if you are not serving the customer…
you’d better be serving someone who is

Karl Albrecht, 1920 - 2014:
10th wealthiest person in the world (2012)

2.009 Product engineering processes
why the bunny rabbit?
who is the customer?

there are many "customers"
**Client**
The person, firm or agency that hires a designer or product design firm to develop a product. (In 2.009, ideas fair or ones found by teams).

**User**
The person(s) the product is designed for. It could be the primary user or anyone else that interacts with the product during its life cycle. The product meets their needs.

**Customer**
The actual purchaser of the product. They may also be a user.
Identifying and understanding users
this Thursday at 5 PM! (Sept 27)
and now

a mini quiz! More estimation

name on index card, 4 minutes

i) what is energy and what are its units?

ii) define mechanical horsepower

iii) how much power can you (personally) output, continuously, for 30 minutes?

iv) what is the power of a small bird flying?
Sketch model review
Thursday, October 4

- Three ideas presentation
  September 24, during class
  3 ideas per section

- Mockup review
  October 18
  2 mockups per section

- Assembly review
  Oct. 31 & Nov. 2
  1 assembly

- Sketch model review
  October 4
  3 models per section

- Final selection
  October 22-25
  1 concept per team

- Technical review
  November 15
  1 (almost) prototype

Final presentation
December 10
1 alpha prototype
Sketch model review

a formal presentation

Each section presents three well-prepared design concept alternatives. Relevant technical, market/benchmarking, and customer needs information.

Each section will have 6 minutes for their presentation and 2 minutes of questions. Each section has a single set of slides (loaded on presentation computer).
Sketch model review
next Thursday! (October 4)

important review aspects:
appropriateness of the sketches, sketch models, CAD models, calculations
Sketch model primer
what question? what model type?

articulate uncertainties as questions
prioritize questions
explore relevant model focus categories
select model type
Sketch model review
next Thursday! (October 4)

important review aspects:
appropriateness of the sketches, sketch models, CAD models, calculations
clarity and quality of the design alternatives/design exploration
quality of technical, market/benchmarking, and customer data

hunch → knowing

Why?
Seating doesn’t provide place for food
Foldable furniture is not appropriate

Competitors

<table>
<thead>
<tr>
<th>e-pill: Manufacturer and distributor of electronic medication reminders</th>
</tr>
</thead>
<tbody>
<tr>
<td>Automatic Pill Dispenser Organizer</td>
</tr>
<tr>
<td>$289.95</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>MedCenter Systems: Manufacturer of monthly planners and organizers</th>
</tr>
</thead>
<tbody>
<tr>
<td>31 day monthly pill organizer</td>
</tr>
<tr>
<td>$69.95</td>
</tr>
</tbody>
</table>
Patent search tutorial
Today! Wednesday at 5 PM

technical and benchmarking data
secondary research
Information gathering session
next Monday at 7 PM (Oct 1)

come with questions about...
secondary research: technical, market/benchmarking, and customer data
DANGER
until now: opportunity exploration
problem identification rather than solving a specified problem
embodiments are proxies representing a problem or need
learning and synthesis warmup
until now: opportunity exploration
problem identification rather than solving a specified problem
twobingments are proxies representing a problem or need
learning and synthesis warmup

sketch model phase: from needs to product ideas/concepts
sub-theme is viewpoint to reframe and explore classes of needs/capabilities
add more ideas to the pool, and pick 6 interesting needs
ideate -> model -> test! Learn and improve

think about your 6 directions and risk portfolio
3-ideas presentation
discussion

went well? **yes!**
could every one of the presentations be improved?

“practice is the best of all instructors”
Publilius Syrus, Author, 1 B.C.
3-ideas presentation tips

how to improve?

practice is the best of all instructors
Publilius Syrus, Author, 1 B.C.
3-ideas presentation tips

practice is the best of all instructors
Publilius Syrus, Author, 1 B.C.

look at audience!
body language
interact with poster
tell a story
get the problem out fast
3-ideas presentation
presentation revisit

what worked well?
3-ideas presentation
presentation revisit
what worked well?
3-ideas presentation
presentation revisit
what worked well?
Differentiation

no name brand
3-ideas presentation tips

how to improve?

practice is the best of all instructors
Publilius Syrus, Author, 1 B.C.

readable at 50 feet (clean)
3-ideas presentation tips

how to improve?

practice is the best of all instructors
Publilius Syrus, Author, 1 B.C.

message at a glance (flow)
3-ideas presentation tips

how to improve?

practice is the best of all instructors
Publilius Syrus, Author, 1 B.C.

feel the experience
user empathy
responding to instructor

feedback

the least useful comment is “good job”

we received comments that were unfair

we received conflicting advice

informed decisions vs. emotions

best product! vs. organizational politics

take some risks exploring
now, even more exciting
it’s time for timesheets! schedule/timesheets

commit after each milestone

typically day after each milestone

I’ll send a reminders

reflect professional practice

for your personal, private reflection
Do you think Slack has increased transparency in your team?

80.4% Yes
7.4% I don't know
12.2% No

Based on 1,168 responses from Slack owners and administrators. ±2.81 margin of error with 95% confidence (July 2015)
and finally
this week!

notebooks in lab this week
notebook images 10 PM Thursday

commit ideas phase timesheet data

patent search 101! Today at 5 PM in 14N-132

talking to users, yoda workshop, solidworks. Thursday

Friday class: close toe shoes or overly loose clothing