Zürcher Hochschule für Angewandte Wissenschaften

School of Management and Law

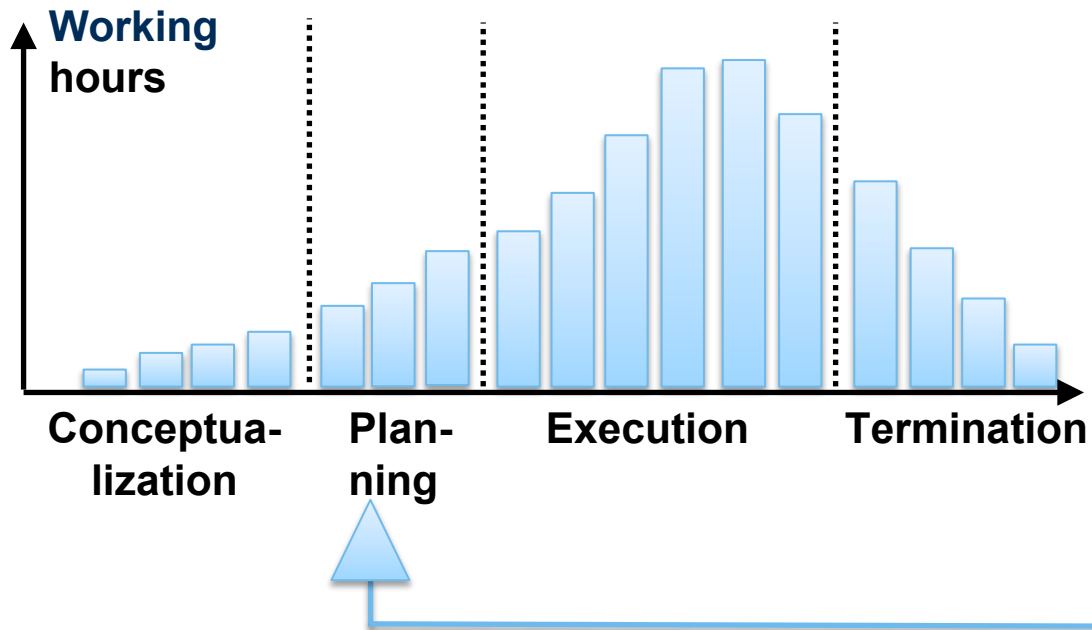**PM** **Project Management**
Lesson 4 **Project Selection and Management**

Building Competence. Crossing Borders.

Christian Olivier Graf
grac@zhaw.ch

October 2024

Repeat: Project Charter

Working hours

Conceptua-
lization · Plan-
ning · Execution · Termination

- A document that formally authorizes the project.

- It includes goals, deliverables, risks, etc.

- Pinto calls 'project charter' 'statement of work'.

Project charter

Project:				
Sponsor:			Project nr.:	
Author:			Date:	

1. Project description

1. 1 Initial position
- What is the reason to start this project? Why does it need to be launched?
- How does the project support the business goals?
  What value does the project add to the company?
  How does it support the business strategy?
- Which business areas are linked to the project?

1.2 Project scope
- In scope!   /   Out of scope!

1.3 Project aims
- SMART goals (specific, measurable, attractive, realistic, time-bound)
- Write sentences

1.4 Opportunities and threats
- SWOT analysis
- What are the risks associated with the project and how are the risks communicated?
- What are the opportunities of the project?

1.5 Impact on organization
- What is the impact on the structure, processes or culture of the organization?

1.6 Methods and procedure
- What are the project phases?
- What method is being used to plan the project and why was the method chosen?

1.7 Scheduling and milestones
- Estimates of the time table
- Definition of milestones

1.8 Time and effort
- Estimates of the project costs and budget
- External sponsors demand detailed figures

Repeat: Proposed Solution - Project Charter

Project Description

1.1. Initial Position

- Disney's 50th anniversary; celebration in a truly special way
- New outstanding attraction to attract regular and new visitors

1.2. Project Scope

- In scope: Only one but breath-taking ride: Mount Everest; surprising elements; special ➔ lift spirits with experience on highest mountain on earth
- Out of scope: Not many rides – as the «wow» effect would be tainted

1.3. Project Aims　　　　　(SMART – specific, measurable, attractive, realistic, time-bound)

- New ride to be built around the theme «Mount Everest»
- A yeti to interfere with the smooth ride and a final dash – surprise/breath-taking elements
- Budget U$ 100 mio.
- Completion time including testing: 3 months before Disney's celebration party
  (total completion time was 5 years)

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Repeat: SMART

Goals need to be smart

✓ **S**pecific: What do you want to accomplish? What specific outcome do you want to achieve?

✓ **M**easurable: How will you measure your success? What type of data will you include? How will you evaluate it, and how frequently will you check?

✓ **A**ttainable: Do you have all the necessary skills and resources to achieve this goal? If not, can you obtain them?

✓ **R**elevant: Is this goal aligned with your other goals, or the overarching goals of your team or organization?

✓ **T**ime-bound: What is the timeframe for achieving this goal?

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PM   Project Management
Lesson 4   Project Charter and Stakeholder
             Management / Disney case

Building Competence. Crossing Borders.

