1.1 Term "Innovation"

a) What differentiates an Innovation from an Invention?
b) Briefly describe the term Innovation?
Please answer by stitch. Two bullet Points each for a) and b).

a) Invention is the development of a new product that works.
- Innovation is an invention that can be commerially exploited
- Innovation can be utilised at an operational level, while an invention can not.

b) Innovation introduces a new product to the market, and makes competitive.
- Innovation deals with uncertainty

1.2

Types of Innovation:
The lecture featured six types of innovations. Name four of these types of Innovation.

FAQ DIF

Fundamental Fake
Adaptive
Quality-improving
Disruptive
Imitations

1. Corporate Success Through Market Driven Innovation [Continue]

1.3 In the lecture, success factors of innovation management have been presented. These have been divided into three groups: the innovation process, resources and organization, and the culture of innovation. For each of the three groups, give two examples:

Innovation process:
- Adaptability of the innovation process
- Clear & early project and product definition

Culture of innovation:
- open innovation culture
- Financial resources for innovation projects

2. Integrated Innovation and Product Management

2.1 Product management is an integral part of innovation management. It includes strategic and operational tasks. Name two strategic tasks and two operative tasks.

Strategic:
- Strategic options for action.
- Definition of the target market

Operative:
- product maintenance
- Marketing Mix.

3. Innovation Strategy

3.1 Positioning Analysis is a very important part of the product concept. How do you describe the "Positioning of Products"?

Product positioning is the differentiation of a product from the competition based on the subjective perception of customers.

3. Innovation Strategy [Continue]

3.2 There are two strategies for product positioning. Please name them:

- Adaptive offerings to customer preferences.
- Adapting customer preferences to product offering.

3.3 What is a "SWOT-Analysis"? Please describe in short sentences. Support your Explanation with a Sketch.

It is a planning technique that helps people or companies to identify Strengths, weaknesses, opportunities, and threads of a project or a product.

SWOT Analysis	Opportunities	Threads
Strengths	Strengths-opportunities-Stratigies	Strength-Threads-Stratigies
Weaknesses	Weaknesses-opportunities-Stratigies	Weaknesses-Threads-Stratigies

4. Product Concept [Continue]

4.1 For the definition of a product concept very often the method "target costing" is used. What is target costing? How does the basic model look like and what are the process steps?

Target costing is a strategic cost planning, and controlling the instrument used to determine how much the product is allowed to cost from the perspective of a customer.

steps:

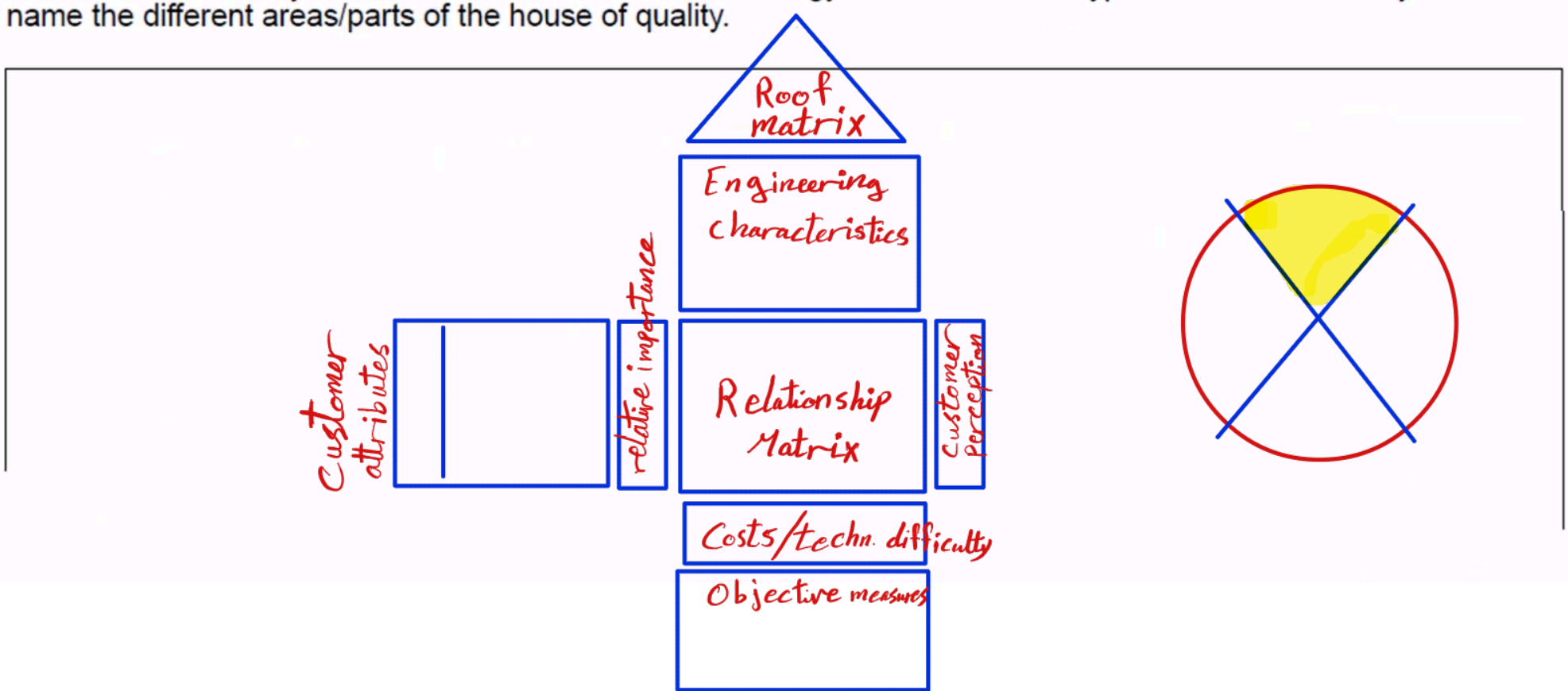
- Identification of customer requirements
- Rough draft of a new product.
- Determination of the target price, and derivation of the target costs.
- weighing of product components, and allocation of the target costs.
- Calculation of target cost index.
- Measurement of the achievement of target cost.

