

# **INTRODUCTION TO INNOVATION, IP MANAGEMENT & ENTREPRENEURSHIP**

## **MGT-207**

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# UNIT 1

- **Innovation:** Introduction – Importance of Innovation – Definitions – Types of Innovation: Recognising innovation in products and services; processes and procedures; management practices; marketing and distribution strategies and techniques
- – Characteristics of Innovation: Timing; Radicalness; speed – Knowledge Management: Internal Knowledge generation – Importing knowledge from outside
- Class Discussion- Is innovation manageable or just a random gambling activity?

# UNIT - II

- Building an Innovative Organization: Creativity in organizations
- – Building organizational environment – Need Analysis: Questionnaires, Online tools, SWOT analysis;
- Technology watch; Focus group; Desk Research – Innovation Management Process – stages of innovation
- - planning and financing Innovation projects – Innovation and organization: Creating new
- products and services, Exploiting open innovation and collaboration,
- Use of innovation for starting a new venture;
- Class Discussion- Innovation: Co-operating across networks vs. 'go-it-alone' approach

## UNIT - III

- Entrepreneurship: Opportunity recognition and entry strategies – Effectuation
- – Design thinking – Lean Start-up – Developing Business Model – Entrepreneurship as a Style of
- Management – value proposition - Maintaining Competitive Advantage –
- Financial Plan: Start up, operating and variable costs and Project appraisal: NPV, IRR, BCR techniques -
- Projections and Valuation Stages of financing: Debt, Venture Capital and other forms of Financing.
- Entrepreneurship- Financial Planning: Break even analysis: Profit volume ratio, selling price determination, cash flow statement analysis, Ratio analysis

# UNIT - IV

- Intellectual Property Rights: Introduction and the economics behind development of IPR:
- Business Perspective - IPR in India – Genesis and Development - International Context –
- Use of IPR to protect Innovation - Concept of IP Management, Use in marketing Patent- Procedure,
- Licensing and Assignment, Infringement and Penalty - Trademark- Use in marketing, example of trademarks- Domain name
- Geographical Indications- What is GI, Why protect them? -
- Copyright- What is copyright - Industrial Designs- What is design? How to protect? Class
- Discussion- Major Court battles regarding violation of patents between corporate companies



# Innovation



“There is a way to do it better - find it”

-Thomas Edison

# What is innovation?



- ❧ The term **innovation** refers to a “**new way of doing something**”. It may refer to incremental and emergent or radical and revolutionary changes in thinking, products, processes, or organizations.
- ❧ **Innovation recipes** = Creativity + Failure + Iteration



# What is innovation?



☞ **Schumpeter** argued that innovation comes about through new combinations made by an entrepreneur, resulting in

- ☐ a new product,
- ☐ a new process,
- ☐ opening of new market,
- ☐ new way of organizing the business,
- ☐ new sources of supply



# What is innovation?



- ☞ An innovation can increase profits on the
- ☐ **Value side** (customers value your innovation enough to pay more for it)
  - ☐ Or the **cost side** ( the company produces the offering in a more efficient way)
  - ☐ Either way, value is created for the firm and the consumer.

# Innovation and Invention



**Invention**



**Innovation**



# Innovation and Invention



- ❧ An invention is different from an innovation at any particular time in that it doesn't have **commercial value** but it may have in future.
- ❧ There is **no shortage of ideas and inventions** in the world. The challenge is to introduce these successfully to a market.
- ❧ Only that idea/invention can be called an innovation.

# Innovation and Invention



- ❧ In other words, innovation requires **interplay** between a product offering (technology) and a market (people).
- ❧ Innovation provides better quality product at lower price which leads to **higher standard of living**.
- ❧ Old strategies are replicated.

