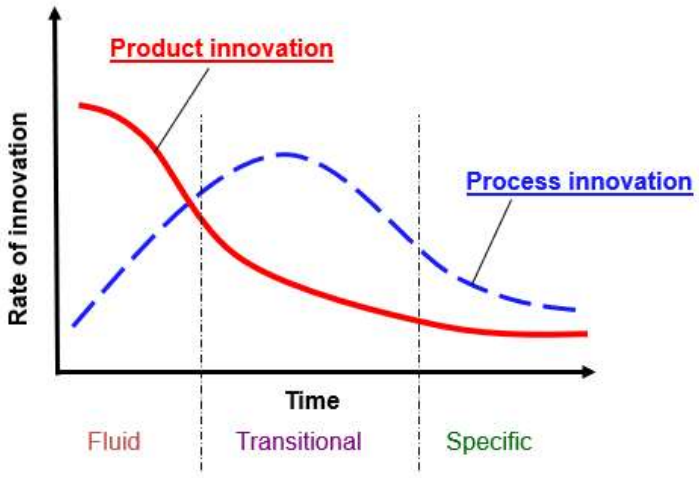
Formulating an innovation strategy

Innovation, Management and Entrepreneurship (BMAN73112)

Click to return to previous page

3. Introduction to Product Life Cycle

The Product Life Cycle (PLC) is one of the most important theories for understanding innovation. PLC brings together different areas of innovation management, including strategy, industrial dynamics and technological evolution and it is a useful tool in helping firms assess the evolution of their industry and select when and how to invest. It also helps managers with decision-making processes when trying to decide when to introduce new product innovations. The dynamic PLC model was developed by Abernathy and Utterback in the 1970s, and divides the PLC in three stages taking into account a time dimension that varies from company to company and the rate of innovation, that is, how much effort you are putting in an innovation project (it does not refer to volumen of sales):



PLC Fluid stage:

In this stage, firms put more effort on product innovaion than in process innovation. Firms explore a range of different potential types of products (frequent changes to product concept). It is a crude stage of design that implies a great uncertainty about which product will win favour in the market place. Firms need to invest a lot in defining the product characteristics, whether the product will work well in different types of conditions, whether it will serve for a particular function, whether will be expensive or cheap to produce, etc. Products are commonly made in small batches to address specific needs of small groups of customers. Due to technological uncertainty, R&D focus is

unspecified. The knowledge underpinning the innovation often resides in a small number of locations, often universities. A few industry pioneers begin to use this knowledge and test with new product designs. The process innovation is relatively low because the firm has a defined product concept yet. But still there is a small investment in process innovation as it requires communication with other deparments making the product (process engineers, production managers, operational specialists). Their knowledge will be used as input for the next phase.

PLC Transitional stage:

In this stage, the demand for product begins to expand as it arrives to the market and this forces major process changes in the nature of production. Because the product is well understood, the red line goes down in terms of the innovation intensity that is required to understand the different product characteristics. Industry stabilizes around a single product design (accepted design or dominant desing), allowing firms to manufacture in increasing volumes. This product design slowly becomes dominant [Note: Dominant designs may not be the best but are the most widely accepted]. R&D focus is on specific product features once dominant design emerges. In this stage you then need to invest in the process innovation activities because the market is now populated with lots of competitors. Knowledge about the product resides in many actors, including consultants, customers and suppliers. Information on the nature of the market

becomes more codified and available, but is still uncertain and firms respond to this in information in different ways.

PLC Transitional stage:

In this stage, there is a decline in the effort needed for both product and process innovation at this stage. Firms focus more on process innovation – in operations and manufacturing – seeking to lower costs and increase the scale of production. Most products in market are similar in functionality and customers decide which to buy based on cost. There is well established supply-chain for components and Suppliers are often source of innovation in this stage. There is some limited R&D undertaken with emphasis on processes. The industry is concentrated among a few firms, who are specialist manufacturers utilising large-scale plant, which is specifically used for the product mass manufacture.

Summary

See the next video where I summarize the main takesaways from this lecture.

Watch Video

https://youtu.be/AeAmFPr25qA

[You can also have access to the video here]

Test

Test your understanding of the lecture

To complete this lecture, you can use the following quiz questions available in Blackboard as a learning and revision exercise.

- All questions are compulsory.
- You have 10 minutes to complete the test.
- The deadline to complete the test is **Sunday 21st March** at 11.59pm.
- After the due date, you can check the correct answers.

Test

Essential Reading

Available in the Online Reading List.

- Tidd and Bessant (2013) **Chapter 4**: *Developing an Innovation Strategy.*·
- Dodgson, M., Gann, D. and Salter, A. (2008), *The Management of Technological Innovation*, Oxford

University Press: Oxford. [see Chapter 4: Innovation Strategy]

- Brown, B. and Anthony, S. (2011), "How P&G tripled its innovation success rate", *Harvard Business Review* (June), Vol. 89 (6), pp. 64-72.

Further Reading

- Rieck, R.M. and Dickson, K.E. (1993), 'A model of technology strategy', *Technology Analysis and Strategic Management*, Vol. 5 (4), pp. 397-412.
- Utterback, J. and Abernathy, W. (1975), 'A dynamic model of process and product innovation', *OMEGA*, Vol. 3 (6), pp. 639-656.