# Basics of Product Design

Product design
Lecture 2
Presentation uses material from other authors

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# What is a Product?

- Need-satisfying offering of an organization
  - Example
    - P&G does not sell laundry detergent
    - P&G sells the benefit of clean clothes
- Customers buy satisfaction, not parts
- May be a good or a service

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# Why Companies Design New Products and Services

➢ To be competitive
➢ To increase business growth and profits
➢ To avoid downsizing with development of new products
➢ To improve product quality
➢ To achieve cost reductions in labor or materials

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# *Product or Service Design Activities*

- **Translate customer wants and needs into product and service requirements (marketing, operations)**
- **Refine existing products and services (marketing)**
- **Develop new products and services (marketing, operations)**
- **Formulate quality goals (marketing, operations)**
- **Formulate cost targets (accounting, finance, operations)**
- **Construct and test prototypes (operations, marketing, engineering)**
- **Document specifications**
- **Translate product and service specifications into *process* specifications (engineering, operations)**

## Reasons for Design or Re-Design

- **The driving forces for product and service design or redesign are market opportunities or threats:**
  - *Economic*
  - *Social and Demographic*
  - *Political, Liability, or Legal*
  - *Competitive*
  - *Cost or Availability*
  - *Technological*

## Major Factors to be Considered in the (Product and Service) Design Strategy

- Function of product/service
- Cost
- Quality
- Time-to-market
- Appearance
- Customer satisfaction
- Ease of production/assembly
- Ease of maintenance/service

Product and service design – or redesign – should be closely tied to an organization's strategy

## Change

- Technology has made advances in fabricating and design techniques that are clearly seen looking back through the history books

## Product vs. Industrial design

- Product design is about creating product - taking ideas from scratch to finished solutions, most often 1 or 2 pieces of finished products. As a product designer it is not mandatory to have knowledge on manufacturing processes or producing CAD drawings.

## Product vs. Industrial design

- Industrial design is about creating ideas for mass production, i.e, creating concepts that can be manufactured and be sold. Therefore it requires a bit more work in transferring and customising designs (product designs) to make it ready for manufacturing. You require knowledge of manufacturing processes and operations in order to do your work.

## Product vs. Industrial design

- Product design can be considered to be a subset of Industrial design.
- Industrial design can include - product design, furniture design, footwear, and in certain cases fashion and interior design.
- You can survive in product design without technical knowledge, but you definitely need to have technical/engineering knowledge to be an industrial designer. Unless you are doing early concept works.
- In industrial design you also learn about business aspects, in order to customise the products to match the business and market needs.

## Trends in Product & Service Design (1 of 2)

**Increased emphasis on or attention to:**

➢ *Customer satisfaction (by translating customer wants and needs into product and service requirements)*

➢ *Reducing time to introduce new product or service*

➢ *Reducing time to produce product*

## Trends in Product & Service Design (2 of 2)

**Increased emphasis on or attention to:**

➢ *The organization's capabilities to produce or deliver the item*

➢ *Refining existing products and services*

➢ *Environmental concerns*

➢ *Designing products & services that are "user friendly"*

➢ *Designing products that use less material*

## Global Product Design

- *Virtual teams*
  - *Uses combined efforts of a team of designers working in different countries*
  - *Provides a range of comparative advantages over traditional teams such as:*
    - *Engaging the best human resources around the world*
    - *Possibly operating on a 24-hr basis*
    - *Global customer needs assessment*
    - *Global design can increase marketability*

## Design Guidelines (1 of 2)

- **Produce designs that are consistent with the goals of the company**
- **Take into account the operations capabilities of the organization in order to achieve designs that fit with those capabilities**
- **Take into account the cultural differences related to product design (for multinationals)**
- **Give customers the value they expect**
- **Make health and safety a primary concern**
- **Consider potential harm to the environment**

## Design Quidelines (2 of 2)

- Increased emphasis on components commonality
- Package products and services
- Use multiple-use platforms
- Consider tactics for mass customization
- Look for continual improvement
- Shorten time to market