Learning Objectives

(1) Learn about the key importance of project portfolio management.

(2) Explain six criteria for a useful project-selection/screening model.

(3) Understand how to employ checklists and scoring models to select projects.

(4) Learn how to use financial concepts, such as discounted cash flow analysis and the efficient frontier.

(5) Recognize the challenges that arise in maintaining an optimal project portfolio for an organization.

The challenge of project delivery…

https://pmac-agpc.ca/

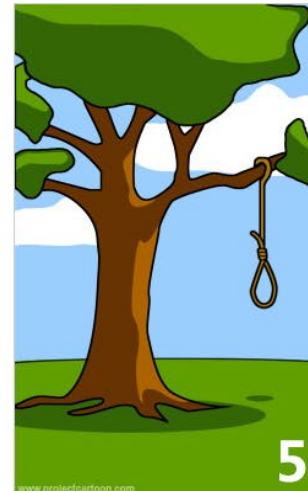**zh School of**
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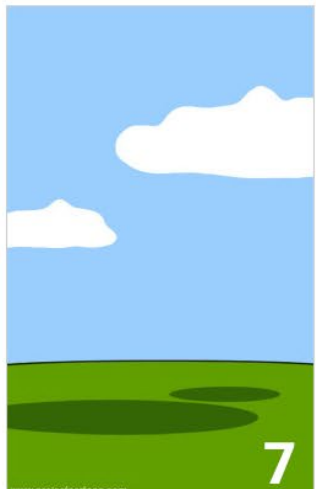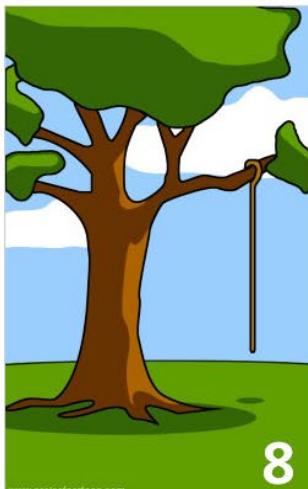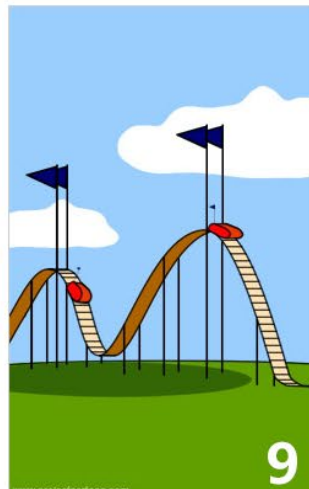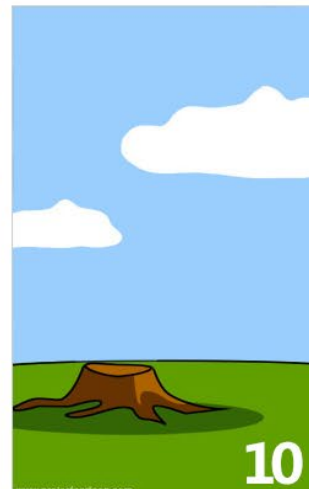
Project Portfolio Management

The systematic process of selecting, supporting, and managing the firm's collection of projects.

(1) What projects should the company <u>fund</u>?

(2) Does the company have the <u>resources</u> to support them?

(3) Does this project make good <u>business sense</u>?

(4) Is this project <u>complementary</u> to other company projects?

https://justpassion.net/

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Project Portfolio Management

Portfolio management requires

1 - Decision Making	2 - Prioritization
3 - Review	4 - Realignment

5 - Reprioritization of a firm's projects

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Project Selection

Screening models help managers pick winners from a pool of projects.

Screening models are _numeric_ or _nonnumeric_ and should have:

1 – Realism

    2 - Capability

        3 - Flexibility

            4 - Ease of use

                5 - Cost effectiveness

                    6 - Comparability

Project Selection

(1) **Realism**: An effective model must <u>reflect</u> organizational objectives, including a firm's strategic goals and mission.

(2) **Capability**: A model should be <u>flexible</u> enough to respond to changes in the conditions under which projects are carried out.

(3) **Flexibility**: The model should be easily <u>modified</u> if trial applications require changes.

(4) **Ease of use**: A model must be <u>simple enough to be used</u> by people in all areas of the organization, both those in specific project roles and those in related functional positions.

(5) **Cost**: The screening model should be <u>cost-effective</u>.

(6) **Comparability**: The model must be broad enough to be <u>applied to multiple projects</u>. If a model is too narrowly focused, it may be useless in comparing potential projects or foster biases toward some over others. A useful model must support general comparisons of project alternatives.

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Screening and Selection Issues

- **Risk** – unpredictability to the firm

- **Commercial** – market potential

- **Internal operating** – changes in firm operations

- **Additional** – image, patent, fit, etc.

➤ All models only partially reflect reality and have both objective and subjective factors imbedded.

Approaches to Project Screening

(1) Checklist model

(2) Scoring models

(3) Financial models

(4) Profile models

(1) Checklist Model

A checklist is a list of criteria applied to possible projects.

