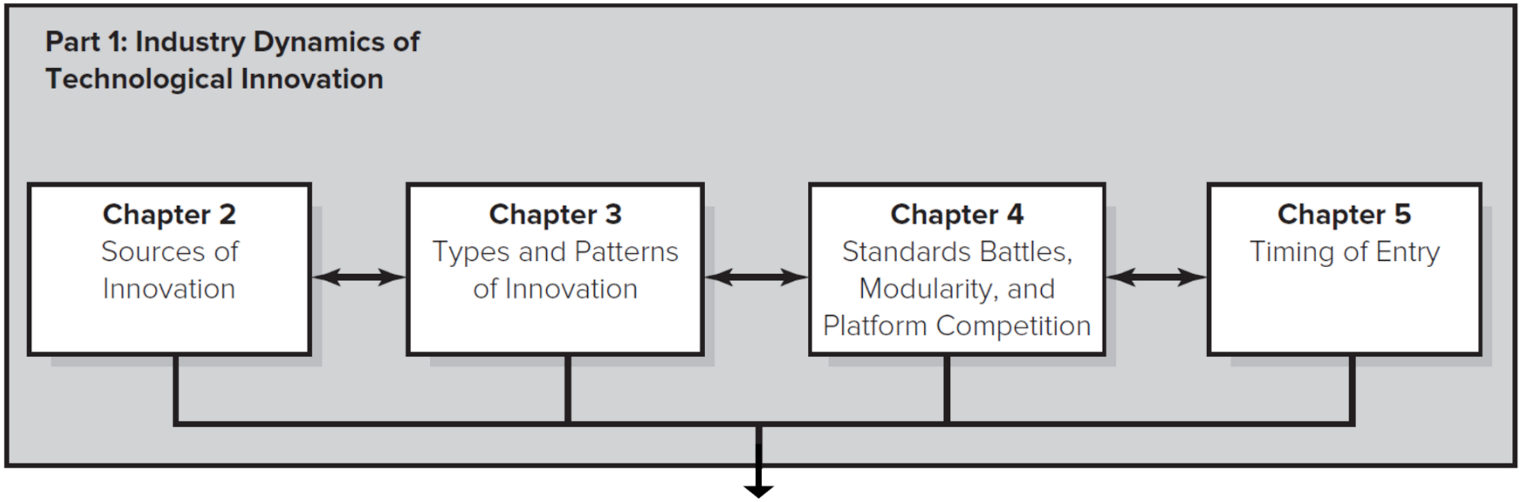
Course Overview: Part 1

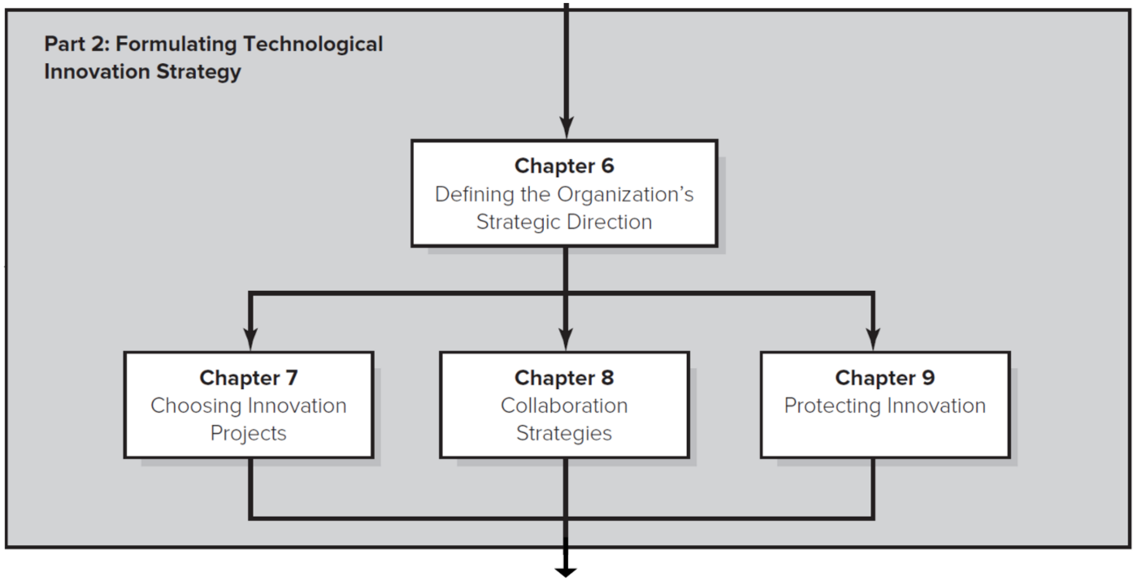
Part One: The foundations of technological Innovation.

