Design Inquiry and Research
Week 2
Welcome Back!
Agenda:

+ **Understanding** the power of people and stories
+ **Sharing** information collected and developing a framework for assessment.
+ **Analyzing** information from observations and fieldwork and
+ **Synthesizing** key insights
+ **Experience Mapping** and visualizing complex systems
+ **Developing** personas
+ **Discovering** unmet needs

+ **Strategizing** a research plan for advancing your project:  
  *What do you have? What do you need? What is missing?*
To begin a project, we need a working PROCESS.
A WARM-UP exercise
How DESIGNERS work
Action:
act on a piece of paper +
each person needs seven sheets of paper.
do something with a piece of paper to make it stand.
do this four more times. each one must be different
choose the **best** one.
why is it best
make it better.
is it better? why?
act on one more
Lesson learned: design process
What is DESIGN PROCESS?
DESIGN PROCESS

1: Define the problem
2: create and consider many options
3: refine selected directions
3.5: repeat (optional)
4: pick the winner, execute
Lesson learned:
learning by **doing**
Lesson learned: designers iterate
Google’s 8 Pillars of Innovation:

**Strive for continual innovation, not instant perfection**

"Our iterative process often teaches us invaluable lessons. Watching users ‘in the wild’ as they use our products is the best way to find out what works, then we can act on that feedback.... Iterating has served us well."

- Susan Wojcicki, Google's Senior Vice President of Advertising

From: http://www.google.com/think/articles/8-pillars-of-innovation.htmls
Lesson learned:
fail to succeed
Google’s 8 Pillars of Innovation:

Never fail to fail

"It’s okay to fail as long as you learn from your mistakes and correct them fast. Trust me, we’ve failed plenty of times. Knowing that it’s okay to fail can free you up to take risks."

- Susan Wojcicki, Google's Senior Vice President of Advertising

From: http://www.google.com/think/articles/8-pillars-of-innovation.htmls
"We love to invent. We love to pioneer. We even like going down alleys that turn out to be blind alleys,"

..."Every once in a while those blind alleys turn into broad avenues. And that turns out to be lots of fun.”

- Jeff Bezos, Amazon

From: Amazon announces new wave of Kindle
DRAWING is part of the design PROCESS
diagram noun

Greek *diagramma*, from *di graphein* to mark out by lines, from *dia- + graphein* to write

First Known Use: 1619

1: a graphic design that explains rather than represents; especially: a drawing that shows arrangement and relations (as of parts)

2: a line drawing made for mathematical or scientific purposes

diagram verb

: to show or explain (something) in a diagram

From: http://www.merriam-webster.com/dictionary/diagram
How would you **DIAGRAM** the **DESIGN PROCESS** and **OUTCOMES**?
Think visually
“… human life is not grounded in precision, but in the grasping of connections, facts, relationships, links, analogies…”

— Otl Aicher
I need a DIAGRAM that explains the Paper Exercise we just completed. It must include the instructions, the process, the outcomes, and actions (physical and mental).

As a team, DIAGRAM the Exercise:

How will you begin?

What will you include?

How will you show it?
Lesson learned:
design process
PRESENTATIONS + DISCUSSION
Understand the power of stories. Look for very personal moments + insights people.
ASSIGNMENT PART 2: INTERVIEWS

You must interview at least 3 people who represent stakeholders for your project.
You want to learn as much as you can about them and their personal relationship to the project domain of interest.

Write a 1-2 page (full page minimum) personal portrait telling their “story”. Provide details and insights into their personalities, choices, preferences, and personal intellectual and emotion drivers. This is a story – not a Q+A summary.

The interview assignments are opportunities to understand the relationship between PEOPLE and SITUATIONS. Your goal is to understand what people want and need. Successful interview assignments usually involve multiple interviews and several pages of transcribed conversation that are summarized and distilled into a meaningful narrative.

