UNIVERSITÀ DEGLI STUDI DI BERGAMO
Dipartimento di Ingegneria Gestionale, dell'Informazione e della Produzione

Frameworks for Strategic Analysis

How to use strategic tools to analyze firms and industries

Corso di Laurea Magistrale in Ingegneria Gestionale

A.A. 2025/26

Prof. Davide Hahn

Agenda

Strategic frameworks are theories and tools for analyzing a company and its competitive environment

In this lesson

- Overview about the most diffused strategic framework
- Examples of applications of the frameworks.
- How to apply these frameworks to your Project Work (PW)

Contents

Phase of Analysis	Purpose in the Project Work	Main Frameworks / Tools
1. External analysis	Identify and interpret key technological and competitive trends shaping the analyzed sector or strategic group.	PESTEL, Porter's 5 Forces
2. Internal analysis	Analyze firms' internal characteristics — resources, capabilities and positioning — and how they relate to industry dynamics.	Resource-Based View (RBV), SWOT
3. Strategic analysis	Compare strategic reactions of firms to trends identified in Phase 1 and discuss how they create and capture value.	Porter's Generic Strategies, Business Model Canvas / Business Model Innovation

External analysis

PESTEL, Porter’s 5 Forces

External analysis

Understanding the **context in which firms compete** is the first step in your **Project Work**.

Main frameworks

- **PESTEL** → macro drivers of change (technological, social, political, economic)
- **Porter's Five Forces** → competition

Key questions for your PW

- Which technologies (e.g. AI, sustainability, automation) and external forces (policy, regulation, customer trends) are transforming it?
- How is the industry organized and how strong is competition?

PESTEL framework

Trends grouped into six segments:

- **Political environment**: the processes and actions of government bodies
- **Economic factors**: growth and interest rates, employment, price stability, …
- **Sociocultural factors**: society's cultures, norms, and values, Demographic trends
- **Technological factors**: changes in the technological environment
- **Ecological factors**: broad environmental issues such as the natural environment, global warming, and sustainable economic growth
- **Legal environment**: laws, mandates, regulations, and court decisions—all of which can have a direct bearing on a firm's profit potential.

Source: A. Francis, Scanning the Business Environment., New York, Macmillan 2006
Source: Frank T. Rothaermel, Strategic Management: Concepts, McGraw-Hill Education, 2015

PESTEL example (semiconductors)

Category	Trend	Empirical Evidence	Sources
Political	Governments boost domestic chip production	U.S., EU and China invest heavily to reduce tech dependence.	PwC, *Semiconductor & Beyond 2026*
Economic	AI drives explosive chip demand	Global semiconductor sales expected to surpass $1T by 2030.	Deloitte, *Global Semiconductor Outlook 2025*
Sociocultural	Sustainability and AI ethics gain weight	Growing pressure for greener, more transparent AI hardware.	Capgemini, *Semiconductors in the AI Era*
Technological	Rise of AI-specific chips (NPUs, edge AI)	Rapid shift toward specialized architectures for AI workloads.	Capgemini, *Semiconductors in the AI Era*
Ecological	Energy use under scrutiny	Efficiency becomes key to regulation and competitiveness.	IEA, *Electricity 2025 Report*
Legal	Export and IP restrictions reshape supply chains	U.S.–China trade controls drive regionalization of chipmaking.	The Guardian, *EU microchip strategy under review*

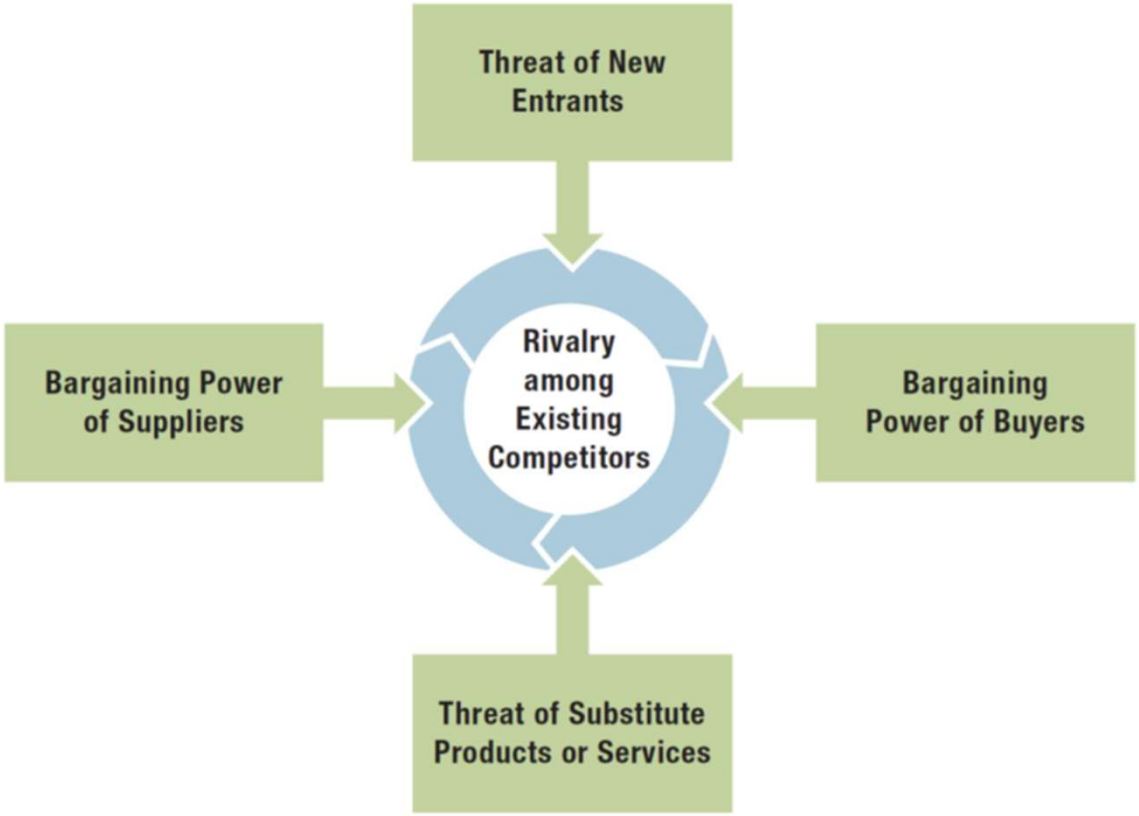
Porter's 5 forces framework – premises

- Porter's framework of competitive positioning explains the achievement of firms' competitive advantage (i.e., superior profitability compared to industry average) focusing on the positioning of the firm in its industry/competitive landscape.
- Developed in the 80ies by Michael Porter (perspective of organizational economists).
- **Industry** as central driver of *average firm performance* .
- There are "good industries" with high profitability (e.g., pharma) and "bad industries" with low profitability (e.g., trucking).
- Firm's profitability compared to industry average is determined by it **competitive positioning.**
- Firms need to design value chain activities aligned to competitive position.

Porter's 5 forces model – assumptions and goals

- **Five forces model i**dentifies forces that determine the average profitability of an industry.
- **Industry**: A group of (incumbent) companies that face more or less the same set of suppliers and buyers; these firms tend to offer similar products or services to meet specific customer needs.
- **Competition:** not only direct rivals but also a set of other forces in an industry.
- Hence the **profit potential of an industry is a function of five forces** that shape competition: threat of entry, power of suppliers, power of buyers, threat of substitutes, and rivalry among existing firms.
- The **stronger the five forces, the lower the industry's profit potential**.

Porter's 5 forces model



Source: Frank T. Rothaermel, Strategic Management: Concepts, McGraw-Hill Education, 2015

Porter’s 5 forces model - example (semiconductors)

Stage	Key Activities	Main Players (examples)	Strategic Role
1. Equipment & Materials	Manufacturing tools, lithography systems, wafers, gases	ASML, Applied Materials, Tokyo Electron	Enable chip fabrication – upstream suppliers
2. Foundries (Manufacturing)	Wafer fabrication, process technology, packaging	TSMC, Samsung Foundry, GlobalFoundries, Intel Foundry Services	Core **suppliers** for fabless design firms
3. Fabless Design Companies	Chip design, architecture, AI accelerator R&D, IP ownership	**NVIDIA, AMD, Qualcomm, Apple, Google**	**Focal segment** of our analysis
4. Integrators / OEMs / Hyperscalers	System integration, cloud infrastructure, devices	Amazon, Microsoft, Tesla, Dell, Apple	**Buyers** of AI chips
5. End Users / Enterprises	AI applications, data analytics, consumer products	Businesses, consumers	Demand for AI computing power

Porter’s 5 forces model - example (cont.)

Force	Who / What It Represents	Examples (2024–25)	Role in the Industry
Suppliers	Foundries, material & equipment providers	TSMC, Samsung Foundry, Intel Foundry Services, ASML	Provide advanced manufacturing capacity and process technology
Buyers	Hyperscalers, OEMs, system integrators	Amazon, Microsoft, Apple, Tesla, Dell	Purchase AI chips for data centers, devices, and vehicles
New Entrants	Emerging AI chip startups or tech entrants	Cerebras, Tenstorrent, Graphcore	Seek to enter the AI hardware market with novel architectures
Substitutes	Alternative computing technologies or materials	Edge AI chips, GaN/SiC devices, quantum computing	Offer different ways to deliver computing power or efficiency
Rivalry	Competing fabless AI chip designers	NVIDIA, AMD, Google (TPU), Apple (M-series)	Compete through innovation, performance, and partnerships

1. Threat of entry

How easily new competitors can enter the industry and erode profitability?

1) Identify how **strong each entry barrier** is in your industry, such as:

- Economies of scale +
- Brand identity & customer loyalty +
- Access to distribution or technology -
- Capital requirements +
- Government policy & regulation +
- Learning & experience effects +
- Network effects / switching costs +

2) Rate each barrier (High / Medium / Low) using **empirical evidence**.

1. Threat of entry – example (cont.)

Barrier	Intensity	Evidence	Source
Capital requirements	Very High	Chipmakers plan **$1 trillion fab investments by 2030**, deterring entrants.	McKinsey (2023)
Access to technology	Very High	Only few firms master advanced < 5 nm process nodes.	MDPI (2024)
Government policy	High	U.S.–EU–China *CHIPS Acts* raise costs via export rules & subsidies.	Diamond Hill (2024)

2. Power of suppliers

How supplier power erodes profitability:
Suppliers can capture more value when they can raise prices or reduce quality without losing business.

1) Assess **how strong supplier power** is in your industry, considering **power drivers** such as:

- Supplier concentration (+) vs number of buyers (-)
- Switching costs for firms -
- Availability of substitute inputs -
- Importance of the buyer to the supplier -
- Possibility of forward integration +

2) Rate suppliers' sources of power (High / Medium / Low) using **empirical evidence**.

