

Business Environment and Technological Innovation – Emerging Trends

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Learning Objectives:

- ✓ Examine the role of technology as a driver of competitive advantage and innovation in the business framework.
- ✓ Recognize the importance of keeping pace with current technologies and trends to retain competitive capacity and identify the four specific dimensions of business technology management (BTM).
- ✓ Illustrate the varying cost structures, licensing, and scouting procedures involved with technology sourcing.

Learning Outcomes:

- ✓ Innovation is a primary source of competitive advantage for companies in essentially all industries and environments and drives efficiency, productivity, and differentiation to fill a higher variety of needs.
- ✓ Understanding and effectively estimating technology life cycle allows for a more accurate reading of whether and when research and development costs will be offset by profits.
- ✓ Companies must prioritize their ability to assess their technological needs, particularly as they may relate to achieving optimal efficiency and productivity.

ABSTRACT

In recent years innovation has received substantial attention as a planned enabler for business. In many industries innovation is their business such as in advanced or bio-tech. However, across most industries innovation in progression, technology, finance, and labour are serious to improved performance and results even if they do not have proper innovation methods. In this paper the topic of innovation in a business environment setting is considered and is put into the perspective of a technology lifecycle model to better understand the evolution of innovation and its applications. This paper explores a generic model for innovation, methods for innovation understanding, and reviews a genericized corporate approach, real-world examples, and a brief list of possible research areas.

Technology and Innovation

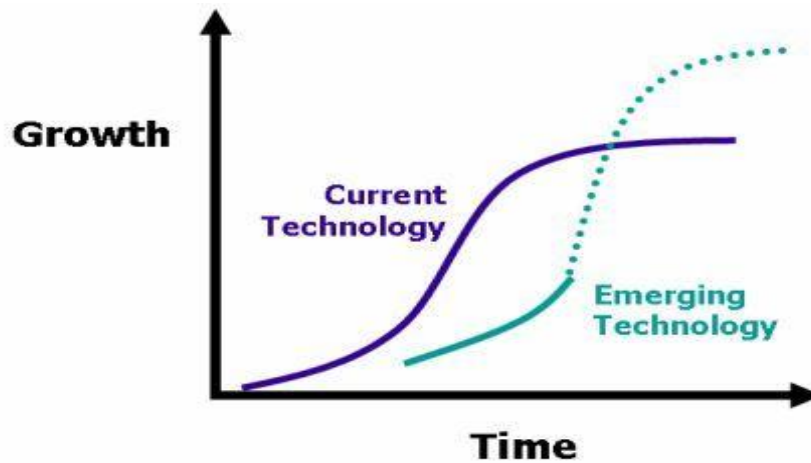
Introduction

Technology is an influential driver of both the progress and growth of innovation. Innovation is a primary source of company's aptitude to produce something more capably than a competing, which leads to greater profit margins for companies in basically all industries and environments, and drives forward efficiency, higher productivity, and variation to fill a wide variety of needs. One particular perception on economics detaches innovation as a core driving force, alongside familiarity, technology, and entrepreneurship. This theory of innovation economics notes that the neoclassical approach overlooks the critical aspect of the appropriate knowledge and technological skills.

Measuring Technology

Technology in particular is a powerful driving force in innovative. Capacity, particularly as it affects to both the evolution of innovations and the way they increase. Technology is hereditary scalable, illustrate a dependable situation towards new innovations as a result of improving upon current one. Product life cycles shows growth phase and a consequential evening out, which motivates businesses to influence technology to produce new innovations.

Technology Hubs



Technological Innovation Chart: This chart validates the pattern of ingenuity over time. Note the corresponding courses of technologies: one product may lead the market and grow at a high rate; the next product may start low while the other product is leading but in turn grow to lead the market even more thoroughly than the first, as technology and production are superior and upgraded.

