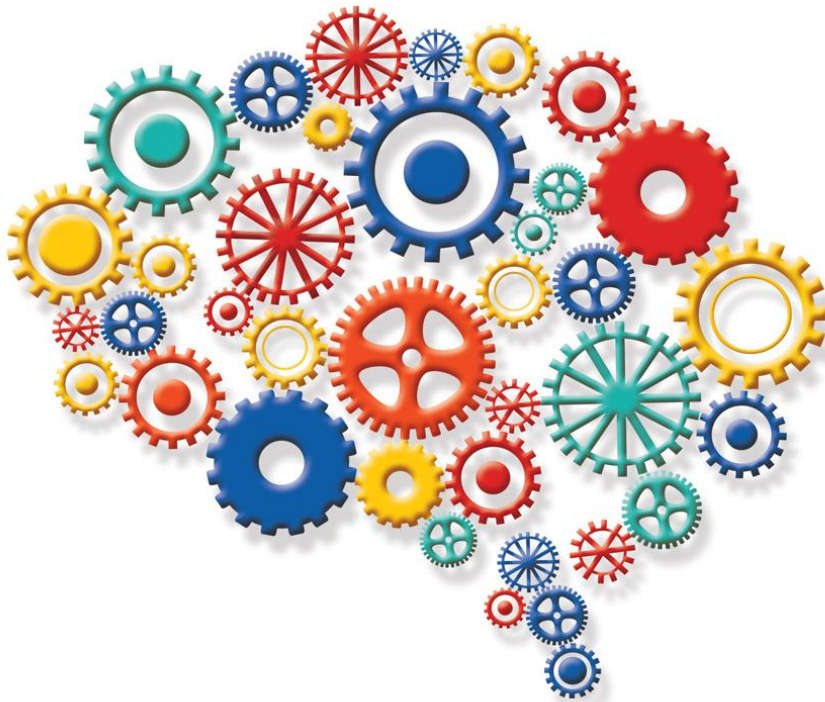