If your interview is very brief or cut short – I strongly suggest doing another until you have sufficient material.
Look for very personal moments and important insights.
“Contrary to the common commuter, to Francis, the bus serves not as a part of an average day but as an occasional treat granting him the freedom to explore the city in which he operates. The fact that he cannot take this “trip” as often as he wishes makes the entire transit experience much more important in his life. One may conclude that the bus helps him to escape the trials of his everyday life, at least for a short while.”
“She admits that she tries to minimize her exposure to the bus shelter because it is not very accommodating and it makes her feel isolated. She describes the experience of sitting on the small wooden bench by herself while cars zoom past her at a high rate of speed. She jokes that it feels like every car speeds past mocking her misfortune of waiting for the bus in such miserable conditions.”
30 min
Distribute your interviews among members of your team.

Read 3 interviews that are not your own. Make note of what captures your imagination. Look for personal wants and needs.
WRITE YOUR COMMENTS ON THEM.

Discuss which are the most effective stories and WHY.

Select your BEST ONE and turn it in to be graded.
You will conduct ethnographic research related to your project.

1. Go out and visit / observe / experience the markets you are researching

2. You must take at least 20 different pictures of a situation relevant to your project domain of interest. Photos should present a range of perspectives from general overview images to very specific details and situational context.

3. Take at least 3 video clips of 3 minutes each.
What kind of RESEARCH did you do?
How does this relate to “Design Research for Radical Innovation”?
1. What are 3 key points you took from the assigned readings?

2. How do your personal research and fieldwork reflect the ideas and methods in the readings?

3. What are 3 ways you personally conducted research that were unexpected, uncomfortable, exciting or most unusual?

4. What are 3 things you discovered that surprised you?
Generative
Evaluative
Predictive
Each of you is an EXPERT. Now your team has to KNOW what you know.
sharing research
observations + interviews
Sharing your research
Analyzing your research
Visualizing connections
Understanding what the information tells you
Synthesizing insights
process overview
1. Tell your story
2. listen for meaning + take notes
2.5. isolate ideas
3. then put them on the wall
4. look for patterns
5. identify **key words**.
Our goal is to DISCOVER the underlying patterns, structure, and needs
Let’s begin.
Sharing project RESEARCH
sharing observations + interviews

Use your photos, video and notes to share what you saw, heard, noticed, questioned...

:04 each
Cluster and look for patterns
Identify key words
0:20
CLUSTERS TO CONSIDER:

- **Drivers:** Emotional / Operational / Functional / Cultural
- Actors
- Actions
- Market System Components
- Places / Locations
- MONEY / Pricing / Value
- Information
- Needs
- Risks
- Other?
Question your fundamental ASSUMPTIONS
“Not surprisingly, disruptive ideas stand a small chance of ever seeing the light of day when they are evaluated with the screens and lenses a company uses to identify and shape sustaining innovations. Companies frustrated by an inability to create new growth shouldn’t conclude that they aren’t generating enough good ideas. The problem doesn’t lie in their creativity; it lies in their processes.”

From Christensen: *The Innovator’s Solution: Creating and Sustaining Successful Growth*

Quoted by Fulton Suri: *Informing our Intuition: Design Research for Radical Innovation*
“Processes that are good at instilling confidence when it comes to directions for incremental innovation can be **inappropriately limiting** and personally discouraging to more radical innovation efforts, in which many variables are unknown or unknowable.”

From Fulton Suri: *Informing our Intuition: Design Research for Radical Innovation*
What is the information TELLING you
Building on your key words, construct **5 meaningful INSIGHTS about the Market:**

“This Underground Market is …”
“The current situation lacks…”
“The consumer wants…”
“The seller needs…”
“The main components of the system are…”
“The challenges they face are…”
“The market opportunity is…”
“A hidden opportunity is…”
Based upon your research and insights, select a collector’s market for the team project
Now we need to use our research and insights to understand the SYSTEM
Mapping a **system** or an **experience**.
Making the COMPLEX more CLEAR.
Let’s look at mapping.
maps show where you have been.
maps show where you are.
maps show where you are going.
As it was.
As it is.
As it will be.
Map a process/system.
Map an experience.
Map a strategy.
map
diagram
Medieval Latin *mappa*, from Latin, *napkin, towel*
First Known Use: 1527

verb
: to plan the details of (something)