# Types of Innovation



- ❧ Product Innovation
- ❧ Process Innovation
- ❧ Service Innovation



*Think Different.*



# Product Innovation



# Product innovation



- ❧ Change in how the product is noticed by the consumers (**change in physical structure**).
- ❧ These changes include change in product design, research and development, and new product development (NPD).
- ❧ To meet customer needs and demands (**why change?**)



# Product innovation



- ❧ The **degree of change** can include the following:
  - ❧ Incremental improvements
  - ❧ Addition to product families
  - ❧ Next-gen products
  - ❧ New core products
- ❧ **Examples** of product innovation are as follows:
  - ❧ Introducing a new screen size for TVs.
  - ❧ Changing from a CRT TV to a flat screen.
  - ❧ Adding functionality such as internet access to TVs.

# Product Innovation



Continuous improvements, making the product more:

- ☐ efficient, effective
- ☐ useful or user friendly
- ☐ valuable to users
- ☐ integrated with other products, technologies, or systems.

# Process Innovation



- ❧ It involves a **new or significantly improved method for the production** or delivery of output that adds value to the organization.
- ❧ The term “process” refer to an **interrelated set of activities** designed to transform inputs into a specified output for benefits of customers.
- ❧ Processes relate to all operational activities by which value is offered to the end customer, such as acquisition of raw Material, manufacturing logistics and after sales service.

# Process Innovation



☞ Make processes:

- ☐ simpler
- ☐ faster
- ☐ more accurate
- ☐ more reliable
- ☐ less expensive

☞ Reducing unit costs by improving the production capacity.

# Service Innovation



- ❧ Services involves **products (intangible)** that form an extended part of the product life cycle, from initial sales to end-of-life recycling and disposal.
- ❧ **Service industries in areas** such as finance, food, education, transportation, health make up most organizations in any economy. These organizations also need to innovate continuously so that they can **increase/improve the levels of service** to their customers.



## DIFFERENT TYPES OF INNOVATIONS

Type of innovation	Example
Product innovation	The development of a new product
Process innovation	The development of a new manufacturing process, e.g. Pilkington's float glass process
Organizational innovation	<ul style="list-style-type: none"><li>- A new venture division</li><li>- A new accounting procedure</li></ul>
Management innovation	<ul style="list-style-type: none"><li>- TQM systems</li><li>- BPR systems</li><li>- SAP R/3</li></ul>
Production innovation	<ul style="list-style-type: none"><li>- Quality circles</li><li>- JIT</li><li>- MRP II or a new inspection system</li></ul>
Commercial / marketing innovation	<ul style="list-style-type: none"><li>- CRM</li><li>- Direct marketing</li></ul>
Service innovation	Internet-based financial services

- Product innovation' – changes in the things (products/services) which an organization offers;
- Process innovation' – changes in the ways in which they are created and delivered;
- Position innovation' – changes in the context in which the products/services are introduced;
- Paradigm innovation' – changes in the underlying mental models which frame what the organization does.