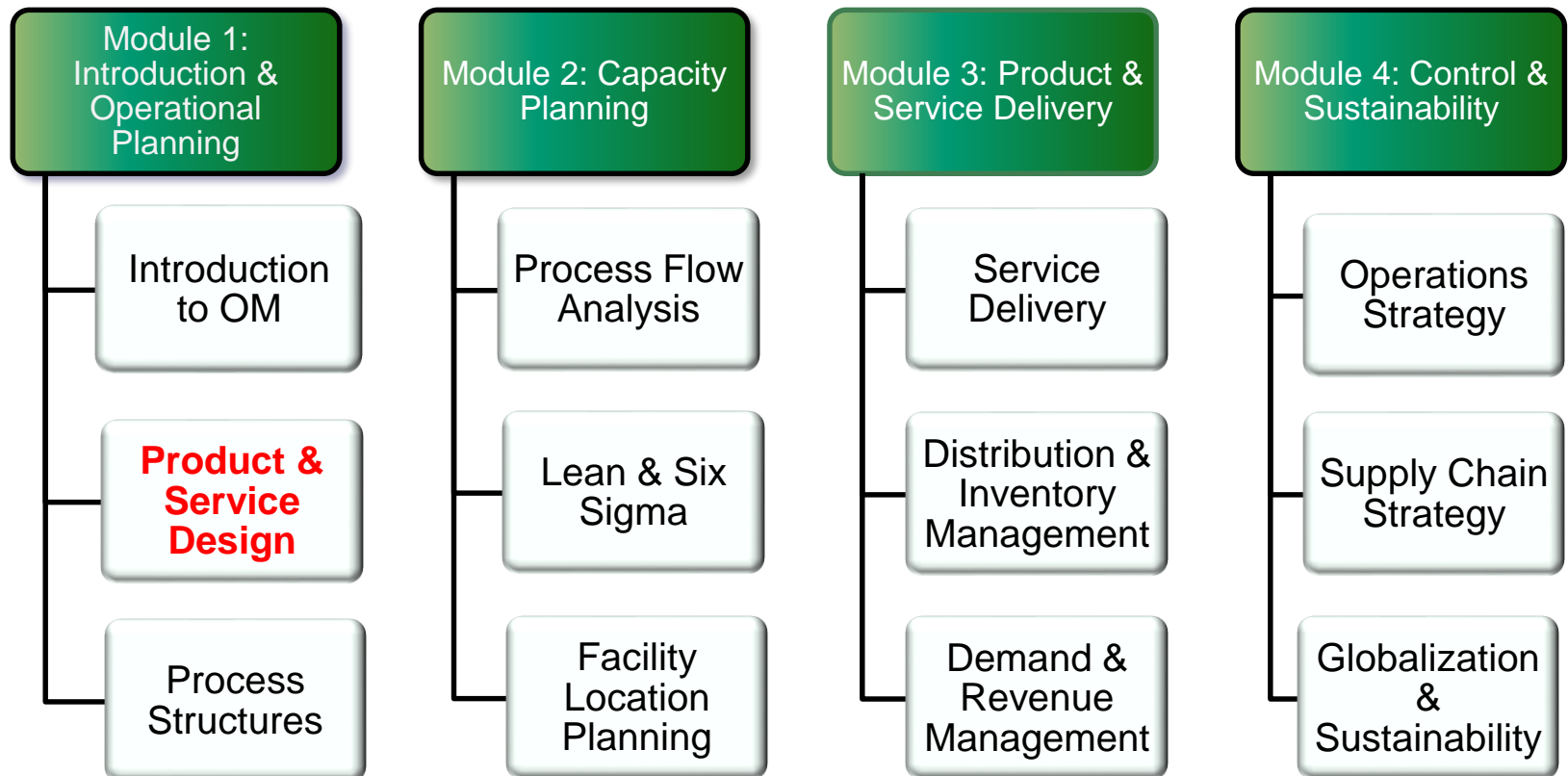


