Lecture #4

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January 18, 2006

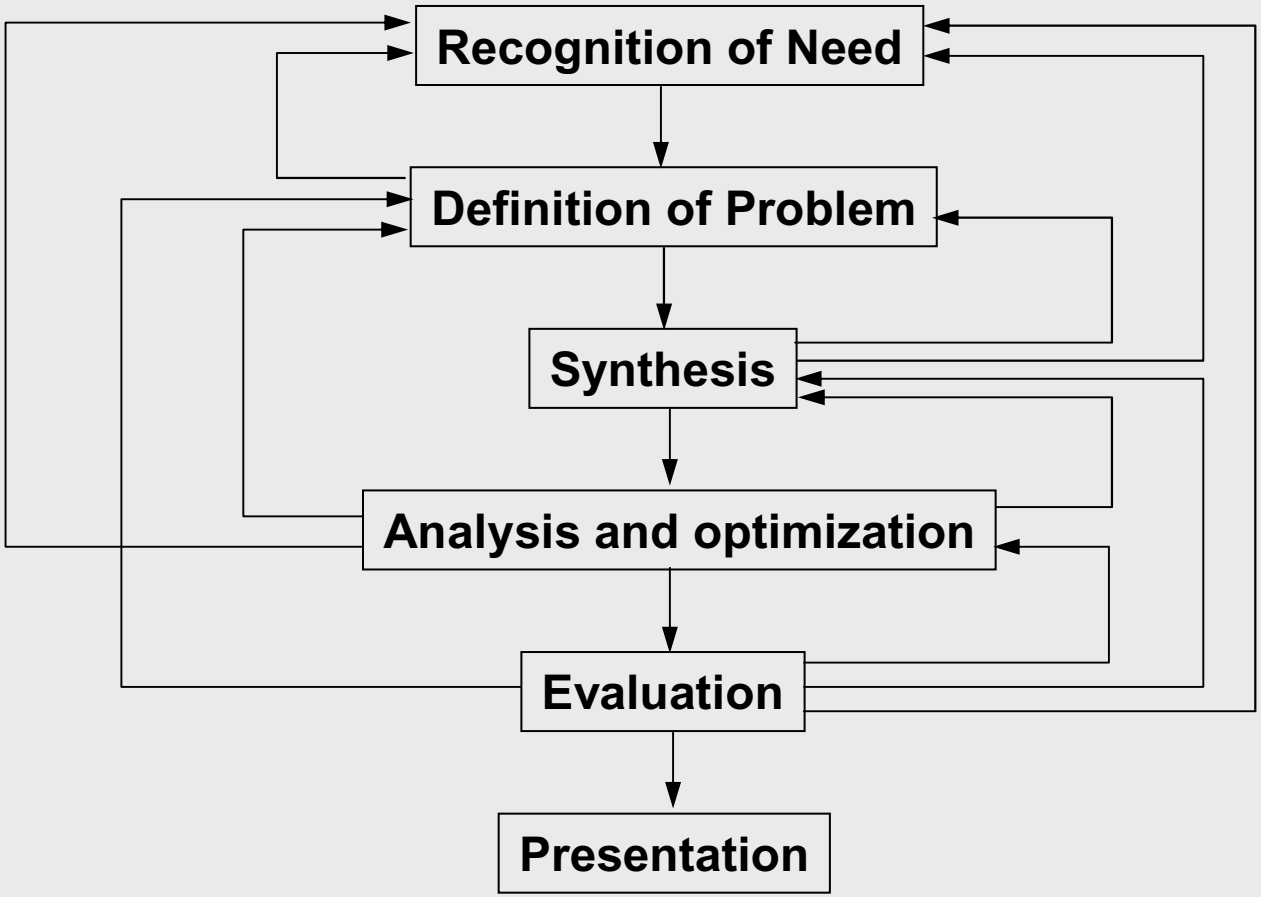
MichiganTech

Service Processes & Systems
Dept. of Mechanical Engineering - Engineering Mechanics
Michigan Technological University

Looking Forward

- We have just begun to get our feet wet with Service Processes
- Very soon we are going to begin looking at the operation of Service Processes and Systems
- Later in the term – we will examine the Design of SPS – but so that the design idea is not completely forgotten – we will talk about it briefly today.