- Requires agreement on *criteria*

- Assumes all criteria are *equally important*

➢ Checklists are valuable for recording opinions and encouraging discussion.

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(1) Checklist: Example Disney Case
Two Project Proposals are evaluated

	Matterhorn	Mount Everest
New Technical Features		
New Experience		
Meets Budget		
On Time		

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(1) Checklist - Example Disney Case
Two Project Proposals are evaluated

	Matterhorn	Mount Everest
New Technical Features	✓ Known features	✓ Yeti
New Experience	✓ New twists, but only 100 feet high	✓ Ride is 200 feet high
Meets Budget	✓ Yes	❖ Problematic, as many new features
On Time	✓ Should be possible	❖ Uncertain

(2) Scoring Models

Each project receives a score that is the weighted sum of its grade on a list of criteria. Scoring models require:

- agreement on *criteria*

- agreement on *weights* for criteria

- a *score* assigned for each criteria

$$Score = \sum (Weight \times Score)$$

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(2) Scoring Model - Example Disney Case
Two Projects are evaluated

- Which project does win?

	Weight	Max Score	Matterhorn	Mount Everest
New Technical Features	10 %			
New Experience	50 %			
Meets Budget	30 %			
On Time	10 %			
Total	100 %			

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(2) Scoring Model - Example Disney Case
Two Projects are evaluated

- Which project does win?

	Weight	Max Score	Matterhorn		Mount Everest	
New Technical Features	10 %	10	4		7	
New Experience	50 %	10	5		8	
Meets Budget	30 %	10	8		6	
On Time	10 %	10	10		5	
Total	100 %	10				

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(2) Scoring Model - Example Disney Case
Two Projects are evaluated

	Weight	Max Score	Matterhorn		Mount Everest	
New Technical Features	10 %	10	4	**0.4**	7	**0.7**
New Experience	50 %	10	5	**2.5**	8	**4**
Meets Budget	30 %	10	8	**2.4**	6	**1.8**
On Time	10 %	10	10	**1**	5	**0.5**
Total	100 %	10		**6.3**		**7.0**

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(1+2) Exercise Europa Park Luzern

Neue Pläne für Luzerner Standort

Der Europa-Park expandiert in die Schweiz

Der Europa-Park erlebt das beste Geschäftsjahr seiner Geschichte – und hegt nun Ausbaupläne in der Schweiz. In Luzern hat die Firma Mack One eine Niederlassung eröffnet, um von dort aus die Zukunft des Entertainments mitzuentwickeln.

Publiziert: 30.09.2024 um 11:00 Uhr | Aktualisiert: 01.10.2024 um 06:24 Uhr

Die Ziele? Von Luzern aus sollen künftig die Marketing- und Sales-Aktivitäten für die Schweiz, Österreich und Italien erfolgen. Auch will man dort nichts Geringeres als die «Zukunft des Entertainments» mitentwickeln.

Als Zukunftsvision schwebt Michael Mack eine Art Plattform vor, die Gesamtlösungen für Grosskunden wie Disney und Universal anbietet. «Wir wollen das Netflix für Freizeitparks werden», so Mack gegenüber «CH Media». Denn letztlich gehe es nicht um technischen Schnickschnack, sondern um das Erlebnis für die Besucher.

blick,ch, 30.09.2024

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(1+2) Exercise: Europa Park Luzern

Concept Phase: Which attraction (project) would you suggest to the Europa Park Luzern management and what are your criteria?

Criteria	Weight	Max Score	Project name *Attraction*	
1)				
2)				
3)				
4)				
Total				

(3) Financial Models

Based on the time value of money principal

a) Payback period

b) Net present value

c) (Internal rate of return)

$\rightarrow$ All of these models use **discounted** cash flows.

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a) Payback Period

Cash flows should be discounted

Lower numbers are better *(faster payback)*

Determines *how long* it takes for a project to reach a breakeven point

$$Payback\ Period = \frac{Investment}{Annual\ Cash\ Savings}$$

a) Payback Period Example

A project requires an initial investment of $200,000 and will generate cash savings of $75,000 each year for the next five years. What is the payback period?

Year	Cash Flow	Cumulative
0	($200,000)	($200,000)
1	$75,000	
2	$75,000	
3	$75,000	

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a) Payback Period Example

A project requires an initial investment of $200,000 and will generate cash savings of $75,000 each year for the next five years. What is the payback period?

Year	Cash Flow	Cumulative
0	($200,000)	($200,000)
1	$75,000	($125,000)
2	$75,000	($50,000)
3	$75,000	$25,000

Divide the cumulative amount by the cash flow amount in the third year and subtract from 3 to find out the moment the project breaks even.

$$3 - \frac{25,000}{75,000} = 2.67 \; years$$

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a) Payback Period Exercise

A project requires an initial investment of $500,000 and will generate cash savings of $75k, $100k, $150k, $150k and $950k per year for the next five years. What is the payback period?

Year	Cash Flow	Cumulative
0	($500,000)	
1	$75,000	
2	$100,000	
3	$150,000	
4	$150,000	
5	$950,000	

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a) Payback Period Exercise - Solution

A project requires an initial investment of $200,000 and will generate cash savings of $75,000 each year for the next five years. What is the payback period?