Lecture 2

Product and Service Design



Course Structure





Learning Objectives

- Explain importance of product and process innovation to firm performance
- Identify the four production strategies
- Describe new product/process and service design and development objectives and project phases
- Discuss the various approaches to service design.

Design and Development Definitions

- ***New Product Design and Development:***
transform market opportunities or new technologies into product design specifications.
- ***New Process Design and Development:***
transform product specifications or technology into a new or revised production strategy / system. *(e.g. Installing a production line in a factory)*

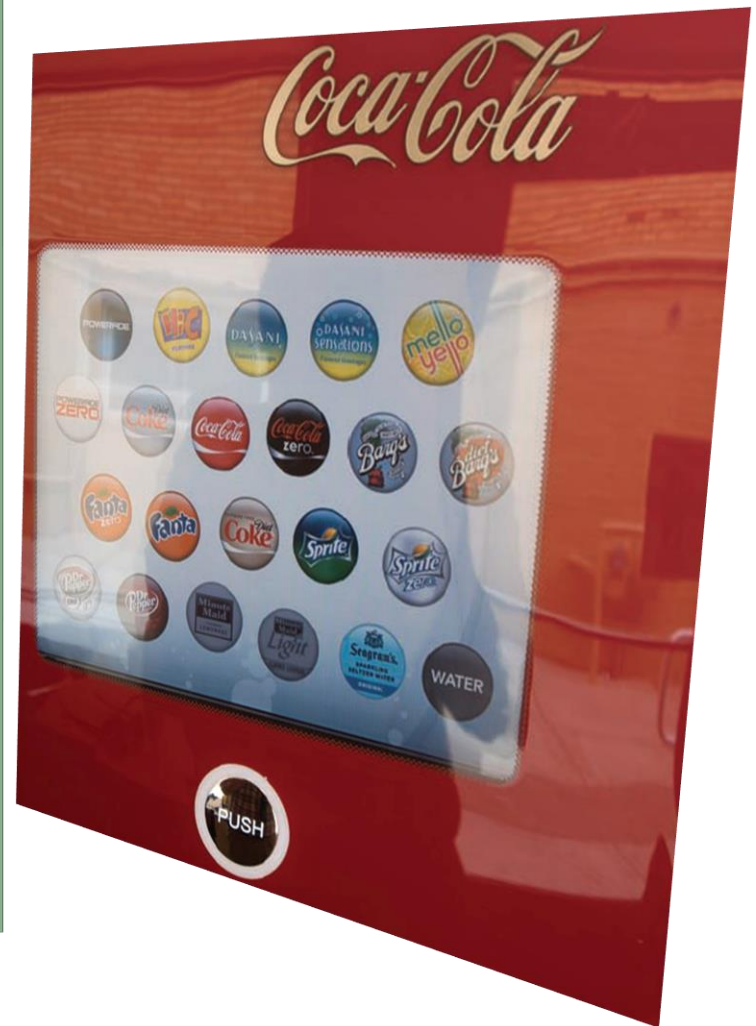
Self assessment: Highlight the input and output on each stage

