Strategic Finance
Sparking Innovation & Agility

Competitive strategies for investing in Innovation and Agility

Dynamic Business Cases – by the MIT

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Make an impact

Businesses face **uncertainties** in many areas of their activities

Innovative Business Projects

Shall we invest in innovation ?

Enterprise agility

Is it worth to invest in the creation of agility ?

Innovation and **Agility =**  **+**

Ideas for innovation and agility turn into **reality** only
if you know how to **invest** in their implementation.

2. Investing in Innovation: Key principles and Example

Would you invest?

	Version (n+1) of an **established** product	**Innovative** product
Product	 *Car with regular combustion engine*	 *Full electric car*
Technology	Known	Disruptive
Market	Known	Attractive but uncertain
NPV	Investment → Predictable **project** → **Predictable** NPV	Investment → Innovation **project** → $NPV_{optimistic} > 0$ / $NPV_{pessimistic} < 0$

NPV criterion is **applicable**, invest if NPV > 0.

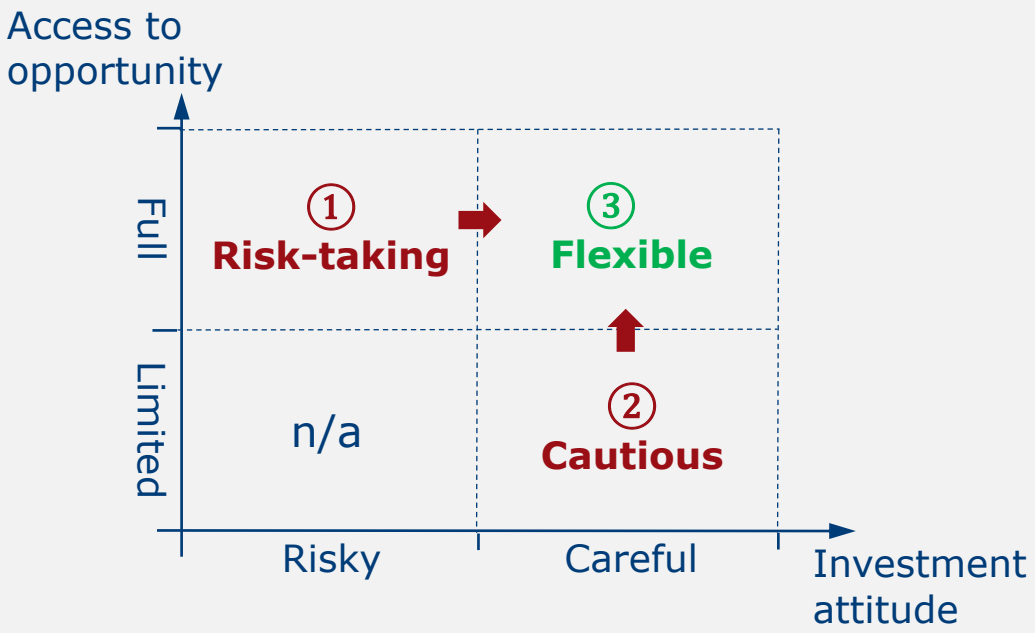
NPV **no longer applicable**, **hesitation** to invest.

- Risk of **missing** attractive innovation opportunities
- Risk of **leaving** attractive opportunities to competitors
- Loss of **precious time** (see "first mover advantage")

2. Investing in Innovation: Key principles and Example

Would you invest?

Investment strategies



Innovative product

Full electric car

Disruptive

Attractive but uncertain

NPV **no longer applicable**, **hesitation** to invest.

- Risk of **missing** attractive innovation opportunities
- Risk of **leaving** attractive opportunities to competitors
- Loss of **precious time** (see "first mover advantage")

2. Investing in Innovation: Key principles and Example

Do not handle innovation projects as a black box, but represent their flexible management:

1. Identify the **uncertainties** (technical, commercial, …) on the path to a successful innovation, e.g.

   Technical feasibility ? **Market response ?**

2. Organise the project in a sequence of **steps**, where each step resolves an uncertainty:

Technical prototype

Product demo: Roadster

Innovative product: Full electric car

3. Manage project in a **flexible** way:

Use of Real Options:

→ Each step buys an option on the next step: invest in the next step if the thereby created option is worth it (= is justified).