Year	Cash Flow	Cumulative
0	($500,000)	
1	$75,000	
2	$100,000	
3	$150,000	
4	$150,000	
5	$950,000	

Payback = x years

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b) Net Present Value

➢ NPV projects the change in the firm's stock value if a project is undertaken.

➢ NPV indicates that the firm will make money – and its value will rise – as a result of the project.

➢ NPV employs discounted cash flow analysis, discounting future streams of income to estimate the present value of money.

https://www.linkedin.com/pulse/net-present-value-npv-video-digital-elearning

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b) Net Present Value

$$NPV = I_o + \sum \frac{F_t}{(1 + r + p_t)^t}$$

where

F_t = *net cash flow for period* t

R = *required rate of return*

I = *initial cash investment*

P_t = *inflation rate during period* t

Higher NPV values are better!

Discount factor: reciprocal of the discount rate $(1/(1 + r + p)^t$

b) Net Present Value Example

Should you invest $100,000 in a project that will return $15,000 per year for five years? You have a minimum return of 10% and expect inflation to hold steady at 4% over the next five years.

Year	Net flow	Discount
0	-$100,000	1.0000
1	$20,000	0.8772
2	$50,000	0.7695
3	$50,000	0.6749
4	$50,000	0.5921

Discount $(1/(1 + 0.10 + 0.04)^1$

Discount $(1/(1 + 0.10 + 0.04)^2$

Discount $(1/(1 + 0.10 + 0.04)^3$

Pinto, 2020, pp. 188

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b) Net Present Value Example

Should you invest $100,000 in a project that will return $15,000 per year for five years? You have a minimum return of 10% and expect inflation to hold steady at 4% over the next five years.

Year	Net flow	Discount	NPV
0	-$100,000	1.0000	-$100,000
1	$20,000	0.8772	+$17'544
2	$50,000	0.7695	+$38'475
3	$50,000	0.6749	+$33'745
4	$50,000	0.5921	+$14'803
			+$4'567

b) Net Present Value Exercise

Should you invest $200,000 in a project that will return $50k, $100k, $200k and $75k per year for five years? You have a minimum return of 12% and expect inflation to hold steady at 3% over the next five years.

| Year	Net flow	Discount	NPV
0	-$200,000	1.0000	-$200,000
1	-$50,000		
2	$50,000		
3	$100,000		
4	$200,000		
5	$75,000		

b) Net Present Value Exercise - Solution

Should you invest $200,000 in a project that will return $50k, $100k, $200k and $75k per year for five years? You have a minimum return of 12% and expect inflation to hold steady at 3% over the next five years.

Year	Net flow	Discount	NPV
0	-$200,000		
1	-$50,000		
2	$50,000		
3	$100,000		
4	$200,000		
5	$75,000		

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(4) Profile Models for Project Selection

Show risk/return options for six projects (alternatives)
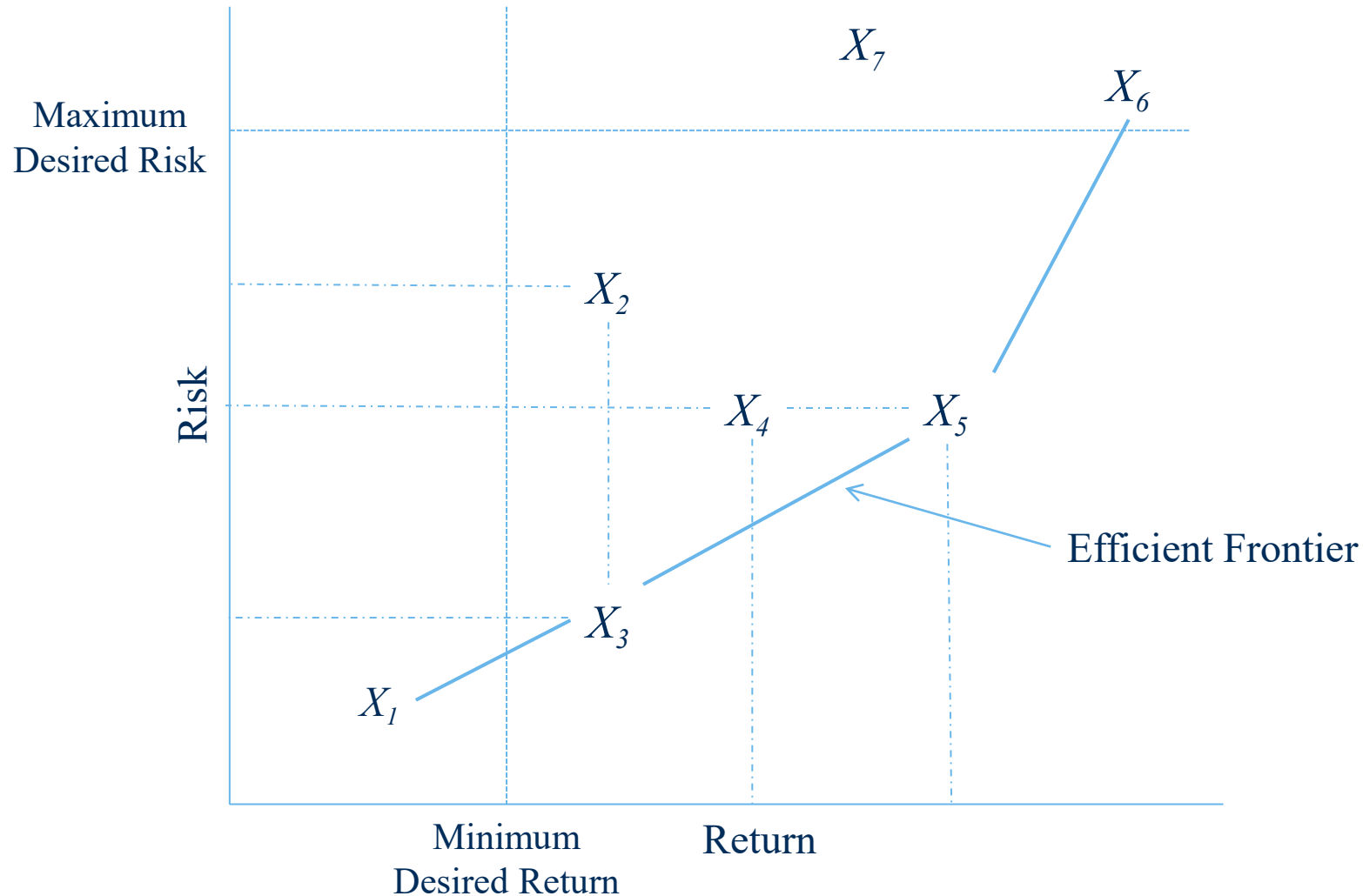
Criteria selection as axes