Product and Process Innovation:

Diet Black Cherry Vanilla Coke Anyone?

One hundred
kinds of
Coke?
Why?
How?

Product/Process Innovation





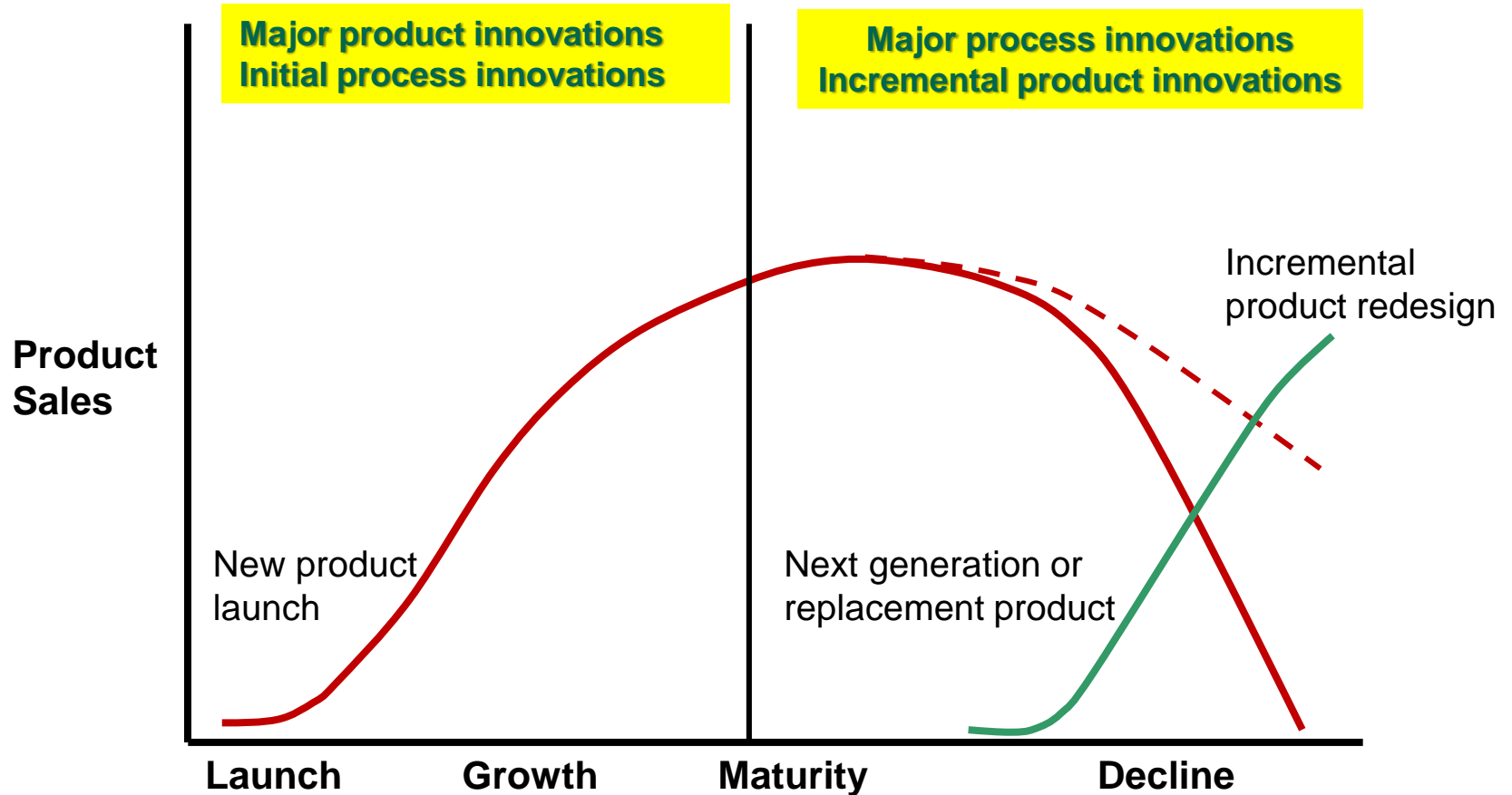


Product Life Cycle

Product Life Cycle Definitions

- **Launch:** introduction into the market and may require SC process innovation
- **Growth:** increasing demand, flexible SC, more data from customers, increasing standardization
- **Maturity:** demand and product stabilization, increasing importance of cost, process innovation to increase SC efficiency
- **Decline:** changing technology or customer needs, declining demand, potential phase out with a replacement product

Product Life Cycle



Innovation Across the Product Life Cycle

Launch

- Intense design and development
- May need SC process innovation

Growth

- Customer data aids in the refinement of product
- Product changes, but moving toward standardization
- Process innovation postponed
- SC flexibility due to high mix/low volume, increasing capacity

Maturity

- Demand stabilizes
- Product stabilizes
- Emphasis on cost
- Process innovation needed to increase SC efficiency

Decline

- Market/technology changes
- Pressure to reduce cost and capacity
- Incremental projects to extend life
- Introduction of next generation products





Product Innovation – Case study:

Diffusion innovation electronic bidet toilet in Japan

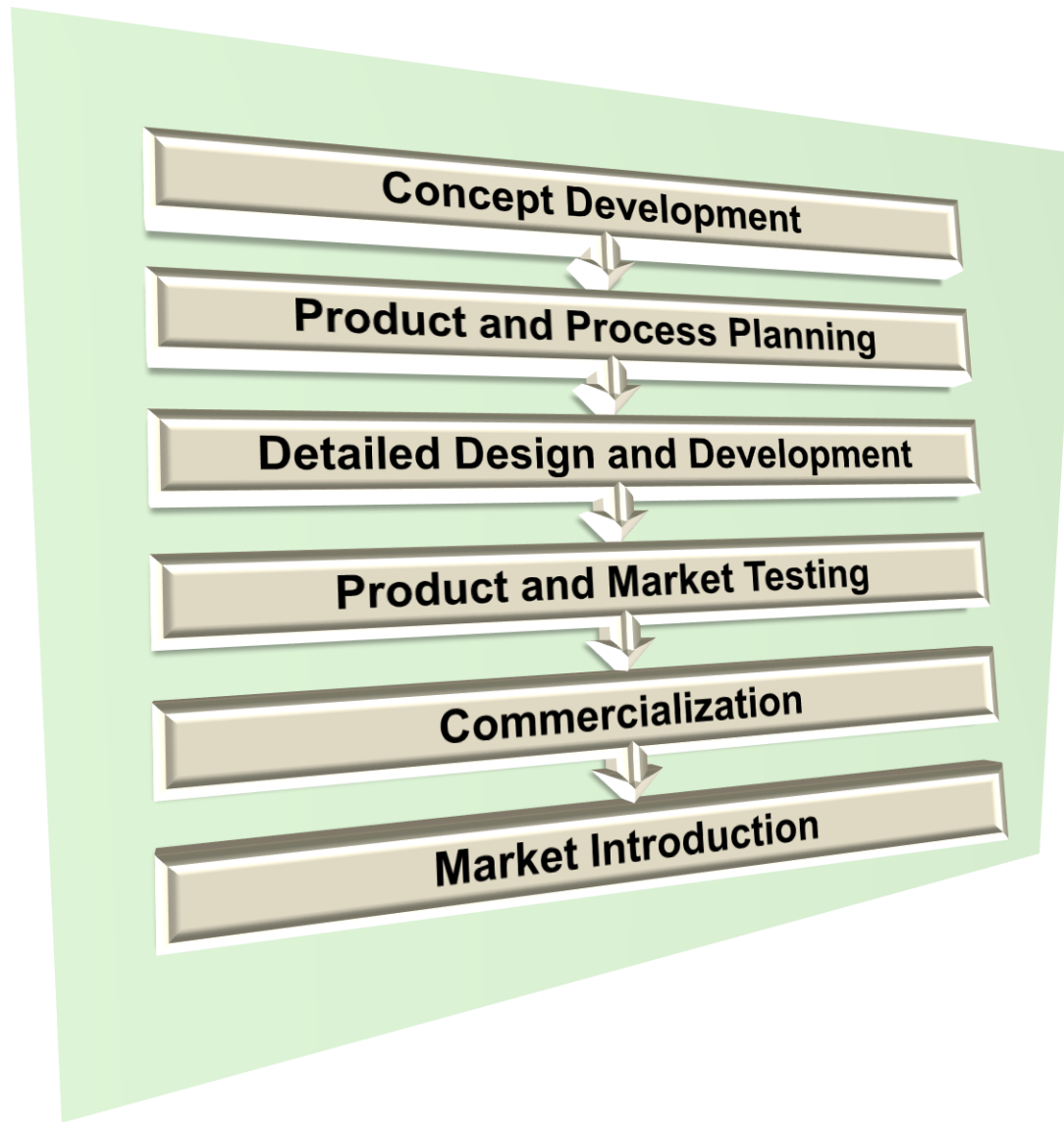
- I. Self-cleaning bidet (connected to a pressure sensor on the seat)
- II. Seat warming
- III. Massage (water pressure)
- IV. Blow dryers
- V. Deodorization
- VI. Sound (high / Lo volume)



Production Strategies

- **Engineer to Order (ETO):** unique, customized products (e.g. custom-built house, specialized industrial equipment) 
- **Make to Order (MTO):** similar design, customized during production (e.g. jet plane, a haircut) 
- **Assemble to Order (ATO):** produced from standard components and modules (e.g. fast food) 
- **Make to Stock (MTS):** goods made and held in inventory in advance of customer orders (e.g. retail clothing, books) 

