The Airplane Production System: Turning an Airplane

Airport Terminal Production System: Moving the Passenger
What We Found (2)

- Airline worldview:
  - Airlines focus on the best way to move planes rather than the best way to move people
  - Airlines plan for the "routine travel event", based on the assumption that travel disruptions are the exception rather than the rule
- Needed expansion of airline worldview:
  - Information systems and procedures for routinely handling disrupted travel
  - Understand the "customer-as-participant"
    - Realize that the airline customer is an intelligent actor, moving through the airline system, negotiating and interacting with it
    - Prepare for Customers' actions to affect and change the airline system

Focusing on People not Planes—Finding the Customer

- Method: Following customer trajectories from the curb to the plane
- Method: "Jumping the Counter" - seeing one transaction from two perspectives

From the Customer Service Rep's perspective  From the Customer's Perspective perspective
What We Found (3)

- Airline information systems
  - Fail to support customer service representatives (CSRs) and customers in complex negotiations during disrupted travel
  - Rely heavily on human rather than electronic memory to help align and re-establish a shared travel context
  - Shared travel context is re-established through "negotiated interactions"

- "Negotiated interactions": what is happening when that annoying customer in front of you is at the counter for fifteen minutes

- Negotiated interactions as a
  - Red flag to researchers indicating a breech of routine
  - Attempt by CSRs and customers to realign customer needs and airline system capacity

Simple Routine Transaction (SRT)

Simple Routine Transaction completed:
- CSR and customer exchanged information and documents.
- All systems software components (seating, bags, passenger planning, routing, etc.) updated to reflect transaction.
- Customer moves on to receive other services. CSR helps next customers.
Simple Routine Transaction (SRT)

CSR receives Customer information and inputs into system

Customer gives information to CSR

Simple Routine Transaction complete:
- CSR and customer exchange information and documents.
- All systems software components (seating, bags, passenger planning, routing, etc.) updated to reflect transaction.
- Customer moves on to receive other services. CSR helps next customers.

11/23/2002

Supported Negotiated Interaction (SNI)

Travel is disrupted

Negotiating to re-establish a shared context
Supported Negotiated Interaction (SNI)

Shared context established
All system components updated in software system

Supported Negotiated Interaction complete:
- Pertinent information is available in the software but not automatically displayed and linked to complete the changed transaction.
- CSR must remember and deal with multiple choices during the transaction.
- After an SNI is complete, system resources and memory are updated automatically.

CSR receives Customer information and inputs into system

Customer gives information to CSR

Routing Pricing Seat Availability

Changes in routine travel require a resolution between several components that must be negotiated individually to complete the transaction.

Transaction completed

11/23/2002
Unsupported Negotiated Interaction (UNI)

Shared context is Apparently re-established
System does not update - components remain unresolved
Unsupported Negotiated Interaction (UNI)

Information system fails to support the interaction

11/23/2002

Unsupported Negotiated Interaction complete
- Components remain unresolved because of failures of the information system to prompt for action, support memory or allow for input
- Unresolved components will affect allocation of downstream system resources and may cause breakdowns

Components remain unresolved in the system (*).

CSR receives Customer information and inputs into system

Routing Pricing Availability

Changes in routine travel require a resolution between several components that must be negotiated individually to complete the transaction.

UNI Transaction remains incomplete:
Gap represents unresolved components still in the system.
What We Learned

- CSRs and customers are left to manage the gaps in electronic memory with social compensation
- The information system, which has multiple layers and multiple programs, only partially supports the work practice of the CSR as s/he interacts with the customer during complex negotiated interactions
  - The information system does not necessarily provide an accurate update of all airline system components
  - CSR and customer must maintain in human memory many of the components relevant to ticket changes

This Stuff is Everywhere – Go Out and Look For It

- The "customer as participant"
  - An organization's customers are intelligent actors who can affect and change the organizational system
  - Employees using software information systems often interact with those customers in a dynamic of change
  - What is the effect on the organization?
- Negotiated Interactions
  - Flags for identifying places where problems and deficiencies are being revealed
  - Useful for improving design
- Ethnographies of work consistently show the hidden intelligence in supposedly routine work
  - People are not just "key pushers"
  - It's our job to reveal hidden intelligent work and its design implications to owners and developers of information systems