2. Power of suppliers – example (cont.)

Power driver	Intensity	Evidence	Source
Concentration of advanced foundries	Very High	Only a few players (TSMC, Samsung, Intel) dominate advanced node production (<5 nm).	McKinsey (2024)
Switching costs	High	OEMs depend on certified suppliers; redesigning chips implies multi-year validation.	Reuters (2024)
Supplier integration	Increasing	Foundries move into design and packaging, capturing more value.	Gartner (2024)

3. Power of buyers

How buyer power erodes profitability:
Buyers can pressure prices and demand better quality when they are few, large, or have alternatives.

1) Identify **buyer power drivers**, such as:
   - Buyer concentration and volume +
   - Product standardization +
   - Switching costs (-) and availability of substitutes (+)
   - Backward integration potential +

2) Rate buyer power (High / Medium / Low) using **empirical evidence**.

3. Power of buyers – example (cont.)

Power driver	Intensity	Evidence	Source
Concentration of major buyers	High	Apple, and a few hyperscalers (Amazon, Microsoft, Google) dominate demand for AI chips.	Bloomberg (2024)
Product differentiation	Medium	Chipmakers offer unique designs, but buyers often multi-source.	PwC (2026)
Backward integration	Low	Most buyers rely on external fabs; limited in-house production.	Deloitte (2025)

4. Threat of substitutes

How threats of substitutes erodes profitability:
Alternative products or technologies can fulfill the same customer needs in competitive ways.

1) Identify threat power of potential **substitute products/services**, such as:

- Price-performance trade-off +
- Switching costs for customers -
- Technological readiness of substitutes +

2) Rate the threat (High / Medium / Low) using **empirical evidence**.

4. Threat of substitutes – example (cont.)

Threat power	Intensity	Evidence	Source
Cloud AI vs on-device AI (edge)	Medium	Edge AI chips (Qualcomm, Apple) compete with cloud compute for latency and cost efficiency.	McKinsey (2025)
Alternative materials (GaN, SiC)	Medium	Power electronics shifting from silicon to compound semiconductors for energy efficiency.	IEA (2025)
Quantum computing (long-term)	Low (future)	Still early-stage, but could disrupt high-performance AI chips later in decade.	MIT Tech Review (2025)

5. Rivalry among existing competitors

How rivalry erodes profitability

The intensity of competition among existing firms can reduces market shares and profit margins.

1) Examine **rivalry drivers**, such as:
   - Number (+) and concentration (-) of competitors
   - Industry growth rate (-)
   - Product differentiation (-)
   - Exit barriers and strategic commitments (+)

2) Rate rivalry drivers (High / Medium / Low) using **empirical evidence**.

5. Rivalry among existing competitors – example (cont.)

Rivalry driver	Intensity	Evidence	Source
Number of major players	Medium	Few large firms (TSMC, Intel, Samsung, NVIDIA) dominate but compete intensely in AI chips.	McKinsey (2025)
Growth rate of market	Low	AI chips drive >30% annual growth; rivalry coexists with high demand.	Deloitte (2025)
Product differentiation	Medium	Competing architectures (GPU, NPU, ASIC) allow partial differentiation.	Capgemini (2025)

6. Possible extension of Porter's 5 forces model

Why it matters
Porter's model focuses on competition, but many industries today create value through **complementary products**.

Complements

A *complement* increases the value of another product when used together.

Examples: GPUs and AI frameworks; smartphones and app stores; EVs and charging networks.

Example – NVIDIA & CUDA

CUDA (Compute Unified Device Architecture) is NVIDIA's proprietary software platform that enables developers to run AI models efficiently on NVIDIA GPUs → **lock-in effect** by integrating core product and complement

7. Limits of Porter's 5 Forces in dynamic industries

1. **Blurred industry boundaries** – sectors overlap (e.g., chips vs. cloud services).
2. **Dynamic innovation cycles** – rapid technological change constantly reshapes the 5 forces.
3. **Network and data externalities** – competitiveness depends on user bases and established data loops.
4. **Ecosystem competition** – firms compete as **alliances or ecosystems** (e.g., NVIDIA–Microsoft–OpenAI vs. Google–TPU).

Internal analysis

Resource-based View
SWOT analysis

Why internal analysis?

Changes in industry and corporate effects in the United States, 1978–2019

Ming zhu Wang

Olin Business School, Washington University in St. Louis, St. Louis, Missouri, USA

Correspondence
Ming zhu Wang, Olin Business School, Washington University in St. Louis, 1 Brookings Drive, Campus Box 1156, St. Louis, MO 63130, USA.
Email: mingzhu@wustl.edu

Abstract

Research Summary: I present evidence of a shift in the relative contributions of industry and corporate effects to heterogeneity in business performance in the United States. In a systematic analysis of sequential timeframes between 1978 and 2019, I find a persistent rise in the explanatory power of corporate effects, which has grown to surpass that of industry effects. Consistent with these trends, I also find that an increasing share of multi-business firms is operating only high-performing or only low-performing businesses, which coincides with refocusing efforts that began in the 1980s. This temporal perspective provides an explanation for why prior studies estimating industry and corporate effects have reached different conclusions.

Wang, M. Z. (2023). Changes in industry and corporate effects in the United States, 1978–2019. Strategic Management Journal, 44(2), 477-490.

Internal analysis

Describe **how each firm is positioned internally** — its key resources — and how these relate to external threats/opportunities.

Tools to use

- **Resource-Based View (RBV)** → to identify which resources and competences create advantage.
- **SWOT Analysis** → to integrate internal strengths/weaknesses with external opportunities/threats.

In your Project Work

After brief company overview (size, offerings, growth…) you can:

- Apply RBV to describe *what resources make it unique*.
- Use SWOT to describe how firm resources prepare it to external trends.

Resource-based View

The RBV is a theory developed by Barney (1991): bundles of **resources** available to a firm as source of ***sustainable competitive advantage.***

RBV focuses on the firm, its resources, competences and capabilities as determinant of performance differences.

RBV has its roots in the work of economist David Ricardo: the supply of fertile land determines which farmers could achieve superior profitability and which ones would fail.

Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of management*, *17*(1), 99-120.

Resources

Resources are *tangible* and *intangible* assets that are available to the organization.

- **Organizational resources**
- **Financial resources**
- **Physical resources**
- **Human resources**
- **Reputational**
- **Technological resources**

Tangible assets usually essential to execute firm's strategy, but rarely source of competitive advantage.

Intangible assets are often firm-specific, difficult to replicate and central for achieving competitive advantage.

Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of management*, *17*(1), 99-120.

Competences and Capabilities

- Resources comprehend also firm ***competences* and *capabilities***** (often used as synonymous), which are complex combinations of assets, people, and processes that organizations use to put resources into action
- Firms also possess ***dynamic capabilities*** that allow them to learn and develop new competences to redeploy their resources or utilize new resources.
- For example, a *marketing dynamic capability* allows a firm to build new customer competences and serve different markets.

Danneels, E. (2007). The process of technological competence leveraging. Strategic management journal, 28(5), 511-533.

Competences and Capabilities in the HEI sector

Dynamic capabilities and governance: An empirical investigation of financial performance of the higher education sector

Sohvi Heaton[1] | **David Teece**[2] | **Eugene Agronin**[3]

[1]Leavey School of Business, Santa Clara University, Santa Clara, California, USA

[2]Haas School of Business, University of California, Berkeley, California, USA

[3]Instacart, San Francisco, California, USA

Correspondence
Sohvi Heaton, Leavey School of Business, Santa Clara University, Santa Clara, CA 95053, USA.
Email: sohvi.heaton@gmail.com

Abstract

Research Summary: We postulate that resource allocation decisions consistent with dynamic capabilities can improve financial performance, but that governance moderates the relationship between resource allocation flexibility and financial performance. Using more than a decade of data on US public universities, we find that flexibility has much more impact when matched by lower levels of governance that allow greater expenditure autonomy for university executives and administrators.

Heaton, S., Teece, D., & Agronin, E. (2023). Dynamic capabilities and governance: An empirical investigation of financial performance of the higher education sector. Strategic Management Journal, 44(2), 520-548.

Resource-based View – Key assumptions

Resource are **heterogeneous**.

- Companies possess different combinations of organizational, financial, physical and human resources.
- Companies achieve competitive advantage because they leverage on heterogeneous bundles of resources, skills, capabilities.

Resources are **immobile**.

- Resources cannot easily moved from company to company in the short run.
- When resources are immobile they stay within a company and make sustain its competitive advantage
- For example organizational and intangible resources, such as brand equity, processes, knowledge cannot be easily acquired by other companies from the market

Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of management*, *17*(1), 99-120.

Resource-based View – Key assumptions

Resources are **fungible**.

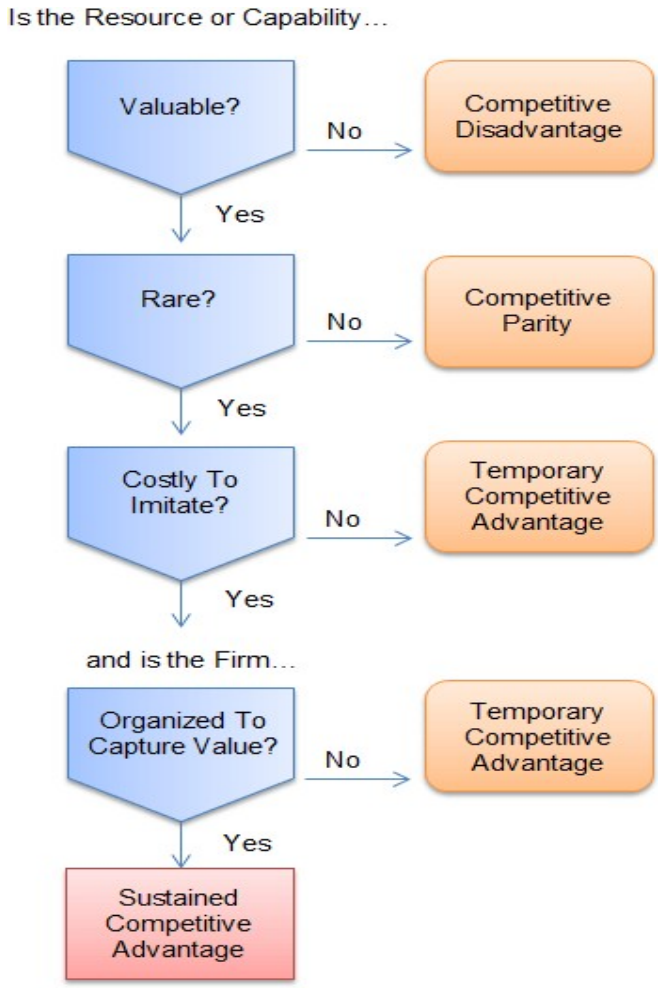
- Resources with a high degree of fungibility (e.g., financial resources): can be exploited for different purposes
- Resources with lower degree of fungibility: specialized to the performance of a particular task (e.g., specialized facilities, employees)

Resources can be allocated and transformed to achieve company objectives.

- *Resource allocation* involves committing generic resources to be transformed into specific resources.
- *Resource transformation* is the conversion of generic (highly fungible) resources into specific resources (limited fungibility).