4.2 Quality Function Deployment (QFD) is a method for translating the "Voice of the Customer" into "Action of the Developers". Please name four QFD characteristics.

- Consistent focus on customer requirements.
- Multiple level planning process using planning and communication matrices.
- Measurable techical quality features Interwoven with customer requirements.
- Use of multi-functional committed teams.

4. Product Concept [Continue]

4.3 The "House of Quality" is a core tool of the QFD Methodology. Please sketch a typical "House of Quality" and name the different areas/parts of the house of quality.



3. Introduction to Technology Management

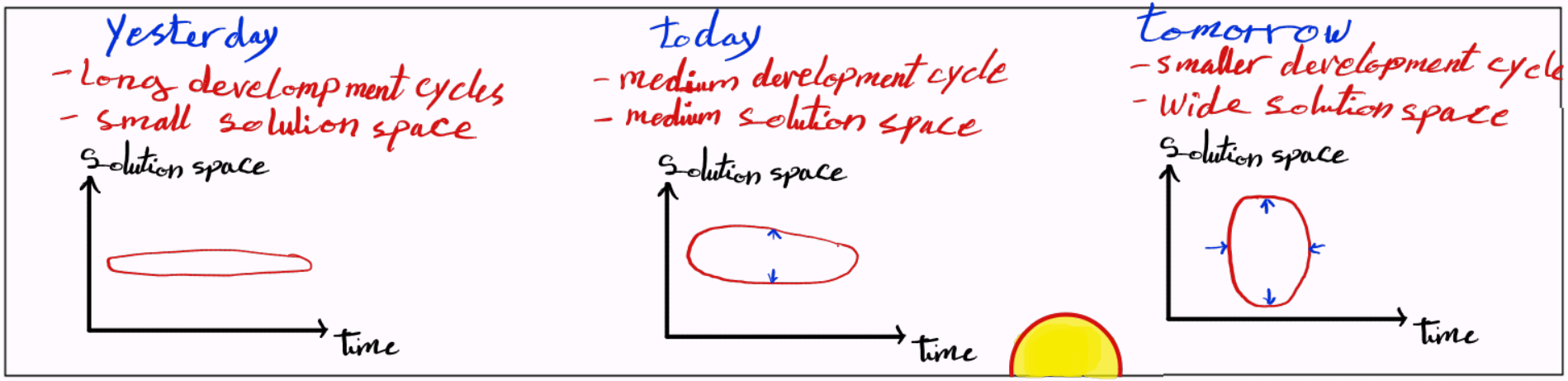
3.1 Importance of technologies

Which of the following statements is/are right? *(multiple answers possible)*

- ☐ Products usually have longer life cycles than technologies.
- ☒ The risk of the rapid substitution of technologies is less than the risk of the substitution of other skills.
- ☒ Technology Management directs the development and exploitation of technological competencies in a company.
- ☐ "Technology" and "Technical Equipment" can be used synonymously.

