EnpRisk - Complete Summary

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1 Introduction

1.1 Entrepreneurship

1.1.1 Definitions

Definition: We might define **entrepreneurship** by the following three key-ideas:

- Pursuit of opportunity without regard to resources controlled.
- Process of creating value through unique resource combinations that exploit opportunity.
- A way of thinking and acting, a lot of different professional contexts, but also a way of approaching personal issues, family, life, community involvement, etc.

Qualities of an entrepreneur may include optimism, self-confidence, social networking, low risk aversion, charism, and most importantly the *drive to improve* and to *change the world.*

1.1.2 Success

There are three steps to *succeeding in life,* however you define success yourself:

1. Know what you want in life. Know your end goals.
2. Write down your intermediate goals and a plan to reach these goals.
3. Review and revise your plan monthly, keeping track of all setbacks and progress.

> *"All success begins with something definite that you fully intend to do. Success is a function of definiteness of purpose."* - Napoleon Hill

1.1.3 Motivation

Motivation is what explains why people or animals initiate, continue or terminate a certain behavior at a particular time. In general, motivation is the reason or reasons for acting or behaving in a particular way and the desire or willingness to do something.

1.2 Risks

1.2.1 Definition

A **risk** is a potential event with negative consequences that has not happened yet. However, a risk could also be defined as the event with unforeseen positive consequences!

A risk is therefore the *possibility of loss,* but not the loss itself. In other words, a source of problem during a project, but not the cost of a risk.

1.2.2 Types of Risks

We can distinguish risks into different types:

Industrial Risks

- Change in technology, productivity, and prices
- False estimates of the rated capacity
- Time needed for the construction and running-in periods, political, social, and business environment

Operational Risks

- Lack of entrepreneurial skills
- Poor understanding of market dynamics
- Poorly available consultancy services and information systems
- Poor understanding of how to prepare a business plan
- Natural risks

Market Risks

- Unforeseeable inflation and exchange rates change
- Customer behaviors to buy foreign goods
- Inadequate infrastructure
- Shrinking market because of foreign competitors
- Defaulting or insolvency, credit risks

Other Risks We furthermore can consider risks from the following categories:

- Cultural risks
- Natural risks
- Economic and political risks

1.2.3 Formal Representation

Risk is commonly measured as a pair of the probability of occurrence of an event, and the outcomes or consequences associated with the event's outcome. This pairing can be represented by the following equation:

$$\text{Risk} \equiv [(p_1, c_1),\ (p_2, c_2), ...,\ (p_n, c_n)],$$

where:

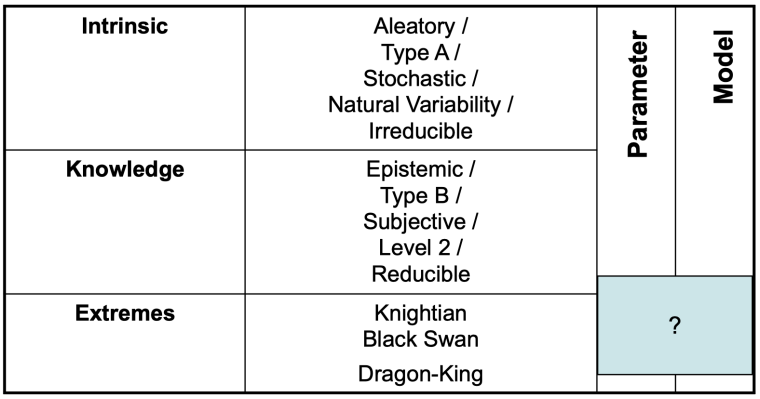
- p_i = occurrence probability of an outcome or event i
- c_i = occurrence consequences or outcomes of the event i

1.2.4 Other Technical Terms

Other technical terms are needed for presenting risk-based technology methods and analytical tools include:

Hazard A **hazard** is an act or phenomenon posing potential harm to some person(s) or thing(s), i.e. a source of harm, and its potential consequences. Hazards need to be identified and considered in a projects' lifecycle analyses since they could pose thread and could lead to project failures.

Uncertainty We introduce the term **uncertainty** with the following table:



1.2.5 Definition of Risk

It is important to make the following distinctions:

- Distinction between risk and uncertainty: Risk = Uncertainty + Damage
- Distinction between risk and hazard: Risk = Hazard / Safeguard

Risk assessment consists of hazard identification, event probability assessment, and consequence assessment. **Risk control** requires the definition of acceptable and comparative evaluation through monitoring and decision analysis. Risk control also includes failure prevention and consequence mitigation. **Risk communication** involves perceptions of risk and depends on the audience targeted.