Danneels, E. (2007). The process of technological competence leveraging. Strategic management journal, 28(5), 511-533.

VRIO model



Source: Frank T. Rothaermel, Strategic Management: Concepts, McGraw-Hill Education, 2015

VRIO model – how to apply

Goal: Identify **which resources and capabilities really matter** for the firm's competitive advantage.

How to use it

1) **List key resources/capabilities** focusing on those that central to the firm's **value creation**, **distinctive**, supported by **evidence**
2) **Assess them using the VRIO logic**:
   - **Valuable** – does it help the firm create or deliver superior value?
   - **Rare** – do few competitors have it?
   - **Costly to imitate** – can others easily copy it?
   - **Organized** – is the firm structured to exploit it?
3) Identify which resources lead **to temporary or sustained advantage**.

Source: Frank T. Rothaermel, Strategic Management: Concepts, McGraw-Hill Education, 2015

Example – NVIDIA (AI chip design)

Key Resource / Capability	Evidence	Valuable	Rare	Costly to Imitate	Organized?	Outcome
CUDA software platform	Proprietary software with 5M+ developers (2024)	✓	✓	✓	✓	Sustained advantage
AI R&D & engineering talent	15,000+ engineers in AI chip design	✓	✓	✓	✓	Sustained advantage
Developer & partner ecosystem	Collaborations with Microsoft, OpenAI, AWS	✓	✓	✓	✓	Sustained advantage
Access to advanced foundries (TSMC)	100% production dependency on 5 nm nodes	✓	✗			Competitive parity
Financial capacity	$26 B R&D investment 2024–25	✓	✗			Competitive parity

SWOT Analysis (Purpose & Logic for PW)

- **Purpose**
  Combine **internal factors** (from VRIO) with **external ones** (from PESTEL and Porter) to explain the firm's current and future position
- Bridge between ext. and int. analysis: summarize what explains why each firm is strong or vulnerable in the face of industry trends.

Internal origin

Strengths (S) – resources & capabilities that create advantage (VRIO-based)

Weaknesses (W) – internal gaps or rigidities that limit competitiveness

External origin

Opportunities (O) – emerging trends that can be leveraged (PESTEL/Porter)

Threats (T) – external risks that may erode advantage (PESTEL/Porter)

Source: Humphrey A., Stakeholders Concept and SWOT Analysis, Stanford University
Source: Frank T. Rothaermel, Strategic Management: Concepts, McGraw-Hill Education, 2015

SWOT Analysis – How to apply

Step 1 – From VRIO to S/W

Select **2–3 key resources** that are *valuable and rare* → *strengths*.

Identify **missing or weak capabilities** (e.g., dependence on suppliers, lack of scale) → *weaknesses*.

Step 2 – From External Analysis to O/T

Extract **key opportunities** (e.g., new demand, regulation, tech shift) and **key threats** (e.g., new entrants, substitutes, price pressure) from PESTEL/Porter.

Highlight those with **strategic relevance** for future choices.

Step 3 – Link to Strategy

Use the SWOT matrix to identify **strategic options**, e.g.:

- *Leverage S to capture O*
- *Mitigate W to defend against T*

SWOT Analysis – example (cont.)

Strengths (internal – VRIO)	**Evidence / Source**
Proprietary **CUDA platform** and 5M+ developers	Company reports, NVIDIA Dev Portal 2024 → valuable, rare, inimitable software ecosystem
Leading **AI R&D capability** and top talent base	$26B R&D spending (2024–25), Glassdoor rankings, VRIO analysis
Strong **brand & partnerships** with hyperscalers (Microsoft, OpenAI, AWS)	Partnership announcements 2023–24, press releases

Weaknesses (internal – VRIO)	**Evidence / Source**
High **dependency on TSMC** for advanced manufacturing	McKinsey (2023) *Semiconductors Barriers to Scale*
Limited **product diversification** beyond GPUs	Annual Report 2024 – 87% revenue from data center GPUs
Exposure to **cyclical demand**	Market data: sales volatility 2021–2023 (Statista)

SWOT Analysis – example (cont.)

Opportunities (external – PESTEL / Porter)	**Derived from**
Exploding **AI demand** across sectors (automotive, health, edge)	PESTEL – technological trend; Porter – industry growth rate
Public subsidies for chip innovation (US/EU CHIPS Acts)	PESTEL – political / economic factors
Ecosystem expansion via software & services	Complementors ("6th force") – NVIDIA's platform strategy

Threats (external – PESTEL / Porter)	**Derived from**
Rising competition from AMD, Google TPU	Porter – rivalry among existing competitors
Export restrictions and geopolitical risks	PESTEL – legal / political environment
Buyer concentration (few large hyperscalers)	Porter – power of buyers

SWOT Analysis – example (cont.)

Strategic Option	Linked Strengths / Weaknesses	Linked Opportunities / Threats
1. Expand the CUDA software ecosystem into new AI domains (e.g., robotics, health, automotive)	**S:** Proprietary CUDA platform; strong developer community	**O:** Growth of AI demand across industries
2. Develop alternative foundry partnerships (e.g., Samsung, Intel Foundry Services)	**W:** Dependence on TSMC manufacturing	**O:** CHIPS Acts and public incentives for regional production
3. Strengthen vertical integration with hyperscalers (e.g., co-design programs with Microsoft, AWS)	**S:** Established partnerships; strong brand	**T:** Buyer concentration and increasing bargaining power
4. Diversify into AI software and cloud services	**W:** Product portfolio limited to GPUs; exposure to hardware cycles	**T:** Growing competition in AI chips; risk of price pressure

Strategic analysis

Porter’s generics strategies
Business Model Canvas

Strategic analysis

Analyse how each firm is positioned strategically — *its competitive positioning and business model* — and how these choices respond to external opportunities and threats.

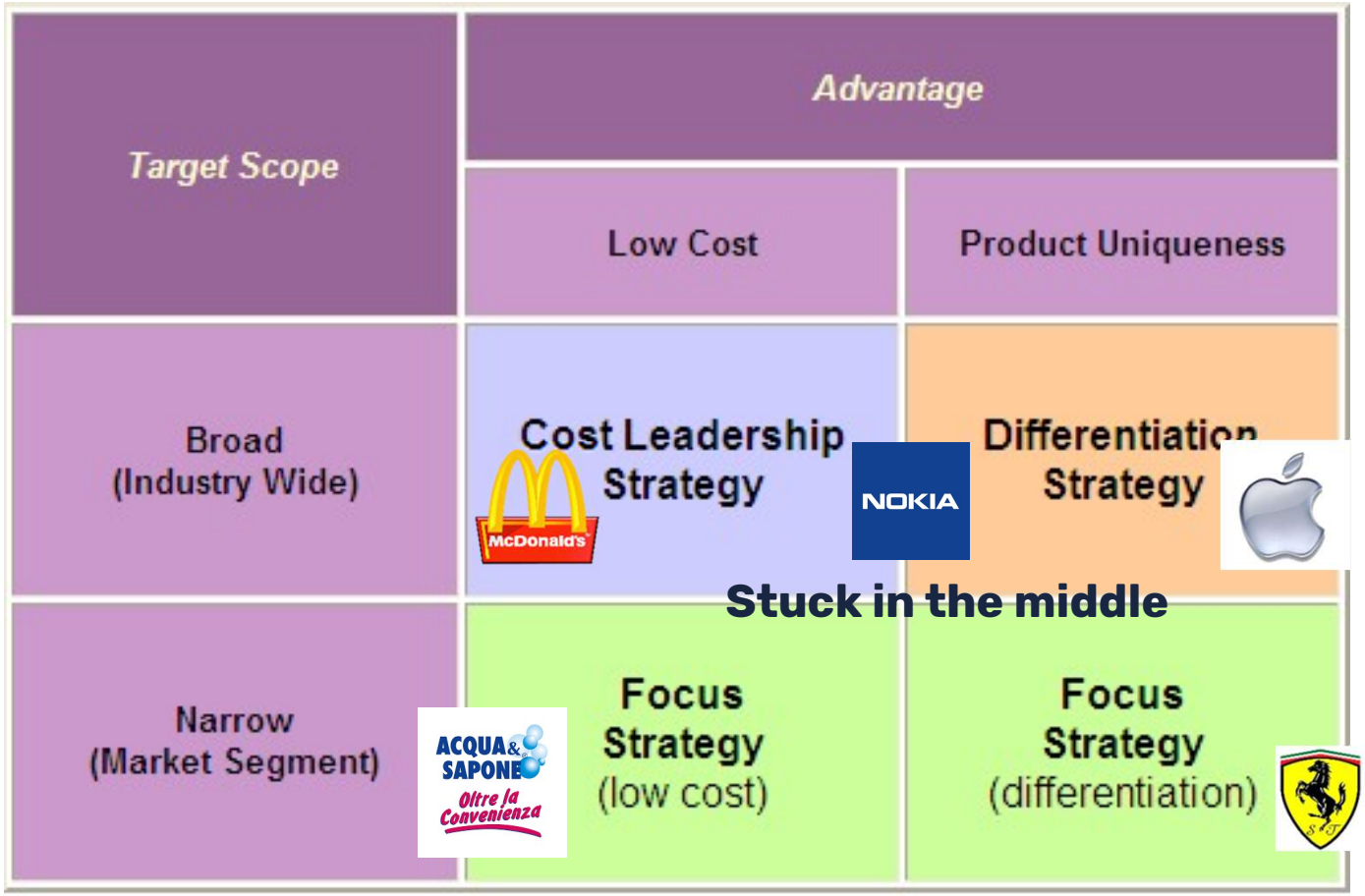
Tools to use

- **Porter's Generic Strategies** → to identify **how the firm competes**
- **Business Model Canvas (BMC)** → to explain **how the firm creates and captures value**

In your Project Work you can:

- Apply **Porter** to describe *what kind of competitive advantage the firm pursues*.
- Use the **BMC** to show *how the firm is organized to realize that advantage*.
- Compare firms' strategies.

Porter's Generic Competitive Strategies



Source: M.E. Porter, Competitive Strategy: Techniques for Analyzing Industries and Competitors, Hardcover

An example in the airline industry

Competing both ways: How combining Porter's low-cost and focus strategies hurts firm performance

Chi-Hyon Lee[1] | **Manuela N. Hoehn-Weiss**[2] | **Samina Karim**[3]

[1]School of Business, George Mason University, Fairfax, Virginia

[2]Strategy and Entrepreneurship, College of Business, Oregon State University, Corvallis, Oregon

[3]Entrepreneurship and Innovation, D'Amore-McKim School of Business, Northeastern University, Boston, Massachusetts

Correspondence
Samina Karim, Entrepreneurship and Innovation, D'Amore-McKim School of Business, Northeastern University, Boston, Massachusetts, USA.
Email: samina@northeastern.edu

Abstract

Research Summary: This study empirically examines the impact of firms' pursuing multiple generic strategies, namely, Porter's low-cost and focus strategies. We conceptualize pursuing cost efficiency advantage as low-cost strategy and restraining rivalry through horizontal differentiation as focus strategy. Although we corroborate earlier Strategy research that each of these strategies alone may have a positive impact on firm profitability, we highlight that mechanisms driving the interaction of these two strategies are, in fact, non-additive in nature, consistent with recent analytical work. Using the context of the scheduled U.S. passenger airline industry over two decades, we empirically show that combining a low-cost strategy with a focus strategy is, indeed, detrimental to firm profitability, which has important implications for scholarship and practice.

