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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?

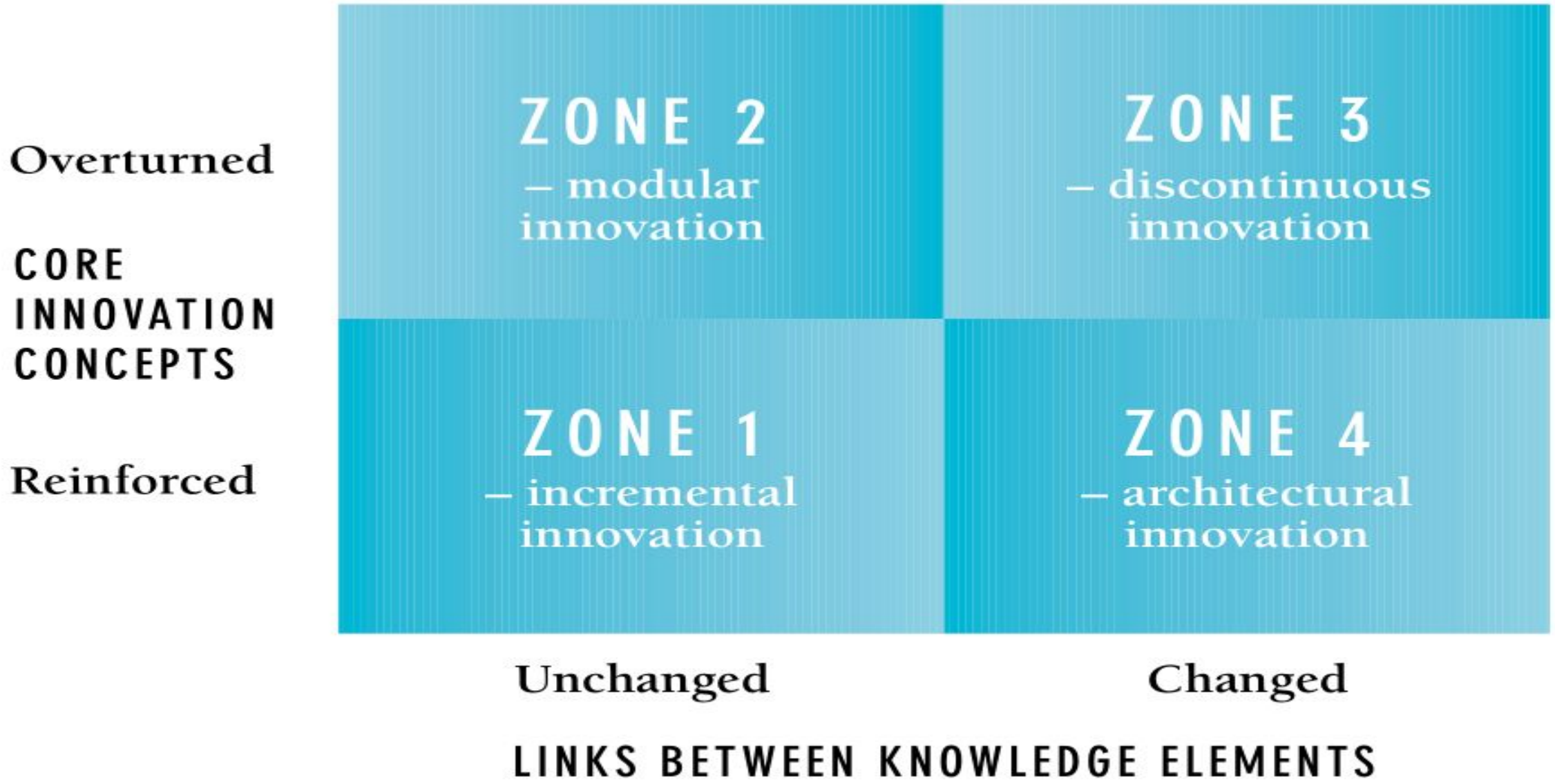


FIGURE 1.4 Component and architectural innovation

- Figure 1.4 highlights the issues for managing innovation.
- **Zone 1** the rules of the game are clear – this is about steady-state improvement to products or processes and uses knowledge accumulated around core components.
- **Zone 2** there is significant change in one element but the overall architecture remains the same.
- Here there is a need to learn new knowledge but within an established and clear framework of sources and users – for example, moving to electronic ignition or direct injection in a car engine, the use of new materials in airframe components, the use of IT systems instead of paper processing in key financial or insurance transactions, etc. None of these involve major shifts or dislocations.