One last important point to consider are **human errors.** Human errors are unwanted circumstances caused by humans that result in deviations from the expected norms that place systems at risk. Human error identification techniques should provide a comprehensive structure for determining significant human errors within the system:

- **Human error modelling:** Currently, there is no consensus on how to model humans reliably. The human error estimates are often based on simulation tests, models, and expert estimation.
- **Human error quantification:** Still a developing science requiring understanding of human performance, cognitive processing, and human perceptions.

1.3 The Big Problems

Econometric analysis of growth in the USA, Japan, and Germany between 1960 and 1996 shows that *energy drives about 50% of economic growth.* Mainstream economics, on the other hand, gives energy only a weight of 5% according to energy's share in the total cost of the production factors capital, labor, and energy.

Energy is just one of many factors, such as water, erosion, melting ice, overpopulation, etc. Those other factors, however, were left out during the lecture. They will be added to the summary if deemed necessary for the exam.

2 Start-Ups and Investment in Innovation

2.1 Landscape on Entrepreneurship and Private Investment

We start by looking at the difference between **private equity** and **venture capital.**

Private Equity

- Financing mainly used to buy mature well-established companies
- Always a combination of debt and equity (shares)
- Value created through streamlining of operations, cost-cutting, consolidation, etc.
- Strong focus on cash flow to pay off debt, companies are highly leveraged
- Leverage increases risk profile but also potential return

$$Asset = Debt + Equity \qquad Leverage = \frac{Asset}{Equity}$$

Venture Capital

- Financing mainly given to startup companies and small businesses
- Value created through growth
- Growth expected from innovation, disruptive technology, new products, etc.
- Very high risk profile, no cash flow but cash burn
- Company can only finance through equity, often the risk profile is too high to get debt financing

Most businesses do not survive the first five years (roughly 50%). Roughly 80% survive past the first year. Investors want to manage their risk with **preference shares** and by gaining as much **control** as possible on the company, through shareholder agreements, voting rights, board membership, etc.

In the event of the failure of the company, preferred shareholders may receive payment from liquidation before common shareholders. When the company is sold, preferred shareholders may receive payment in full before the common shareholders (sometimes with a guaranteed **return on investment (ROI)**).

Investors must be **detached** from individual companies and look at the whole portfolio. *This is not aligned with the Entrepreneur's viewpoint.*

There is a complex relationship between risk and return. The simple representation is: higher risk leads to larger return.

However, the nature of risk is tricky. Take as an example the UK stock market bubble ending in October 1987. The volatility is low at the crest of the bubble and high at the end of the crash. When is the desired entry point? At low or at high volatility?

In summary, both entrepreneurs and investors want to be in control, but they have very different viewpoints:

	Entrepreneur/Founder	Investor
Motivation	Intrinsic	Extrinsic
Goal	Realize a dream	Make money
Horizon	Not relevant	Medium term (3 to 7 years)
Risk	All in	Portfolio view, highly skewed payoff with few very successful winners but mostly losers
Viewpoint	Stakeholders (employees, customers, community, suppliers ...)	Shareholders
Skin in the game	own money and resources	other people's money
Role	Exploration	Exploitation
Involvement	Personal, company is like a child	Detached, rational, strategic

The challenges of exploration can be summarized by some exploration requirements according to Herbert Simon:

- Tolerance of ambiguity/uncharted territory
- Patience: Learning-by-doing, accumulation of knowledge, and trial-and-error
- Luck/serendipity
- Persistence/diligence
- Intuition: Use of smart heuristics

It is important to realize that exploitation is tempting from a short-term risk/return perspective, but there are serious caveats on the long run. Disruptive innovations are initially too small to meet the ROI-targets of large established firms. However, they steadily work their way up eventually capitalizing on a crucial first-mover advantage against large, less nimble, market leaders.

Some serious **pitfalls** to consider:

- Overconfidence
- Framing
- Base-rate neglect
- Availability cascades
- Substitution
- Halo
- Sunk cost effect
- Stereotyping
- etc.

2.2 Introduction to Company Valuation

2.3 Basics of Legal Documents

2.4 Entrepreneurial State, Social Bubbles, and Capitalism in Innovation Economy

2.5 Getting Your Business Started