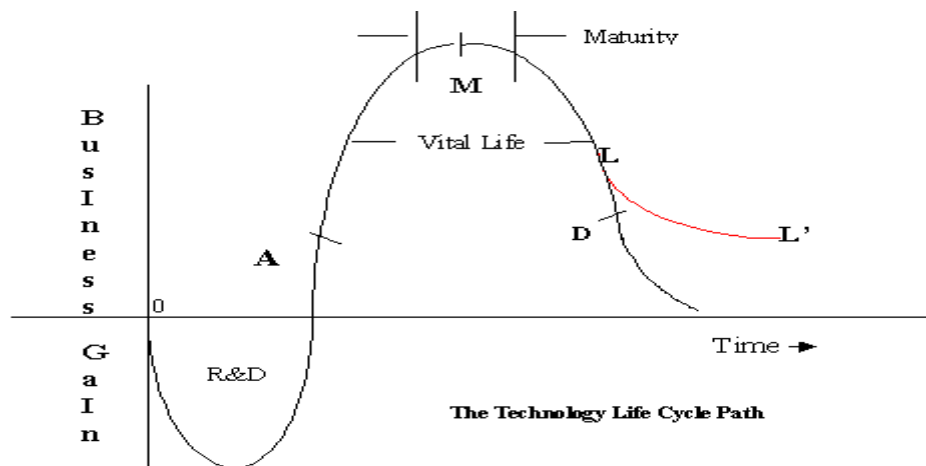
The propagation of innovation pertains to two important factors of technology driving innovation: the creation of geographic pivots for technology and empowerment of knowledge exchange through communication and transportation. Places like California's Silicon Valley and Baden-Wurtemberg, Germany are strong examples of the value of technological hubs. The close contiguity of various resources and collaborators in each hub stimulates a advanced degree of innovative capacity.

The Technology Life Cycle

The technology life cycle defines the costs and profits of a product from technological advance to market maturity to decline.

The technology life cycle (TLC) describes the costs and profits of a product from technological development segment to market maturity to ensuing decline. Research and development (R&D) costs must be offset by profits once a product comes to market. Varying product lifespan mean that businesses must understand and perfectly project earnings on their R&D investments based on potential product durability in the market.

Due to rapidly increasing rates of innovation, products such as electronics and pharmaceuticals in particular are helpless to shorter life cycles (when considered against such benchmarks as steel or paper). Thus TLC is focused primarily on the time and cost of development as it relates to the projected profits. TLC can be labelled as having four distinct stages:



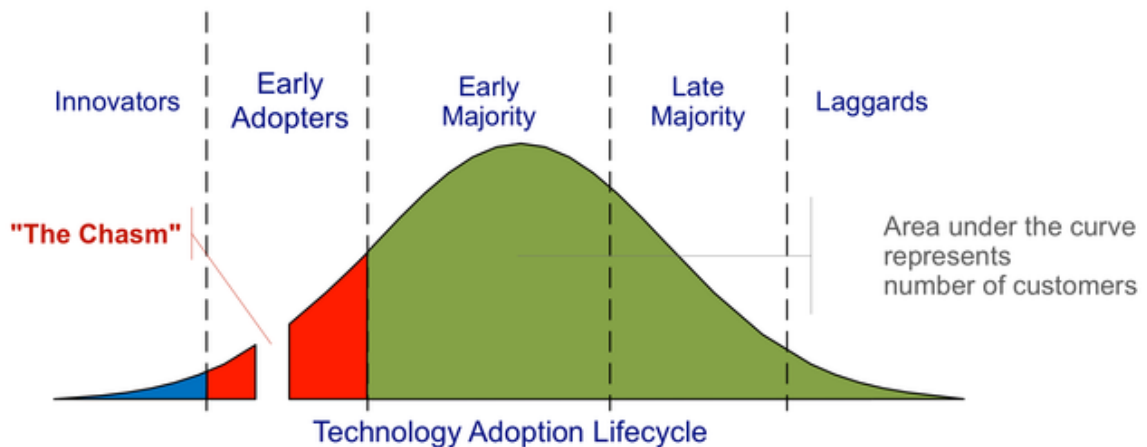
Technology life cycle chart:

This chart shows the stages in the technological life cycle.

- **Research and Development** – During this stage, risks are taken to invest in technological innovations. By purposefully directing R&D towards the most talented projects, companies and research institutions slowly work their way toward beta versions of new technologies.