2. Sources of innovation.
3. Types and patterns of innovation.
4. Standards battles and design dominance.
5. Timing of Entry.



Part Two: Formulating Technological Innovation Strategy.

- Defining the organization's strategic direction.
- Choosing innovation projects.
- Collaboration strategies.
- Protecting innovation.



Defining the Organization's Strategic Direction

The question posed

Formulating a company's technological **innovation strategy** requires the firm to **assess its current position** (e.g. strengths, weaknesses, core competencies, sources of sustainable competitive advantage), and **define its strategic direction** (e.g. how should the value proposition evolve overtime, resource needs).

A company's **strategic intent** should be **ambitious** (i.e. create a gap between existing resources and capabilities and those needed to achieve its intent).

Strategic intent development begins with **an evaluation of the firm's capabilities** and ideally ends in a plan that cohesively leverages all of the firm's resources to create a **sustainable competitive advantage**.

Assessing the Firm's Current Position

To assess the firm's current position, it is helpful to analyze the **external** and **interna**l environment of the firm

External Analysis

External analysis is frequently conducted by applying **Porter's Five Force Model** and/or a **stakeholder analysis**.

Porter's Five Forces Model

1. Degree of existing rivalry.
2. Threat of potential entrants.
3. Bargaining power of suppliers
4. Bargaining power of buyers
5. Threat of substitutes

1. Degree of existing rivalry

Degree of rivalry in an industry is a function of

1) **how many firms** there are and their relative **size**, (i.e. many firms of equal size leads to greater rivalry but so can a few large competitors that engage in price wars),

2) how **different** each firm (or its product) is from the others (e.g. the lack of significant differences between Visor and its competitors led to vigorous price competition),

3) **product demand**, and

4) **height of exit barriers**.

2. Threat of potential entrants

Threat of potential entrants is high when the industry is **attractive** and **entry barriers** are low and vice versa.

Example: the **smartphone market.** On the one hand the industry is likely to be attractive because of high growth potential and visibility, but the presence of powerful competitors such as SAMSUNG and APPLE may act as a deterrent.

3. Bargaining power of suppliers

Bargaining power of suppliers is a function of the **number of suppliers**, **product differentiation**, **amount purchased**, **switching costs** and the ability of buyers and suppliers to **vertically integrate**.

For example,

- **Intel** has supplier power over its customers' power because its products have very high brand image (**product differentiation**), and because other software and hardware has been optimized for Intel's microprocessors (**switching costs**).
- **Wal-Mart** has power over its suppliers because of the high volume it purchases.

4. Bargaining power of buyers

Bargaining power of buyers (like bargaining power of suppliers) is also a function of the **number of buyers**, level of **product differentiation**, **switching costs**