Classic Phases of Mechanical Design



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Design Factors

- Strength
- Reliability
- Thermal issues
- Corrosion
- Wear
- Friction
- Processing
- Utility
- Cost
- Safety
- Weight
- Noise
- Styling
- Shape
- Size
- Flexibility
- Control
- Stiffness
- Surface finish
- Lubrication
- Maintenance
- Volume

Our thoughts on the classic view

- Overall design process…
- Role of the customer…
- Design Factors…

Services Design - Innovation Background

- **Radical Innovations**
  - **Major Innovation: new service driven by information and computer based technology**
  - **Start-up Business: new service for existing market**
  - **New Services for the Market Presently Served: new services to customers of an organization**

Services Design - Innovation Background

- **Incremental Innovations**
  - **Service Line Extensions: augmentation of existing service line (e.g. new menu items)**
  - **Service Improvements: changes in features of currently offered service**
  - **Style Changes: modest visible changes in appearances**

Service Design Elements

- **Elements to be engineered to create a consistent service offering that achieves the strategic service vision, these elements become a blueprint.**

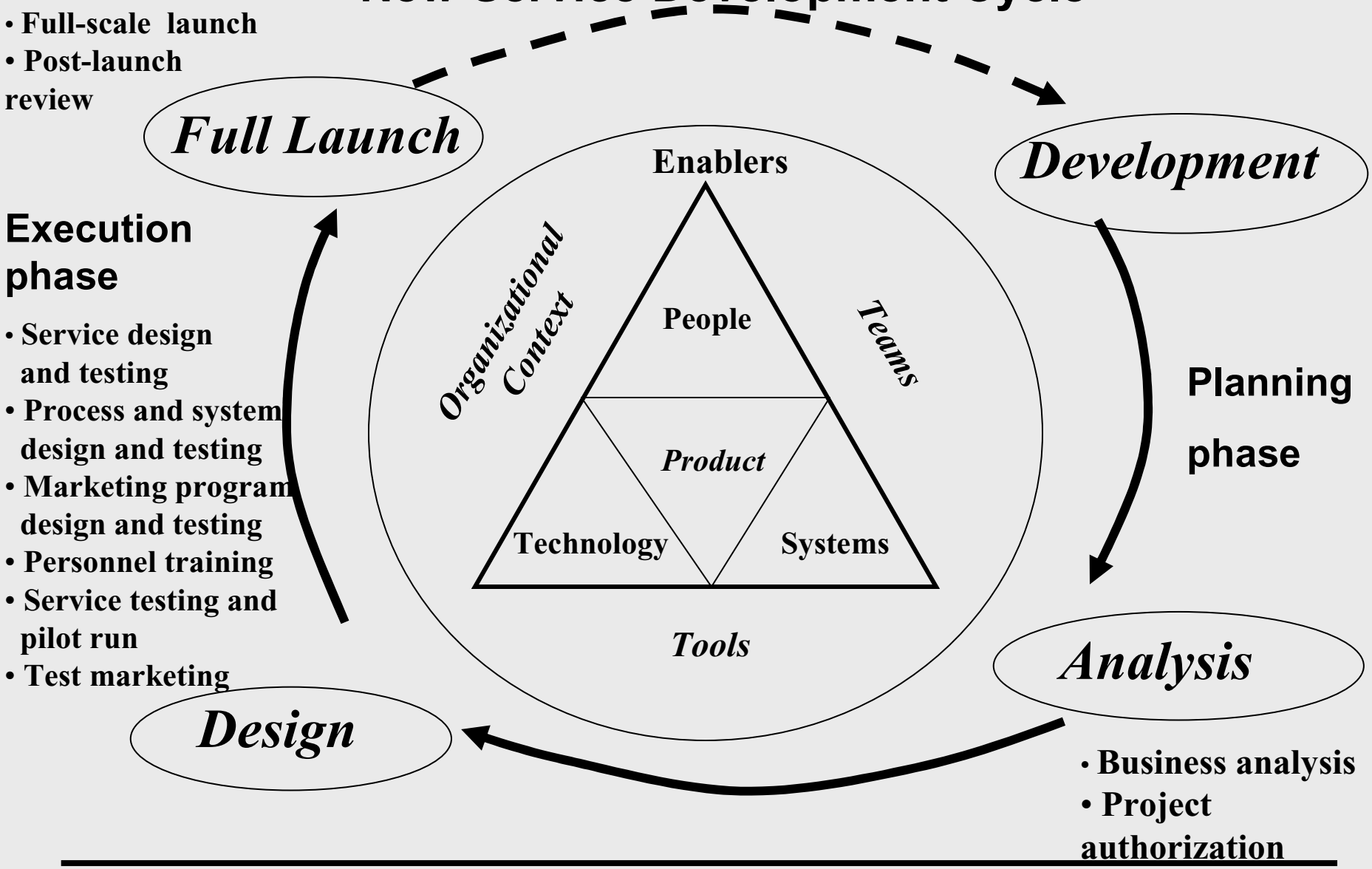
Service Design Elements

- **Structural**
  - **Delivery system. Front and back office, automation, customer participation**
  - **Facility design. Size, aesthetics, layout**
  - **Location. Customer demographics, single or multiple sites, competition, site characteristics**
  - **Capacity planning. Managing queues, number of servers, peak demand, etc.**

Service Design Elements

- **Managerial**
  - **Service encounter. Service culture, motivation, training, employee empowerment**
  - **Quality. Measurement, monitoring, methods, service guarantee**
  - **Managing capacity and demand. Strategies for altering demand and controlling supply**
  - **Information. Competitive resource, data collection.**

New Service Development Cycle



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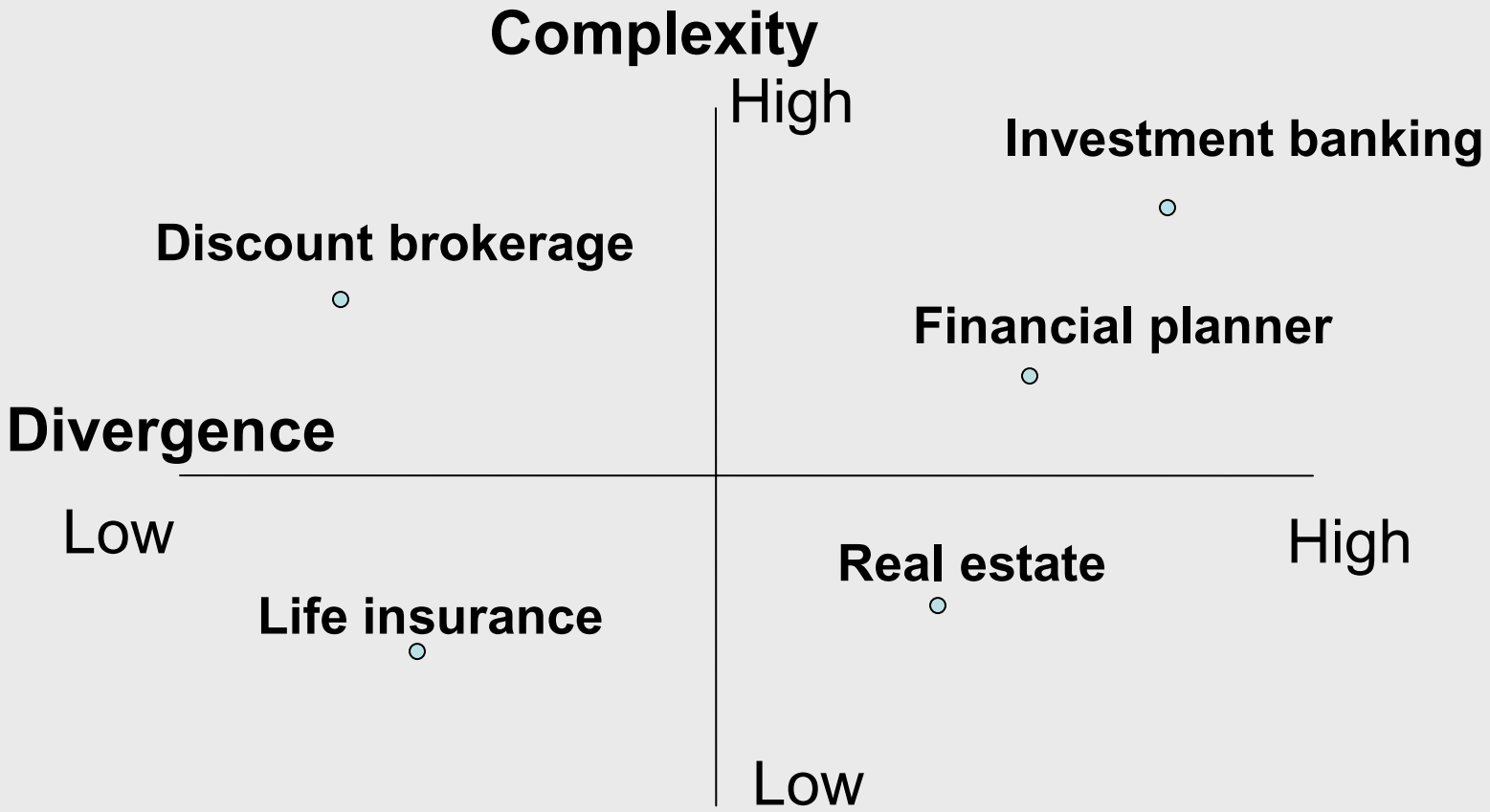
Strategic Positioning Through Process Structure