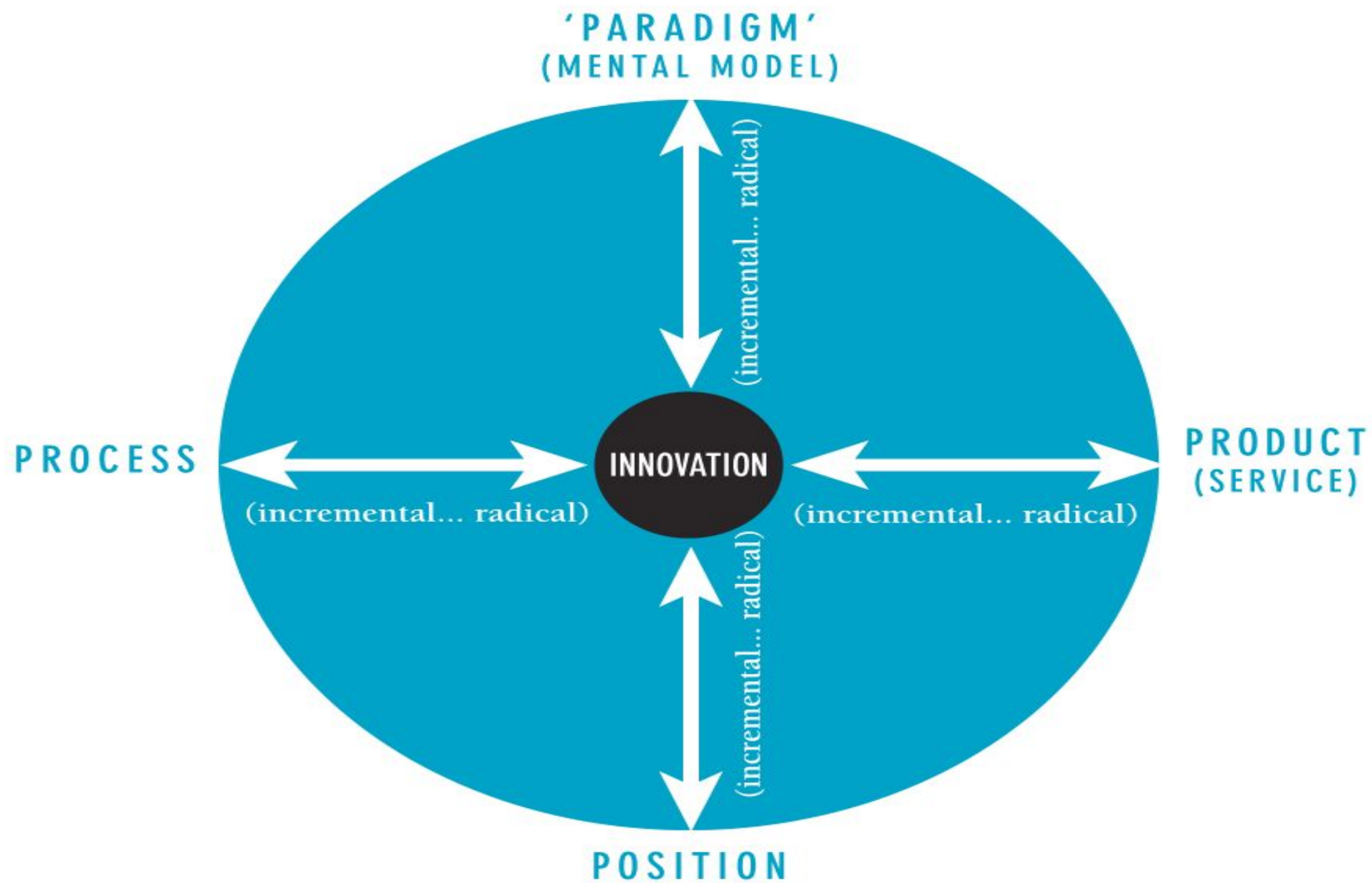


FIGURE 1.2 Innovation space

**SYSTEM  
LEVEL**



**COMPONENT  
LEVEL**

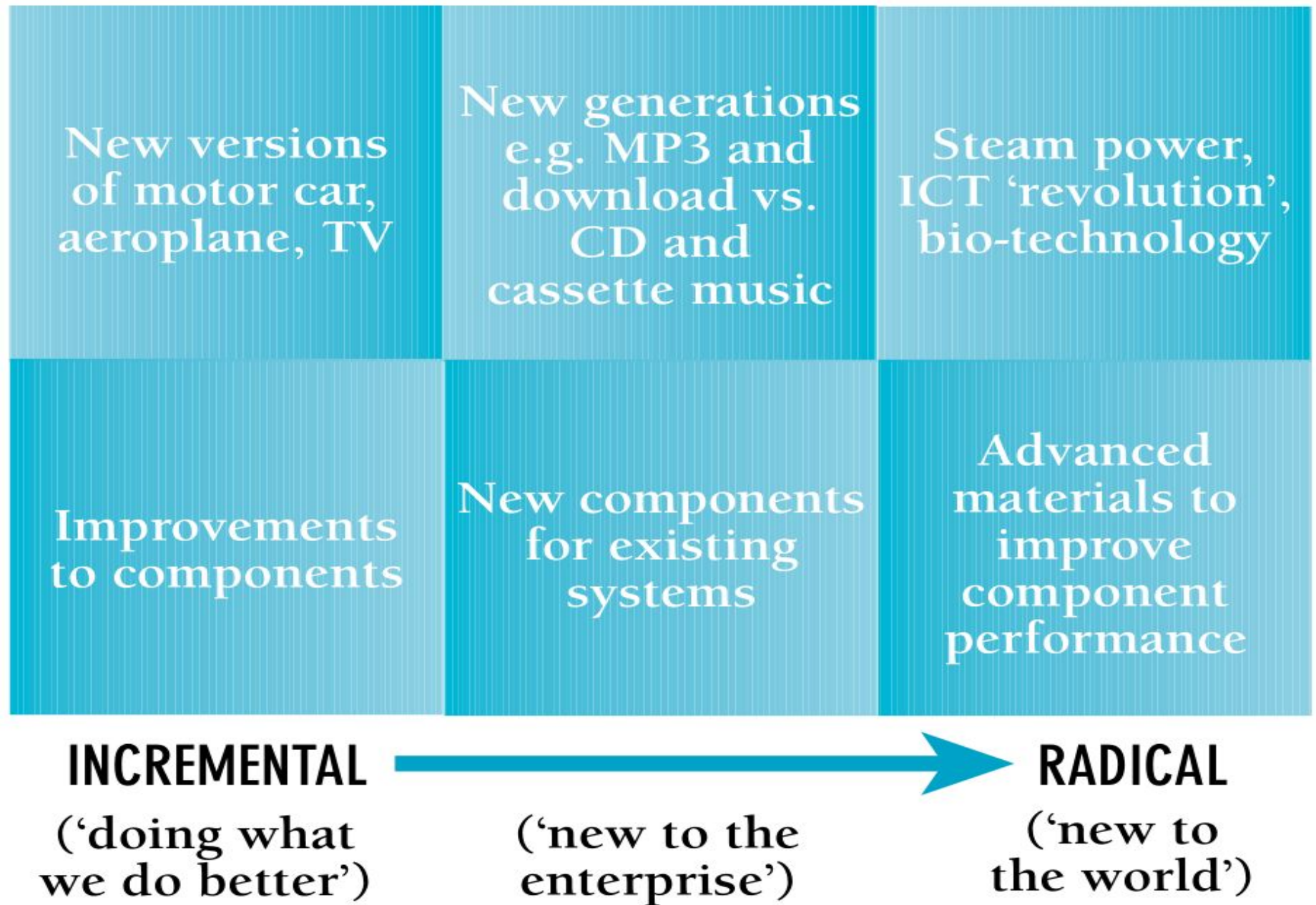


FIGURE 1.1 Dimensions of innovation

- Innovation can also take place by repositioning the perception of an established product or process in a particular user context---Position innovation
- Paradigm innovation---Henry Ford ---low cost airlines -----changes in the mental models

## **From Incremental to Radical Innovation:**

- A second dimension to change is the degree of novelty involved.
- There are degrees of novelty in these, running from minor, incremental improvements right through to radical changes which transform the way we think about and use them.
- Sometimes these changes are common to a particular sector or activity, but sometimes they are so radical and far-reaching that they change the basis of society

# MAPPING INNOVATION SPACE

- Each of our 4Ps of innovation can take place along an axis running from incremental through to radical change; the area indicated by the circle is the potential innovation space within which an organization can operate.
- Whether it actually explores and exploits all the space is a question for innovation strategy.
- As far as managing the innovation process is concerned, these differences are important.
- The ways in which we approach incremental, day-to-day change will differ from those used occasionally to handle a radical step change in product or process.
- But we think that it is the perceived degree of novelty which matters; novelty is very much in the eye of the beholder.
- For example, in a giant, technologically advanced organization like Shell or IBM advanced networked information systems are commonplace, but for a small car dealership or food processor even the use of a simple PC to connect to the Internet may still represent a major challenge

- The Importance of Incremental Innovation Although innovation sometimes involves a discontinuous shift – something completely new or a response to dramatically changed conditions – most of the time it takes place in incremental fashion.
- Products are rarely ‘new to the world’, process innovation is mainly about optimization and getting the bugs out of the system.



