

Qualitative Method to Detect the Tipping Point in the Product Life Cycle Curve to Assure Sustainable Revenue Growth

By Christian Maurer,
4, place de Barcelone,
F-75016 Paris France,
Tel. +33 (0) 142152381,
c_a_maurer@ceoexpress.com

Abstract

Knowing the tipping point of the product life cycle curve is of strategic importance for long term sustainable revenue growth. In particular B2B sales forces, handling complex sales, could be the first to identify this tipping point. However, despite intensive forecast activities, sales leaders, in practice, do not detect this point. A simple qualitative method will be presented how sales leaders can be the first to detect the tipping point of the product life cycle and thus significantly increase their strategic relevance within their respective enterprises.

Keywords

Product Life cycle, Sustainable Revenue Growth, S-Curve, Value Perception

The Challenge

It is well known that the growth relevant part of a product life cycle curve, plotting revenue evolution over time, takes the form of an S-Curve. Providing sustainable long term growth requires thus a chaining of such S-Curves. For optimal sustainable revenue growth, S-Curves have to be chained at their tipping point.

One should expect that the sales function within an enterprise, due to its proximity to the customers, should be best positioned to detect this tipping point. Yet in day to day sales management practice, the tipping point of the product life cycle curve goes undetected; although particularly B2B sales forces handling complex sales situations in publicly quoted corporations spend a considerable part of their time on revenue forecasting. (Own observations of forecasting processes in large corporations showed that sales people and their leaders spent up to 20% of their workweek on forecasting).

The Classical Product Life Cycle Representation

The product life cycle curve is a well known concept. Fig 1 shows the version presented by Theodore Levitt [Levitt 1965].

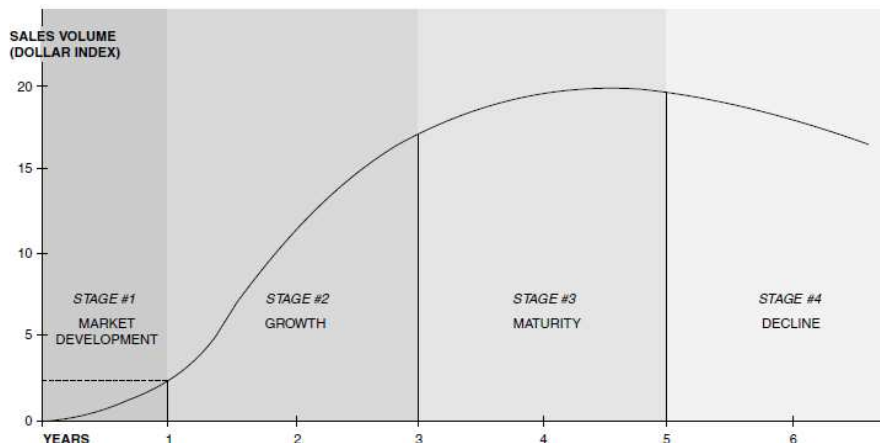


Fig 1. Product Life Cycle –Entire Industry

Source: “Exploit the Product Life Cycle” by Theodore Levitt, Harvard Business Review November-December 1965, Reprint No. 65608

Ignoring the decline stage, the product life cycle expressed as a revenue growth curve, can be approximated as an S-Curve.

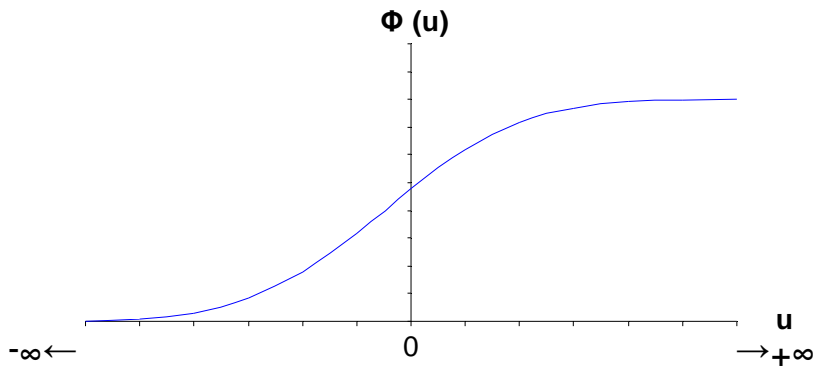


Fig 2 S-Curve

There are several formulas to describe the S-Curve. The above graph was obtained by using:

$$\Phi(u) = \int_{-\infty}^{+\infty} \frac{1}{\sqrt{2\pi}} e^{-\frac{1}{2} t^2} dt$$

which can easily be recognized as the standard normal distribution function. We know that:

$$\Phi(0) = 0.5$$

[Mosler 2004]

is the tipping point .

It is obvious that S-Curves should be chained at this point to insure long term sustainable revenue growth. However, short term revenue forecasting practices will never produce an alert for this point as no immediate decline in revenue growth is in sight. Alerts can be

expected at best well in the maturity phase, much too late to assure long term sustainable growth.