- **Zone 3:** we have discontinuous innovation where neither the end state nor the ways in which it can be achieved are known about – essentially the whole set of rules of the game changes and there is scope for new entrants.
- **Zone 4** :we have the condition where new combinations – architectures – emerge, possibly around the needs of different groups of users (as in the disruptive innovation case).
- Here the challenge is in reconfiguring the knowledge sources and configurations.
- We may use existing knowledge and recombine it in different ways or we may use a combination of new and old. Examples might be low-cost airlines, direct line insurance, others.

The Challenge of Discontinuous Innovation

- There are occasionally something happens which dislocates this framework and changes the rules of the game.
- By definition these are not everyday events but they have the capacity to redefine the space and the boundary conditions – they open up new opportunities but also challenge existing players to reframe what they are doing in the light of new conditions. This is a central theme in Schumpeter's original theory of innovation which he saw as involving a process of 'creative destruction'----Discontinuous innovation.

- Ballpoint pen was originally developed in 1957 but remains a strong product with daily

sales of 14 million units worldwide. Although superficially the same shape, closer inspection reveals a host of incremental changes that have taken place in materials, inks, ball technology, safety features, etc.

- But these ‘steady-state’ innovation conditions are punctuated by occasional discontinuities – and when these occur one or more of the basic conditions (technology,markets, social, regulatory, etc.) shifts dramatically.
- In the process the underlying ‘rules of the game’ change and a new opportunity space for innovation opens up.
- ‘Do different’ conditions of this kind occur, for example, when radical change takes place along the technological frontier or when completely new markets emerge.

- In their pioneering work on this theme **Abernathy and Utterback** developed a model describing the pattern in terms of three distinct phases.
- Initially, under discontinuous conditions, there is what they term a ‘fluid phase’ during which there is high uncertainty along two dimensions:
- The target – what will the new configuration be and who will want it?
- The technical – how will we harness new technological knowledge to create and deliver this?
- Gradually these experiments begin to converge around what they call a ‘dominant design’ – something which begins to set up the rules of the game. This represents a convergence around the most popular (importantly not necessarily the most technologically sophisticated or elegant) solution to the emerging configuration.

TABLE 1.2 Stages in innovation life cycle

Innovation characteristic	*Fluid pattern*	*Transitional phase*	*Specific phase*
Competitive emphasis placed on . . .	Functional product performance	Product variation	Cost reduction
Innovation stimulated by . . .	Information on user needs, technical inputs	Opportunities created by expanding internal technical capability	Pressure to reduce cost, improve quality, etc.
Predominant type of innovation	Frequent major changes in products	Major process innovations required by rising volume	Incremental product and process innovation
Product line	Diverse, often including custom designs	Includes at least one stable or dominant design	Mostly undifferentiated standard products
Production processes	Flexible and inefficient – aim is to experiment and make frequent changes	Becoming more rigid and defined	Efficient, often capital intensive and relatively rigid

- **here are five stages in venture capital financing, and they include:**
- #1 **Seed Stage**. ...
- #2 Startup Stage. ...
- #3 First Stage. ...
- #4 Expansion Stage. ...
- #5 Bridge Stage.

When choosing companies to invest in, they consider the company's growth potential, the strength of its management team, and the uniqueness of its products or services.

Diffusion

- Diffusion is the process by which
  - the acceptance of an innovation--a new product, service, idea or practice
  - is spread by communication--mass media, salespeople, or word-of-mouth
  - to members of a social system--target market
  - over a period of time

- Four basic elements of the diffusion process:

1. The innovation
2. The channel of communication
3. The social system
4. Time

1. The innovation

- Innovation takes many forms
- There is no universally accepted definition of the terms *product innovation* or *new product*
- Instead, approaches to define the term have taken place within certain contexts:
  - Firm-oriented definitions
  - Market-oriented definitions
  - Consumer-oriented definitions
  - Product-oriented definitions