*transitive verb*
1a : to make a map of *<map the surface of the moon>*
b : to *delineate* as if on a map *<sorrow was mapped on her face>*
c : to make a *survey* of for or as if for the purpose of making a map
d : to assign (as a set or element) in a mathematical or exact correspondence *<map picture elements to video memory>*
2: to plan in detail —often used with *out* *<map out a program>*
3: to *locate* (a gene) on a chromosome

From: http://www.merriam-webster.com/dictionary/diagram
Maps help to explore.
explore

transitive verb
1a : to investigate, study, or analyze : look into <explore the relationship between social class and learning ability> —sometimes used with indirect questions <to explore where ethical issues arise — R. T. Blackburn>
b : to become familiar with by testing or experimenting <explore new cuisines>

2: to travel over (new territory) for adventure or discovery

3: to examine especially for diagnostic purposes <explore the wound>

intransitive verb
: to make or conduct a systematic search <explore for oil>

Origin of EXPLORE
Latin explorare, from ex- + plorare to cry out
First Known Use: 1585
Explore
etymology:

1580s, "to investigate, examine," a back formation from exploration, or else from M.Fr. explorer (16c.), from L. explorare "investigate, search out, examine, explore," said to be originally a hunters' term meaning "set up a loud cry," from ex- "out" (see ex-) + plorare "to cry." But second element also explained as "to make to flow," from pluere "to flow." Meaning "to go to a country or place in quest of discoveries" is first attested 1610s.

Maps examine.
Maps “cry out”.
Maps “make flow”.
Tableaux Graphiques et Cartes Figuratives de M. Minard, 1845-69

From The Visual Display of Quantitative Information
Edward Tufte
This is an exploration
CURRENT STATE PROCESS MAP

ELECTRONIC INK®

CURREN, S A, E

ELECTRONIC INK

QUALITY, GENERIC POOR

THINKING OUTSIDE THE BOX

WE CAN DO BETTER THAN THAT

SVL Process

90 minimum number of steps SVL have to take
to make a sale.

36 minutes: Morale is being on hold to SVL.

10 minutes: to fill out a contract.

SVL have to take

1.7%
Your NEXT Assignment: VISUALIZING A SYSTEM

INDIVIDUALLY prepare a visual representation of your project as a system. SHOW HOW THIS SYSTEM WORKS.

Use Powerpoint (or other graphic software that enables you to generate a jpeg or pdf file) to create your representation. You may use any graphic tools, animations or effects to communicate your idea – but they must enhance communicating your ideas. THE ENTIRE MAP MUST BE VISIBLE WHEN COMPLETE.

You may only use 1 slide.

THIS IS A VISUAL REPRESENTATION, NOT A PRESENTATION.

Conduct any additional research to understand you persona’s unmet needs and fill any gaps in the general research identified by the team.

Review the samples on the course blog.
MAP or DIAGRAM your RESEARCH

As a team, DIAGRAM/MAP the RESEARCH you have done.

1. Show what you have DONE
2. What have you DISCOVERED?
3. What are the GAPS in your research?
4. What do you need to do next?
Library

- Increased visitors to the library
- User generated recommendations

Visitor to CPH (not hotel guest)
- All the information about Danish culture on the library website

Hotel
- Direct access to books, music and DVD's
- Personalised hotel experience

Service

- Opportunity
- Interaction

Library material
- Website
- Delivery system

$$$ potential business model
If my employees cared a little more about stopping theft, it would be a big help.

I can't be held responsible for what falls off the back of my truck.

Meet me out back.

I buy for the lowest price I can get.

I do everything I can to give my kids as much as I can.

