Context Analysis of An Airport Departures Terminal

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View a full set of the images of the observations contained herein at
http://www.flickr.com/photos/19873741@N00/sets/72157608339893015/

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Part 1: Contextual Evaluation

A. Intro

Air travelers and their particular needs are the focus of activity at an airport. Herein I detail my observations of the individuals observed at an airport departures terminal, and the systems at work that facilitate the process of preparing travelers to board their departing flights.

The departures area at any airport is a fast-paced environment, rich in information, where travelers need directions to locate their respective airline service counters in a very large physical space. There is a lot going on and travelers generally arrive anxious. Many workers and systems collaborate to ready passengers. Below is my context evaluation of the environment, the actors and the activities that were observed in this setting.

B. **Method**

I circumnavigated the departures terminal at Sea-Tac airport to observe human interactions at the service counters for such airlines as Korean, Southwest, United and, particularly, Alaska. My set of tools was simple: plain paper, sticky notes, a pencil, tape and a camera. I noted observations on sticky notes and then organized them on the plain paper into categories: individual, activity and artifacts. Pictures relating to this exercise can be found at http://www.flickr.com/photos/19873741@N00/sets/72157608339893015/,under "IMT540 Contextual Analysis Exercise".

C. Setting

Sea-Tac Airport, Sea-Tac, Washington state. October 21st, 2008, 12:45pm thru 2: 20pm. Departures terminal.

The layout at Sea-Tac is spacious as can be inferred from the pictures associated with this observation. The departures terminal has sweeping high ceilings, bay windows looking out into the street, automatic parting glass doors, ample seating, open views and unrestricted access to baggage claim, escalators leading to parking and transportation areas, and even a replica of the Voyager aircraft flown by Rutan around the world in 1986. These architectural features all play to the notion of flying as a soaring adventure.

There are several large digital flight departure boards that provide summarized flight schedule updates; and, translations are provided in posters throughout the terminal to support international travelers. Departure terminals at airports remain one of the few areas in which one is likely to find a bank of public pay phones.

Many airlines operate within an airport. All throughout the terminal, there is a preponderance of signposts directing travelers to airline service counters. Airlines use different approaches to serve their customers. Small airlines like Frontier use a traditional approach where customer service agents behind a terminal handle all of the customer's flight check-in and luggage transportation needs. Larger airlines such as Alaska have partially automated their check-in process, installing self-service terminals throughout the terminal. These terminals or kiosks allow the passenger to verify their reservation and obtain boarding passes, without the airline having to incur servicing costs. If travelers need to check-in luggage, they proceed to a second step where they surrender

their bag to be tagged by a customer service agent. You can observe how this works by contrasting the photos entitled 'automation_checkin_combined_services_area' and 'people_service_agent_taking_bags' in my online album.

Whereas Alaska handles these two steps in distinct physical spaces in the terminal, Southwest places their kiosks right in front of the services counter. If it becomes necessary to assist the passenger in finding their reservation, the agent already engaged with the customer can also take care of checking in any luggage and finishing the passenger's travel preparations.

These different approaches reflect the variation of needs in the individuals that different airlines tend to cater to. Whereas some airlines could have a higher concentration of business travelers with relatively low luggage check-in needs, other airlines could have a greater number of tourists or vacationing passengers that need to surrender large suitcases and boxes to the airline for transport in cargo. This reality may explain why Alaska makes available more self-service kiosks in the terminal than any other airline.

Finally, at most airline service counters there are rope lines to form queues—these are visible in the cover image for this assignment. They are all over the airport because of the necessity of organizing large groups of people in a concentrated space. The queue lines maintain order in the terminal during busy periods and guide customers to designated service counters, whether for coach-class, first-class or group travelers. These dedicated stations are framed above by signs which indicate whether the station is staffed or closed.