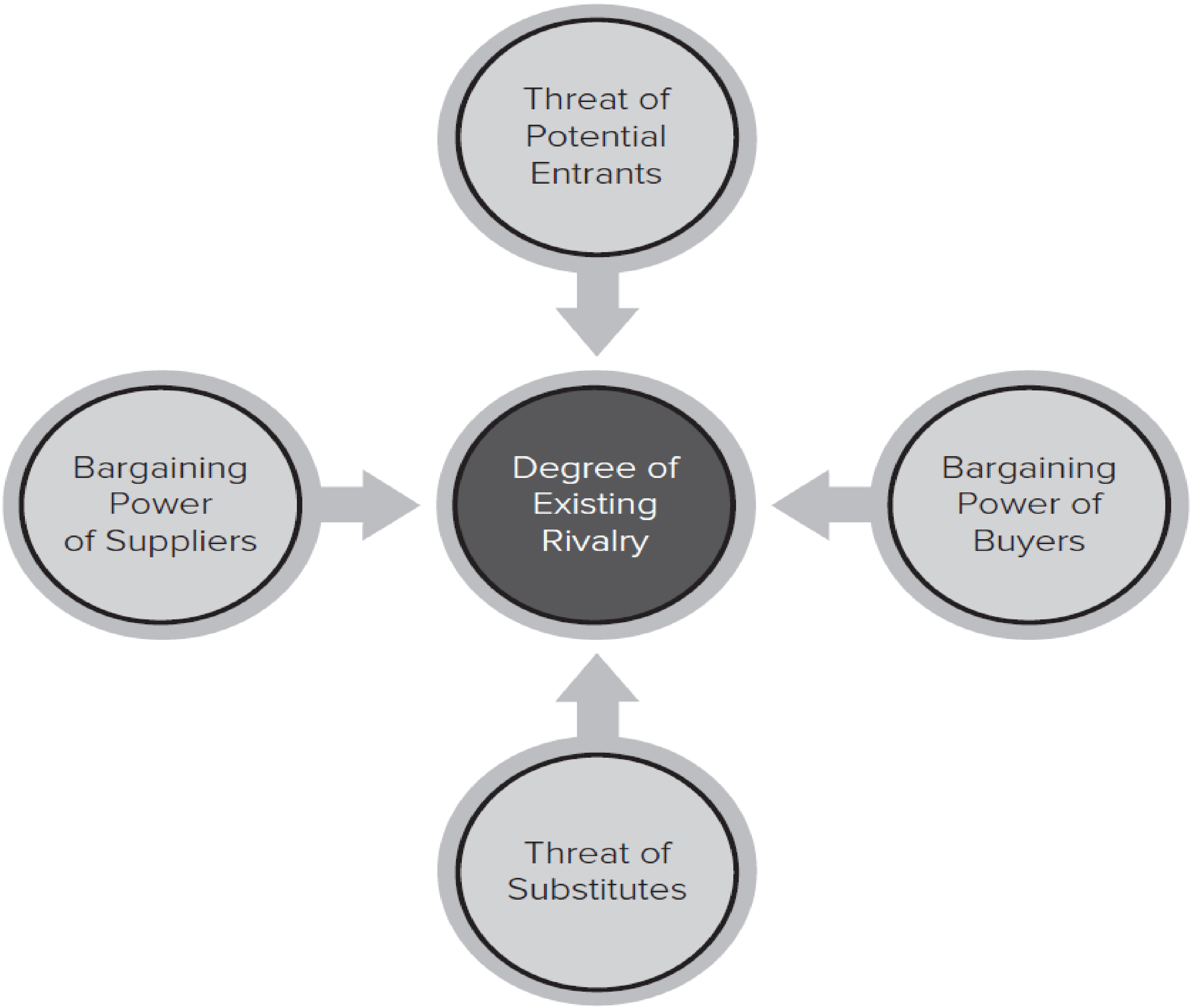
5. Threat of substitutes

Threat of substitutes is a function of the **number** of potential substitutes, their **closeness in functionality**, and their **relative price**.

For example,

Bus and train travel are typically not close substitutes for plane travel because their lower costs are offset by greater traveling time (BUT are close substitutes: coca cola and pepsi cola, kindle and printed books, butter and margarine)

Porter's Five Force Model



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Porter's Analysis

Recently Porter has acknowledged the role of complements.

Must consider:

a) how important complements are in the industry.

b) whether complements are differentially available for the products of various rivals (impacting the attractiveness of their goods), and.

c) who captures the value offered by the complements.

Complements: products or services the enhance the usefulness or desirability of another product