Product-oriented definitions

- This approach focuses on the *features* inherent in the product itself and the effects these features are likely to have on consumers' established usage patterns
- Robertson identified three types of product innovations:
  - Continuous innovation
  - Dynamically continuous innovation
  - Discontinuous innovation

- **Continuous innovation** is the other extreme where an existing product undergoes marginal changes, without altering customer habits. ... For instance, a shampoo which is different from existing products only in its brand name, fragrance, color, packaging is also a new product, though it is a **continuous innovation**.
-

Continuous innovation

- Introduction of a *modified* product rather than a totally new product
- Little or no change in technology
- Has the least disruptive influence on established usage patterns
- *Symbolic innovations* tend to be continuous

Google's *Continuous Innovation*

Innovation Examples

- Driverless car, maps
- YouTube
- Google Glass
- Google Fiber, Project Loon
- Google Goggles

Management System

- Google[x] (moonshots)
- Acquisitions (Makani)
- 20% time
- Quick demos
- Run lots of experiments and let the market decide
- Fail fast and learn, scale up quickly if it shows promise
- Culture of openness, analytical rigor, and respect for workers

Dynamically continuous innovation

- May involve a new product or modification of an existing product
- *Some* technical advances
- Still does not disrupt or alter consumer buying and usage patterns

- The development of new products that are different from previously available products but that do not strikingly change buying or usage patterns. ... This needs to be done **dynamically** (to save time and increase effectiveness), as well as continuously, because of the effect of the product life cycle.
- Gillette's launch of Mach III after Mach II, providing the option for a cleaner shave. The launch of Xbox by Microsoft, extending the reach of the company to fulfil an entirely different need to what Microsoft was already doing.

Discontinuous innovation

- Introduction of a *pioneering* product
- Involves a *major* technological advance
- Consumers must learn new behavior patterns
- May be difficult to market initially
- Is rare

Discontinuous innovation

- A new **product** is launched, totally different from the previous, leading to a significant change in consumption habits. **Example**: Disposable sanitizing tissues to be used on the body instead of the shower or bath.

Product characteristics that influence diffusion

- Not all new products meet with immediate success
- No precise formula marketers can use to predict how consumers will react to their products

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 profitibility 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.*

2. Channel of communication

- *Speed* with which an innovation spreads through the market depends in great part on communications
  - Between the marketer and consumer
  - Between consumers (word-of-mouth)
- In recent years a number of new channels of communication have been developed

3. The social system

- The *physical, social, or cultural environment* to which people belong and within which they function
- Members of a social system have at least one characteristic in common that makes them potential buyers of a particular product
- The *values* and *norms* of a social system will influence the acceptance or rejection of new products

- Three characteristics of a social system influence spread of new products

1. The degree of compatibility between innovation and values of members
2. Homogeneity of members
3. Across cultures, depends on social similarity of the cultures

4. Time

- Time relates to diffusion in three ways:

1. Amount of purchase time
2. Adopter categories
3. Rate of adoption

1. Purchase time

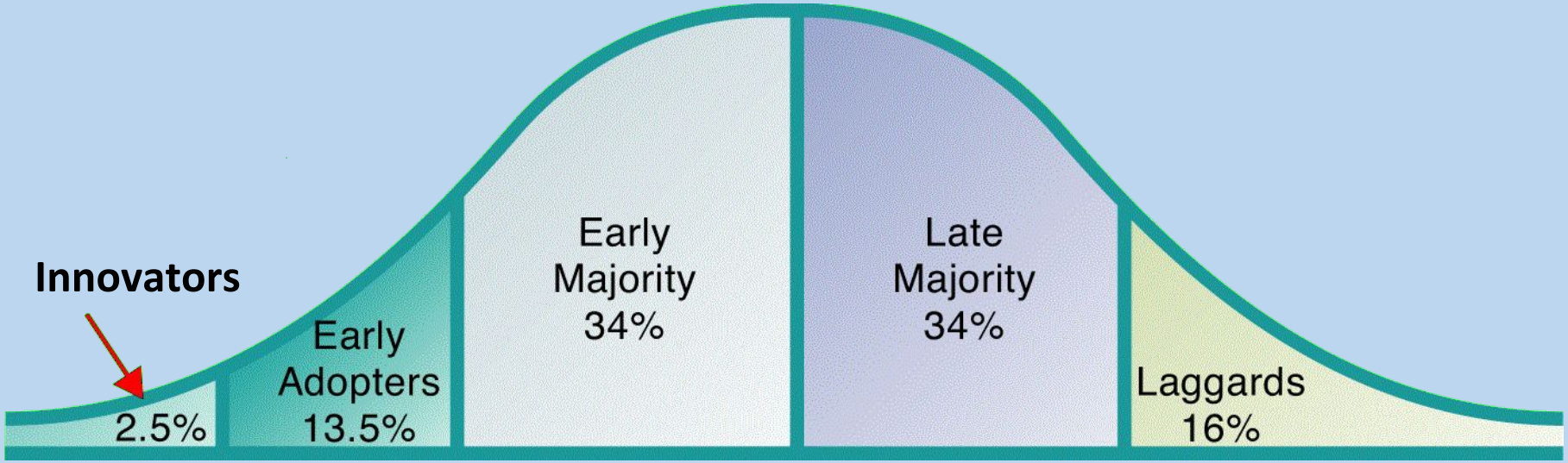
- Refers to the amount of time that elapses between a consumer's *initial awareness* of a new product or service and the point at which he or she purchases or rejects it
- Important because is a predictor of the overall length of time it will take for the product to achieve widespread adoption

2. Adopter categories

- Involve a classification scheme that indicates where a consumer stands relative to other consumers in terms of when they adopt a new product (i.e., time)
- Five categories identified in research:

1. Innovators
2. Early adopters
3. Early majority
4. Late majority
5. Laggards

Time and the Adopter Categories



Adopter Categories Based on Innovativeness

3. Rate of adoption

- How long it takes a new product or service to be adopted by members of a social system
- Rate of adoption generally is becoming *faster*
- Diffusion of products *worldwide* is becoming more rapid as well
- Marketers generally desire as fast a rate of adoption as possible in order to dominate a market before competitors enter

•Skimming

- Sometimes marketers don't seek a rapid rate of adoption
- Making the product available at a very high price to consumers who are willing to pay top dollar, then gradually lowering the price over time for additional segments of the market
- Permits manufacturers to recover development costs more quickly

Table 15.11 The Stages in the Adoption Process

NAME OF STAGE	WHAT HAPPENS DURING THIS STAGE	EXAMPLE
Awareness	Consumer is first exposed to the product innovation.	David sees an ad for a new digital camera in the newspaper.
Interest	Consumer is interested in the product and searches for additional information.	David reads about the camera on the manufacturer's Web site, ad then goes to a camera store near his office and has a salesman show him the camera.
Evaluation	Consumer decides whether or not to believe that this product or service will satisfy the need--a kind of "mental trial."	After talking with a knowledgeable friend, David decides that his camera should be able to provide him with the photos he needs to use in PowerPoint presentations. He also likes the fact that it uses "standard" floppy disks for storage.

Table 15.11 The Stages in the Adoption Process

NAME OF STAGE	WHAT HAPPENS DURING THIS STAGE	EXAMPLE
Trial	Consumer uses the product on a limited basis	Since camera cannot be “tried” like a small bottle of a new shampoo, David buys the camera from a dealer offering a 14-day full refund policy.
Adoption (Rejection)	If trial is favorable, consumer decides to use the product on a full, rather than a limited basis--if unfavorable, the consumer decides o reject it.	David finds that the camera is easy to use and the results are excellent; consequently, he keeps the digital camera.

Management Practices

- Management is a multi-purpose organ that manages a business, manages a manager and manages workers and work. - Peter Drucker

Functions of Management

- Planning
- Organising
- Staffing
- Directing
- Controlling
- Reporting
- Budgetting

Marketing Strategies

- Marketing mix
- Content Marketing
- Social media marketing
- Referral Programmes
- Search engine optimisation
- Internet marketing
- Point of Purchase (PoP) marketing
- Relationship Marketing

Distribution strategies

- *Distribution strategy is a comprehensive process of making products and services available to businesses and target customers for their use.*

Objectives of distribution strategies

- Movements of Goods
- Availability of Goods
- Protection of Goods
- Cost Reduction
- Customer Satisfaction

Types of distribution strategies

- Direct Distribution Strategy
- Indirect Distribution Strategy
- Intensive Distribution Strategy
- Exclusive Distribution Strategy
- Selective Distribution Strategy

What is Knowledge Management (KM)

"Knowledge Management is the discipline of enabling individuals, teams and entire organizations to collectively and systematically create, share and apply knowledge, to better achieve their objectives."