D. People, Activities and Artifacts

AS I proceeded thru the busy airport, I was surprised at the many actors performing at the departures terminal. There were, of course, travelers, sometimes accompanied by acquaintances. These travelers were in turn supported by teams of baggage handlers, customer service agents, pilots, special needs agents, facilities engineers, security guards, special facilities equipment handlers and janitors. In the following segments I go into detail about their roles at the departures terminal, the activities I observed them performing, and notable artifacts that were used in the process.

<u>The Needs of Travelers</u>

Travelers are at the airport to catch a flight to another city. The departures terminal functions to afford the passenger to check in with the airline, receive their travel documents and hand over any luggage that they need transported in the plane's cargo hold. They then have to find their way to their departure gate to board their flight.

Signs throughout the airport guide the traveler to the appropriate airline service counter, alert him of special travel restrictions (such as the ongoing Federal Aviation Administration ban on containers with liquids over 2 ounces), and remind him of special policies such as baggage handling fees.

Once at the service counter or kiosk, the passenger provides his credit card or piece of identification to retrieve his reservation. The passenger then receives his boarding pass and luggage receipts, if bags are also checked in, and is thereby added to the flight manifest.

Boarding pass in hand, passengers then generally head for their assigned departure gate. Passengers can use the gate information printed on their boarding passes to cross-reference contextual signs or an airport map in the terminal and find their way to the airplane.

Acquaintances. Acquaintances sometimes accompany travelers in the departures terminal. Their role is generally limited to providing familiar comfort as passengers obtain a boarding pass.

Supporting Cast of Workers

There are many workers that serve the various functions of the airport to meet the needs of travelers.

Airline Customer Support Agents. Provide traveler support during check-in, helping customers to obtain boarding passes, tagging luggage and loading it unto conveyor belts, verifying passenger identification and attaching luggage tags to the passenger's travel documents, sometimes even providing alternate travel arrangements to customers. While some agents operate behind computer terminals near the baggage conveyer belts helping to finalize travel arrangements, others walk about the terminal to help passengers stuck in designated queues.

Pilots. Observed either passing thru or checking in at service counters. The brave individuals that direct our rides in aluminum framed tubes cruising the skies at just over 30,000 feet. The pilots observed usually carried a small briefcase or roll-along—a sign that points to the likelihood that they have a short stay in the flight's destination city.

Workers are not always employed by the airlines but may work for the Port of Seattle in other supporting roles, as in the case of some baggage handlers.

Baggage Handlers. Move luggage into the terminal and between airlines as needed. Beyond helping get customers from curbside to check-in area, some handler's play a different role moving bags from one airline service counter to another. AS an example, Alaska serves Horizon flights; yet, luggage bound for Horizon that is received in Alaska's service counters has to be moved to a designated Horizon luggage conveyor.

Special Needs Agents. A team of port employees are dedicated to assist disabled travelers with wheelchairs. They meet the traveler at the check-in area and help get them thru security checkpoints to their departing gate. These employees receive their assignments via walkie-talkie from a dispatcher who handles requests from the airlines check-in service agents.

Security. Provide vigilance and promote a sense of safety. Security personnel maintains the order in the terminal when passenger relations turn unmanageable. I observed two types: armed and unarmed security personnel. Armed personnel were likely part of the local or regional police force responsible for securing the facility, preventing and responding to criminal acts. Unarmed security personnel were part of private security agencies that provide services at airport checkpoints. These individuals handled issues of order and civility within the terminal that do not require weapons handling.

Equipment Engineers. Hard-hats were visible in my observation of the Alaska Airlines departures area as facilities engineers fixed and tested a luggage conveyor system, critical to dispensing luggage from the departures area to baggage handlers loading cargo into departing flights.

Luggage Cart Collector. A person observed dragging a line of the luggage carts that travelers sometimes rent to haul their belongings. This individual collects the carts abandoned throughout the terminal and returns them to the dispensing machines.