Stakeholder analysis

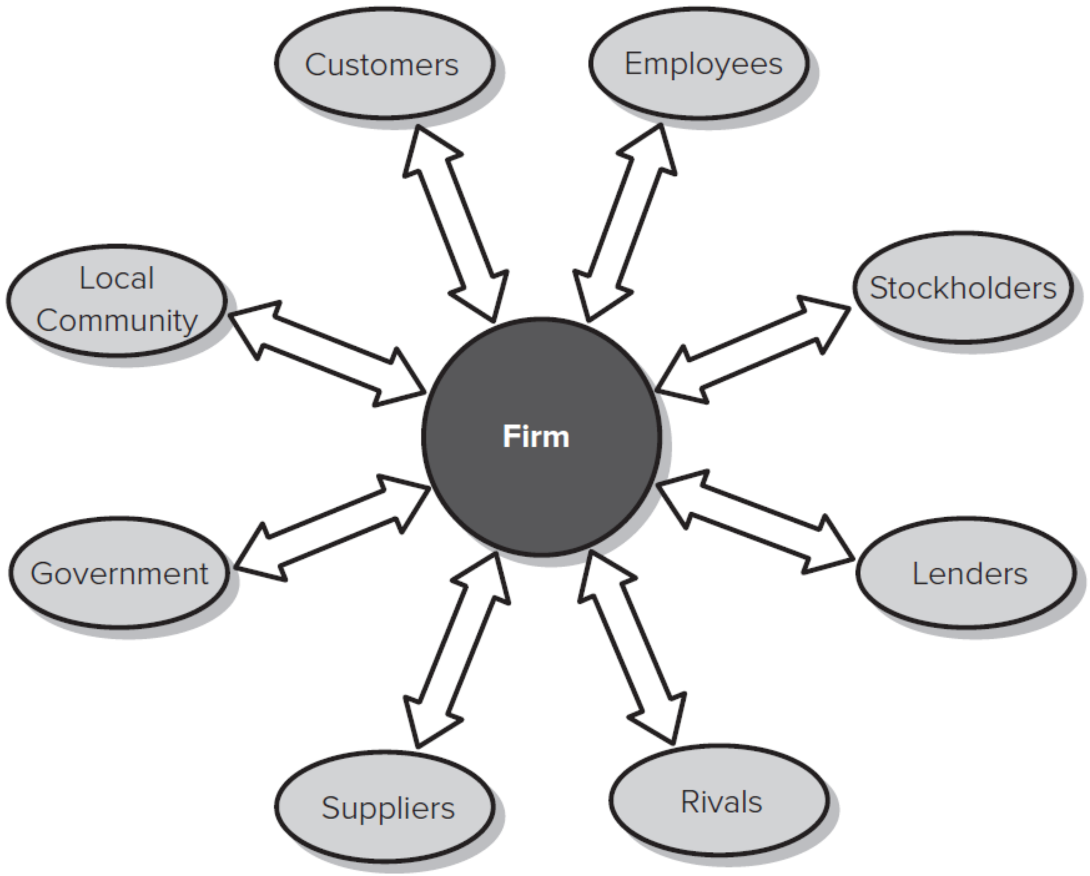
Stakeholder analysis begins with the identification of all parties impacted by the firm, what their interests (and claims) are and what resources they contribute to the firm.

Stakeholders include (but are not limited to) stockholders, employees, customers, suppliers, lenders, the local community, government, and rivals.

An analysis focusing on how stakeholders will impact firm performance is referred to as a **strategic stakeholder analysis** while a **normative stakeholder analysis** emphasizes issues the firm **ought** to attend to due to their ethical or moral implications.

Stakeholder Analysis

1. Who are the stakeholders?
2. What does each stakeholder want?
3. What resources do they contribute to the organization?
4. What claims are they likely to make on the organization?



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Internal analysis

Two steps:

1. **The assessment of a firm's** strengths and weaknesses **in each part of the company's** value chain. The value chain activities are often organized according whether they are **primary** (e.g. inbound and outbound logistics, operations, marketing, sales and service) or **secondary** (e.g. procurement, human resource management and infrastructure) activities.

Internal analysis

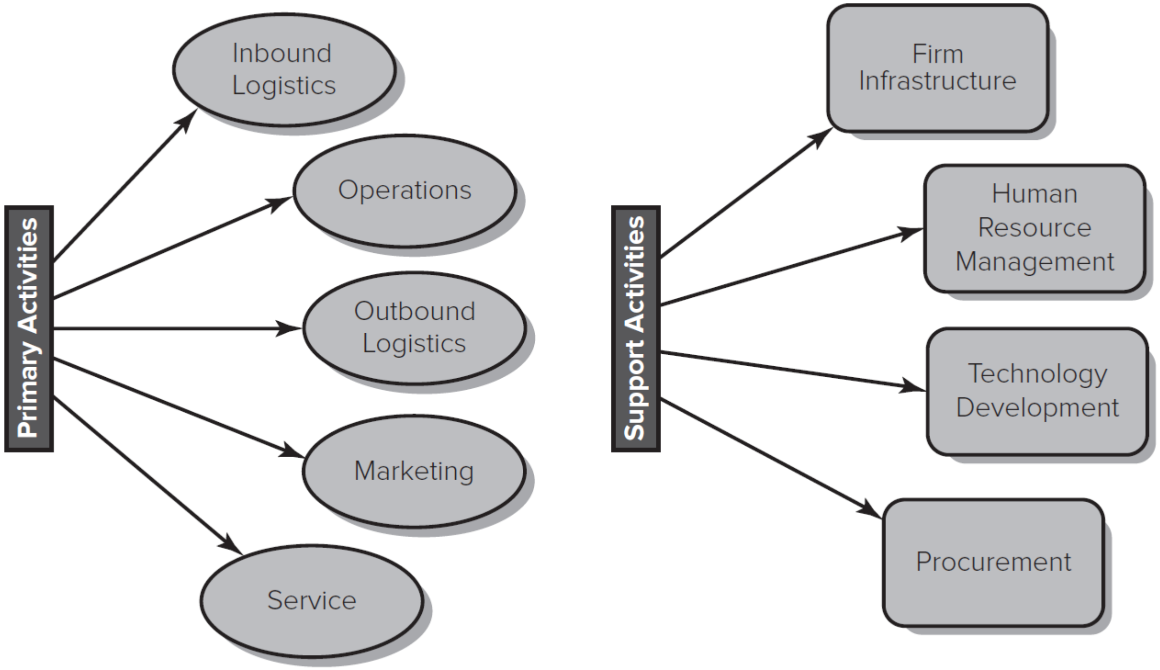
2. The firm then identifies which strengths have the potential to be a source of **sustainable competitive advantage** (i.e. are **rare, valuable, durable, and inimitable**).