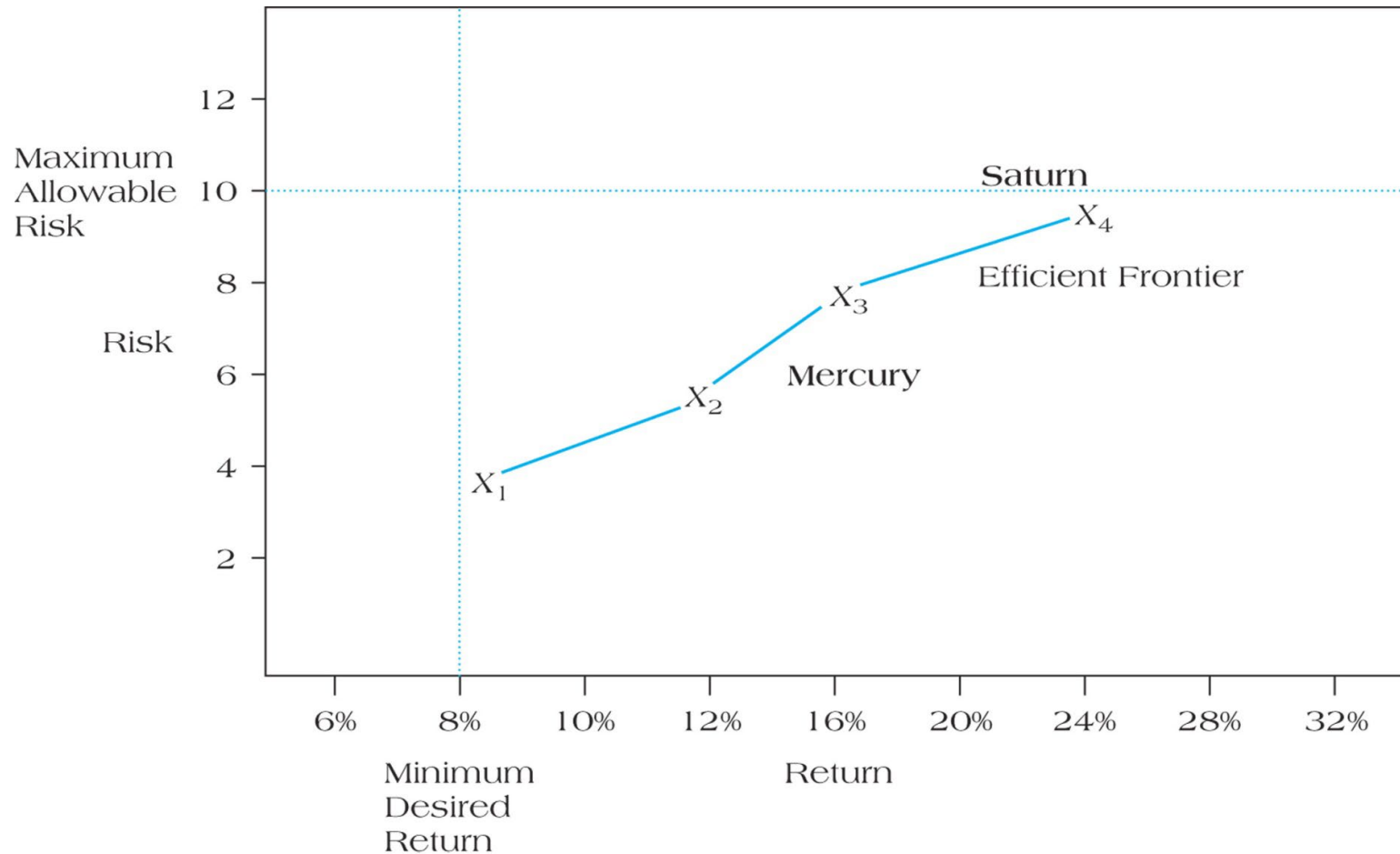*Rating* each project on criteria

Efficient Frontier

➢ The efficient frontier is the <u>set of project portfolio options</u> that offers either a maximum return for every given level of risk or the minimum risk for every level of return.

