1) Review Product Design
    - from dissection to function-structure to product concept

2) Product strategy & prototype

3) Organizing a start-up: roles & responsibilities

4) Typical timelines for start-ups
Review of Product Design

Real

Abstract

Product dissection
(FAST)

Product functions
(Function structure)

Product concept

Morphological matrix
(possible realizations)

References

German Design (function & form)
Engineering Design, Pahl & Beitz

Japanese Design (Quality)
Quality Engineering using Robust Design, Phadke

American Design (Usability)
The Design of Everyday Things, Norman
(2) **Product Strategy**

Product Strategy has 2 key components:

1. A design concept for the product
   - Functions
   - Form (how functions are realized)
   - Description of how the product will work.
   (Step 7 of Design Process, Lecture 4)

2. A plan for how the start-up will develop the design concept into a working product
   - Resources: people (skill sets), equipment, facilities, other
   - Source of Resources: Where will the start-up obtain the resources? In-house? Outsource?
   - Schedule: When resources are needed? Prototype production
prototype \((\alpha, \beta)\)

Design Concept

\[ \downarrow \]

prototype

- communicates the main features & benefits of the product
- helps stakeholders envision what the product will do
- identifies & clarifies upcoming technical challenges

\(\alpha\) version

- have key features & be interactive
- be used to identify & solve key technical challenges

\(\beta\) version

- more polished than \(\alpha\)
- can be used by stakeholders & customers to demonstrate the value of the solution; gather data (performance, cost, user reaction); set expectations

\[ \downarrow \]

Production
3 Organizing a Start-Up

<table>
<thead>
<tr>
<th>Roles (titles)</th>
<th>Responsibilities</th>
</tr>
</thead>
</table>
| **Chief Executive Officer (CEO)** | - leads & manages people  
- sets business goals  
- gets the funding |
| **Product/Technology Team** | - develops & implements the product strategy  
- leads the development of the product concept, prototyping & user testing  
- leads the production of the product  
- coordinating with suppliers  
- quality control  
- Supply Chain management |
<p>| <strong>Chief Technical Officer (CTO)</strong> |
| <strong>VP of Product Development</strong> |
| <strong>VP of Manufacturing</strong> |</p>
<table>
<thead>
<tr>
<th>Roles</th>
<th>Responsibilities</th>
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</thead>
<tbody>
<tr>
<td>VP of Marketing &amp; Sales</td>
<td>- Develops &amp; implements the market &amp; business (competitive) strategy</td>
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<tr>
<td>Chief Financial Officer (CFO)</td>
<td>- Perform cash-flow analysis</td>
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<td></td>
<td>- Create a financial strategy (budget)</td>
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<tr>
<td>Other</td>
<td>Legal, Human Resources (often outsourced)</td>
</tr>
</tbody>
</table>
4 Typical Timelines

1. TiMGOC "economy"
   (10 weeks)
   - creating the business plan
   - conceptual design
   - market strategy
   - financial strategy

2. Actual economy
   1-2 years
   - execute the business plan
   - getting funding
   - building sales