Product/Process Design and Development: Stages



Critical Innovation Operational Competencies

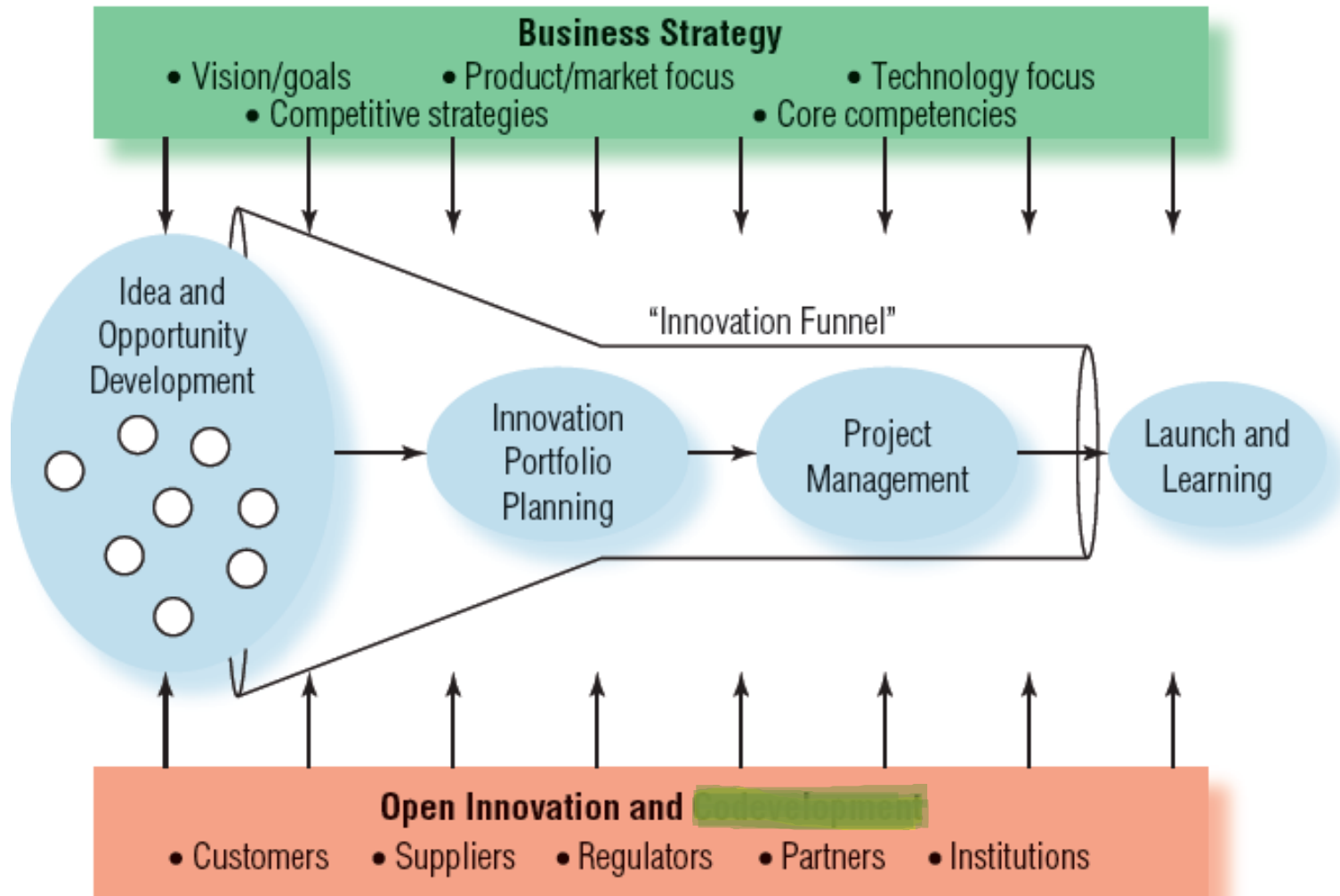


Figure 4-2

Co-Development – Case Study: *Clorox and P&G*



Product & Process Innovation – Case study:

Intelligent Toilet – *Co-development by Daiwa and Toto*

- Hi-tech system that can instantly measure the user's blood pressure, and urine sugar level when sitting on the toilet.
- A scale built into the floor measures the user's weight, body fat.
- Data uploaded via a home network and connect with a Health Management Application to create graphs showing monthly and annual changes and offers advice to improve the user's health & lifestyle.