Janitorial Workers. The terminal is maintained by janitorial workers who collect garbage and keep facilities orderly. They navigate the terminal carting the tools of their trade: large receptacles in which to collect garbage, sweepers, cleaning solutions and rags, mops and replacement garbage bags. I can't emphasize enough their value in maintaining the public image of the port terminal.

Other Artifacts

Escalators. Escalators leading to baggage claim, parking and transportation were accessible at every section of the terminal that connected to the parking garage by pedestrian bridge.

Identification Badges. Workers throughout the terminal wore identification badges that had Port Authority security clearance. These badges afforded workers to various secure areas of the terminal. Several airline workers were observed using their badges to access small office and storage areas behind their service counters.

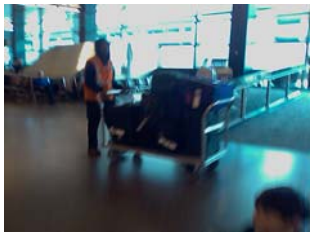
Luggage Tags. Ubiquitous throughout the departures area, *luggage tags* were provided to passengers by every airline. These were used by travelers to attach personal contact information to their bags for identification in the event there was a routing error and the bags got lost in the network.

Summary

The preponderance of information and activities at an airport departures terminal can easily overwhelm one's senses. The observed environment afforded air travelers a soaring space that complements the marvelous experience of air travel. Travelers are guided to their respective airline check-in areas thru the use of signs and maps. They are provided a means to confirm their flight departure time thru the digital boards dotting the terminal. They can check-in for their flights, obtain their boarding passes—whether thru an agent or by self-service, and register their luggage. They then hold information that they can cross-reference with signage in the terminal to find their way to their designated departure gate.

Throughout the terminal, hundreds of workers in visible and not so visible roles collude to facilitate the processing of thousands of departing air travelers each day. Airlines determine the mix of services they offer at the terminal based on customer base needs and operational cost constraints. They collaborate with Port Authority workers to handle special needs such as disabled passenger wheelchair services, airline baggage transfer, equipment and facilities maintenance and security.

The collective actions of these individuals are at the center of processes which allow thousands of air travelers to take to the skies each day. Underlying those processes are some of the most advanced information systems designed to date. I hope the observations I have provided herein, and the conceptual models I provide in the Appendix, can be used by others as a foundation to structure further research on information seeking behavior in complex interactive environments.




Part 2: Intervention and Reflection

A. Propose an Intervention

I observed an elderly man become incensed as he waited for over 30 minutes for a wheelchair to transport his wife to their departing gate. His temper grew more animated as time passed and he watched other passengers in similar circumstances getting wheeled away after waiting just a few minutes. He loudly wondered what was amiss with the system. Why was he unfairly made to wait, and for how much longer? Every 10 minutes he'd raise the issue with one of the special needs agents, and each time the response was the same: the passenger would simply have to wait. No more information was at hand to address his concern, and each agent was preoccupied with the needs of the passenger that the dispatcher had tasked them with. Only after 3 such exchanges did one of the agents finally reach for her walkie-talkie and called dispatch to try to sort out the problem, which returned no new information. The passenger would simply have to continue to wait.

<u>Intervention proposed: What if travelers with special needs could be provided an estimate of their wait time for a wheelchair by someone or some artifact out in the waiting area?</u>

Someone or something out on the floor could provide the passenger with information about the expected waiting time for a wheelchair to arrive. The source of this information would be the special needs agent who would start providing to their dispatcher an estimate of how soon they would meet the passenger in the waiting area. In this low-tech approach the dispatcher would need to note down this estimate as well as when the agent accepted the assignment. This would allow an airline employee helping customers out in the waiting area to call (with a walkie-talkie) the dispatcher to obtain estimates for a particular passenger.

