

**ABCFGH**  
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**ESD.051 / 6.902**

**Engineering Innovation & Design**

# Pop Quiz

## Who are these 2 people?

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## Dieter Rams

Dieter Rams (born May 20, 1932 in Wiesbaden) is a German industrial designer closely associated with the consumer products company Braun and the Functionalist school of industrial design. (Wikipedia)

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## Jony Ive

Jonathan Paul Ive, CBE (born February, 1967) is a British designer and the Senior Vice President of Industrial Design at Apple Inc. He is internationally renowned as the principal designer of the iMac, aluminum and titanium PowerBook G4, MacBook, unibody MacBook Pro, iPod and iPhone.  
(Wikipedia)

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# Dieter Rams 10 principles for good design

1. Good design is innovative.
2. Good design makes a product useful.
3. Good design is aesthetic.
4. Good design helps us to understand a product.
5. Good design is unobtrusive.
6. Good design is honest.
7. Good design is durable.
8. Good design is consequent to the last detail.
9. Good design is concerned with the environment.
10. Good design is as little design as possible.

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# Challenge!

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**What you know: The Music Stops, A Man Is Dead.**

**You need to solve: What happened? Why did it happen?**

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# Research - Introduction

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# Research

- Asking questions is important, but answers can be misleading
- Academic/Scientific research is often wrong
- Research results may be good but **conclusions** can be wrong

$$T = a + b \log_2 \left( 1 + \frac{D}{W} \right)$$

Fitts' Law

- Designing products for people? People don't know what they want
- People know what they want? Often can't articulate it

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# Ways to research these problems?

1. In 1960: how to cook like a french chef **Expert education**
2. In 1848: The best way to conduct a defensive military retaliation **Historical/Cultural**
3. In 1990s: The best way to clean a kitchen **Ethnographic**
4. In 2013: Saving money in a call-center that handles technical issues/  
customer complaints for satellite TV **Direct observation**
5. In 2015: The decision to develop an extremely new type of consumer product (think: iPad) **Deep understanding of humans, technology, culture, manufacturing, philosophy, art, design...**

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# Stakeholders - Cui Bono?

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# Stakeholder

“A person or group that has an investment, share, or interest in something”

Stakeholders in your education?