Lee, C. H., Hoehn-Weiss, M. N., & Karim, S. (2021). Competing both ways: How combining Porter's low-cost and focus strategies hurts firm performance. Strategic Management Journal, 42(12), 2218-2244.

An example in the airline industry

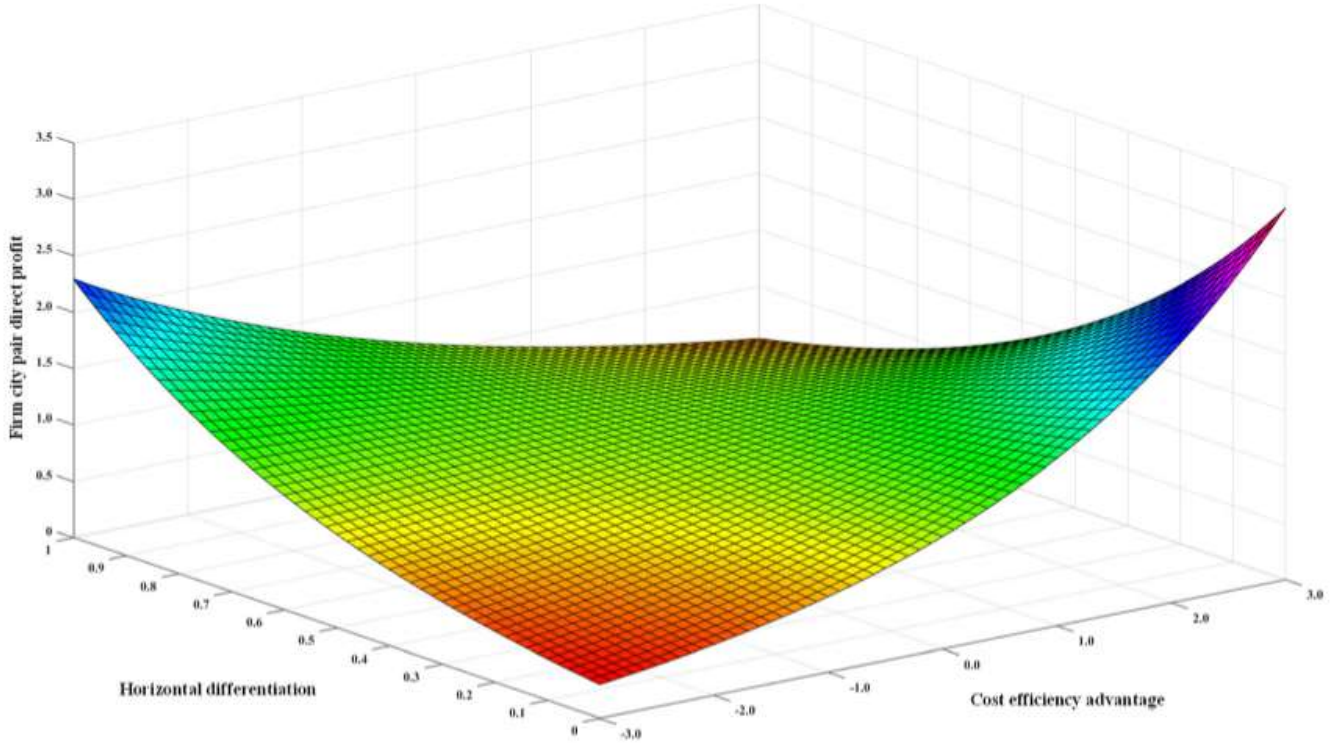


FIGURE 3 Effect of cost efficiency advantage and horizontal differentiation on city pair direct profitability. City pair direct profitability equal to 1.0 denotes revenues equal direct costs. All other variables are set to zero

Lee, C. H., Hoehn-Weiss, M. N., & Karim, S. (2021). Competing both ways: How combining Porter's low-cost and focus strategies hurts firm performance. Strategic Management Journal, 42(12), 2218-2244.

Porter’s Generic Competitive Strategies – example (NVIDIA)

Firm	Observed Evidence	Strategic Interpretation (Generic Strategy)
NVIDIA	- market share in AI accelerator GPUs (Q2 2024) - Proprietary **CUDA** software- annual R&D investment focused on AI architecture - Strategic partnerships with Microsoft, OpenAI, AWS	**Differentiation strategy** → unique integration of hardware + software ecosystem creates performance and developer lock-in, enabling premium pricing.
TSMC	- global foundry market share (2024) - CapEx in the industry - Manufacturing excellence in <3 nm process nodes - Clients include NVIDIA, Apple, AMD	**Cost-leadership strategy** → massive scale and process efficiency allow TSMC to reduce unit costs.

Competitive can change over time

Period	Strategic Positioning (Generic Strategy)	Supporting Evidence
2008–2015	**Focus–Differentiation** (luxury EV niche)	Launch of *Roadster* and *Model S* targeting high-income customers; brand built on innovation, design, and sustainability.
2016–2020	**Broader Differentiation**	Launch of *Model 3* and *Model Y* to expand into mass premium segment; still differentiated through tech (Autopilot, battery performance).
2021–today	**Differentiation with efficiency focus** ("scaling innovation")	Gigafactories → scale economies; software monetization (FSD); cost reduction through vertical integration; aim to reach mid-market.

The business model

A business model describes *how* the company

- Creates value for the customers
- Captures the value created

The frameworks used to analyze a company business model help to answer fundamental questions such as

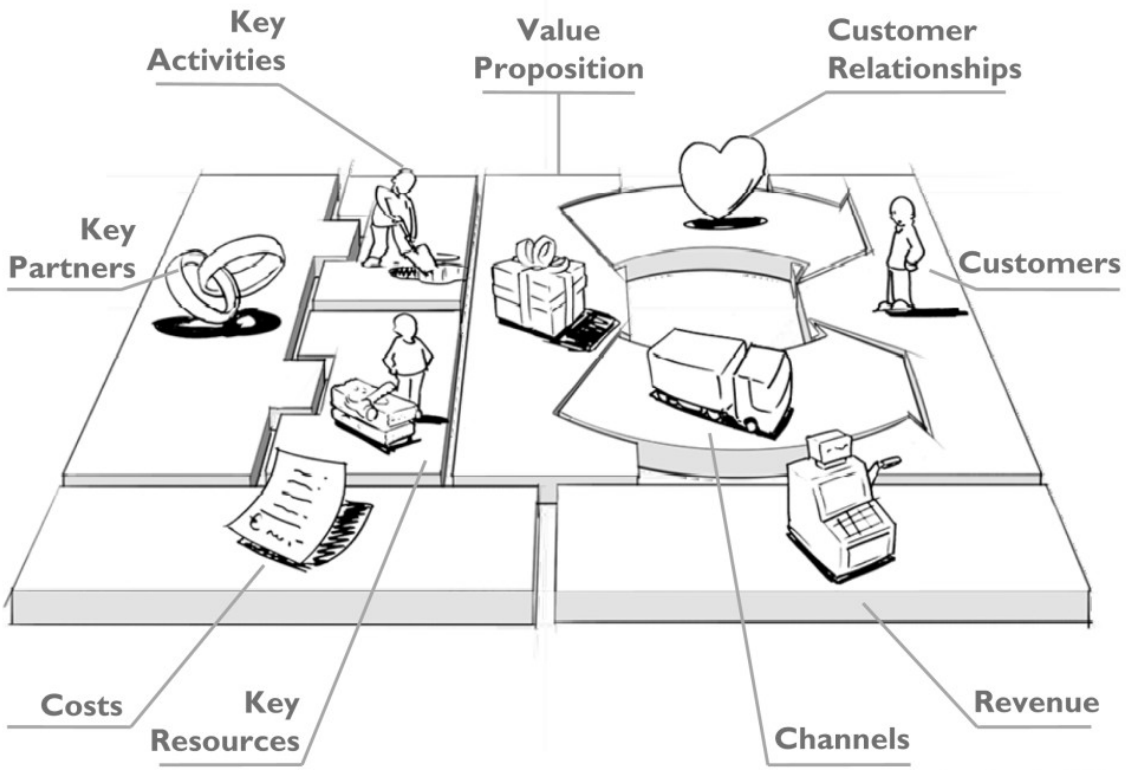
- What are **needs and the customers** addressed by the company?
- How does the company **create value** for its customers?
- How does the company **make money** out of this value?
- …

What's the relationship between business model (HOW) and business strategy (WHAT)?

A business model highlights how a company creates and captures value to achieve the competitive advantage pursued by the company strategy

Business Model Canvas

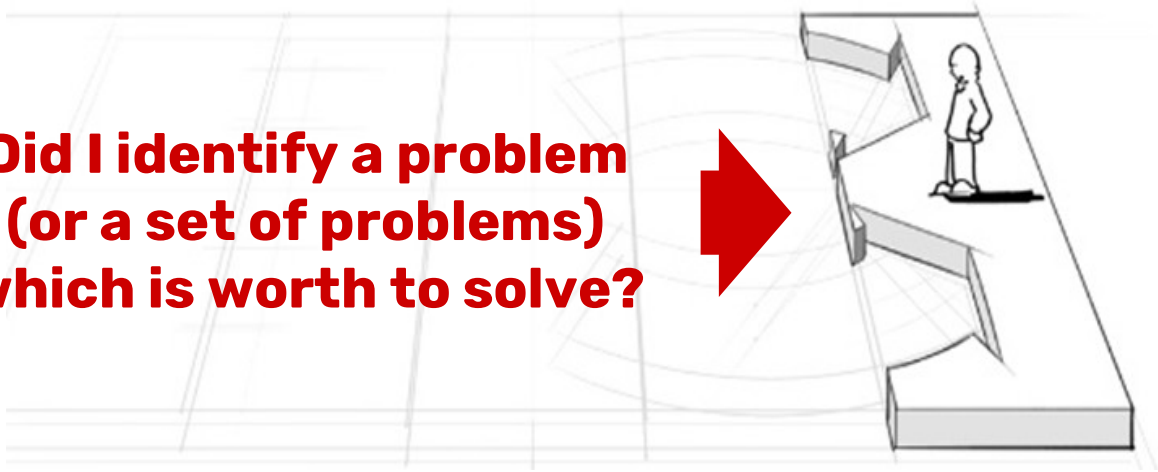
A strategic management template for developing new or documenting existing business models by using 9 basic elements called “building blocks”



Source: Osterwalder, Alexander, and Yves Pigneur. Business model generation: a handbook for visionaries, game changers, and challengers. John Wiley & Sons, 2010.