Benefits of Knowledge Management

- Reduces time-to-market
- New products are designed and commercialized more quickly and successfully

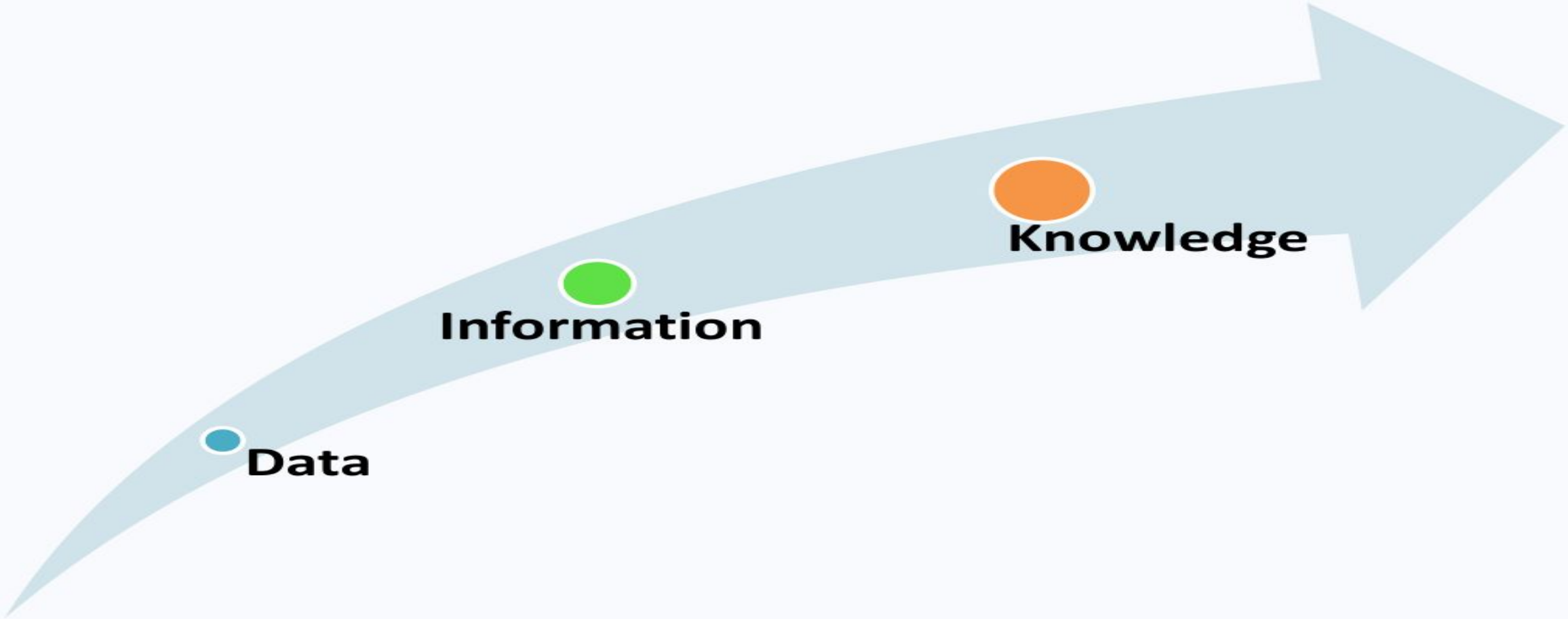
Resulting In

- Increased Revenue
- Retained Market Share
- Expanding Profit Margins

Benefits of Knowledge Management

- Chevron reduced its operating cost structure by more than 2 billion
- Texas Instruments generated 1.5 billion in annual increased fabrication capacity
- Scandia reduced start-up time for new ventures to seven months
- Arthur Andersen (Accenture) has improved their quality of service, helped lower research costs, and shortened delivery time