You

Family

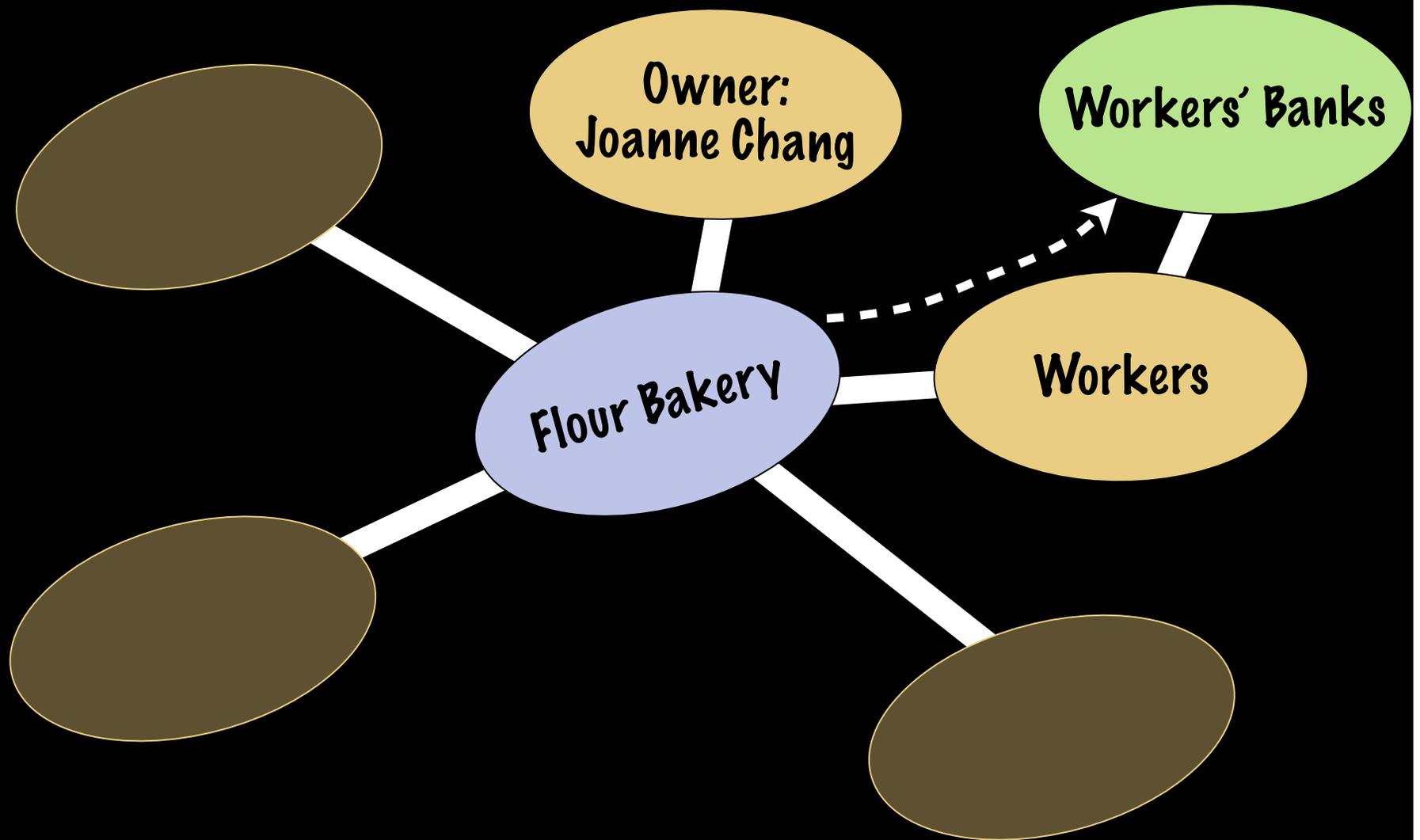
Teachers

School

....who else?

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# Stakeholder - quick sketch



# Stakeholder - quick sketch

- Draw up the Flour Bakery Stakeholder Sketch
- If you want, label lines to clarify (e.g., “pays”, “receives payment”)



# Stakeholder Analysis

- Systems Thinking - Establishing a global perspective
- Understand how to make good decisions & tradeoffs, establish priorities and communicate effectively
  - Not all stakeholder hold the same value
  - Which stakeholders **do we benefit** more?
  - Which stakeholders **benefit us** more?
  - (e.g., Angel Investor vs. Venture Capitalist)
  - Easier to align team
- Reveals hidden costs and opportunities
  - **Cost:** A student can get an easy-A or a difficult-C (From parent's perspective, which is better?)
  - **Opportunity:** If a company has enough employees, the company can get better buying power with vendors, gyms, etc.

# Stakeholder Homework

- Map out primary and secondary stakeholders for an **art-museum**
- Map out primary and secondary stakeholders for a **new kind of battery technology**

# Principles of Design (1 - 10)

Class	1	2	3	4	5	6	7	8	9	10
Day of Week/ Date	W Sept 5	M Sept 10	W Sept 12	M Sept 17	W Sept 19	M Sept 24	W Sept 26	M Oct 1	W Oct 3	W Oct 10
Lecture Topic	Introduction	10 Step Design Process Dieter Rams	Research Stakeholder Analysis	Articulating Design	Psychology	Usability	Dialogue Systems Technology (Siri+)	Dialogue System Design (Questions/Feedback)	Dialogue System Design 2	Branding
Assigned	Good and Bad Design	Design a Game	Stakeholder analysis for games	Articulating Design HW		2 Subject Usability Test	Complete in-class assignment	K-Scripts	K-Scripts 2	Make a Commercial
Due		Good and Bad Design Movie		Game + SHA		Articulating Design HW	2 Subject Usability Test	In-class assignment (7), Transcription assignment	K-Scripts	K-Scripts 2

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