Business Model Canvas - #1 Customer Segments

Did I identify a problem (or a set of problems) which is worth to solve?



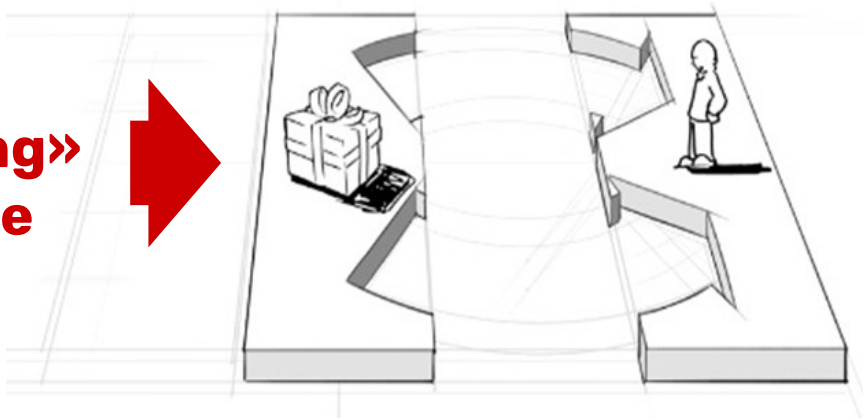
People or organizations that we would like to reach (mass market, niche market, segmented market, multi-sided platform)

The groups of customers represent **distinct segments** if:

- They have different needs and/or behaviors;
- They are reached through different channels;
- They require different types of relationships;
- They generate different margins;
- They are interested in different aspects of the offer.

Business Model Canvas - #2 Value proposition (VP)

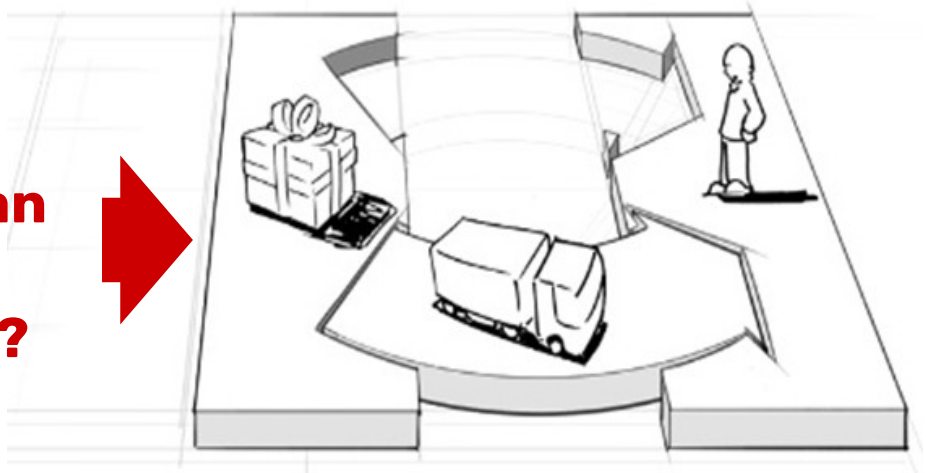
Did I build «something» that people want?



- The **set of products or services** which create value for a specific customer segment
- The VP is a set of benefits (price, efficiency, customer experience,…), from the customer's perspective, which summarizes **why customers choose us**.
- A company needs a VP for each customer segment.

Business Model Canvas - #3 Channels

How customers can find and buy our products?



Channels: points of contact with the customer segments.

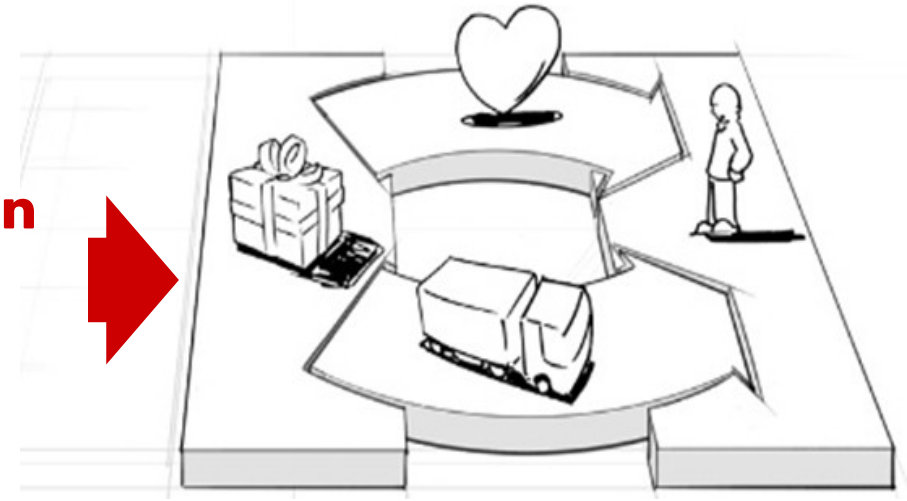
Channels concern both **communication** and **distribution**.

Three main functions:

- Grow customers' awareness of products and customers;
- Present offers to customers;
- Provide customers with after-sales service.

Business Model Canvas - #4 Customer Relationships

How customers can establish a relationship with us?

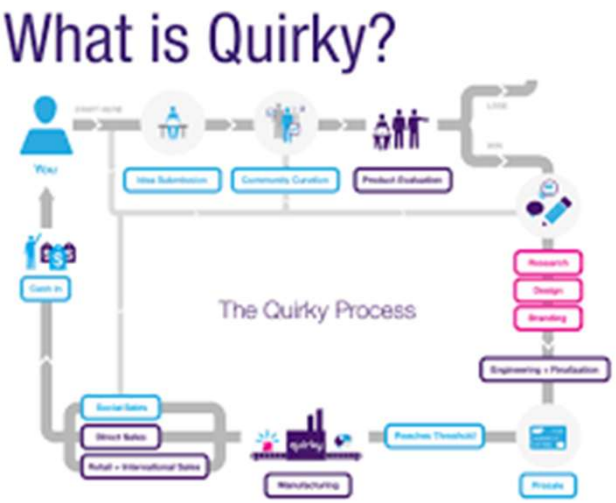


The relationship the company establishes with a specific customer segment: personal assistance, self service, automated service, community, co-creation.

Goals:

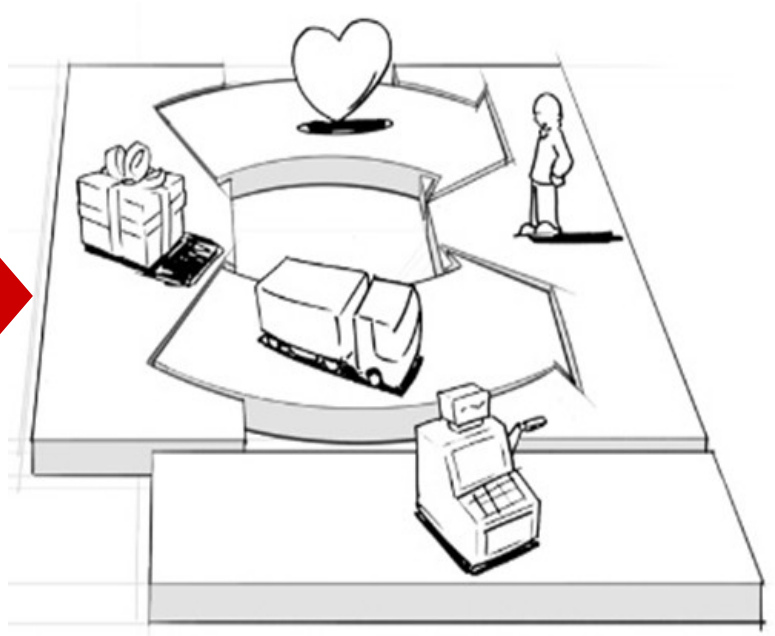
- Customers acquisition
- Loyalty
- Increase in sales (upselling)

The blurred boundary between co-creation and value proposition



Business Model Canvas - #5 Revenue streams

How do we generate revenues?



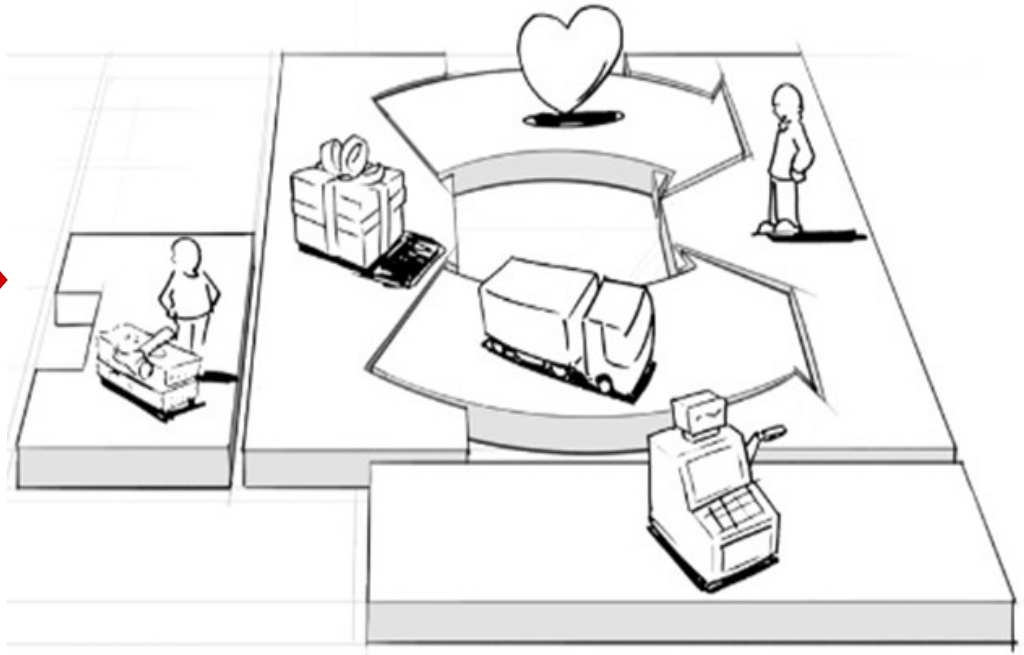
How cash is generated by each customer segment (asset sale, usage fee, subscription fee, lending/leasing/renting, licensing, brokerage fee, advertising)

2 macro-typologies:

- Revenues from transaction: lump sum payments
- Recurring revenues: ongoing payments

Business Model Canvas - #6 Key resources

What are the resources that create value for our customers?