How Knowledge is Formed



Two Types of Knowledge

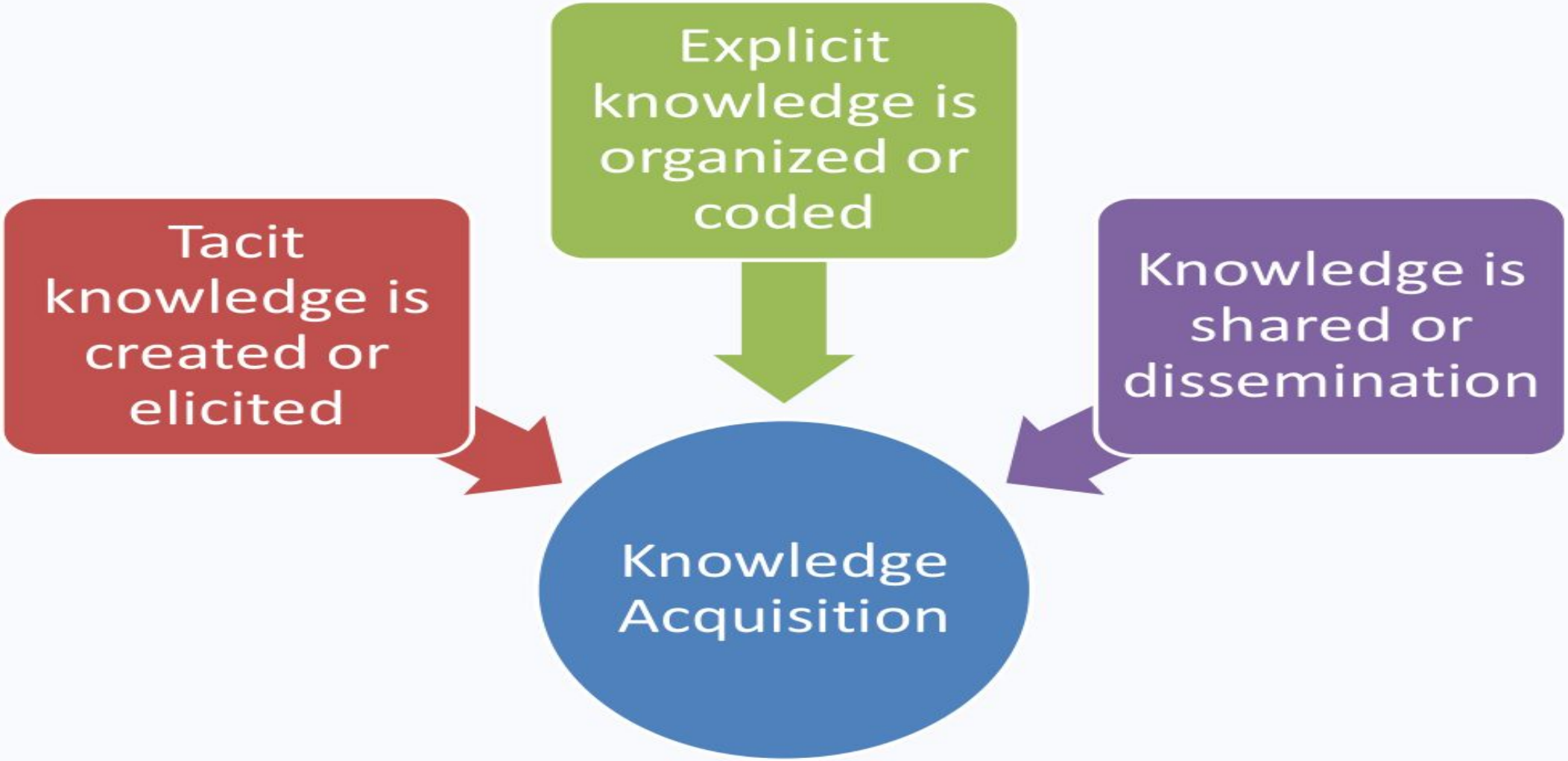
Explicit

- **Information that is written down or codified**

Tacit

- **Information that is stored inside a person's mind**

Knowledge Acquisition



Capturing Tacit Knowledge

Interviewing Experts	Learning by Being Told	Learning by Observation
Learning from Others	Ad Hoc Sessions	Road Maps
Learning Histories	Action Learning	E-Learning

Knowledge Management Tools