Path dependent (e.g. first mover advantages), socially complex resources (e.g., a particularly effective group) or causally ambiguous (e.g. talent) resources that are valuable can provide the basis of a sustainable competitive advantage because they are difficult to imitate.

Step 1

1. Identify the firm’s strengths and weaknesses. Helpful to consider each element of value chain.

Source: Michael Porter, *Competitive Advantage: Creating and Sustaining Superior Performance*.



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Step 2

2. Assess which strengths have potential to be sustainable competitive advantage.
   - Rare
   - Valuable
   - Durable
   - Inimitable

Competitive Advantage

Sustainable Competitive Advantage

Resources are difficult (or impossible) to imitate when they are:

- Tacit
- Path dependent
- Socially complex
- Causally ambiguous

Competencies and Capabilities

The terms “**competency**” and “**capability**” are used **interchangeably** in the text because they are semantically equivalent (though some researchers have attempted to distinguish between them) and our focus is on emphasizing what makes a competency a **core competency** and on demonstrating how core competencies or capabilities are achieved by **integrating** a variety of more basic or rudimentary capabilities.

Core competencies

Core competencies differentiate a company strategically from its competitors and are usually a combination of different kinds of abilities (e.g. advertising, distribution, information systems, logistics management, applied science, process design).

It is the **harmonious combination of abilities** that makes core competencies **difficult to imitate**.

Identifying Core Competencies and Capabilities

Core Competencies: A set of integrated and harmonized abilities that distinguish the firm in the marketplace.

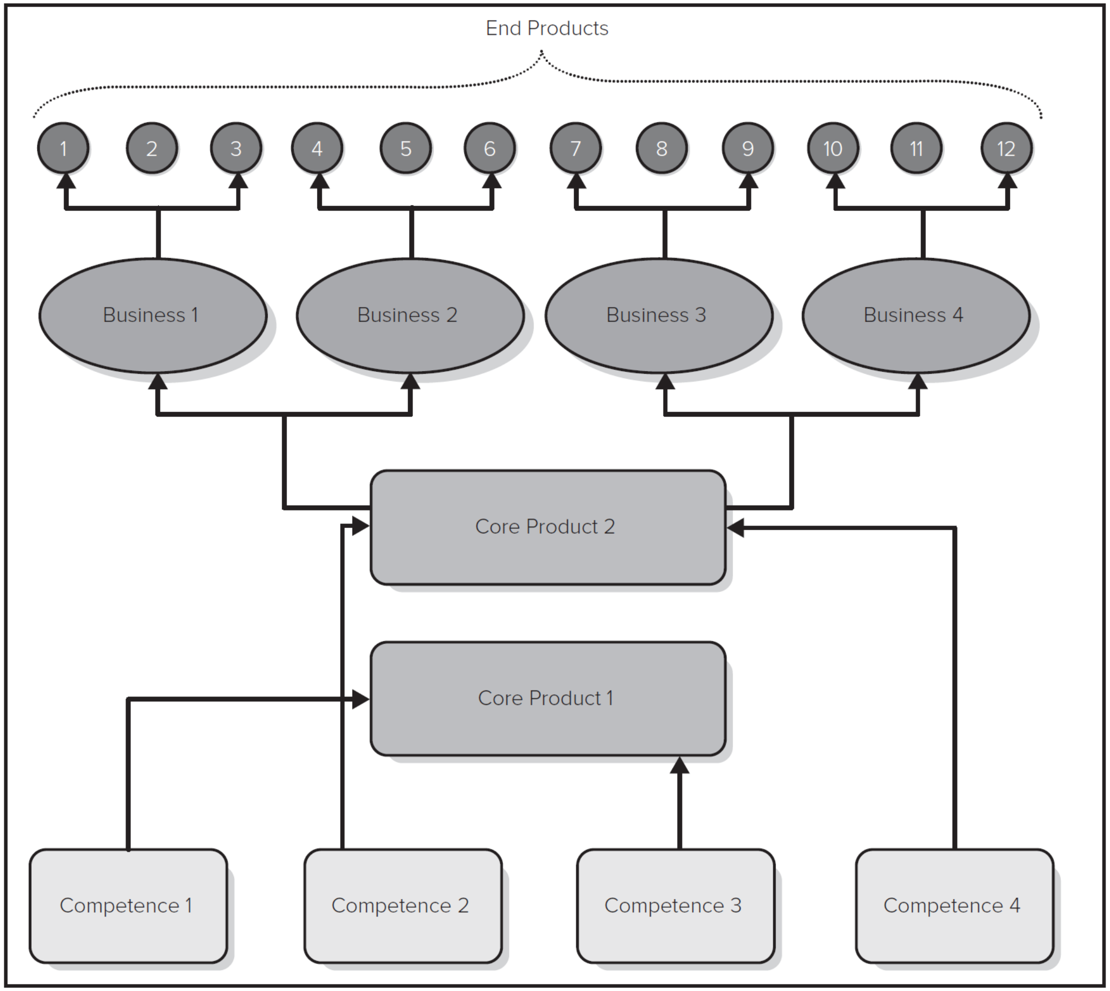
- Competencies typically combine multiple kinds of abilities.
- Several core competencies may underlie a business unit.
- Several business units may draw from same competency.
- Core competencies should:
  - Be a significant source of competitive differentiation.
  - Cover a range of businesses.
  - Be hard for competitors to imitate.

