**L12: Incremental Innovation**

In L1 & 2 the concept of incremental adjustments has been introduced as gradual changes carried out by an organisation as responses to changes in the external environment in order to maintain its competitiveness in the industry it is in.

In incremental innovation, it is regarded as a series of small improvements to an existing product or product line to maintain or improve the competitive position of the business. This is particularly useful in relation to technological changes as a mean to improve the quality of products to meet the needs of consumers.

It is a prudent move to adopt incremental innovation to safeguard the risk of over innovation.

Factors that can establish viability as an incremental improvement

* Time to market – just in time to serve the needs of the market.
* Low technology, architectural platform or process risk - these can take longer than estimated and open up new possibilities for failure. It is to avoid these risks by not involving in innovative activities.
* Low resource risk - incremental changes can have manageable impact on resources.
* Comprehensible or obvious change for the customer base – incremental advances will be easily understood and adopted by established and newly targeted customer.
* Cost or price reduction – changes that can reduce cost will be of advantage to the business and bring about business growth.
* Performance or effectiveness - obviously improvements will match or slightly exceed competitive offers in established performance areas.
* Regulatory compliance – innovation may be needed to meet ongoing changes to regulatory or standards requirements.
* Experience – small improvements in experience can provide significant customer value and provide opportunity for innovation across the organisation.

When is incremental innovation inadequate?

* Cost/Price reductions no longer generate the increase in sales needed to make an adequate return on the cost reduction investment.
* The investment needed to maintain the product/service innovation pipeline is degrading profitability.
* The success rate of innovation activities is falling well below expectations.
* Investment in innovation projects is exceeding developers’ estimates.
* “Ticket to play” projects that do not provide a return consume an increasing portion of the innovation budget.
* Market penetration for the product or service has passed beyond the early majority (about 50% of the population).

Balancing the innovation portfolio

* The success rate of radical innovation is amazingly small, likely less than 10%.
* Small improvements can add up to significant change over time, and represents continuous learning by researchers, managers, developers, suppliers and customers.
* Incremental change is the key source for low risk growth and successful innovation management must establish the balance between evolutionary and revolutionary initiatives that will grow and sustain the business for the short and long term.

**Developing an Innovation Strategy**

Rationalist versus Incrementalist

* A firm has its specific knowledge that is essential for competitive success and the firm must be capable to accumulate and exploit its specific knowledge.
* Therefore corporate strategy of a business must incorporate innovation strategy in order to exploit its specific knowledge.
* An innovation strategy deals with the complex and ever-changing external environment that tend to create uncertainty within an organisation. Internal structure and processes must continuously balance potentially conflicting requirements in order to maintain the “strategy-structure fit”.
* Managers must constantly on the watch for external environmental changes by:
* explore the implications of a range of possible future trends;
* ensure broad participation, informal channels of communication, debate and scepticism;
* keep assumptions and conclusions clear and simple;
* expect to modify plans later.
* When trying to learn from the experience of others, managers should recognise that there are no simple recipes and ask the following questions:
* is the information accurate?
* have the correct factors causing success (or failure) been identified?
* will the identified causes produce the same effects elsewhere?
* what are the limits and dangers of the proposed course of action?

**Porter’s Five Forces** – for competitive analysis, innovation plays a central role in all the five factors. However, Porter underestimated the importance or influence of technology changes that upset established markets and competitive conditions and overestimates the influence the managers actually have over corporate choice of technology strategy.

**Dynamic Capabilities** – emerging and integrating approaches to understanding the newer sources of competitive advantages (such as management of R & D; technological processes; new supply chain and others) The most useful framework developed so far for innovation strategy has been proposed by **David Teece and Gary Pisano.** It gives central importance to the dynamic capabilities of firms and distinguishes three elements of corporate innovation strategy:

1. competitive and national positions
2. technological paths
3. organisational and managerial processes.

