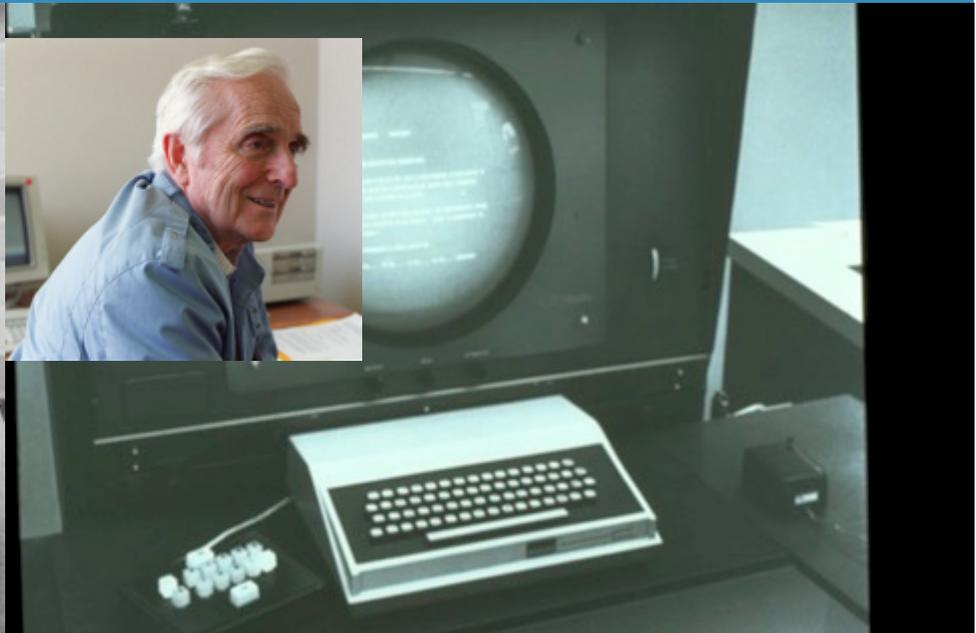


# Boosting Human Capability: What Doug really meant and how to get it right



# Engelbart's Agenda!

## Agenda

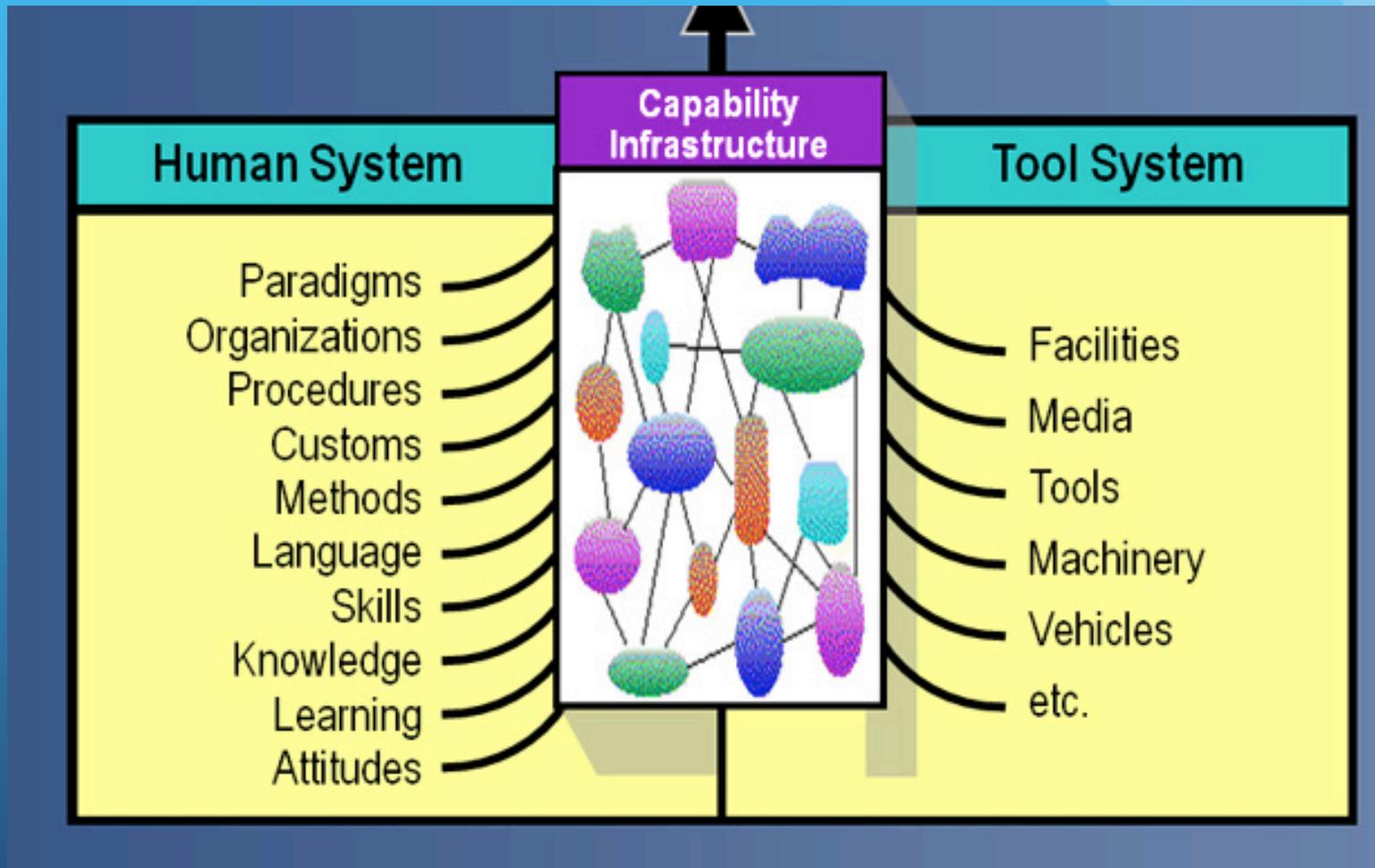
- **Some Key Distinctions, Terms, and Ideas**
  - “Augmentation” vs. “Automation”
  - “Human” vs. “Mechanistic”
  - Growing Knowledge Professionals
  - “Capabilities Infrastructure”
  - “Human Systems” and “Tool Systems”
  - Co-evolution

# For Doug, a human being...

- Comes with innate tools: hands and motor abilities, visual system, cognitive abilities
- Comes with acquired tools: language, skills and techniques learned (eg using a keyboard)
- These tools should be used to BOOST human system



