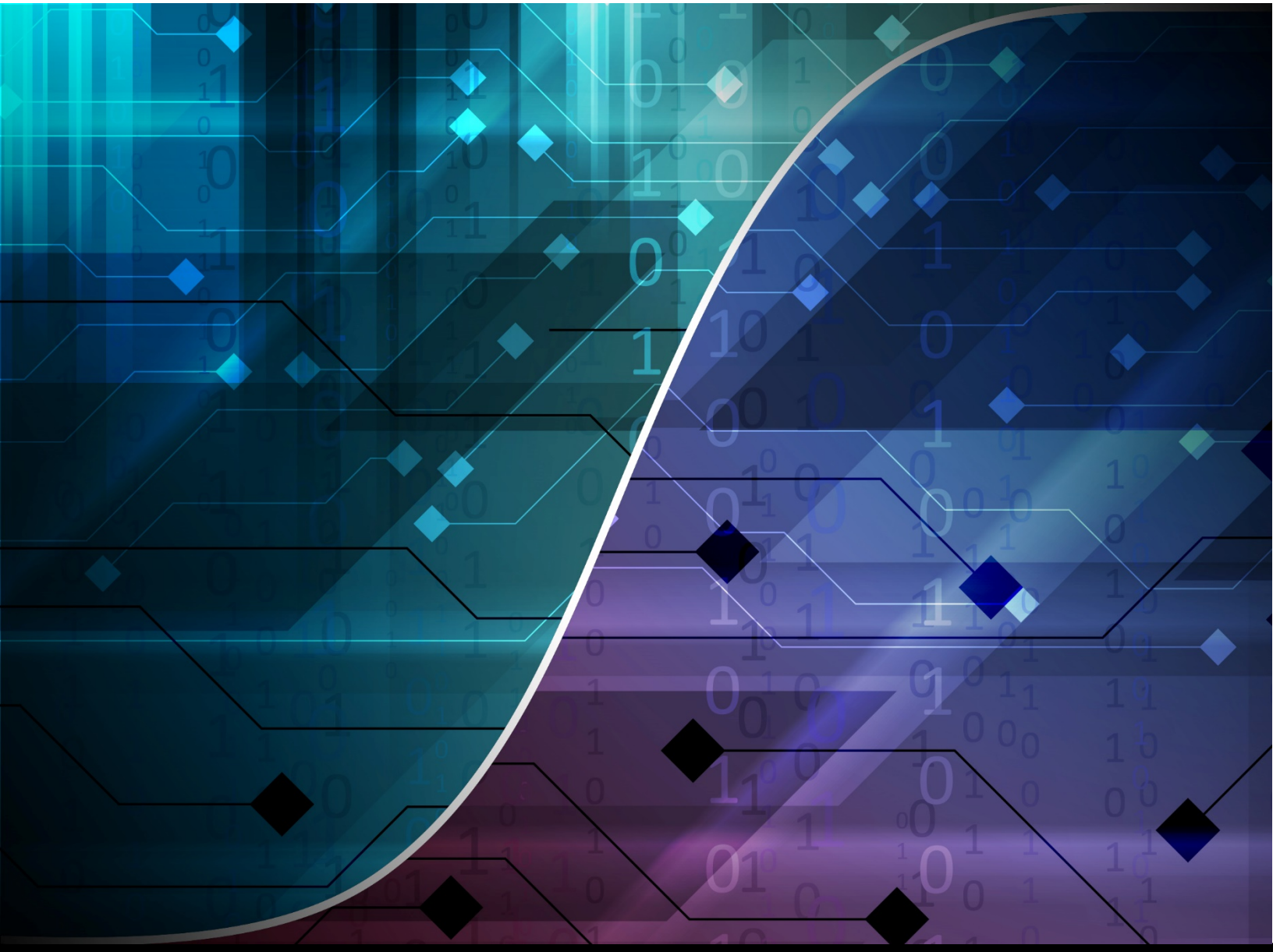
October 2019

Simplifying Technology Adoption

A new technology adoption model for IT services and product offerings



IBM **IT Economics Consulting & Research**

Adopting new IT solutions

Most IT organizations are eager to embrace new technologies to innovate and simplify IT operations. For some companies operating with the latest technology appears effortless. For others the proposition of moving to a new solution raises use and cost concerns. Budget managers are reluctant to invest in new technology since lengthy ramp up time can transform a promising investment into an expensive and under-utilized solution.

Why do companies have different experiences adopting new technology? The difference can be found in the chargeback model for their users. Information Technology (IT), and for that matter, consumer products face a broad adoption spectrum. Some users will rapidly purchase the latest model while others will hold out until it is no longer supported (envision the mobile phone market for example).

To compensate for this adoption behavior, unit cost pricing is often based on envisioned market value. In many IT environments however unit cost pricing, or chargeback, is determined by total upfront investment divided across users on an annual basis. Not only does this mean high usage costs for the few early adopters, it discourages other adopters from using the technology and weakens the case for investment. In this paper we examine how using envisioned market value for unit cost pricing can encourage usage, and ultimately create a positive business case for total investment over time for IT.