A high-tech version of this system would reduce the role of the dispatcher to handle exceptional issues and special needs from airline agents. The special needs agents out in the terminal would instead update their walkie-talkies to interactive, wireless handheld devices that would allow them to confirm which passengers are in their queue and provide an estimate for how soon they could be there with a wheelchair. This information can be served thru a web page that calculates the estimated arrival time for the chair, and which can be accessed by airline systems. Perhaps an airline agent out on the floor has a handheld device that they can use to access said page. Better yet would be to wire a digital screen out in the waiting area that serves the information by passenger last name, and that the passengers themselves can use to find out how much longer they would need to wait.

B. Reflections

Before going to the airport to carry out my observations, I had envisioned the interaction at the check-in counter based on my past experiences. I anticipated the baggage handlers, security, the customer support agents and pilots in my mental model. Yet it was thru direct observation that I was able to realize the important contributions to the process made by peripheral roles working in the terminal such as the dedicated terminal baggage handlers, the special needs agents, the equipment engineers, the cart collector and the janitor. All of these individuals are there to address exceptional customer cases or areas in the terminal with potential to negatively impact the flow of readying passengers for their flights. The moment of realization for me came when a janitor parked his supplies cart directly in front of my view of the automated check-in terminals at Alaska's service area. His function was so far removed in my mind from the process of getting customers prepared for their flights that I probably had not recognized his importance during the entire exercise had he not reduced my focal point.

To fully realize user needs in a given situation there is really no better way than to infer those needs as the activities performed are observed first-hand.

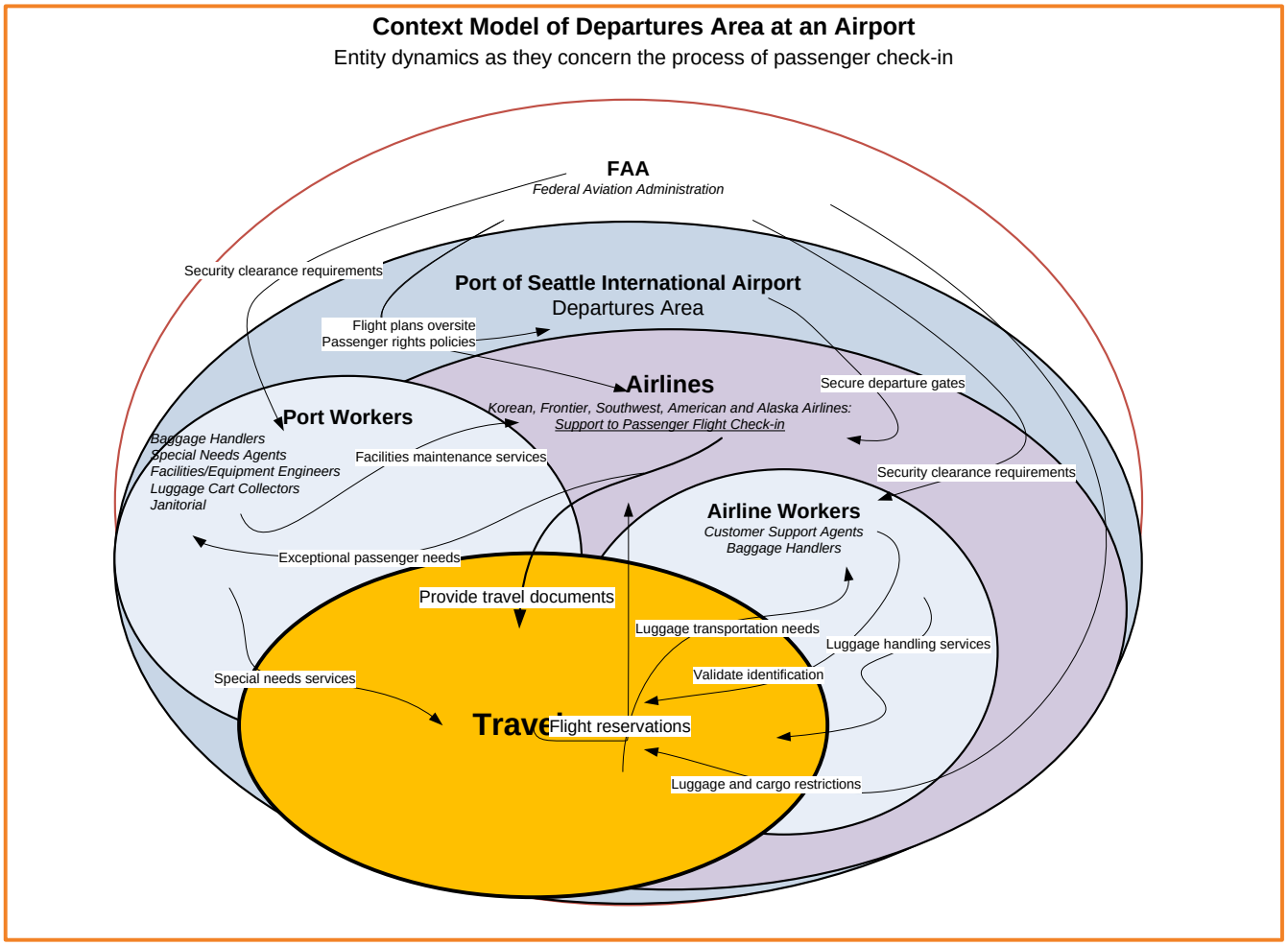
Additionally, the representations included in the Appendix allowed me to better understand how these models focus conversations throughout the design process . The context model provides an overview of all the entities that have influence over the process that air travelers follow to check-in for their flights. It includes the Federal Aviation Administration (FAA), which plays only an indirect role on the scene at the terminal. The FAA's impact is palpable only thru the information posters on carry-on restrictions placed next to the passenger queues. This model reminds us that in considering any intervention we must corroborate passenger rights and transportation laws that could impact our initiatives. The abstract workflow model however does not include a representation of the FAA because the model focuses on the principal actors on the scene and the active exchange of information between these actors. This model helps us to understand how a potential intervention can change the nature of the work in the terminal. The changes in work processes at the departures terminal do not involve direct requests to or from the FAA, and that is why it's not included in the abstract model.