While it is straight forward to explain the phases of the product life cycle in retrospective, this form of plotting revenue evolution over time poses a considerable challenge to detect the tipping point in a forward looking manner.

Possible indicators for the tipping point could be:

- Half the expected total product life (relevant to growth) is reached
- Half of the expected cumulated sales for the product are reached

The accuracy of the tipping point, found by these methods, is though strongly dependent on how realistic the initial expectations are.

The Innovation Adoption Curve

Using Everett Rogers' model of categories of innovativeness [Rogers 1995] based on research carried out already in the 1960s, allows for an alternative view of the product life cycle. Instead of tracking the evolution of revenue over time, this model tracks the categories of customers differentiated by their attitude to innovation.

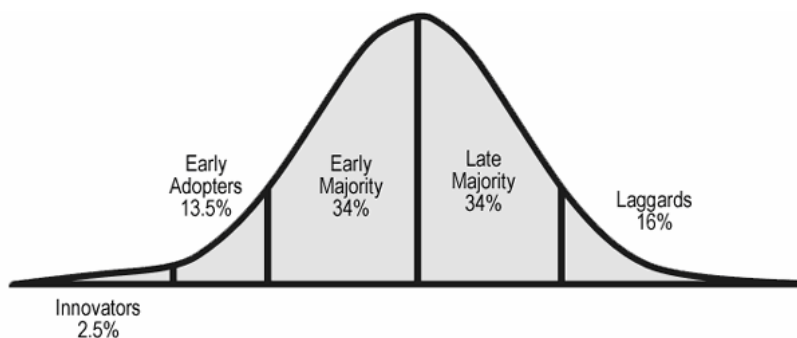


Fig. 3 Categories of Innovativeness

Source: E.M. Rogers "Diffusion of Innovations" 4th edition (New York: The Free Press 1995)

There is a mathematical relation between the S-Curve as expressed above and the bell curve of Rogers's model. The bell curve is the derivative of the S-Curve and can thus be expressed as:

$$\varphi(u) = \frac{1}{\sqrt{2\pi}} e^{-1/2 u^2}$$

This representation makes the tipping point graphically very evident. The accuracy of a possible quantitative way of identification of the tipping point in this representation depends on how well the total number of expected customers can be estimated.

This representation allows though for a simple qualitative forward looking way of finding the tipping point. At the tipping point, we have a phase shift from the early majority to the late majority. Geoffrey Moore [Moore 1995], who has adapted Rogers' model to explain the behavior of high tech markets, suggests that value disciplines need to be adapted to the categories of innovativeness within the product life cycle. The change of the value discipline might thus be a criterion to be used to detect the tipping point.

However, the choice of the value discipline not only depends on the position in the life cycle, but also on the competitive position of the respective suppliers.

Good salespeople will though find that independent of the competitive position, prospects belonging to the early majority have a different motivation for buying than people in the

late majority (see Table 1). It is therefore proposed to use this shift in buying motivation as a qualitative indicator of the tipping point of the product life cycle.

Category	Look for	See value in
<i>Early Majority</i>	Solving problems in evolutionary way	Expertise solving similar problems
<i>Late Majority</i>	Not to be left behind	Security, guaranties

Table 1 Different Value Perceptions

Conclusion

By using the innovation adoption bell curve to track the product life cycle, sales leaders are best positioned to detect this shift in buying motivation. They need just to ask one key question to their teams:” Do you observe a change in buying motivation with your prospects?” If this question is asked with the sale frequency as new forecasts are required, the tipping point can be found very accurately independently of initial quantitative estimates. Yet for sales leaders to start asking this question, changes in how the sales function is viewed within the enterprise are needed (not just a tactical marketing instrument).

Leadership also has to recognize and to accept that the tipping point in the product life cycle curve leads to actions being taken earlier than the current revenue growth outlooks would suggest; a challenge particularly for corporations with heavy emphasis on short term revenue growth.

It will take people who can follow Andrew. S Grove’s advice, given in the title of his book [Grove 1999]: “Only the Paranoid Survive”, and declare the transition from early

to late majority as a crisis point requiring urgent action and thus insure long term sustainable revenue growth.

References

[Levitt 1965] Theodore Levitt : “Exploit the Product Life Cycle” (Harvard Business Review November-December 1965, Reprint No. 65608)

[Mosler 2004] Karl Mosler, Friederich Schmid “Wahrscheinlichkeitsrechnung und schliessende Statistik” 3. Auflage (Berlin, Heidelberg: Springer Verlag 2004)

[Rogers 1995] Emmeret .M. Rogers “Diffusion of Innovations” 4th edition (New York: The Free Press 1995)

[Moore 1995] Geoffrey A. Moore “Inside the Tornado” (New York: Harper Collins Publishers 1995)

[Grove 1999] Andrew S. Grove “Only the Paranoid Survive:.....” (New York: Doubleday, a division of Random House Inc. 1999)