**TABLE 1.1**    **Strategic advantages through innovation**

<i>Mechanism</i>	<i>Strategic advantage</i>	<i>Examples</i>
Novelty in product or service offering	Offering something no one else can	Introducing the first . . . Walkman, fountain pen, camera, dishwasher, telephone bank, on-line retailer, etc. . . . to the world
Novelty in process	Offering it in ways others cannot match – faster, lower cost, more customized, etc.	Pilkington's float glass process, Bessemer's steel process, Internet banking, on-line bookselling, etc.
Complexity	Offering something which others find it difficult to master	Rolls-Royce and aircraft engines – only a handful of competitors can master the complex machining and metallurgy involved
Legal protection of intellectual property	Offering something which others cannot do unless they pay a licence or other fee	Blockbuster drugs like Zantac, Prozac, Viagra, etc.
Add/extend range of competitive factors	Move basis of competition – e.g. from price of product to price and quality, or price, quality, choice, etc.	Japanese car manufacturing, which systematically moved the competitive agenda from price to quality, to flexibility and choice, to shorter times between launch of new models, and so on – each time not trading these off against each other but offering them all

## Timing

First-mover advantage – being first can be worth significant market share in new product fields

Amazon.com, Yahoo – others can follow, but the advantage ‘sticks’ to the early movers

Fast follower advantage – sometimes being first means you encounter many unexpected teething problems, and it makes better sense to watch someone else make the early mistakes and move fast into a follow-up product

Palm Pilot and other personal digital assistants (PDAs) which have captured a huge and growing share of the market. In fact the concept and design was articulated in Apple’s ill-fated Newton product some five years earlier – but problems with software and especially handwriting recognition meant it flopped



<i>Mechanism</i>	<i>Strategic advantage</i>	<i>Examples</i>
Robust/ platform design	Offering something which provides the platform on which other variations and generations can be built	Walkman architecture – through minidisk, CD, DVD, MP3 . . . Boeing 737 – over 30 years old, the design is still being adapted and configured to suit different users – one of the most successful aircraft in the world in terms of sales. Intel and AMD with different variants of their microprocessor families
Rewriting the rules	Offering something which represents a completely new product or process concept – a different way of doing things – and makes the old ones redundant	Typewriters vs. computer word processing, ice vs. refrigerators, electric vs. gas or oil lamps
Reconfiguring the parts of the process	Rethinking the way in which bits of the system work together – e.g. building more effective networks, outsourcing and co-ordination of a virtual company, etc.	Zara, Benetton in clothing, Dell in computers, Toyota in its supply chain management

Transferring  
across  
different  
application  
contexts

Others?

Recombining established  
elements for different  
markets

Innovation is all about  
finding new ways to do  
things and to obtain  
strategic advantage – so  
there will be room for  
new ways of gaining and  
retaining advantage

Polycarbonate wheels transferred from  
application market like rolling luggage  
into children's toys – lightweight  
micro-scooters

Napster. This firm began by writing  
software which would enable music  
fans to swap their favourite pieces via  
the Internet – the Napster program  
essentially connected person to person  
(P2P) by providing a fast link. Its  
potential to change the architecture  
and mode of operation of the Internet  
was much greater, and although  
Napster suffered from legal issues  
followers developed a huge industry  
based on downloading and file sharing

# Phases of Innovation



Innovation has  
two phases :

Design Phase

Implementation  
Phase

# Design Phase



✧ The design phase is marked by much divergent thinking and creativity, brainstorming, search for alternatives, etc. Research studies suggest that the management of the design phase needs to be marked by great administrative flexibility and these types of innovation to achieve the necessary growth to survive.