APPENDIX

A. Representations

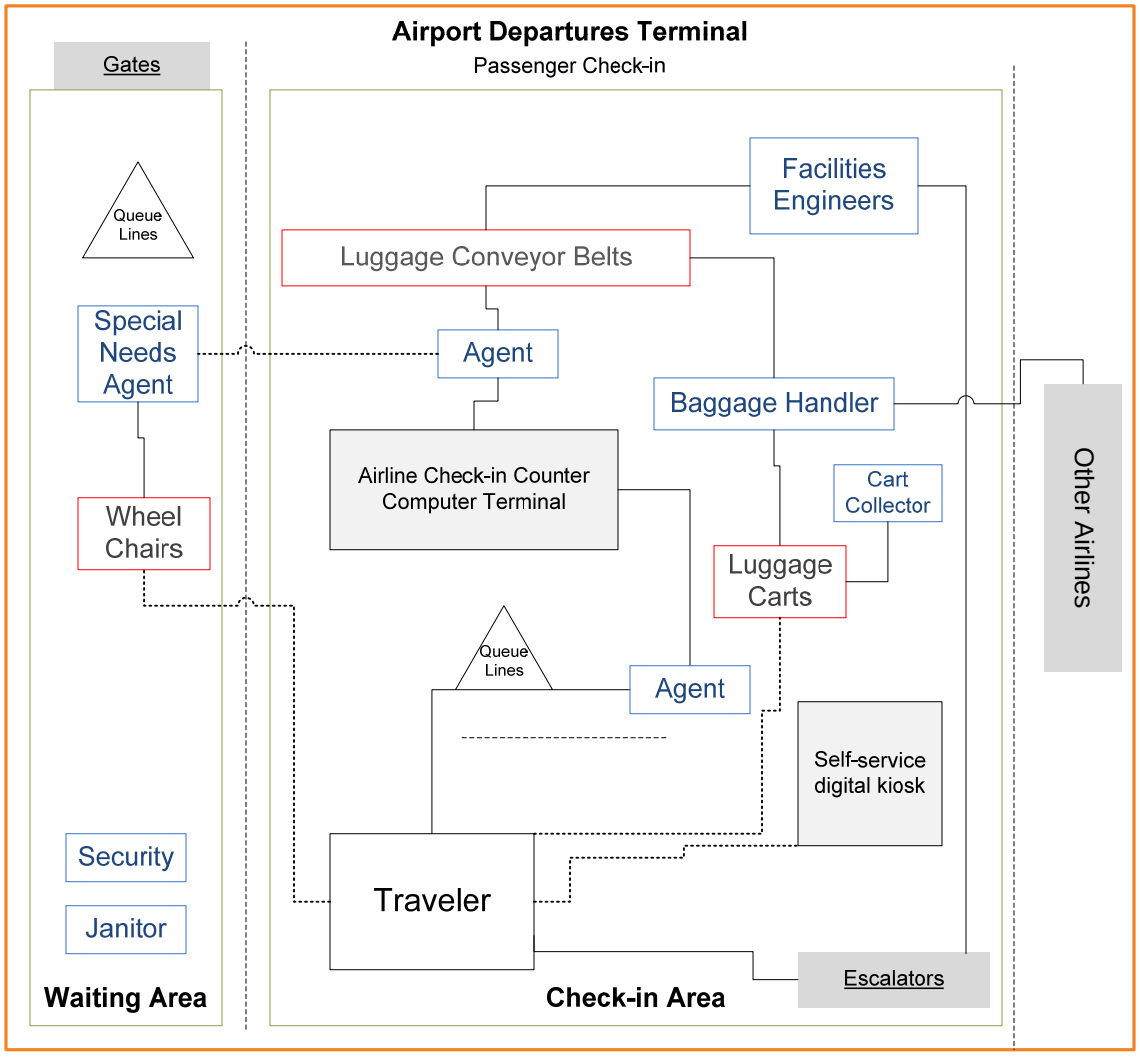
Context Model

Here is a contextual representation of the entities and dynamics at work in an airport departures terminal.