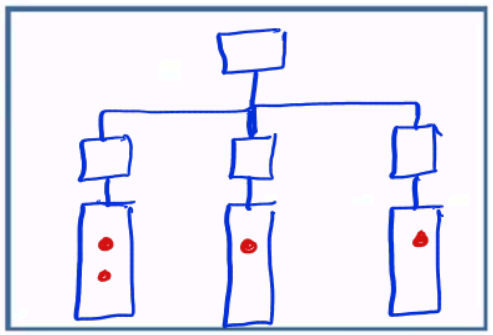
3.2 Dynamics of knowledge

Explain the developement of the "solution space" over time ("yesterday - today - tomorrow").
Please answer in a short sentence or draw a meaningful diagram.

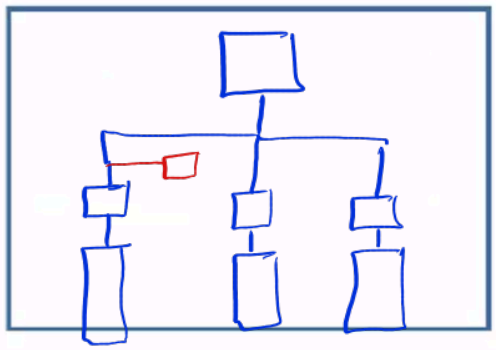


3.3 **Possible forms of Technology Management organisation** (4 points)

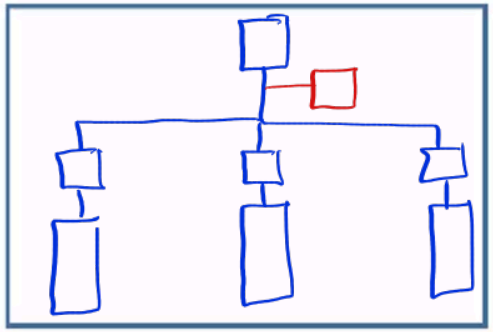
Technology Management as a business function can be organised in different forms. We have discussed seven of them in the lecture.
Please **name AND sketch four** of them. Use the boxes given below.



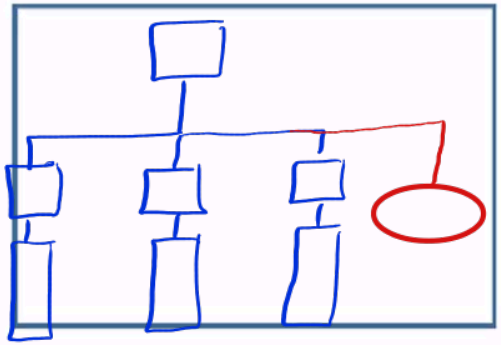
Implicit form



Line - function



Staff orgnisation



Centre orgnisation

4. Technology Strategy [Continue]

4.1 Contents and decision dimensions of a technology strategy (2 points)

In the lecture five decision dimensions that have to be taken into account when defining a Technology Strategy have been introduced. What (four) answers are correct?

- [x] Technology Selection
- [ ] Technology Owner
- [x] Technology Timing
- [ ] Group of Technology
- [x] Source for Technology
- [x] Technology Utilization

4.2 Technology Strategy and core competencies (3 points)

Companies should manage their resources systematically rather than to allocate resources according to the "watering-can principle". Why is it so?

Please name **three disadvantages** of the "watering-can-approach" and **three advantages** of a systematic resource management.

Disadvalages of "water-can-approach":
- Lack of transparency
- Price war
- Interchangability

advanlages of systematic resource ...:
- Transparency of performance
- Reduced price
- Utilization maximization

5. Technology Forecasting

5.1 Main challenges in technology forecasting (2 points)

When Technology Forecasting has been introduced in the lecture two main challenges have been mentioned. What are these two challenges?

- Search for new technological potentials
- Assessment of technological potentials.

5.2 Basic activities of strategic forecasting

Three basic activities have been introduced while discussing strategic forecasting. What of the following are **NO** basic activities?

- [x] Assessing
- [ ] Scanning
- [ ] Monitoring
- [x] Developing
- [ ] Scouting

6. Technology Roadmapping

6.1 **Technology Roadmapping** (4 points)

Please sketch a typical Technology Roadmap as presented in the lecture. Make sure that the key elements of such a **Roadmap** are **part of your drawing**. Name the key elements.