# Implementation Phase



- ❧ It requires a very different mode of management.
- ❧ It involves putting the chosen innovation to work.
- ❧ Much planning needs to be done, careful coordination & control, and evaluation of progress.

# Implementation Process Of Innovation

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❧ **Radical innovation** - It is about making major changes in something established. Focus is significant in relation to expected changing in the system. A change can be represent a radical innovation, when viewed at technological level, but the impact may be only incremental when viewed at an organization level.

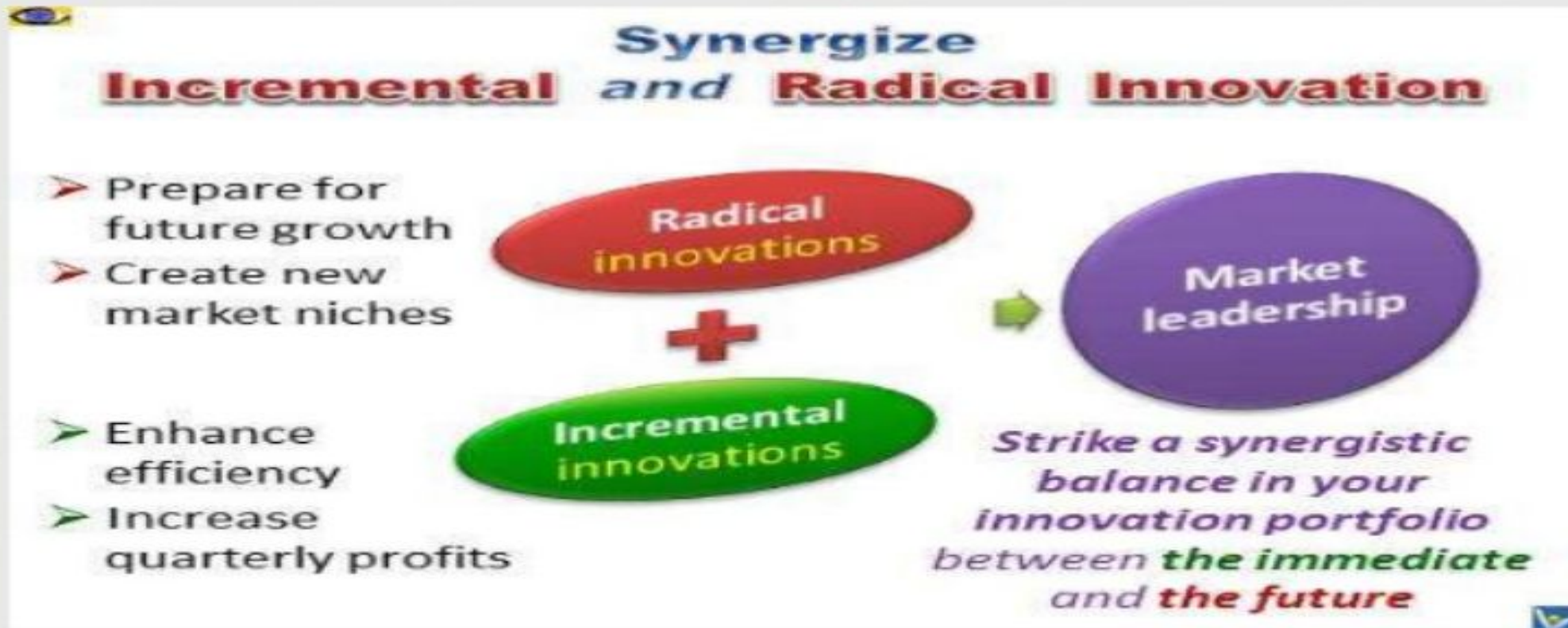
# Implementation process of innovation

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❧ **Incremental innovation** :- It is less ambitious in its scope and offers less potential for returns for the organization, but consequently the associated risks are much less. It consists of smaller endeavors, making them easier to manage than their larger innovation.