Co-development

Benefits:

- Increased sources of, and access to, ideas and opportunities, leading to higher quality
- Leveraging the expertise of others increases the number of successful launches, and reduces lead time
- Financial and legal risks are shared

Risks:

- Less control over intellectual property
- Partner dependency may lead to less control over goals and timing





New Service Development Cycle

New Service Development Cycle

- Full-scale launch
- Post-launch review

Full Launch

Development

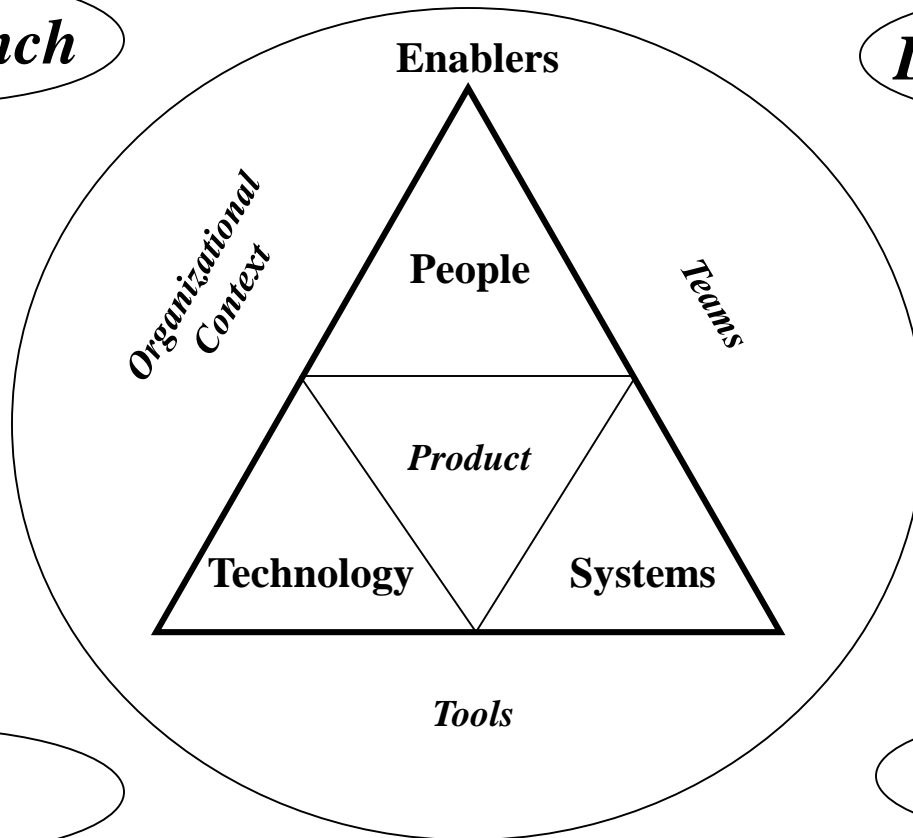
- Formulation of new services objective / strategy
- Idea generation and screening
- Concept development and testing

Analysis

- Business analysis
- Project authorization

Design

- Service design and testing
- Process and system design and testing
- Marketing program design and testing
- Personnel training
- Service testing and pilot run
- Test marketing







Approaches of Service Design

Service Design Approaches

1. Production-line Approach

Attempt to translate a successful manufacturing concept into the service sector, and the following features contribute to its success

- Limit Discretion of Personnel
- Division of Labor
- Substitute Technology for People
- Standardize the Service

e.g. Travel document application, Fast food production, pharmacy services



Service Design Approaches

2. Self-service Approach

Opportunities exist for increasing productivity by shifting some of the service activities onto the customers. Customer participation increases the degree of customization.

- Smoothing Service Demand
- Taking greater control
- Fail-safe design

e.g. Bank ATMs, salad bars, revolving sushi, self service gas station



Service Design Approaches

3. Personal-Attention Approach

The success of this approach depends on the required amount of customer contact in the creation of the service.

- High customization service (face-to-face loose spec)
- Good employee training, information systems and processes
- A supportive reward structure

e.g. Legal services, doctor consultation



Key Take Away

- Product life cycle
- Production Strategies
- Co-development
- Three approaches to service design.

