Instructions for Finishing the Course

ELEC-E9900 Networked Partnering and Product Innovation - NEPPI

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A! Aalto University

IDBM International Design Business Management

Agenda

- The different languages, "language games," of the design business manager

- Costs and Revenue considerations

- NEXPO info

- Oral Exam, testing the idea

- Final considerations

Learning Goals

1. To **design networked technology application concepts**
2. To **define key design requirements** for technical applications
3. To **apply rapid prototyping techniques** with different materials

"Learn to talk to an engineer"

…and to a designer."

The IDBM Language Games

You are the Design Business Manager

- You need to have a good understanding of what is **a design concept**
- A design concept is a crystallisation of something to be achieved together with its **unique value and meaning**
- Your arguments about the value and meaning need to be founded in decent **research** and cultivated **judgment**

Key Design Requirements?

- In the IoT Product Concept Document:
  - What makes your concept unique, and makes it stand out from alternative solutions?
  - What are the key design requirements for it?
    - The key design requirements should be expressed in a way that limits the exact implementation as little as possible, but gives strong principles for making concrete decisions.

Key Design Requirement Examples

Foundational differentiating design principles ("Design Drivers")

- One-hand use   (Nokia 3110)

- Maximize the map   (MenoMaps)

- Focus on text   (iA writer)

- User repairability   (Fair Phone)

The obvious ones are seldom design drivers – unless it governs everything

- Easy-to-use

- Safe and ergonomic

- Robust and durable

- One-year battery life

- Completely recyclable design

- Can be used under water

- Connects over 15 km range

Key Design Requirement can be less fundamental than a design driver

- Key functionalities
  - What the product must be able to do
- Key form factors
  - What size the device must be
  - What shape the device needs to follow
- Key mechanical factors
  - What kinds of input controls must the device have
  - What environmental stress must the product sustain

Talking to an Engineer?

- What does a good product mean for an engineer?
- What does an engineer appreciate in their manager and in their task brief?

Talking to a Designer?

- What does a good product mean for a designer?
- What does a designer appreciate in their manager and in their design brief?

Varieties of Goodness

Utilitarian goodness — Getting something done

Instrumental goodness — Getting something done well

Medical goodness — Being safe and healthy

Hedonic goodness — Feeling good

Technical goodness — Performing well

Good of man — Wellbeing and happiness

von Wright, G. H. (1963). *The Varieties of Goodness*. Routledge.

Goodness	Relative to	Context	What is 'good'
Utilitarian	Desired end of action	Task	Useful (yes/no)
Instrumental	Desired end of action	Task	Serving well
Technical	Requirements, competition	Activity	Excelling
Medical	Health, normalcy	Activity	Beneficial, not harmful
Hedonic	Pleasure, pain	Experience	Pleasure
Good of Human	Welfare	Life	Happiness and wellbeing

Table 1. Summary of the varieties of goodness.

Thinking as a Design Business Manager?

- What does a good product mean for a manager?
- What does a manager appreciate in their team?