- **Degree of Complexity: Measured by the number of steps in the service blueprint. For example a clinic is less complex than a general hospital.**

- **Degree of Divergence: Amount of discretion permitted the server to customize the service. For example the activities of an attorney contrasted with those of a paralegal.**

Strategic Positioning Through Process Structure



Structural Alternatives for a Restaurant

LOWER COMPLEXITY/DIVERGENCE	CURRENT PROCESS	HIGHER COMPLEXITY/DIVERGENCE
No reservations	Take reservation	Specific Table Selection
Self-seating. Menu on blackboard	Seat guests, give menus	Recite menu: Describe entrees & specials
Eliminate	Serve water and bread	Assortment of hot breads and hors d' oevres
Customer fills out form	Take orders prepare orders	At table. Taken personally
Pre-prepared: No choice	Salad (4 choices)	Individually prepared at table
Limit to four choices	Entrée (15 choices)	Expand to 20 choices: add flaming dishes; bone fish at table; prepare sauces at table
Sundae bar: Self-service	Dessert (6 choices)	Expand to 12 choices
Coffee, tea, milk only	Beverage (6 choices)	Add exotic coffees; sherbet between
Serve salad & entrée together: Bill and beverage together	Serve Orders	Courses; Hand grind pepper
Cash only: Pay when leaving	Collect Payment	Choice of payment. Including house accounts. Serve mints.

Generic Approaches to Service Design

Production-line

Translate a successful manufacturing concept into the service sector.

- Limit Discretion of Personnel (employees without freedom)
- Division of Labor (job broken down into simple tasks)
- Substitute Technology for People
- Standardize the Service (limits service options, uniformity in service quality).

Example: McDonald's

- The entire system is engineered from beginning to end, from prepackaged hamburgers to highly visible trash cans.
- Every detail is accounted for through careful planning and design.

Generic Approaches to Service Design

Customer as Co-producer

- **Shifting some service activities onto the customer.**
- **Customer participation can increase degree of customization.**
- **Spectrum of delivery systems, from self-service to complete dependence on provider -- real estate agt**
  - **Self Service (reduces operating costs, e.g. automatic check-in at airports).**
- **Smoothing Service Demand - permanent loss to service provider of capacity when server is idle though lack of customer demand (uniform utilization of capacity, improves productivity)**
  - **Appointments and reservations**
  - **Service during off-peak hours by price incentives**
- **Example: Pizza Hut's lunch buffet**

Generic Approaches to Service Design

Customer Contact

- **Degree of Customer Contact.- physical presence of the customer in the system.**
  - **Measured by the % of time that the customer is in the system relative to the total service time (run even as factory, e.g. laundry in a hospital).**
- **Separation of High and Low Contact Operations**

Generic Approaches to Service Design

Information Empowerment -- IT is fundamental to succeed

- **Employee Empowerment**
  - (IT) Record keeping, databases
  - Relational databases (all aspects information access by anybody)
  - Now also across different organizations to give better service (airlines)
- **Customer Empowerment**
  - Internet – Medical forums
  - Fedex – tracking packages
  - Expedia – travel reservations
  - Walmart – check-out

Service Design Challenges

Four Risks Inherent to Describing Services

- **Oversimplification**
  - "To say that 'portfolio management' means 'buying and selling stocks' is like describing the space shuttle as 'something that flies.'"
- **Incompleteness**
  - Customers are able to describe only the parts of the services with which they are familiar and with which they have direct contact.
- **Subjectivity**
  - Lots of variation from person to person
- **Biased Interpretation**
  - People are biased by their own experiences with services.
  - In describing services to others, people add another bias in the way they use words, which are open to the interpretation of the listener.