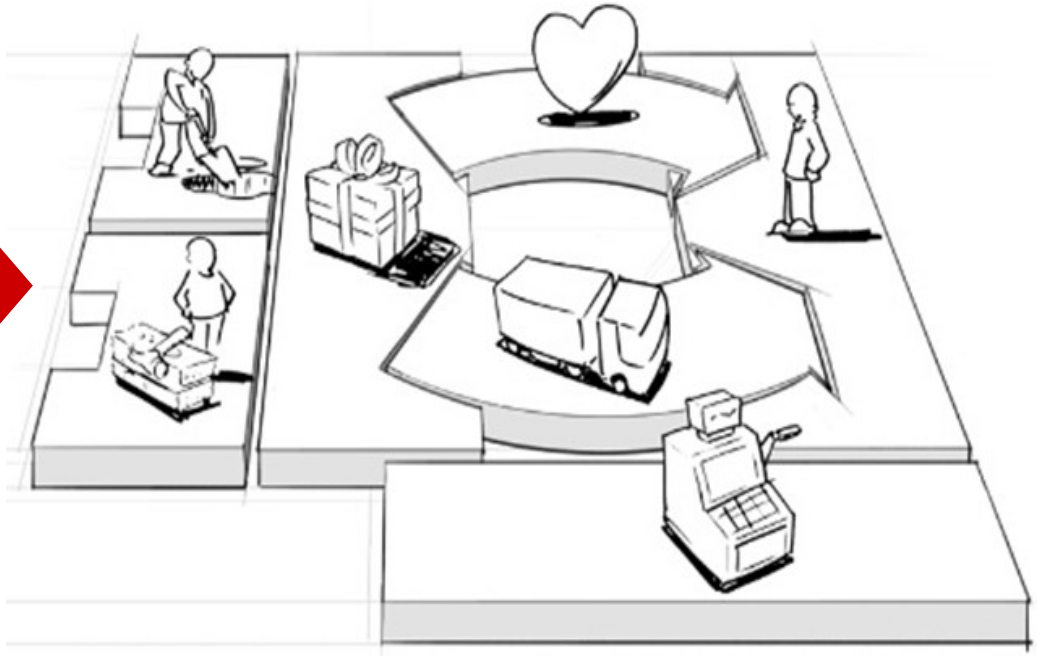


The assets from which the functioning of the model depends (recall RBV):

- Physical resources
- Human resources
- Financial resources
- Intangible resources

Business Model Canvas - #7 Key activities

What activities generate value for our customers?

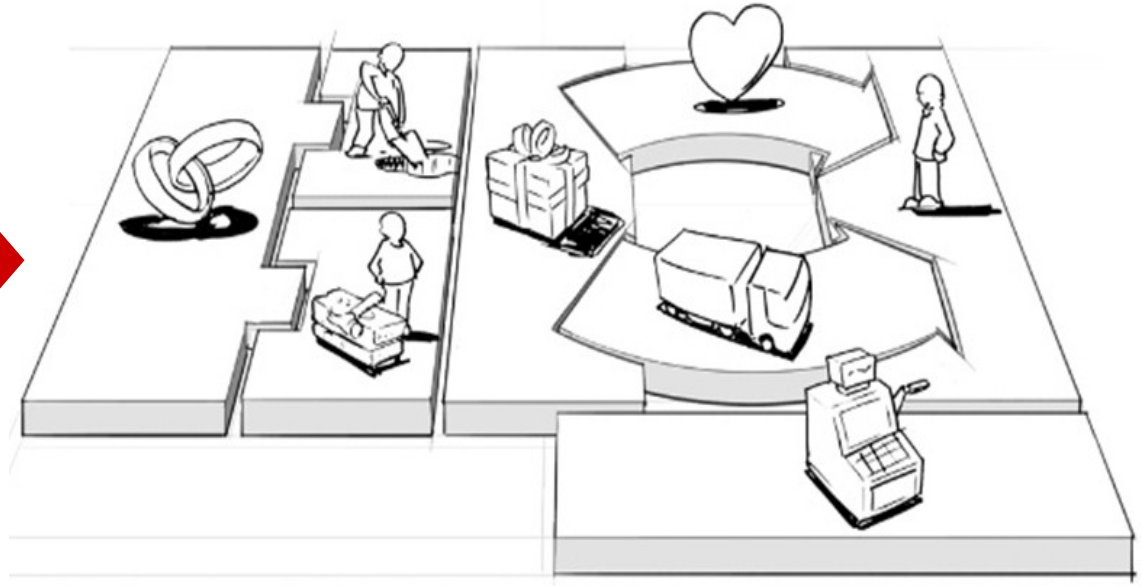


The activities from which the functioning of the model depends: e.g.,

- Production
- Problem solving
- Supply chain

Business Model Canvas - #8 Key partners

What are the key relationships and alliances for our business?



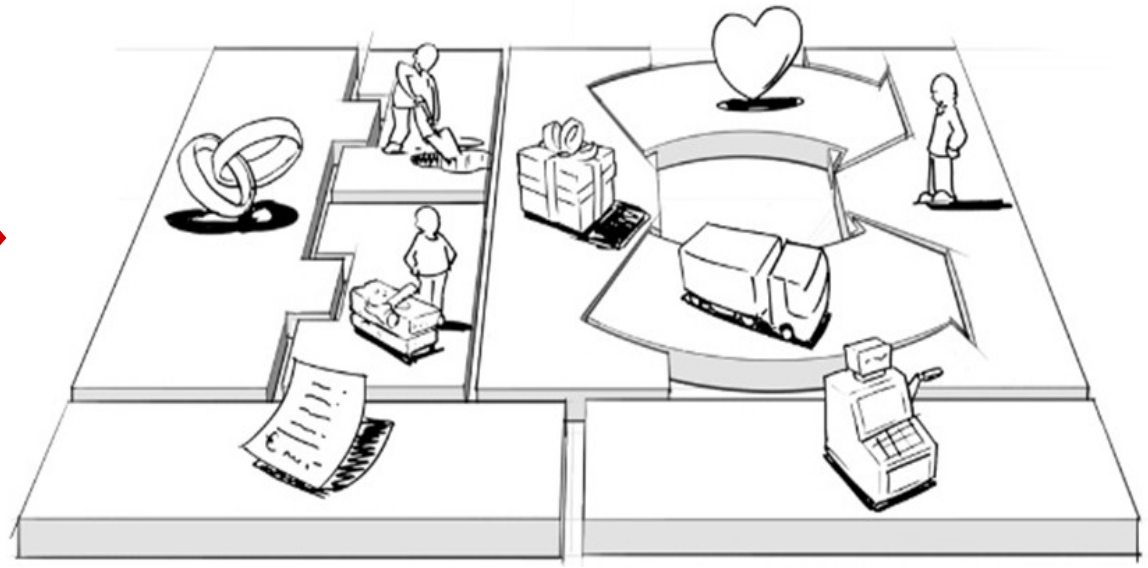
The network of partners or suppliers from which the functioning of the model depends.

Possible goals of partnerships:

- Access to complementary asset;
- Acquisition of special resources.

Business Model Canvas - #9 Cost structure

In which costs do we incur?



How much does the business model cost in terms of main fixed vs variable costs, economies of scale or scope

Business models can be (recall Porter's competitive positioning):

- Cost driven
- Value driven

Business Model Canvas – example (Nvidia)

Key Partners

TSMC, Samsung (manufacturing) Microsoft, OpenAI, AWS (AI alliances)

Key Activities

AI chip design, CUDA software, ecosystem development

Value Proposition

High-performance AI computing solutions integrated with proprietary software (CUDA)

Key Resources

CUDA platform, R&D capability, developer community, brand reputation

Customer Relationships

Long-term B2B partnerships, developer support, co-innovation

Customer Segments

Hyperscalers (AWS, Azure, Google Cloud), OEMs (Dell, Tesla), researchers & developers

Channels

Direct sales, cloud partnerships, developer platforms

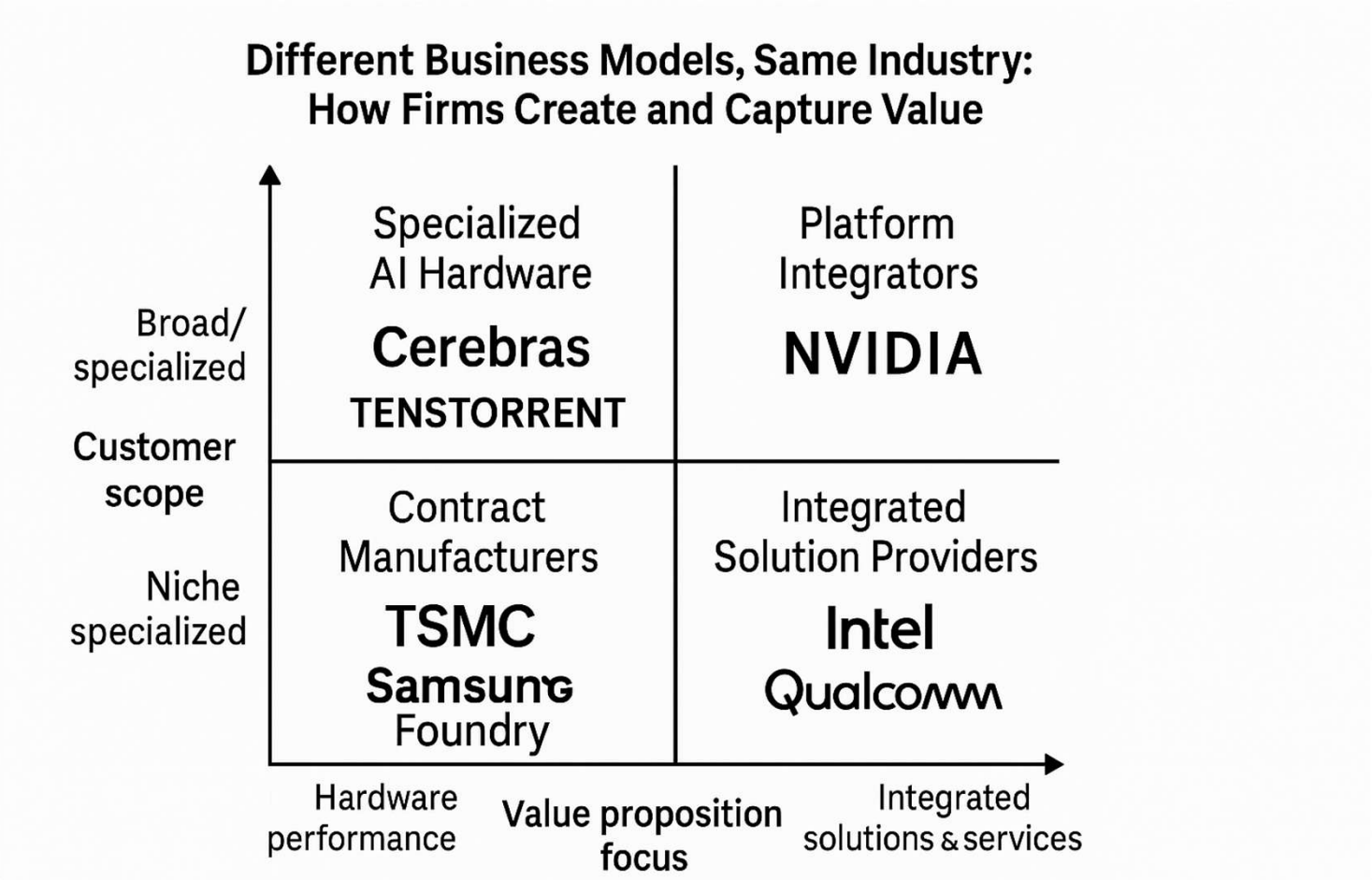
Revenue Streams

GPU and system sales, software licensing, AI services

Cost Structure

R&D, manufacturing contracts, data center infrastructure

Business Model Canvas – example (cont.)