Prices of PCBs and PCB assemblies

Europe

- Aisler.net

- EuroCircuits.com

- Brandner.ee

China

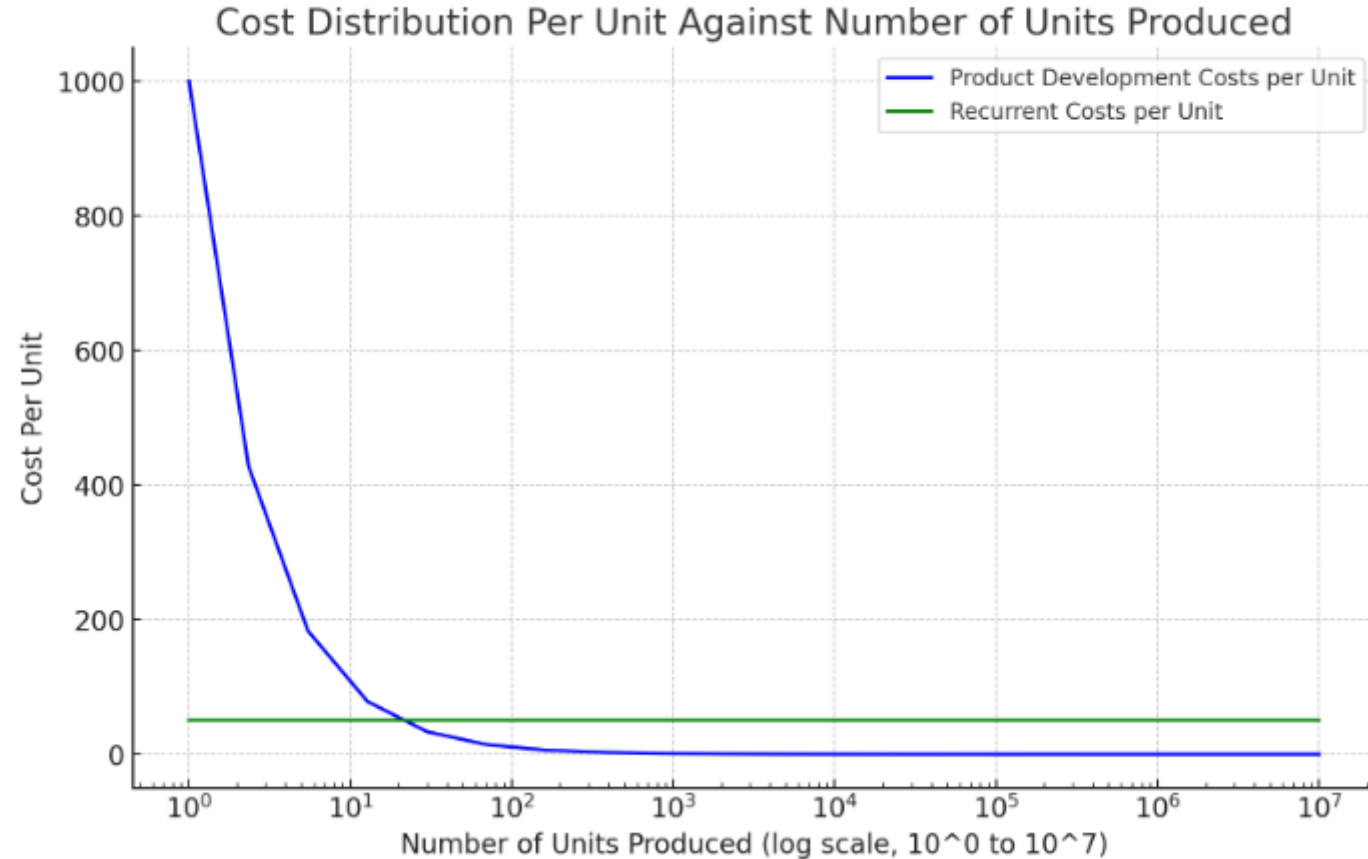- JLCPCB.com

- PCBWay.com

[Figuring out the costs vs. revenue]

Two kinds of costs

- Product development costs
  - Getting to a product release
- Recurrent costs
  - What is the cost per goods sold (COGS)

Roughly the big picture

ChatGPT

Cost Distribution Per Unit Against Number of Units Produced

Costs – Key factors that influence

Cost of Goods Sold (COGS), after the product development costs

- Materials

- Labour

- Overhead

- (Packaging, shipping, storage)

- Quantity of Production

Revenues

- One-time payment, x €

- Subscription, x € / month or year

- Partnership/subsidiary model

NEXPO INFO

IDBM International Design Business Management

[Oral Exam Pilot Test]

The format of the exam

- Salu gives you a design concept

- You are an aspiring design business manager

- You need to explain the relevant challenges related to the given concept so that the engineer, designer, and product manager would be able to get an overview of the whole
    - You will need to pay attention to the unique qualities of the given concept

These are the key things to keep in mind

1. Desirability
2. Feasibility
3. Viability

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- CANT
  - Cloud
  - App
  - Network
  - Thing

Let's try

- **Product Name:** SmartSeed Planter

- **Purpose:** The SmartSeed Planter is an IoT-enabled device designed for urban gardeners and small-scale farmers. It automates the seed planting process with precision and care, addressing the challenge of limited time and expertise in planting various types of seeds at the correct depth and spacing.

- **Functionality:** The device, connected to an app, allows users to select the type of seeds they are planting. It then automatically adjusts the planting depth and spacing according to the specific needs of the chosen plant. The app provides real-time data on the planting process and offers tips for optimal growth conditions. Additionally, it can be integrated with weather forecasts to suggest the best planting times.

Finishing the course

- NEXPO23
  - Contribute to your team's stand
- Final document
  - Contribute to your team's document (DL 15th of Dec midnight)
- Oral Exam
  - Tue 5., Thu-Fri 7.-8.12, á 15 mins

Evaluation criteria

1. HexMachine, 20%

2. NEXPO, 20%

3. IoT Product Concept Document, 20%

4. Team Process Contribution, 20%

5. Exam, 20%

- If you are absent, reading assignments will be assigned to you – and you need to catch up with your team

HexMachine

- Active participation, 100%
- Reading & writing for absences (400-600 words / missed day)

NEXPO

- Product Concept   / argumentation for the design
- IoT Service   / illustration of the system architecture
- Physical Product   / illustration of vision/physical mock-up
- Product UX   / demo/video of the "idea alive"
- Stand experience   / engagement with your audience

Evaluated collaboratively with NEXPO visitors + You & Me