The traditional versus the adoption IT chargeback model

In a traditional IT chargeback model, an IT organization purchases a product (or defines a new service), determines its total investment cost, and calculates a unit cost for its forecasted users over time. Often initial usage charges are high to quickly recover upfront acquisition costs. This burdens early users with a high unit cost, which can cause a low adoption rate, and result in a relatively low number of users. When this happens, actual usage ends up lower than what was forecasted. To compensate for initial low adoption, organizations may lower usage charges repeatedly in an attempt to encourage more users. With delayed adoption and underpriced usage, total investment costs risk remaining unrecovered and ultimately the project may be perceived as having low demand.

In contrast, an adoption IT chargeback model takes into consideration adoption behaviors with the following parameters to generate revenue and justify investment.

- Investments cost and amortization period
- Operational costs
- Planned profit
- Estimated adoption rate of users
- Value of money (NPV)
- User value price (that attracts early users)

Anticipating technology adoption

To examine the rate of technology adoption for an organization, we employed the Sigmoid or Logistic function, also known as the "S-curve", used to observe adoption of new products or services in different industries.

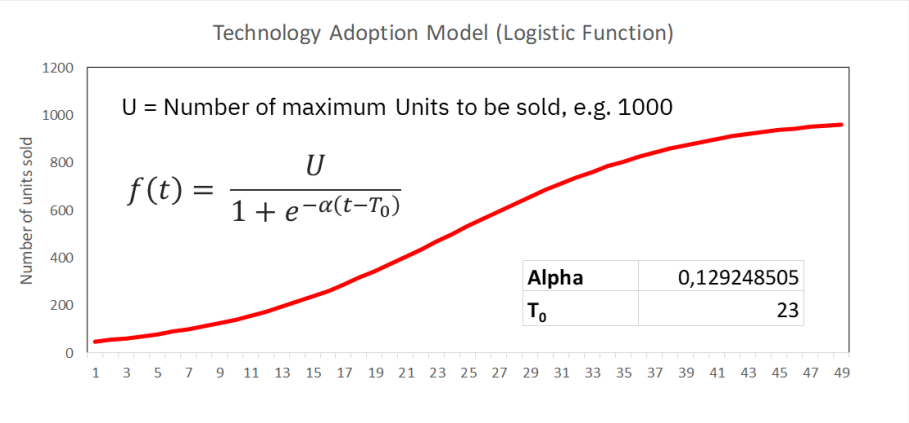


Figure 1: S-Curve (Sigmoid/Logistic function) technology adoption model

In Figure 1 the S-curve illustrates the rate of adoption for 1,000 units of a new technology from an IT provider. Expected adoption starts relatively slowly, then ramps up faster, and eventually saturates the market.

Pricing for a Traditional IT Chargeback Model

Year	Monthly Rate Per Unit	Projected Units To Be Sold	Actual Units Sold
Year 1	$1,500	200	100
Year 2	$1,200	280	200
Year 3	$1,000	390	300
Year 4	$600	800	500
Total Revenue Over 4 Years		$14.4 Million	$11.88 Million

Table 1: Projected and Actual Units example in a Traditional IT Chargeback model

In Table 1 we see a pricing example for a traditional IT chargeback model in which the total cost of a project for $14 million is divided amongst the total number of anticipated units sold, over a total period of four years. In this example, 200 units to be sold are forecasted, resulting in a monthly unit cost of $1,500 per user, which would recover the cost ($1,500*200*48 = $ 14.4 Million). However, in reality, the $1,500 rate deters adoption, and only 100 units of the new service are sold in year 1.

In order to attract more users in year 2, the IT provider lowers the monthly rate to $1,200 per unit to increase adoption. In years 3 and 4 the IT provider lowers the rate even further to attract more users. Over time the number of users grows but the total cost of the project is not fully recovered.

Pricing for an Adoption IT Chargeback Model

In an adoption IT chargeback model (Table 2), the same project uses a lower constant monthly rate of $562 per unit to encourage use of the new technology. Even though the model employs a lower unit cost than in any year of the traditional IT chargeback model example, total generated revenue is greater due to the higher total number of users resulting from an accelerated rate of adoption created by the lower charge. In this example the adoption IT chargeback model drives $2M more revenue than the traditional IT chargeback model over four years.

Year	Monthly Rate Per Unit	Projected/Actual Units Sold (By Year End)
Year 1	$562	185
Year 2	$562	516
Year 3	$562	834
Year 4	$562	960
Total Revenue Over 4 Years		$14 Million

Table 2: Projected and Actual Units example in an Adoption IT Chargeback model

A comparison of the two chargeback models

In the example in Figure 2 we examine both chargeback models for a $10 million IT investment project, with an operational cost of $1 million per year, and an amortization period of 4 years. The dotted red line shows tiered growth of users in the traditional model (table 1) caused by the annual adjusted decrease in unit price to encourage more users. The dotted green line shows users in the adoption model with a lower unit price (table 2). Initially usage is low but over time its users exceed the traditional model as more and more users adopt the technology at a more attractive unit price. The solid green line is the resulting revenue for the adoption model which ultimately generates higher revenue than the traditional model, as illustrated by the solid red line.

