of flat demand and declining productivity in legal services, the hourly rate for lawyers continues to rise.](#)

Cost Benefit Analysis

A common issue with service providers is failure to link cost to value. Cost Benefit Analysis (CBA) is one approach to address cost disease. The ratio of total benefit (value) to total cost can illuminate the relationship between cost and value. It also can highlight unanticipated sources of cost.

First, a metric of customer value is determined. Second, a metric of service provider cost is determined. Then, the ratio of first to the second is calculated.

As an example, suppose an automobile manufacturer develops a new diagnostic test that predicts the need for a \$1000 repair. If repaired early, the repair costs \$100. The test costs \$1 and can be run during oil changes.

The customer value is \$1000 - \$100 or \$900. The service provider cost is \$1

The ratio is calculated as

$$(\$1000 - \$100) / \$1 = 900$$

However, the customer only sees this benefit if their automobile has the problem. If only 1% of the cars need the repair, the expected benefit is 1% (\$900). The ratio becomes

$$(.01)(\$1000 - \$100) / \$1 = 9$$

The next surprise is when we find out the test had a 5% false positive rate and a 5% false negative rate. The false positive rate means 5% of the 99% of the customers without the failure get unneeded cheap repairs. These repairs erode the customer benefit. The false negative rate further erodes the benefit since 5% of the time we fail to make the cheap repair.

$$(((.95) (.01) (\$1000 - \$100)) - ((.99) (.05)(\$100)))/\$1 =$$

$$(\$8.55 - \$4.95) / \$1 = 3.6$$

For every dollar of service provider cost, \$3.60 of customer value is generated. The provider could choose to set the price at \$3.60 assuming an efficient market. The price could be set higher based on the lower likelihood of an expensive repair. If the customer has purchased an extended warranty, the customer may not be willing to pay any price for the test.

A word of caution about value metrics: **customers do not always know what is valuable.**

Healthcare provides an example. Prior to 2008, patient satisfaction was a key business measurement for healthcare providers. The industry adopted “15-minute maximum wait time” as a standard and built beautiful new buildings in an effort to attract patients. [While improving patient satisfaction, these did little to improve patient outcomes](#). It took the ACA to establish “No re-admittance with 30 days of discharge” criteria to make “make patient healthier” a business metric.

Profitability Over Time

Cost Benefit Analysis provides a snapshot of the relationship between cost and value. The snapshot can be used to establish what a customer should be willing to pay for a service. Furthermore, understanding how the Cost Benefit Analysis changes over time is required to maintain a profitable business.

In the diagnostic test example above, only test operation costs were considered. Time dependent factors were not considered.

The value may change due to changes in relative repair costs. For example, as the car resale value approaches \$1000 with depreciation over time, there is less value in a \$1000 repair.

Developing the test required up-front investment. The Net Present Value of that investment would be a function of the number of times the test is expected to be run. The model line longevity, the durability of each unit, and the number of units sold will affect the NPV.

Further, the \$1 operational test cost will increase over time due to cost disease.

Competitive advantage for a service based on special knowledge or organization capability is often short lived. Long term profit growth requires a non-service business model. For High Value Manufacturers, this means product is still important. Other service providers may need other business models.

Consider a business based on a commodity service such as selling hamburgers. The value of a hamburger in 1967 and 2017 is likely similar after adjusting for inflation. A major player such as McDonalds has limited the impact of cost disease. Ingredient costs have been kept in check by consolidating suppliers. Process control and technology allows the use of minimum wage workers. Even with huge investments, margins are thin, [perhaps 4% of revenue](#).

McDonalds is not a service business. Their business is helping franchises generate revenue to pay rent to the corporation. The franchise owners provide capital, manage the operation, and assume the risk.