# The Human System



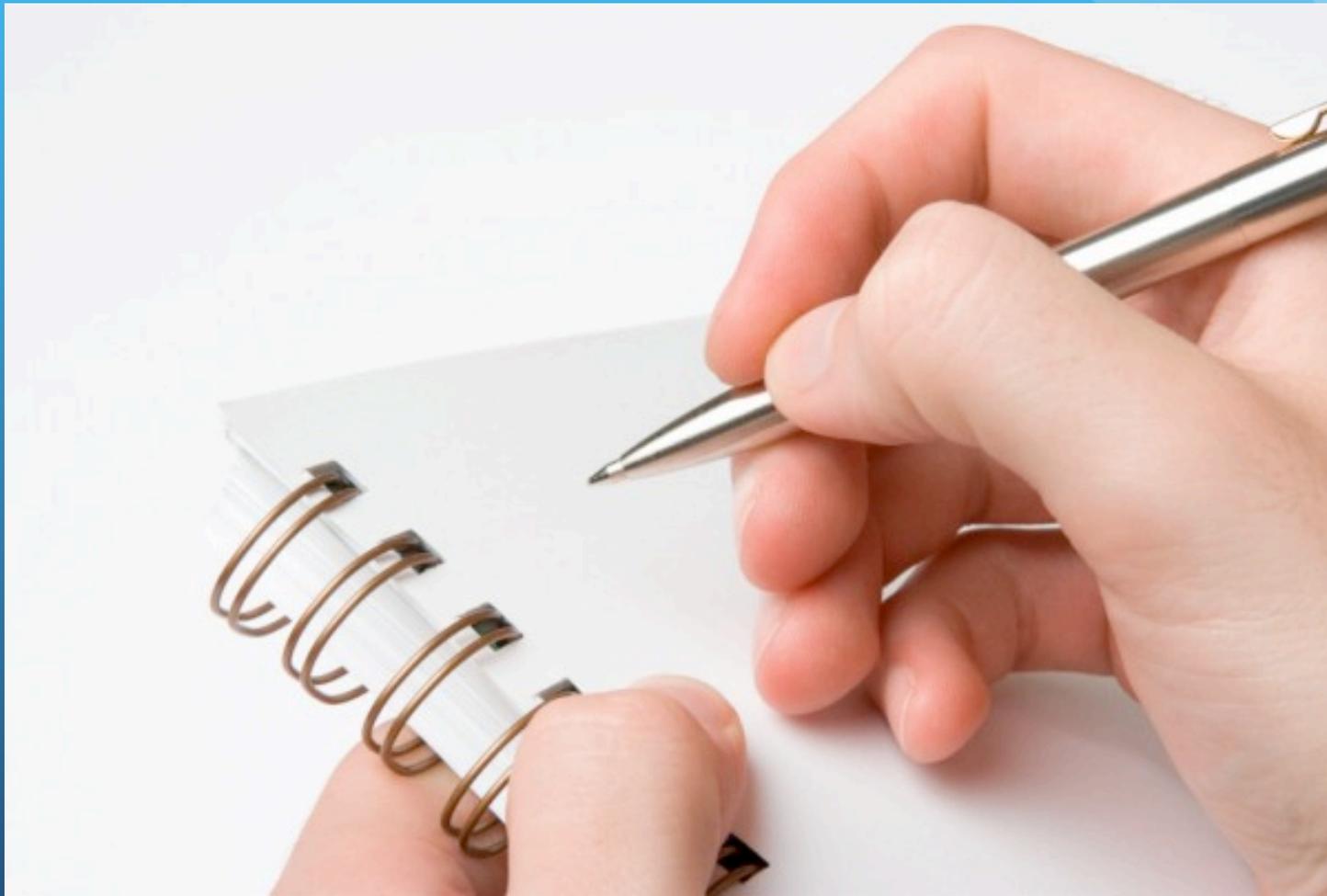
# Augmentation

- Boosting existing human capabilities using technologies and tools from the tool system
- Ideally *design technologies that boost human capabilities* – this is different from mere automation of existing task
- That's what his system (NLS) did