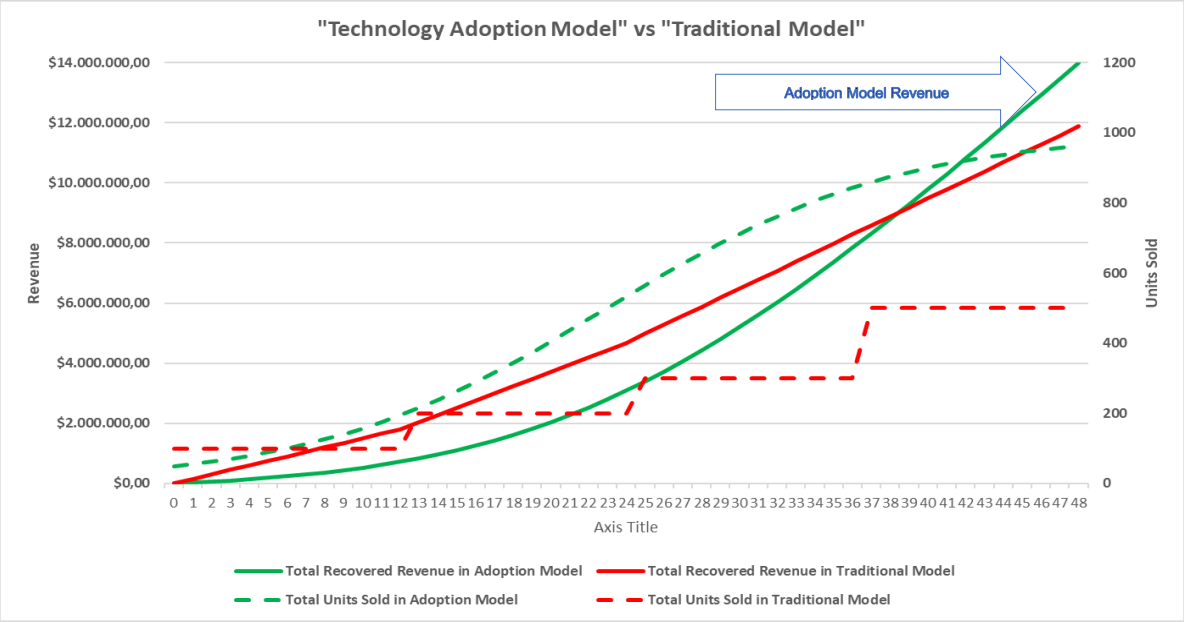


Figure 2: Comparison of the technology adoption model against a traditional charge model

Use of the Adoption IT Chargeback Model

The adoption IT chargeback model can be used for many types of use cases to:

- Calculate the monthly unit rate for a new IT service offering based on estimated or committed adoption, to recover cost, or to achieve profit. This can also include a dynamic adjustment of the unit rate when adoption is different from the original plan.
- Provide an IBM LinuxONE™ as an IaaS (Cloud) offering. Here the model can be used to determine the cost of a virtual machine to customers, and it can be used to show a business case to the provider.
- Develop an elastic pricing model for LinuxONE customers who want to ramp up capacity over time.
- Calculate fluctuating unit rate costs. The model can be applied to scenarios in which the unit rate is not constant for the offering's lifecycle, for example when costs are already known to decrease over time.
- Provide predefined adjusted unit rates. It can be used to model a predefined adjustment of the unit rate, for example when widespread adoption is expected from previous projects.

Establishing a predefined adjustment makes the unit rate even more attractive for users since they know upfront charges will become less expensive over time.

Benefits of an Adoption IT Chargeback Model

An adoption IT chargeback model helps establish unit cost pricing without penalizing early adopters. It also helps achieve planned recovery targets which enables financial stakeholders to mitigate investment costs.

An adoption IT chargeback model can help IT organizations accelerate the use of new technology that brings new features and functionality, as well as better performance and increased operational efficiencies that reduce IT spend. Using an adoption IT chargeback model to overcome adoption barriers facilitates use of new solutions. With a value-based user charge, new and more users are incented to leverage new solutions sooner.

Considering a new IT solution?

If you are considering an upgrade or a new IT solution, contact the IBM IT Economics Team at IT.Economics@us.ibm.com to help identify the most effective chargeback model for your solution. IT Economics analysis is available at no-charge and can help your organization determine how to benefit from new technology with a positive business case.

About the authors

Ingo Aller is an IBM IT Economics Consultant working with clients mainly in EMEA to identify optimized IT solutions. Ingo has 22 years of IBM experience in the areas of microprocessor development, technical sales, and IT Economics consulting. He is an author or coauthor of numerous technical papers in different technical fields, and holds two patents. As part of his responsibilities he worked for two years in the USA, and for three years in Bangalore, India, where he established a microprocessor design team.

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