**Positions** – based on three issues:

1. R & D & other statistics show that home country of global firms has strong influence on the volume and composition of their innovative activities.
2. The home influences can be grouped into three categories:
* competencies (workforce, education , research)
* economic inducement mechanisms (local demand and input price, competitive

 rivalry)

* institutions (methods of funding, controlling and managing business firms).
1. The management still has influence over specific firm innovative strategies and firm can benefit from foreign systems of innovation through a variety of market mechanisms.
2. Firms can obtain information to position themselves compared to their competitors through an increasing range of sources (including so benchmarking).
3. Information about competitor are doing must be clearly distinguished from the competence to keep up with competitors, which require a much greater investment in R & D and reverse engineering activities.
4. Firms maintain their innovative lead over their competitors through a variety of complementary mechanisms; the relative importance varies from industry to industry.
5. Small firms are particularly dependent on their local environments for research and product skills, and local suppliers and customers for new technology.

**Paths** – the key issues are:

* Marked differences amongst sectors in technological opportunities and marked demands are central in corporate choices about technological trajectories, firm-specific competences and innovative strategies.
* Five broad technological trajectories firms can follow; each of which has distinct implications for market positioning, technical path and organisational processes.
* Three key technologies –electronics, materials and biotechnology- where rapid advances are leading the technological shifts in technological trajectories, and where it is increasingly important to distinguish the ‘micro-electronic revolution’ (making and using electronic chips) from the information revolution (making and using software).
* the capability to open up new product markets require distinctive competences and methods of corporate organisation and evaluation that explicitly recognised the importance of these competences (Prahalad &Gary Hamel, 1990).
* While their approaches are useful in industries with rapid rates of technical progress, it overestimates the importance of corporate ‘visions’ and underestimates the importance of competence and experimentation over an even wider range of technologies.
* Like large firms, small firms have distinct technological trajectories. Greater attention has been given to ‘superstars’ (who grow into large firms through innovations) and new technological based firms (whose founders emerged from laboratories of large institutions) which most small firms depend heavily on their suppliers and customers for their innovative opportunities.

**Processes** – linkages across functional areas are necessary for a successful innovation strategy. Continuous flows of information and knowledge across functional boundaries are crucial in these areas:

* The organisational and geographical location of R & D activities influences its effectiveness in creating links to present market requirements and to future opportunities emerging from more fundamental advances in the scientific knowledge base.
* The demanding and costly task of launching major product or process innovations – through combining R & D with production and marketing – explains why much corporate applied research and nearly all development activities are typically located in the established product divisions in the firm’s home country. The pervasive importance across all divisions of links with underlying scientific advances explains why more basic research is located and funded at the headquarters level.
* The effectiveness of the link between the technical function and the corporate resource allocation function will influence the degree to which resource allocation decisions reflect the duel nature of corporate investments in R & D ; as a business investment (where conventional financial appraisal techniques like discounted cash flow are appropriate , even if it is difficult to make accurate prior estimates of cost, etc) or as an investment in learning or strategic positioning (which is an option investment where conventional financial appraisal techniques are inappropriate).
* Different corporate strategic styles – declined along two dimensions the reliatie importance of financial control versus entrepreneurship and of centralisation versus decentralisation - are appropriate for different technologies. Recent changes at IBM and ICI illustrate how fundamental changes in technologies have required equally fundamental changes in both corporate strategy and structures. The experience of GEC (UK) and ITT (USA) since the 1960s shown that a particular strategic style leads to a particular type of corporate technological competence and innovation strategy.
* Organisational processes are less important in small firms, where tasks are less specialised and effectiveness in strategic tasks depends more on the skills, experience and judgement of managers and the workforce.

**Review Questions**

1. What are the essential differences in the assumptions underlying the ‘rationalist’ and the ‘incrementalist’ approach to strategy?
2. What are the essential features of the incrementalist approach to corporate strategy?
3. What are the strengths and weaknesses of Porter’s “five forces” approach to innovation strategy? Illustrate with examples.
4. What are the similarities and differences between the Teece and Pisano framework and that proposed by Porter in HER, 1996)?