I'll flip this in no time...easy money.
Counterfeit Designer Shoe Map

Designers, manufacturers, and customers haggle over prices in a very competitive market. Vendors purchase inventory. A transaction is completed once both parties' needs are fulfilled.
MANUFACTURING

Distribu<on

Import Loca<ons

Vendors	Purchase	Inventory

Retail

Vendors

set-up
displays

at local
flea
markets

Vendors & customers
hangle over prices in a
very competitive market

A transaction is
completed once both
parties needs are fulfilled
Tokens are minted and sold to SEPTA - Cost for mint and material

Tokens packaged in plastic bags - Plastic bag cost - Employee cost

Packaged tokens are distributed to stations - Employee Cost

Tokens are sold via teller or machine - Cost to maintain machine - Employee Cost

Tokens purchased by customer - Access to tokens a challenge - Interview with tourist indicated complexity in system

Tokens are returned to Revenue Services and sorted - Employee cost

TriMet System in transition right now to electronic fare. Initial cost will be ~$30 bill

“I thought the station was being locked down and I just wanted to buy tokens” - Man in Walnut-Locust Train station

Philadelphia state worker steals $16k of tokens

“Due exchanges being made in cash, I have seen my coworker skim some off the top” - Token Booth Operator

Tokens lost

Token used for fare by customer

TARC system uses new fare system as a way to vary the price to ride the bus

Note: SEPTA Bus can be ridden with pass, cash or token payment.

I find it ironic that they say “go green” on the plastic bag the tokens come in. It almost contradict the goal of public transportation - Girl on bus route 21

2006 – MBTA phases token for electronic pass (Boston)

Note: Customer receives 25% discount when using token
Input

Federal Funding
- Funding to replace, rehabilitate, and purchase buses and equipment
- $230m (40%)

State Funding
- $330.7m (58%)

Local Funding
- $1.1m (2%)

Ticket Sales
- 330.1m rides in FY15
- $476m Annual Revenue

Advertising Revenue

Organization

Capital Budget
- $561.8m

Output

Jobs
- Employment for:
  - Bus drivers: $49-59K/YR (Glassdoor)
  - Bus dispatchers
  - Bus mechanics

Transportation
- 118 routes
- 1355 vehicles
- 162,433,480 riders (FY 2015)
- BusView Program for real time service information under development
- New Payment Technology Project for electronic fares under development
- Community interaction
  "It’s nice to be on the same schedule and have that extra time together in the morning"—Caitlin on riding bus with husband
- 33rd and Dauphin Bus Loop Improvement Project: serves 2115 riders over 5 routes, reduces storm water runoff and improves urban environment
- Articulated Hybrid Bus: 185 new 60’ buses increase ridership, have better fuel efficiency, reduce greenhouse gas emissions
- Public Service Ads: on littering and recycling, public health; no gun or tobacco ads are allowed

SEPTA Buses
- Customer Service:
  City buses saw greatest decrease in customer satisfaction, 2010-2012

Environment

Advertising

"It’s great for SEPTA in terms of getting revenue to help cover costs that will bring improvements."—SEPTA Public Information Manager on SEPTA-Verizon Technology Partnership
USE YOUR RESEARCH to think of your market as a SYSTEM

1. Begin mapping your project information as a system.

2. What are all of the COMPONENTS and how do they work together?

3. Plan + coordinate your team research for next week.
Now we need to relate the system + insights back to PEOPLE.
15 min

Who are the affected stakeholders and what are their unmet needs?

List the stakeholders for your particular project. Think of those that are obvious and hidden.
develop your persona / storyscape
Personas: TOOLS for understanding and communicating USER behaviors, needs, desires, contexts of use
CREATING PERSONAS:

1. OBSERVE and TALK to people (your interviews)

2. Find a common set of behaviors or motivations to use as a basis (from your key words)

3. Give the persona a name/picture/basic demographic data

4. Then make them REAL

From SAFFER: Designing for Interaction
LUKE SAMAJ

Age: 31 years old
Occupation: Watch vendor

5:00 AM: Wake up
5:45 AM: Leave house & walks to bus stop (20 minute bus ride)
6:15 AM: Arrive & go to Subway
6:25 AM: Subway arrives (10 minute subway ride)
6:35 AM: Arrives at Suburban & Sets up booth
7:00 AM: Opens his watch shop

Leaves out at 5:35 am
Very tired
Taking the bus

Subway
6:25 it arrives
10 min ride

Now at City Hall
He sets up work shop 6:35 to 7:00

He sets up where the most people are gathered

20 min
6:05 bus ride
Exit & Enter the Subway

Waiting for bus

5:45

North Philly
Karel

„I like measuring tool. Sometimes I measure circuit where I run“.