# Implementation process of innovation



# Implementation process of innovation



## Radical versus Incremental Innovation

### RADICAL INNOVATION: Project Trajectory



- Explores new technology
- High uncertainty
- Focuses on products, processes or services with unprecedented performance features
- Creates a dramatic change that transforms existing markets or industries, or creates new ones

### INCREMENTAL INNOVATION: Project Trajectory



- Exploits existing technology
- Low uncertainty
- Focuses on cost or feature improvements in existing processes, products or services
- Improves competitiveness within current markets or industries



# CHARACTERISTICS OF INNOVATION

## Relative Advantage

•The degree to which an innovation is perceived as being better than the idea or practice it replaces. Relative advantage is associated with economic profitability. However, economics is not the only consideration in determining relative advantage. *Example: Adoption of the new corn variety may yield higher economic profitability due to higher yields from less pest pressure and lower irrigation cost.*

## Compatibility

•The degree to which an innovation is perceived as consistent with the existing values, past experiences, and needs of potential adopters. Each innovation must be compatible with an individual client's values, ideas, and needs.

## Complexity

•The degree to which an innovation is perceived as difficult to understand and use. The more complex the innovation, the slower the rate of adoption.

## Trialability

•The degree to which an innovation may be experimented with on a limited basis. *Example: Corn Producers may be willing to try the new variety on limited acreage to assess its merit.*

## Observability

•The degree to which the results of an innovation are visible to others. The easier it is for others to see the results of an innovation, the more likely they will adopt it. *Example: If Producer A is successful in increasing yield and obtaining higher profits with a new corn variety, Producers B, C, and D will be more likely to plant the new variety as well.*

# Innovation as a knowledge-based process

- Innovation is about knowledge – creating new possibilities through combining different knowledge sets.
- These can be in the form of knowledge about what is technically possible or what particular configuration of this would meet an articulated or latent need.
- Such knowledge may already exist in our experience, based on something we have seen or done before.
- Or it could result from a process of search – research into technologies, markets, competitor actions, etc.
- And it could be in explicit form, codified in such a way that others can access it, discuss it, transfer it, etc. – or it can be in tacit form, known about but not actually put into words or formulae
- The process of weaving these different knowledge sets together into a successful innovation is one which takes place under highly uncertain conditions.

- We don't know about what the final innovation configuration will look like (and we don't know how we will get there).
- Managing innovation is about turning these uncertainties into knowledge – but we can do so only by committing resources to reduce the uncertainty – effectively a balancing act.
- A key contribution to our understanding here comes from the work of Henderson and Clark who looked closely at the kinds of knowledge involved in different kinds of innovation.
- Successful innovation management requires that we can get hold of and use knowledge about components but also about how those can be put together – what they termed the architecture of an innovation.