Prahalad and Hamel

Prahalad and Hamel view firms' core competencies as the **roots of a tree** that sustain many firms and therefore argue that the organization's structure and incentives must encourage cooperation and exchange of resources across strategic business units.

Identifying Core Competencies and Capabilities

Source: C. K. Prahalad and G. Hamel, "The Core Competence of the Corporation," *Harvard Business Review*, May–June 1990.



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Risk of Core Rigidities

When firms excel at an activity, they can become over committed to it and rigid.

- For example, a firm's emphasis on a scientific discipline that is central to its core competency can make the firm less attractive to individuals from other disciplines. In addition, the rewards for engaging in activities related to the organization’s core competencies can discourage employees from pursuing more exploratory activities. Firms that have well-developed knowledge sets along a particular trajectory may find it difficult to assimilate or utilize knowledge that appears unrelated to that trajectory thereby limiting the firm’s opportunities.

Dynamic capabilities

Dynamic Capabilities **enable a firm to quickly** reconfigure its organizational structure and routines **in response to new opportunities and are not related to specific products or technologies**

- Corning **is a company that invested heavily in its dynamic capabilities by heavily investing in research in areas likely to provide** scientific breakthroughs**, building** pilot plants **and managing its relations with other firms as** an integrative and flexible system of capabilitie**s that extended the boundaries of the firm**
- https://www.youtube.com/watch?v=BL_tf7IS3dM&list=PLc6EeKrKYKClN48ow3Irj_sO0zQEY-Vwu&index=67
- https://www.youtube.com/watch?v=13B5K_lAabw&list=PLc6EeKrKYKClN48ow3Irj_sO0zQEY-Vwu&index=68

Strategic Intent

A firm's **strategic intent** is an **ambitious long-term term goal** (10 to 20 years in the future) that requires all levels of the organization to build on and stretch the firm's existing core competencies.

A firm's strategic intent **takes the focus away from current markets** and meeting current customer requirements so that the organization can focus on future markets and customer requirements.

Articulating the company's strategic intent thus enables the company to **focus its development efforts** and choose the investments necessary to **develop strategic technologies** and incorporate them into the company's new products.

Strategic Intent

Examples:

Canon's obsession with overtaking Xerox in copiers, **Apple's mission** of ensuring that every individual has a personal computer, and **Yahoo's goal** of becoming the world's largest internet shopping mall are all examples of strategic intent.