Business model innovation: business models change over time!

Business model innovation (BMI)

For **startups**: entirely new business models

For **incumbents**:

- **Original BMI**: introduction of BM based on genuine technological innovation or reconfiguration of resources
- **Imitative BMI**: replication of existing BMs
  - Adoption: old BM replaced with newer one
  - Addition: new BM managed with older one

Dimensions of BMI

- Value creation innovation
- Value proposition innovation
- Value capture innovation

Business Model Canvas – example (NVIDIA cont.)

Phase 1 – Hardware-based model (2006–2015)
•Focus: GPU design and sales for gaming and graphics.
•**Value Proposition:** hardware performance and innovation.
•**Revenue Model:** direct GPU sales.
•**Main Customers:** OEMs, gamers.
Phase 2 – Platform model (2016–2020)
•Introduction of **CUDA** and AI software tools.
•**Value Proposition:** computing power + ease of AI development.
•**Key Change:** emergence of a large developer community → ecosystem lock-in.
Phase 3 – Ecosystem model (2021–today)
•Partnerships with **Microsoft, AWS, OpenAI** and others.
•**Value Proposition:** integrated **hardware + cloud + AI solutions**.
•**Revenue Model:** software licensing, cloud services, AI-as-a-Service.

Business model innovation: main dimensions

Value creation innovation	New capabilities	Our employees constantly receive training in order to develop new competences.
		Relative to our direct competitors, our employees have very up-to-date knowledge and capabilities.
		We constantly reflect on which new competencies need to be established in order to adapt to changing market requirements.
	New technology/ equipment	We keep the technical resources of our company up-to-date.
		Relative to our competitors our technical equipment is very innovative.
		We regularly utilize new technical opportunities in order to extend our product and service portfolio.
	New partnerships	We are constantly searching for new collaboration partners.
		We regularly utilize opportunities that arise from integration of new partners into our processes.
		We regularly evaluate the potential benefits of outsourcing.
		New collaboration partners regularly help us to further develop our business model.
	New processes	We were recently able to significantly improve our internal processes.
		We utilize innovative procedures and processes during the manufacturing of our products.
		Existing processes are regularly assessed and significantly changed if needed.

Clauss, T. (2017). Measuring business model innovation: conceptualization, scale development, and proof of performance. *R&d Management*, *47*(3), 385-403.

Business model innovation: main dimensions

Value proposition innovation	New offerings	We regularly address new, unmet customer needs.
		Our products or services are very innovative in relation to our competitors.
		Our products or services regularly solve customer needs, which were not solved by competitors.
	New customers and markets	We regularly take opportunities that arise in new or growing markets.
		We regularly address new, unserved market segments.
		We are constantly seeking new customer segments and markets for our products and services.
	New channels	We regularly utilize new distribution channels for our products and services.
		Constant changes of our channels have led to improved efficiency of our channel functions.
		We consistently change our portfolio of distribution channels.
	New customer relationships	We try to increase customer retention by new service offerings.
		We emphasize innovative/modern actions to increase customer retention (e.g. CRM).
		We recently took many actions in order to strengthen customer relationships.

Clauss, T. (2017). Measuring business model innovation: conceptualization, scale development, and proof of performance. *R&d Management*, *47*(3), 385-403.

Business model innovation: main dimensions

Value capture innovation	New revenue models	We recently developed new revenue opportunities (e.g. additional sales, cross-selling).
		We increasingly offer integrated services (e.g. maintenance contracts) in order to realize long-term financial returns.
		We recently complemented or replaced one-time transaction revenues with long-term recurring revenue models (e.g. Leasing).
		We do not rely on the durability of our existing revenue sources.
	New cost structures	We regularly reflect on our price-quantity strategy.
		We actively seek opportunities to save manufacturing costs.
		Our production costs are constantly examined and if necessary amended according to market prices.
		We regularly utilize opportunities which arise through price differentiation.

Clauss, T. (2017). Measuring business model innovation: conceptualization, scale development, and proof of performance. *R&d Management*, *47*(3), 385-403.

When adding a new business model benefits an incumbent firm?

Strategic Entrepreneurship Journal
Strat. Entrepreneurship J., **9:** 34–57 (2015)
Published online in Wiley Online Library (wileyonlinelibrary.com). DOI: 10.1002/sej.1193

BUSINESS MODEL INNOVATION PERFORMANCE: WHEN DOES ADDING A NEW BUSINESS MODEL BENEFIT AN INCUMBENT?

STEPHEN K. KIM[1] and SUNGWOOK MIN[2]*
[1]*College of Business, Iowa State University, Ames, Iowa, U.S.A.*
[2]*College of Business Administration, California State University, Long Beach, California, U.S.A.*

Many incumbent firms respond to the emergence of a disruptive business model by adding the business model into their existing ones. But, not all incumbents perform better after adding new business models to their existing ones; that raises the question about the conditions under which adding a new business model improves incumbent performance. We develop a theoretical framework to address that question. After identifying two types of incumbent assets, complementary and conflicting, we highlight the influence of two managerial choices—timing and organizational mode of the new business model addition—that create opportunities to translate the potential provided by incumbent assets into higher performance. The proposed discriminating alignment thesis states that incumbent performance after new business model addition improves when the incumbent firm aligns complementary assets with earlier addition of the new business model and conflicting assets with an autonomous business unit for the new business model. To test these hypotheses, we analyzed the performance change of those physical store-based retailers that added online retailing as a new business model. The test results supported all hypotheses, and key theoretical and managerial implications are presented.

Business model innovation and performance (incumbent firms)

The relationship between BMI and firm performance is contingent on firm assets (conflicting or complementary to the new BM?) and to firm decisions (timing of BMI and organizational configuration of BMI)

In presence of complementary assets: the sooner the better!

In presence of conflicting assets: set up an autonomous business unit!

Example: online retail

Dependent variable	
Sales revenue $_t$	The value of a retailer's annual sales in units of $10 million.
Hypothesis-testing variables	
Online addition $_t$	Equals '1' for year incumbent retailer adds online retailing and for every year thereafter; '0' for all other years.
Reputable brand	Equals '1' if incumbent retailer is one of Top 200 megabrands in the United States for the year 1996 (*Advertising Age*, 1997).
Number of stores	Number of incumbent retailer's stores at time of online retailing addition, divided by 100.
Delayed time	Number of years online retailing addition is delayed beyond 1996.
ABU	Equals '1' for incumbent retailer that deploys online retail operations via autonomous business unit; '0' otherwise.

Business model innovation and performance (SMEs)

Business model innovation and firm performance: Exploring causal mechanisms in SMEs

Mohammad-Ali Latifi [a,*], Shahrokh Nikou [b,c], Harry Bouwman [a]

[a] Technology, Policy and Management Faculty, Delft University of Technology, Jaffalaan 5, 2628 BX, Delft, the Netherlands
[b] Faculty of Social Sciences, Business and Economics, Åbo Akademi University, ASA Building Fänriksgatan 3 B, Turku, Finland
[c] Stockholm University, Stockholm, Sweden

ARTICLE INFO

Keywords:
Business model innovation
Firm performance
Firm strategy
Organisational capabilities
SME

ABSTRACT

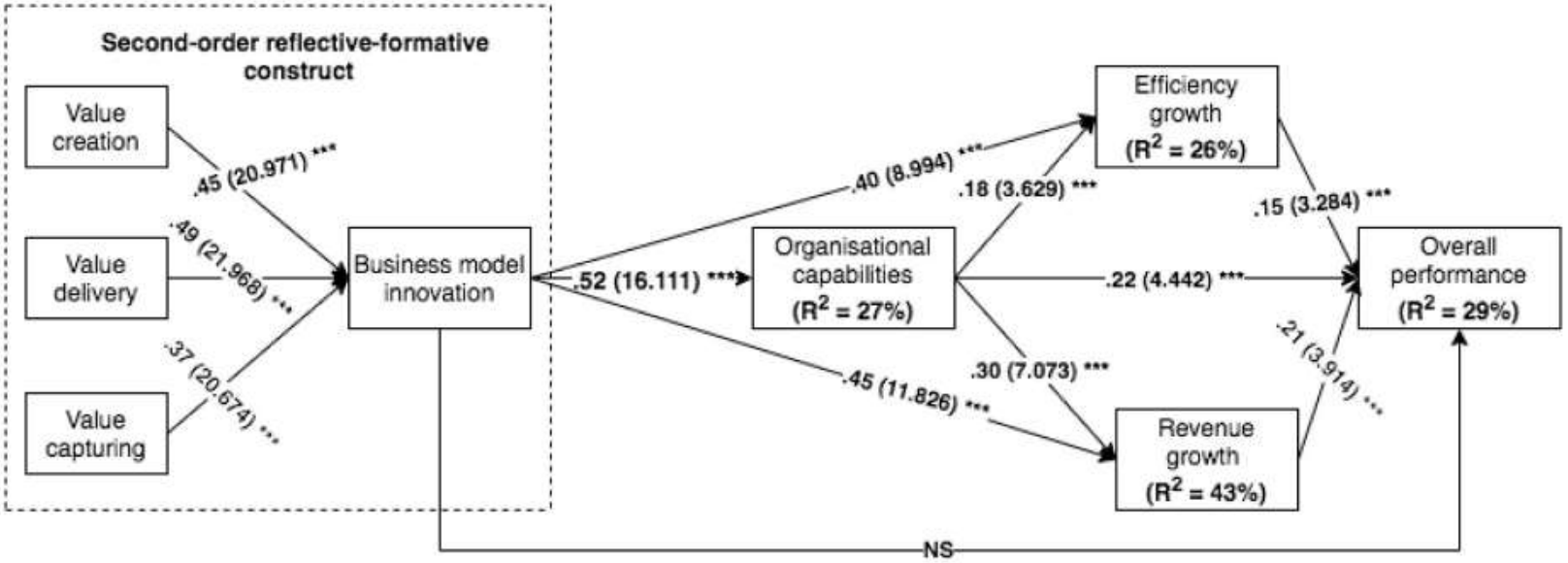
Although research has shown that business model innovation (BMI) can create a firm's competitive advantage and enhance its performance, many small and medium-sized enterprises (SMEs) fail to obtain the expected outcomes when innovating their business model. Business Model Innovation (BMI) leads to irreversible fundamental changes in key components of a company's business model, which means it carries with it a high level of risk, ambiguity and uncertainty. Drawing on the data from a cross-industry sample of 563 European SMEs, we apply structural equation modelling to examine how a firm's performance is affected by innovating its business model. A conceptual model is developed to examine how organisational capabilities and implementation of a profit- or growth-oriented strategy, as materialised in BMI, affect a firm's overall performance. The results indicate that, while the direct link between BMI and firm performance is not significant, this path is fully mediated through efficiency growth, organisational capabilities and revenue growth. Furthermore, there are significant direct effects from efficiency growth, organisational capabilities and revenue growth on firm performance. These findings confirm the validity of the model and contribute to existing literature on BMI efforts in SMEs and provide guidelines to help company owners/managers implement informed decisions about the implementation of BMI based on their firm's strategies.