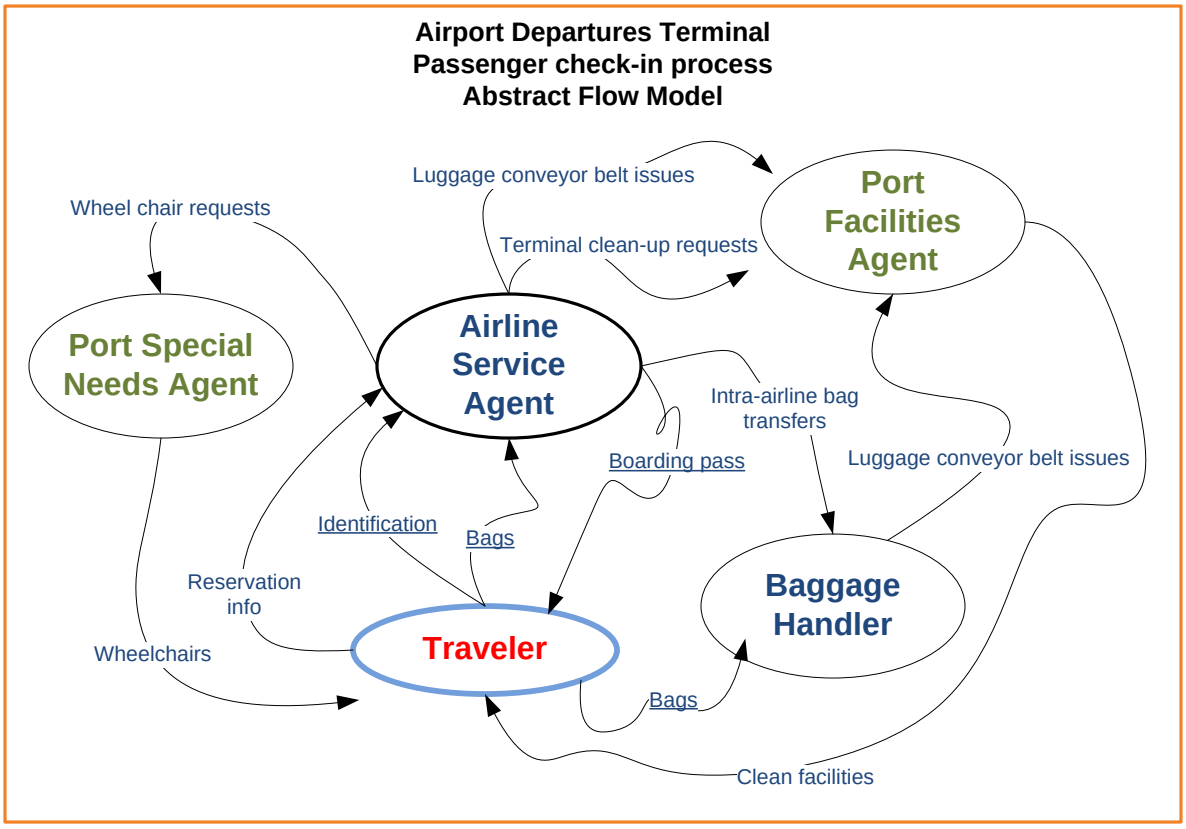
Physical Model

Here is a representation of the departures terminal area, focusing on the actors and artifacts that play a role in this scenario. The dotted lines from the traveler to other artifacts indicate these are optional interactions.



Abstract Flow Model

The model below focuses on how communication takes place between the entities at the departures terminal.



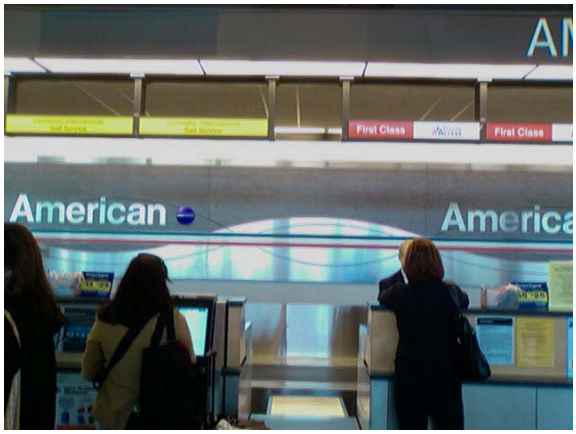
B. Pictures

Here's a collection of pictures taken during my visit to the airport departures terminal. The full set of images and models is available at http://www.flickr.com/photos/19873741@N00/sets/72157608339893015/.

Traditional service counter for low-cost airline

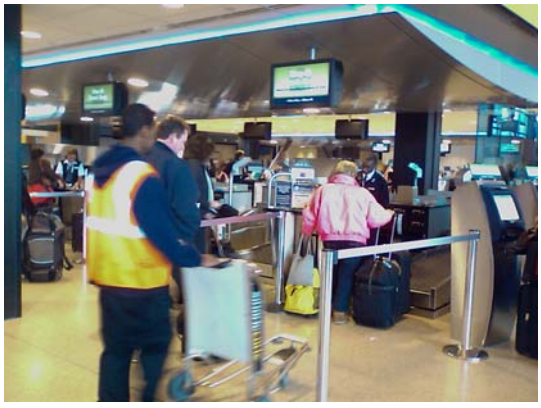
Combo service counter (partially automated process)

Designated services by passenger paying grade



Self-service check-in terminals

Step two at self-service check-in area (tagging bags for cargo)



Departure gate and transportation signposts