→ **Flexible** Project Management: **"Invest in next steps as long as justified, but stop as soon as necessary"**

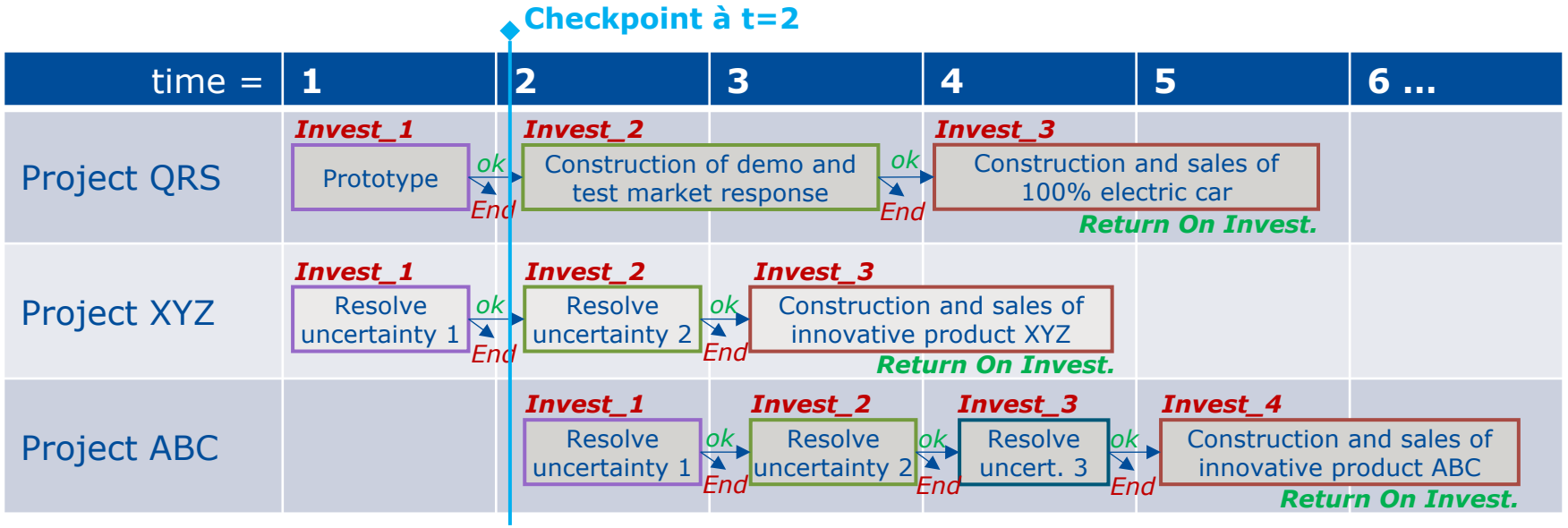
Optimisation of Investment

2. Investing in Innovation: Benefits

Strategic Advantage: **Outstanding access to innovation**

- **Know to invest the appropriate amounts** at managed risks
  - ➔ **Optimisation of investments**
- **Invest** in projects that competitors would reject due to a highly uncertain or initially negative NPV, or due to neglection of the value of follow-up opportunities.
  - ➔ **Creation of competitive advantages**
- By taking less risks, be able to **decide quicker & earlier** than competitors
  - ➔ **Create speed & first mover advantages**

2. Investing in Innovation: Portfolio Management & Budgeting



- At any point in time, the value of each project is well represented by its current Option value on the ROI. Thus, **projects become comparable** regardless of their different degree of progress.
  - ➔ At each checkpoint, calculate the **net option value (ANPV)**:

ANPV = (Option value on ROI) - (Investment in next project step)

3. Investing in Enterprise Agility: Example 1 of 4

Geostationary satellite deployment:

- ***Uncertainty:*** The demand for capacity can evolve in terms of coverage, power and frequency bands during the satellite lifetime. → A satellite with a static configuration could become useless
- ***Flexibility:*** Ability to reconfigure and relocate a satellite to the most profitable use of its payload.
- ***Observation:*** The market demand for capacity and the related market prices.
- ***Extra costs:*** Equip the satellite with reconfiguration capabilities (beam shaping, uplink / downlink frequency flexibility, power flexibility, …)
  - → Is the created flexibility worth the extra cost ?
  - → Answer by using Real Options to determine value of flexibility.

Optimisation of Profitability

3. Investing in Enterprise Agility: Example 2 of 4

Power and cooling budget of a datacenter:

- ***Uncertainty:*** Will bitcoin mining pick-up? → The power and cooling requirements of datacenters will explode.
- ***Flexibility:*** Ability to upgrade the power and cooling budget at moderate costs, thus capturing the market opportunity in a cost effective way.
- ***Observation:*** Market demand for hosting bitcoin mining hardware.
- ***Extra costs:*** Preparation of initial infrastructure for easy upgrading of power and cooling (enough space, easy access,…)
  - → Is the created flexibility worth the extra cost ?
  - → Answer by using Real Options to determine value of flexibility.

Optimisation of Profitability

3. Investing in Enterprise Agility: Benefits

Strategic Advantage: **Quick and rational decision about investing in agility**

- **Know to invest the appropriate amounts** in enterprise agility
  - ➔ **Ensuring profitability** of investment in agility
  - ➔ **Informing price negotiations** when investing in agility

- By taking rational decisions, be able to **decide quicker & earlier** than competitors
  - ➔ **Create speed**

Your contact for *Real Options*

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