Latifi, M. A., Nikou, S., & Bouwman, H. (2021). Business model innovation and firm performance: Exploring causal mechanisms in SMEs. *Technovation*, *107*, 102274.

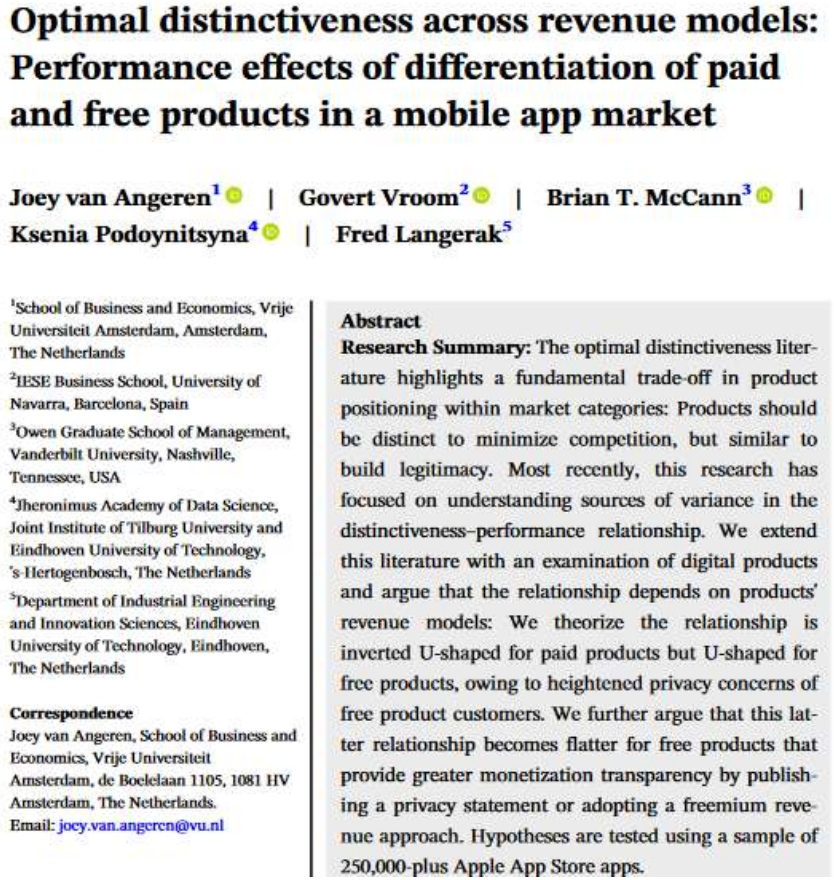
Business model innovation and performance (SMEs)

Constructs		Items
Overall firm performance		The sales growth of the enterprise
		The profit growth of the enterprise
		Market share
		Speed to market
		Penetration rate
		Market value
		Net income
		Return on Investment (ROI)
Revenue growth		Advertising products and services in a new way
		Scale-up your business
		Focus your product offering
		Introduced new ways to transact with customers
		Introduced new ways of organising relations with customers
		Advertising products and services in a new way
Efficiency growth		Introduced new ways to reduce variable costs
		Introduced new ways to reduce fixed costs
		Business processes standardisation
		Business processes integration
Organisational capabilities		Managers encourage employees to think outside the box
		Our corporate culture is focused on constant innovation
		Our enterprise shows perseverance in turning ideas into reality
		Our enterprise ability to identify new opportunities
		Our enterprise aims to create multiple innovations annually
		Our enterprise introduces innovations that are completely new to the market
		Creating more than one innovation at the same time is common practice in our enterprise
Business model innovation	Value capturing	Introduced new products as a new value proposition
		Introduced new services as a new value proposition
	Value delivery	Started to collaborate with new business partners
		Shared new responsibilities with business partners
		Focused on a completely new market segment
	Value creation	Created new revenue streams
		Introduced a new pricing mechanism

Business model innovation and performance (SMEs)



The fit between competitive strategy and business model



Optimal distinctiveness across revenue models: Performance effects of differentiation of paid and free products in a mobile app market

Joey van Angeren[1] | Govert Vroom[2] | Brian T. McCann[3] | Ksenia Podoynitsyna[4] | Fred Langerak[5]

[1]School of Business and Economics, Vrije Universiteit Amsterdam, Amsterdam, The Netherlands

[2]IESE Business School, University of Navarra, Barcelona, Spain

[3]Owen Graduate School of Management, Vanderbilt University, Nashville, Tennessee, USA

[4]Jheronimus Academy of Data Science, Joint Institute of Tilburg University and Eindhoven University of Technology, 's-Hertogenbosch, The Netherlands

[5]Department of Industrial Engineering and Innovation Sciences, Eindhoven University of Technology, Eindhoven, The Netherlands

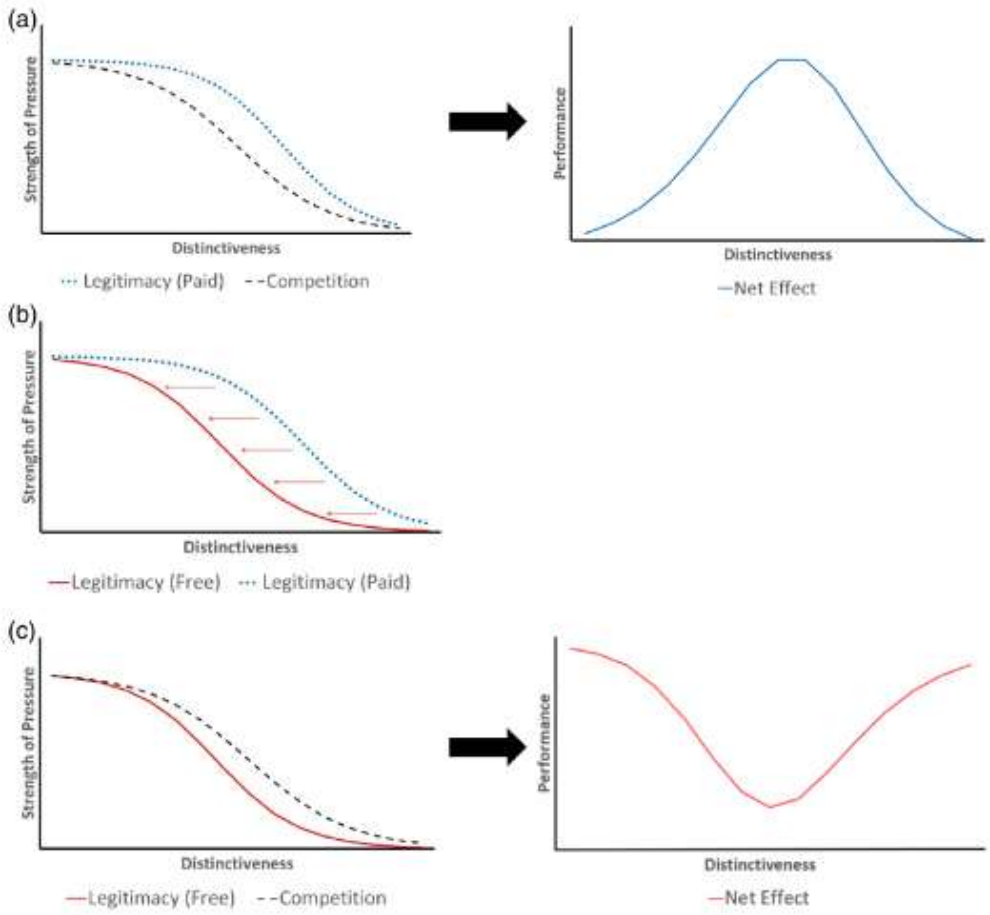
Correspondence
Joey van Angeren, School of Business and Economics, Vrije Universiteit Amsterdam, de Boelelaan 1105, 1081 HV Amsterdam, The Netherlands.
Email: joey.van.angeren@vu.nl

Abstract

Research Summary: The optimal distinctiveness literature highlights a fundamental trade-off in product positioning within market categories: Products should be distinct to minimize competition, but similar to build legitimacy. Most recently, this research has focused on understanding sources of variance in the distinctiveness–performance relationship. We extend this literature with an examination of digital products and argue that the relationship depends on products' revenue models: We theorize the relationship is inverted U-shaped for paid products but U-shaped for free products, owing to heightened privacy concerns of free product customers. We further argue that this latter relationship becomes flatter for free products that provide greater monetization transparency by publishing a privacy statement or adopting a freemium revenue approach. Hypotheses are tested using a sample of 250,000-plus Apple App Store apps.

van Angeren, J., Vroom, G., McCann, B. T., Podoynitsyna, K., & Langerak, F. (2022). Optimal distinctiveness across revenue models: Performance effects of differentiation of paid and free products in a mobile app market. Strategic Management Journal, 43(10), 2066-2100.

The fit between competitive strategy and business model



van Angeren, J., Vroom, G., McCann, B. T., Podoynitsyna, K., & Langerak, F. (2022). Optimal distinctiveness across revenue models: Performance effects of differentiation of paid and free products in a mobile app market. Strategic Management Journal, 43(10), 2066-2100.

Putting all together – example

Trend (External Analysis)	Company A	Company B	Company C
• Change in 5 Porter's Forces (e.g., suppliers' power, barriers to entry) • PESTEL trends (e.g., political, technological)	• Change in positioning (e.g., from cost to differentiation) • Change in resources (e.g., new capabilities) • BMI (e.g., value creation)	…	….

Putting all together – example (cont.)

Recent External Trends (PESTEL / Porter)	NVIDIA	TSMC	Intel
AI boom (Technological)	BMI: from GPU producer to AI platform (CUDA + cloud + ecosystem).	BMI : expand advanced-node manufacturing (< 3 nm) to serve AI clients.	Positioning: move from cost / integration to differentiation via AI accelerators.
Rising competition & buyer power (Porter – rivalry, buyer influence)	RBV: reinforce ecosystem lock-in via CUDA tools.	BMI: strengthen strategic partnerships with key fabless customers (Apple, NVIDIA).	BMI : co-development alliances with cloud players (AWS, Microsoft).
Sustainability & energy efficiency pressures (Social / Ecological)	BMI – Value Proposition: design energy-efficient GPUs.	RBV: green fabs & process innovation.	BMI: promote “green compute” to enterprise clients as differentiation lever.