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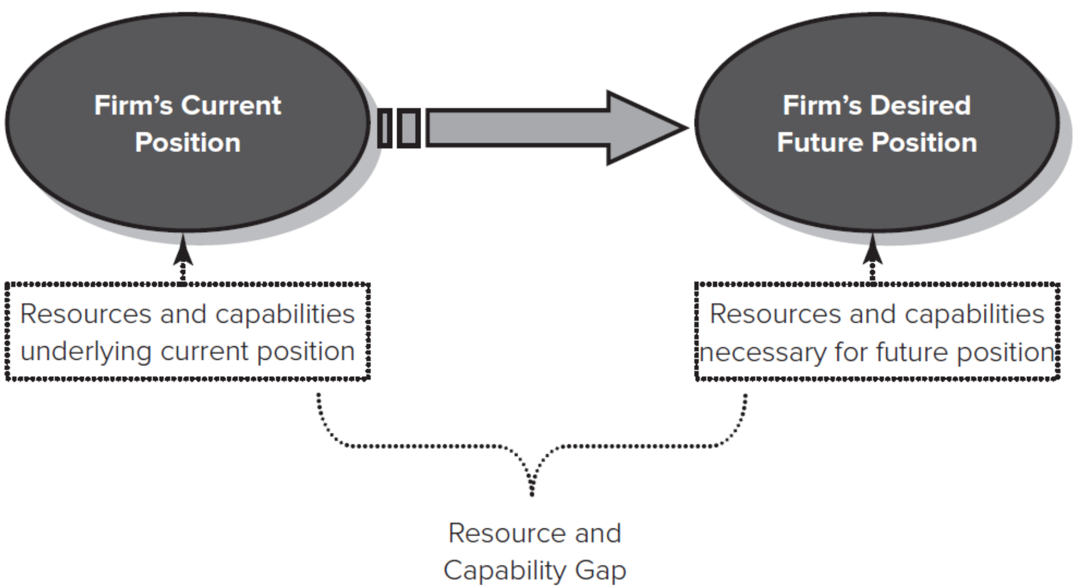
Strategic Intent

Strategic Intent.

- A long-term goal that is ambitious, builds upon and stretches firm's core competencies, and draws from all levels of the organization.
  - Typically looks 10 to 20 years ahead, establishes clear milestones.
  - Firm should identify resources and capabilities needed to close gap between strategic intent and current position.



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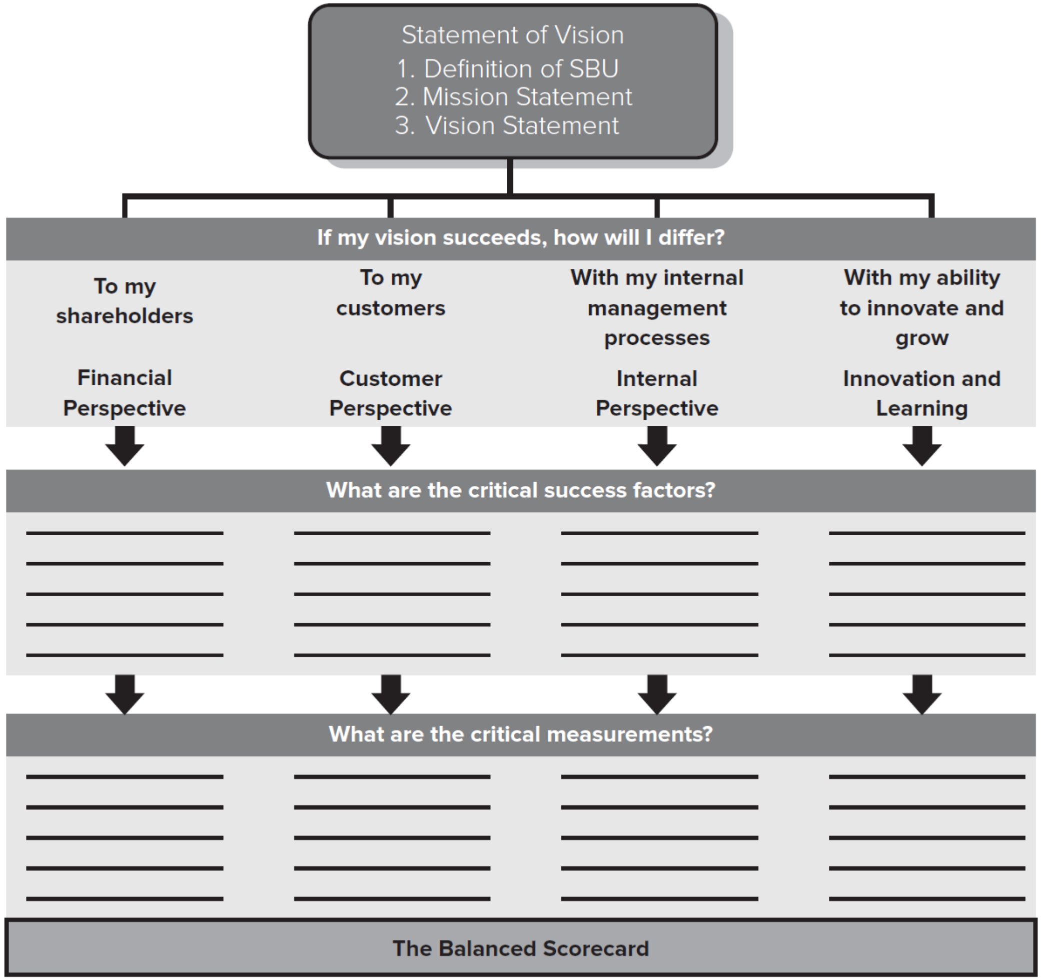
The Balanced Scorecard