- **Ascent Phase** – This phase covers the timeframe from product creation to the point at which out-of-pocket costs are fully upgraded. At this junction the goal is to see to the quick growth and distribution of the invention and influence the economic advantage of having the latest and most effective product.
- **Maturity Stage** – As the new innovation becomes accepted by the general population and challengers enter the market, supply begins to outstrip demand. During this stage, returns begin to slow as the concept becomes standardized.
- **Decline Phase** – The final phase is when the utility and potential value to be captured in producing and selling the product begins dropping. This decline eventually reaches the point of a zero-sum game, where margins are no longer acquired.

Product development and exploiting on the new invention covers the business side of these R&D investments in technology. The other important attention is the differentiation in consumer adoption of new technological innovations. These have also been circulated into phases which effectually review the demographic groups presented during each stage of TLC:



Technology adoption life cycle:

This adoption chart highlights the way in which consumers hold new products and services.

- **Innovators** – These are risk-oriented, leading-edge minded individuals who are extremely interested in technological developments (often within a particular industry). Innovators are a slight segment of the overall consumer population.
- **Early Adopters** – A larger but still quite small demographic, these individuals are generally risk-oriented and highly adjustable to new technology. Early adopters follow the innovators in assumption new products, and incline to be young and well-educated.
- **Early Majority** – Much larger and more alert than the previous two groups, the early majority are open to new ideas but normally wait to see how they are received before exploiting.
- **Late Majority** – Slightly conventional and risk-averse, the late majority is a large group of possible customers who need definite before investing in something new.
- **Laggards** – Extremely inexpensive, conventional, and often technology-averse, laggards are a small population of usually older and unqualified individuals who avoid risks and only invest in new ideas once they are particularly well-established.

Taking these two models into reflection, a business unit with a new product or service must consider the scale of investment in R&D, the expected life cycle the technology will likely maintain, and the way in which customers will adopt this product. By leveraging these models, businesses and institutions can exercise some prudence in ascertaining the returns on investment as their technologies developed.

BTM

Alignment

BTM provides a bridge between earlier established tools and standards within a business environment and newer, more operationally competent tools and standards in technology. BTM does this by creating a set of principles and guidelines for companies to follow as they follow alignment. Alignment, in this respect, can be defined as how an institution’s technology cares and empowers technology while avoiding restrictions in direct relation to company strategies, ideas, and opposition. When companies accomplish this in any given technological environment, they have accomplished BTM maturity relative to that time frame and industry.

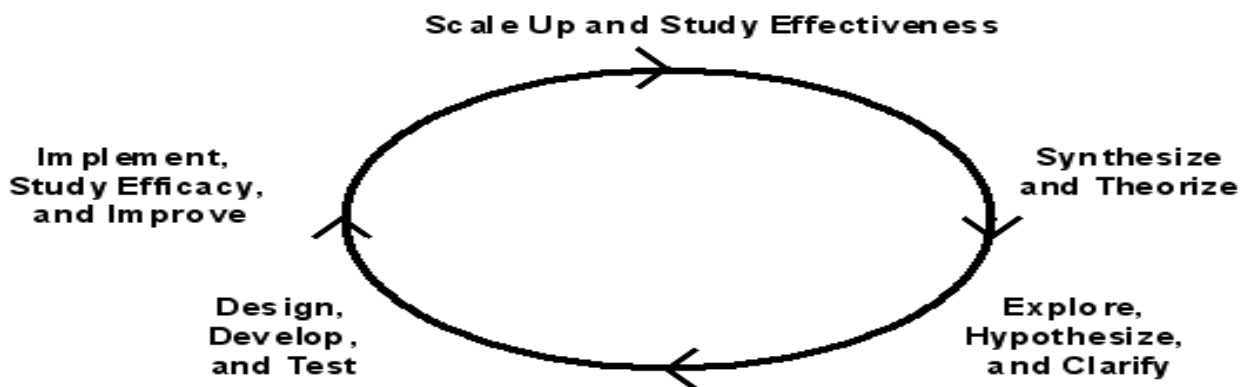


Figure 1: Cycle of Research and Development

Cycle of Research and Development: The Cycle of Research and Development moves through conceiving, to theorizing, to design, to implementation, to study, and back to theorizing to begin the cycle again.