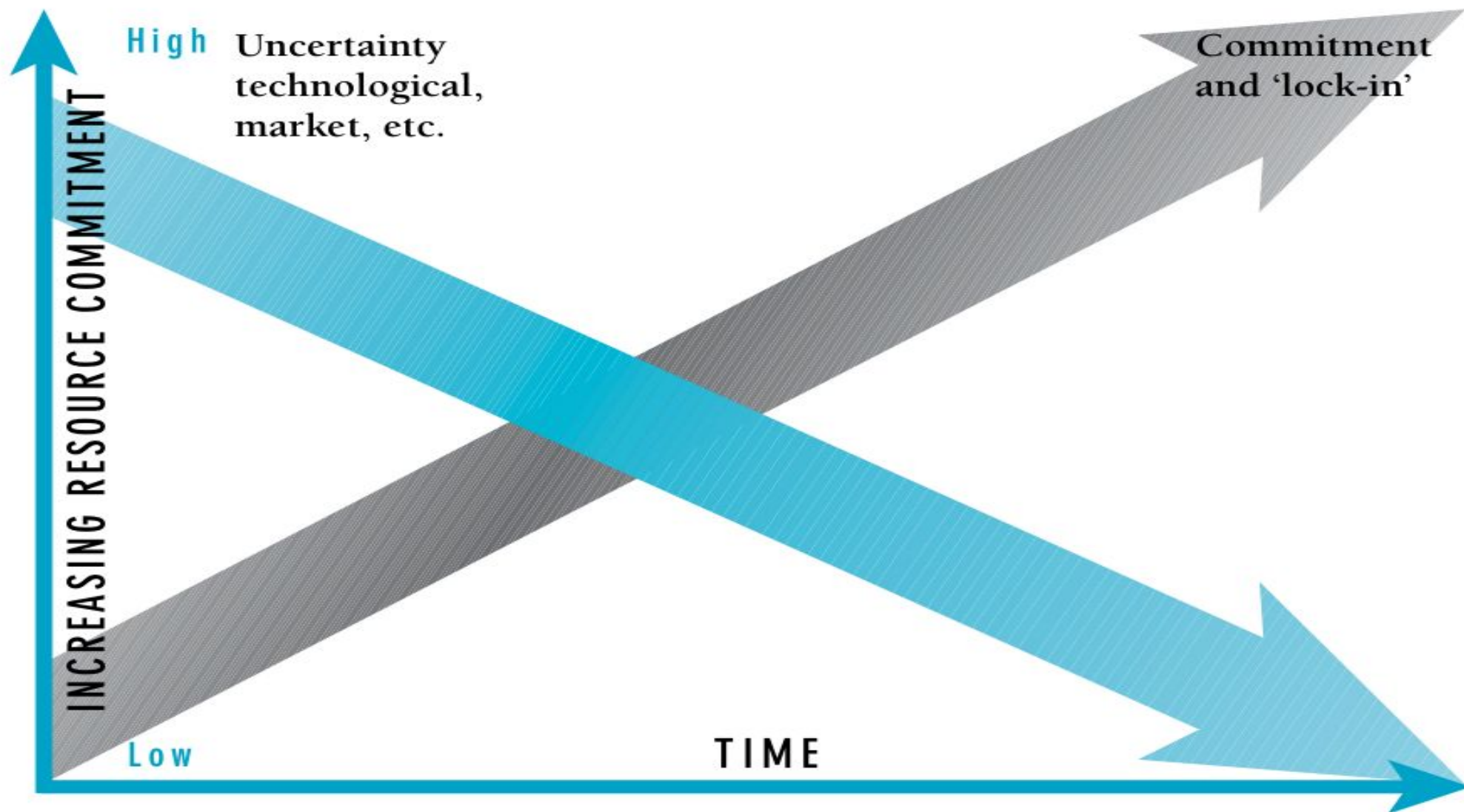


FIGURE 1.3 Innovation, uncertainty and resource commitment

- Change at the component level in building a flying machine might involve switching to newer metallurgy or composite materials for the wing construction or the use of fly-by-wire controls instead of control lines or hydraulics.
- But the underlying knowledge about how to link aerofoil shapes, control systems, propulsion systems, etc. at the system level is unchanged – and being successful at both requires a different and higher order set of competencies.
- So if it is at component level then the relevant people with skills and knowledge around these components will talk to each other – and when change takes place they can integrate new knowledge.
- But when change takes place at the higher system level – ‘architectural innovation’ in Henderson and Clark’s terms – then the existing channels and flows may not be appropriate or sufficient to support the innovation and the firm needs to develop new ones.
- This is another reason why existing incumbents often fare badly when major system level change takes place – because they have the twin difficulties of learning and configuring a new knowledge system and ‘unlearning’ an old and established one.

- A variation on this theme comes in the field of ‘technology fusion’, where different technological streams converge, such that products which used to have a discrete identity begin to merge into new architectures.
- An example here is the home automation industry, where the fusion of technologies like computing, telecommunications, industrial control and elementary robotics is enabling a new generation of housing systems with integrated entertainment, environmental control (heating, air conditioning, lighting, etc.) and communication possibilities