# H-LAM/T - fully augmented human!

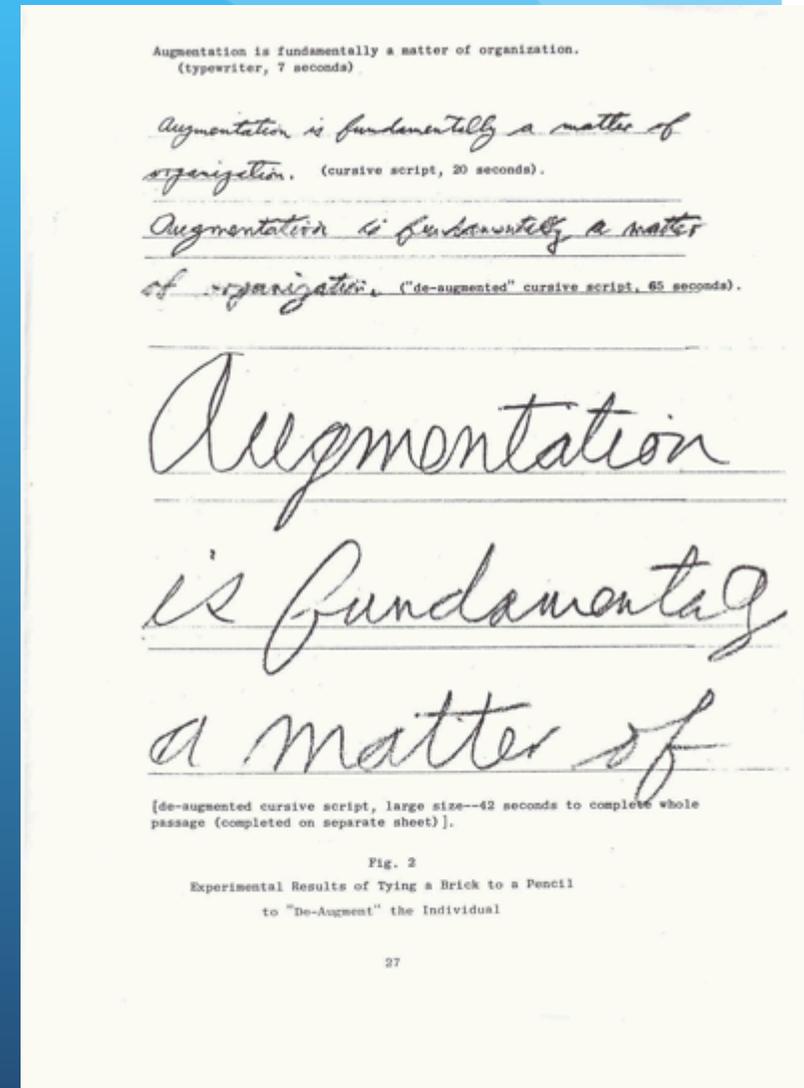
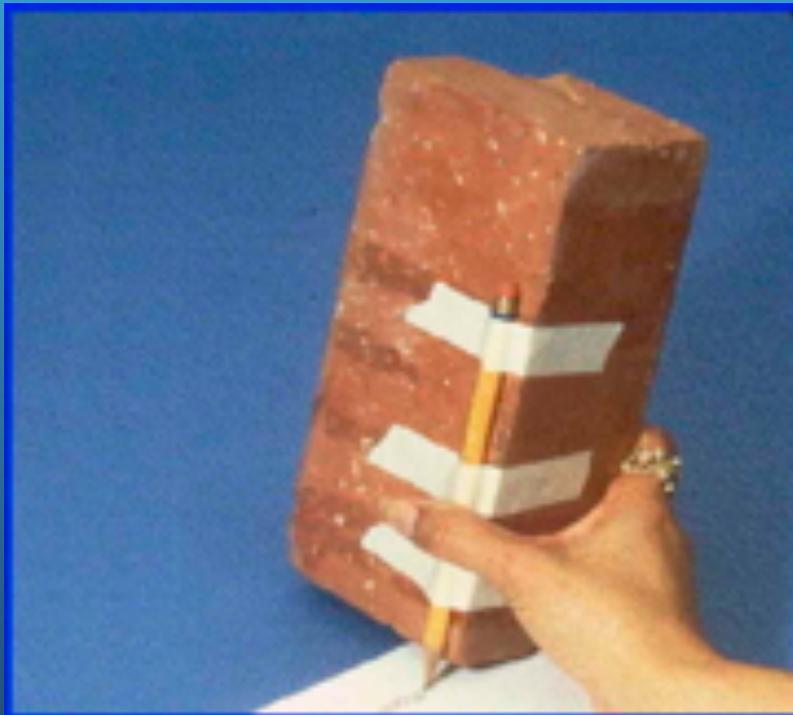


Another well-designed tool



# De-augmentation

- Bad tool: imagine writing with this (Engelbart)
- Cultural effects



# We learn from our tools

- Engelbart: nothing is “natural”. “Easy to learn, natural to use” means you’re not learning anything new
- We need to learn to use tools if we want to improve – and design to improve us



# Bootstrapping

- NLS for Engelbart: externalise capacity for symbol manipulation to make the human system more efficient in knowledge work



So how do we know if it's automation or augmentation?