➢ Options X1, X3, X5 and X6 lie along an <u>imaginary line</u> balancing optimal risk and return combinations.

➢ Options X2 and X4 are <u>less desirable alternatives</u> and would therefore be considered choices.

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Example: Projects Saturn and Mercury
Risk & Return and Efficient Frontier of a Project Portfolio

Project	Risk		Return (IRR)
Project Saturn	Technical – medium	2	23 %
	Capital – medium	2	
	Safety – high	3	
	Goodwill – high	3	
	Total	**10**	
Project Mercury	Technical – low	1	16 %
	Capital – low	1	
	Safety – medium	2	
	Goodwill – medium	2	
	Total	**6**	

Efficient Frontier

Saturn or Mercury?

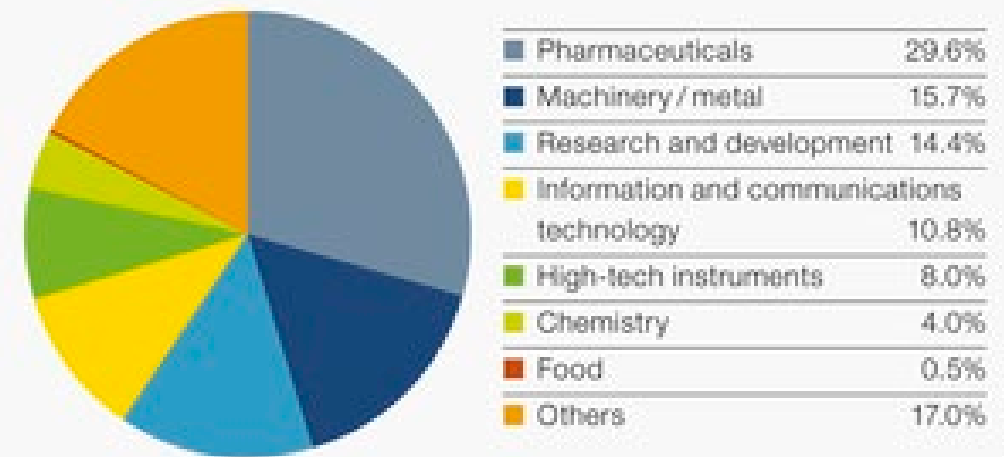zh aw School of Management and Law

Example: Pharma Research & Development

Spending on R&D in the private sector

In-house R&D spending by industry
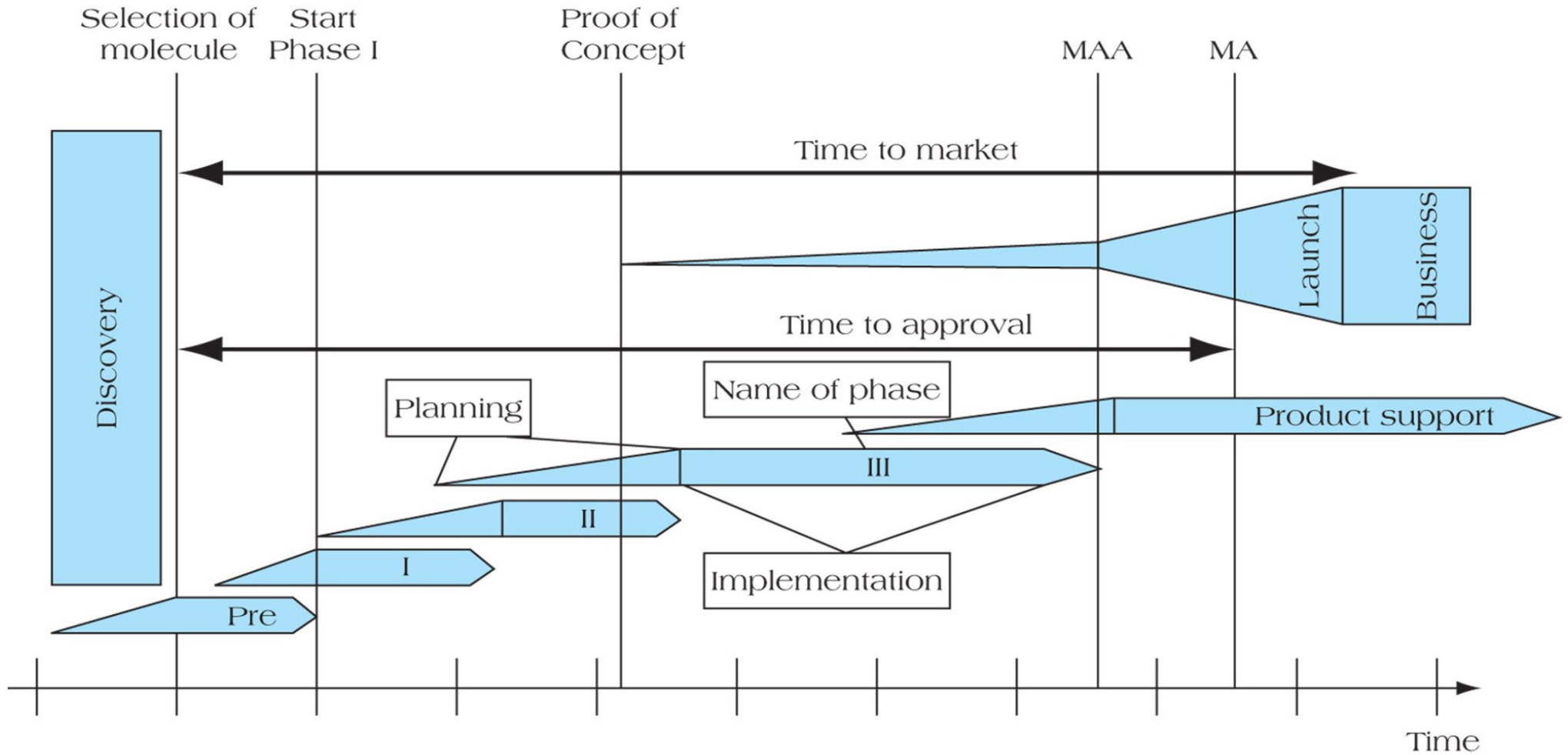Total expenditure in 2012: CHF 12,819 million (100%)