- Kaplan and Norton argue that effective performance measurement should incorporate:
  - Financial perspective.
  - Customer perspective.
  - Internal perspective.
  - Innovation and learning.

https://www.youtube.com/watch?v=biyGxEix5Zs&list=PLc6EeKrKYKClN48ow3Irj_sO0zQEY-Vwu&index=70



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Blue Ocean Strategy

The authors Mauborgne and Chan Kim distinguish two kinds of firms’ strategy:

- **Red ocean strategy**: when firms develop a very harsh cut-throat competition in the market
- **Blue ocean strategy**: when firms go to the conquest of unexplored markets
- https://www.youtube.com/watch?v=d2UIlKHnx8E&list=PLc6EeKrKYKClN48ow3Irj_sO0zQEY-Vwu&index=69

Blue and red Ocean Strategies

Red Ocean Strategy	Blue Ocean Strategy
Compete in existing market space	Create uncontested market space
Beat the competition	Make the competition irrelevant
Exploit existing demand	Create and capture new demand
Make the value-cost trade-off	Break the value-cost trade-off
Align the whole system of a firm's activities with its strategic choice of differentiation or low cost.	Align the whole system of a firm's activities in pursuit of differentiation and low cost.

Adapted from Kim, W.C. & Mauborgne, R. 2005. Blue ocean strategy. Boston: Harvard Business School Press.

Tesla, Inc. in 2018

Tesla was founded in 2003 by Martin Eberhard, an entrepreneur who wanted to create a faster, sexier electric car. In 2004, Elon Musk agreed to fund the company and became Chairman of the Board. A few years later Eberhard left and Musk became CEO.

In 2018, Tesla had grown into a company with almost $12 billion in annual revenues that produced multiple car models, owned Solar City, produced energy storage systems (for example, Powerwall) and solar roofs.

The company’s expansion into multiple product lines and rapid production capacity expansion created large capital requirements for the firm.

Tesla missed several of its production goals in early 2018 causing investors to be concerned, but at the end of 2018 posted its first annual profit.

Tesla’s cars had rapidly attracted a large and loyal fan base and sales were growing at an impressive rate. But was Tesla trying to do too much too quickly?

About Tesla

https://www.youtube.com/watch?v=g1DqaqBiVRY&list=PLc6EeKrKYKClN48ow3Irj_sO0zQEY-Vwu&index=62

https://www.youtube.com/watch?v=e_ElR6OkQvY&list=PLc6EeKrKYKClN48ow3Irj_sO0zQEY-Vwu&index=63

https://www.youtube.com/watch?v=NVSEoTA0EyA&list=PLc6EeKrKYKClN48ow3Irj_sO0zQEY-Vwu&index=64

Reinventing Hotels: citizenM

Discussion Questions

1. What were Musk's and Eberhard's goals in founding Tesla?
2. How would you characterize competition in the auto industry?
3. What do you think are Tesla's core competencies? Does it have any sources of sustainable competitive advantage?
4. What is your assessment of Tesla's moves into (a) mass-market cars, (b) batteries (car batteries and Powerwall), (c) solar panels? Please consider both the motivation for the moves, and the opportunities and challenges for Tesla to compete in these businesses.
5. Do you think Tesla will be profitable in all of these businesses? Why or why not?
6. What do you think Tesla's (or Elon Musk's) strategic intent is?

Discussion Questions

1. What is the difference between a *strength*, a *competitive advantage*, and a *sustainable competitive advantage*?
2. What makes an ability (or set of abilities) a *core competency*?
3. Why is it necessary to perform an external and internal analysis before the firm can identify its true core competencies?
4. Pick a company you are familiar with. Can you identify some of its core competencies?
5. How is the idea of "strategic intent" different from models of strategy that emphasize achieving a fit between the firm's strategies and its current strengths, weaknesses, opportunities and threats (SWOT)?
6. Can a strategic intent be too ambitious?