Karel likes cycling and running but he doesn’t use tourist maps because they look so chaotic. Web map use only for searching addresses.

Age: 29
Position: Fitness coach
Family: Married, one child

Fairly comfortable with technology; use laptop with mouse; 10 hours per week online
Internet use: 100% at home

Favourite web map portal:

Mapy.cz
15min

1. Focus on part of the System and pick a pair of significant stakeholders (buyer, seller, distributor, manufacturer...)
2. Divide the team into 2 groups.
3. Each group will select one Persona to develop
4. Create your personas
“A defining quote related to the domain of interest”

GENERAL DEMOGRAPHIC DATA

- Age
- Occupation
- Location
- Marital status
- Children
- Income
- Education
- Hobbies

NAME

Role

Defining characteristics

DRIVERS

- Goals
- Needs
- Desires
- Frustrations
- Pain Points
Persona INTERACTIONS

Each half of the team: present your Personas to each other.

Imagine a scenario of a typical MOMENT OF INTERACTION between your personas WITHIN THE CONTEXT OF THE PROBLEM DOMAIN. Write a brief NARRATIVE describing what happens.

What TENSIONS or CHALLENGES do they face?
<table>
<thead>
<tr>
<th>SCENARIO:</th>
</tr>
</thead>
<tbody>
<tr>
<td>DESCRIBE THE MOMENT OF INTERACTION:</td>
</tr>
<tr>
<td>WHAT TENSIONS EXIST BETWEEN THEM?</td>
</tr>
<tr>
<td>WHAT DO THEY EACH HAVE / WANT / NEED?</td>
</tr>
<tr>
<td>WHAT CHALLENGES DO THEY FACE?</td>
</tr>
</tbody>
</table>
Final Report: Due JUL 9th IN GOOGLE DRIVE

-Format: PPT document.

-Teams will submit a final document of their project. (See brief on course blog). Use PowerPoint to create a report document that combines graphic and written summaries. **THIS A REPORT – NOT A PRESENTATION**

-You will be graded on the quality of your research (both qualitative and quantitative) and the insights you develop and your ability to translate these insights into evidence-based recommendations. You will also be graded on your ability to effectively communicate your insights and proposals VISUALLY in your document.
Final Report: FORMAT

Slide 1: Title Page, Team #, Team members, Specific Market

Slide 2: Executive Summary
  - Brief description of the market
  - Key insights
  - Assessment of the Opportunity

Slide 3: Research methodology
  - Quantification of research
  - Description of methods
  - Samples

Slide 4: A detailed overview of the forces affecting the collector market of your choosing
  - Market forces on a global and hyper-local scale
  - External Regulation
  - Market systems (your Maps of the As Is situation)
  - stakeholders
  - the role of technology

Slide 5: The Market
  - size of markets
  - biggest players (global/ local)
  - competition (global/ local)
  - risks
  - an assessment of the potential OPPORTUNITY
Final Report: FORMAT

Slide 6: Profiles of sellers and buyers *(Your Personas)*
- Who they are
- Their needs, motivators, drivers

Slide 7: Market Systems and Operation
- Provide visual and text-based representations of the market and how it operates.
- Include supply chain sourcing products to sell, marketing, sales process, purchase

Slide 8: Financial data historical and current
- Quantify historical and current pricing and provide an explanation of your methodology, sources, accuracy, limitations
- Dynamic pricing if it is prone to fluctuations
- Financial data about the opportunity

Slide 9: Conclusion
- Summation of your assessment of the market and opportunity.
- What is your recommendation?

Slide 10
- Sources
Team WORK session

As a team update your research plan and project strategy:

- What do your Persona Interactions **REVEAL** about the market system?
- Are there **opportunities** here?
- What do you want to know more about?
- How will you approach the research?
- How will you find **qualitative** and **quantitative** data?
Capture the **CONTENT** and **DETAILS**
Quickly clean up:

**PUT YOUR TOYS AWAY!**

place all your tools away in an ORGANIZED AND NEAT MANNER

return the bins to the stack.

return all other materials to supply tables