Pharmaceuticals	29.6%
Machinery / metal	15.7%
Research and development	14.4%
Information and communications technology	10.8%
High-tech instruments	8.0%
Chemistry	4.0%
Food	0.5%
Others	17.0%

Source: Federal Statistical Office, 2013.

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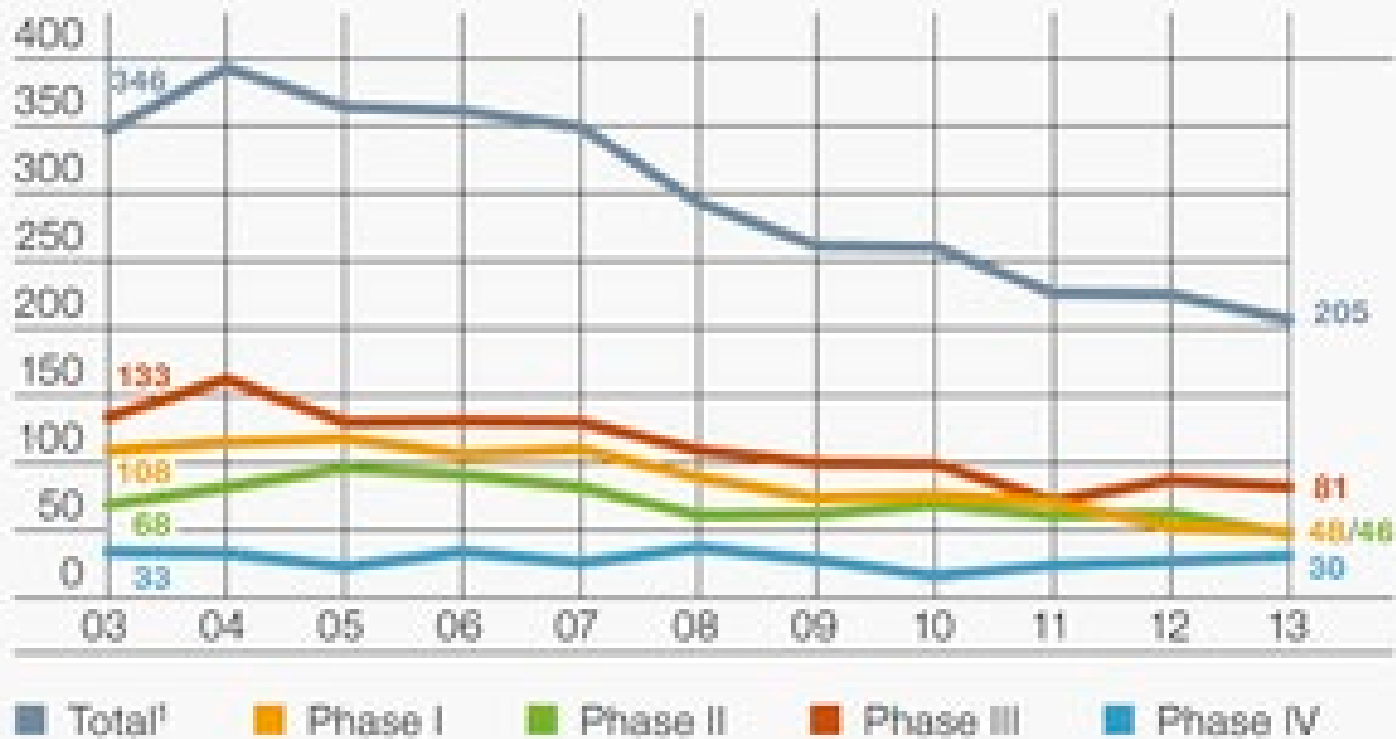
Pharmaceuticals Development Process

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Clinical trials in Switzerland

Clinical studies in Switzerland

Clinical trials definitively approved by Swissmedic for medicines

Legend: Total[1], Phase I, Phase II, Phase III, Phase IV

Source: Swissmedic, 2014.