## “Augment” vs. “Automate”

- Automate
  - It's why we use computers today
  - Replace us in work we **used** to do
- Augment
  - As the plow augmented our ability to cultivate
  - Extend us to solve problems we have not been able to address yet, to take on work **we need** to do

# Technologies designed to extend

- Cochlear Implant
- Laura – born profoundly deaf, now talking age appropriately
  - Implanted R 11mo, L 22mo.
- Would otherwise be signing

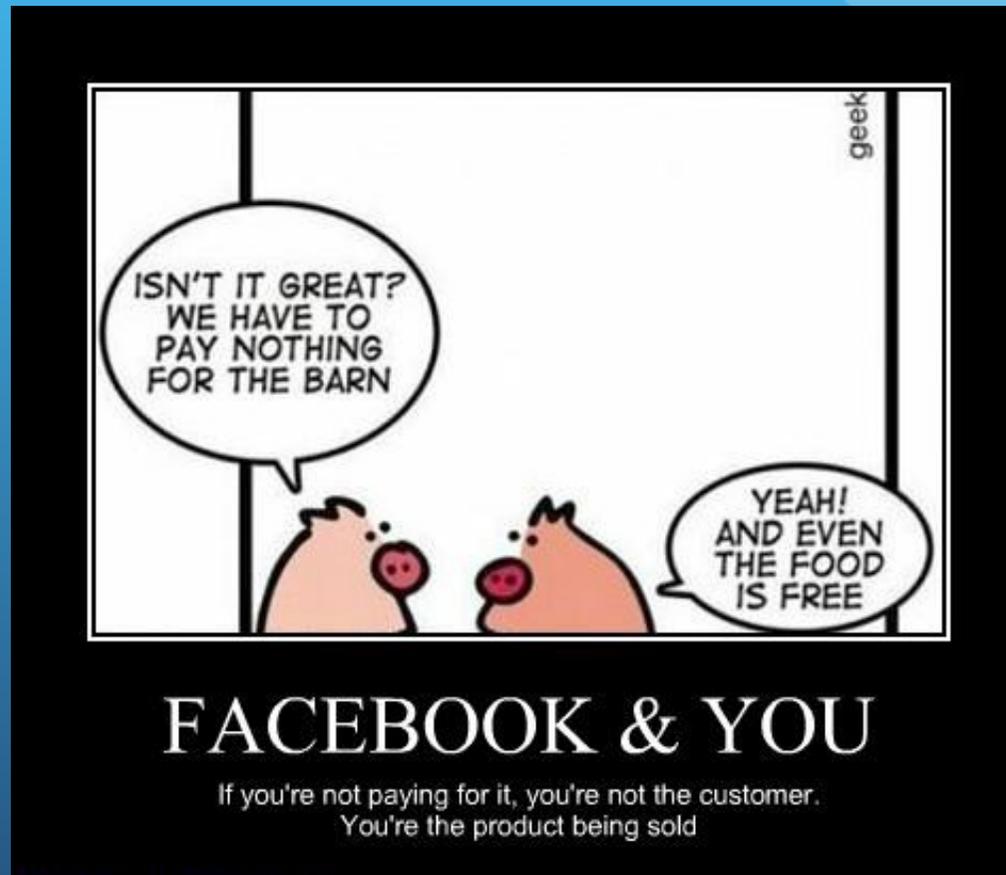


# Technologies designed to extend

- Serve the user
- Boost (or even create) one or several human capabilities
- Typically cost a lot and need to be learned
  
- **THE USER IS NOT THE “PRODUCT”**

# Do these platforms automate - or extend? Do they serve the user?

- Facebook
- Amazon
- Google
- Netflix
- Foodora
- etc



# What is the price of sharing and searching and producing posts?

- Your data
- These platforms are not designed to serve the user.
  - They are designed to serve advertisers – eg: predict what you'd like to see/watch/search for – and sell that data
- Your “human capabilities” (eg: circuits of sight) are leveraged for this new type of business model

# An Alternative Paradigm

- Technologies cost a lot to develop and need to be monetized.
  - Can we monetize platforms without making the user's data into the product?
- What if we had a micropayment/micro-currency layer and PAID for the privilege?
- Just an idea.

# An Alternative Paradigm

- We need to go right back to square one and think about alternative ways of designing and monetizing platforms so that human beings are not the “product”
- Technologies should be designed to extend our capabilities not exploit them