Companies use four particular dimensions of BTM to achieve this thoughtful of current technologies and trends:

- **Process** – Companies must implement a set of fluid and repeatable processes that can be consistently scaled up through evaluation.
- **Organization** – Utilizing an organized business structure or corporate framework, often through strategic business units (SBUs), provides substantial value in consolidating processes and measuring needs.
- **Information** – Investigation and evaluating the current technological environment through extensive research teams is necessary to make the appropriate decisions (see “Sourcing Technology” and “Assessing Needs in Technology” within this Boundless segment).
- **Technology** – Finally, improving upon these processes within SBUs via leveraging the suitable data and information will drive strategic acquirement of beneficial technological expansions based upon current trends.

Taken together, these four measurements applied to alignment and synchronization of new technology can help businesses keep up with or ever stay ahead of current technologies and trends. Companies can benefit from the intrinsic opportunities technological progress provides while equalizing the intrinsic risks of external technological development.

Sourcing Technology

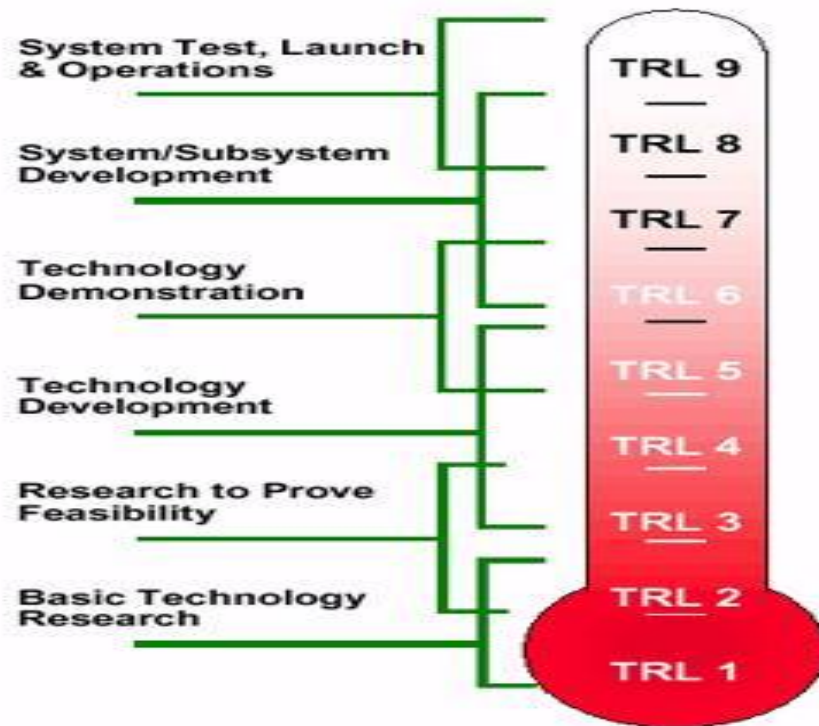
Technology procurement involves dividing and applying new innovations within a remaining business framework.

Technology Finding Strategies

Technology finding, or the discovery of implementing new technologies within a business strategic background, involves separating and connecting new technologies to present models. Technology can be developed internally or isolated through technology investigation and then applied through technology allocation. In decisive which approach is ideal for them, organizations must deliberate such factors as the benefit of being first to market, research and developments expenses and skills, and market study and data congregation costs. Therefore the strategies overdue sourcing technology can be multifaceted,

fluctuating by industry, business size, economic strength, and the availability of easily executed technology.

Technology Scouting:



Stages in technology development: Technology grows through a series of stages: simple technology research, research to prove possibility, technology expansion, technology rally, system/subsystem development, and organization test, presentation & processes.

Technology exploration is essentially forecasting technological developments through information get-together. Technology guides can either be internal employees or external consultants specifically elected to the task of researching developments in a particular technological ground. This can be roughly referred to as a three-step process:

1. Recognize developing technologies.
2. Frequency and consolidate of new technological data inside an association.
3. Deliver a business situation to upkeep or contest the procurement of the technology.

When technology investigation detaches new developments that could hypothetically provide advantages for a mandatory, plans to gain or cause this technology become a central idea. Technology transfer, and the commercialization of technological facilities, is a vast market both in the U.S. and abroad. Though managements, universities, and open source websites often provide information and technical know-how free of charge, most often technology is not allowed.

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