[1] The total may differ from the sum of Phase I – IV trials because Phase 0 studies and observational studies have also been included in view of their small number.

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Clinical trials in Switzerland

Von Swissmedic definitiv zur Durchführung freigegebene klinische Studien mit Arzneimitteln

Phase I · Phase II · Phase III · Phase IV · Total[1]

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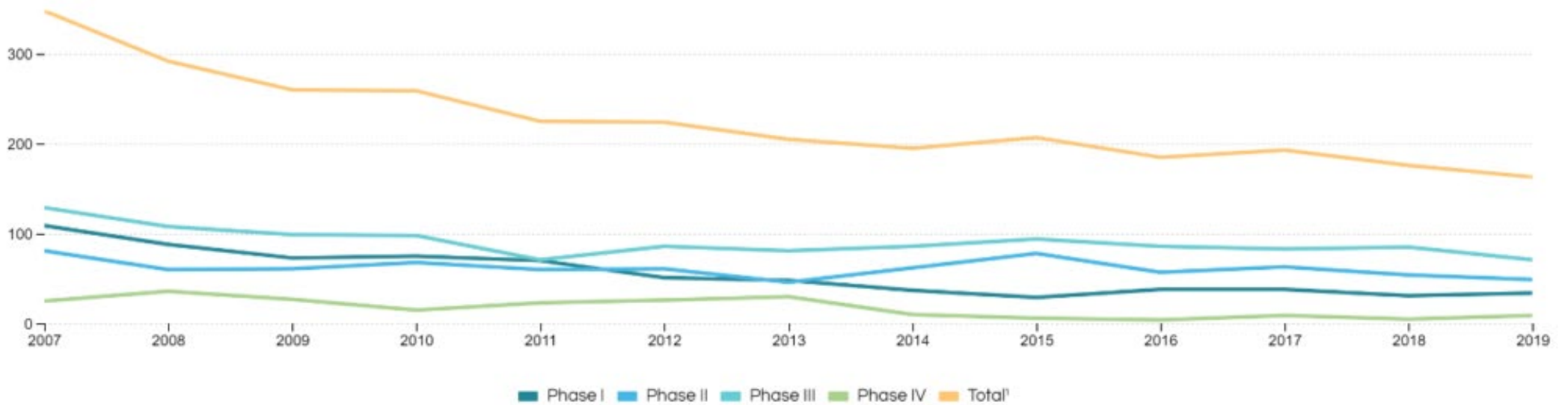
Project selection is key – Success rates of successful projects in different phases in Drug Development

Phase	Duration	% Success	Contents
Discovery	4 – 7 years	1 %	Research selected pool of molecules
Pre-clinical research Phase 0			Test in test tubes and on animals: Safety, possible indications, toxicology and metobiolism
Phase 1	1 year	70 - 75 %	Small clinical studies on healthy volunteers: Safety and indication
Phase 2	2 years	50 %	Small studies on patients with target disease: efficacy, dosage, formulation
Phase 3	3 years	75 – 85 %	Large clinical studies on patients. Most expensive phase in project.
Marketing application (Phase IV)	1.5 – 3 years	75 – 80 %	Compile marketing authorization application (MAA) and send to authorities
Total	12 – 16 years	< 0.002 %	

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Keys to Successful Project Portfolio Management

- ***Flexible structure*** and freedom of communication

- ***Low-cost*** environmental scanning

- ***Time-paced*** transition

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Problems in Implementing Portfolio Management

- Conservative technical communities

- Out of sync projects and portfolios

- Unpromising projects

- Scarce resources

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Preview Lesson 5 – Guest lecture

Building Competence. Crossing Borders.

Guest lecture Dr. Stefan Bergamin

- ➢ **16 October 2024, 08.00 – 09.30**

- ➢ **Aula SML**

- ➢ **All classes GK001, GK002 and GK003**

- ➢ **No lessons on Thursday for GK001, GK002**

- ➢ **Classes for Research Technique remain!**

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Guest lecture Dr. Stefan Bergamin

https://www.be-forward.ch/

Stephan Bergamin has a track record of more than 20 years as Group CFO and Executive Manager in listed companies and large family companies. His experience and expertise includes the execution of growth strategies, M&A, IPO, turnarounds and restructurings as well as complex refinancing projects. He has a solid background in the real estate and infrastructure industry (CFO, CEO and Board of Directors, including at the Steiner Group) and from his time as Group CFO in the transport sector – including Airline (Swissair Group) and Shipping (Gearbulk and G2 Ocean) – as well as in the technology sector (VAT Group) the challenges of global companies. He has led companies to a higher level in terms of performance and profitability thanks to successful transformation. Today, Stephan Bergamin supports companies in growth, transformation and performance issues and is a member of the board of directors of various companies, where he is particularly involved in the fields of «Financial Management», «Transformation» and «Digitization».

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