Imprint, a community visualization of printer data: designing for open-ended engagement on sustainability

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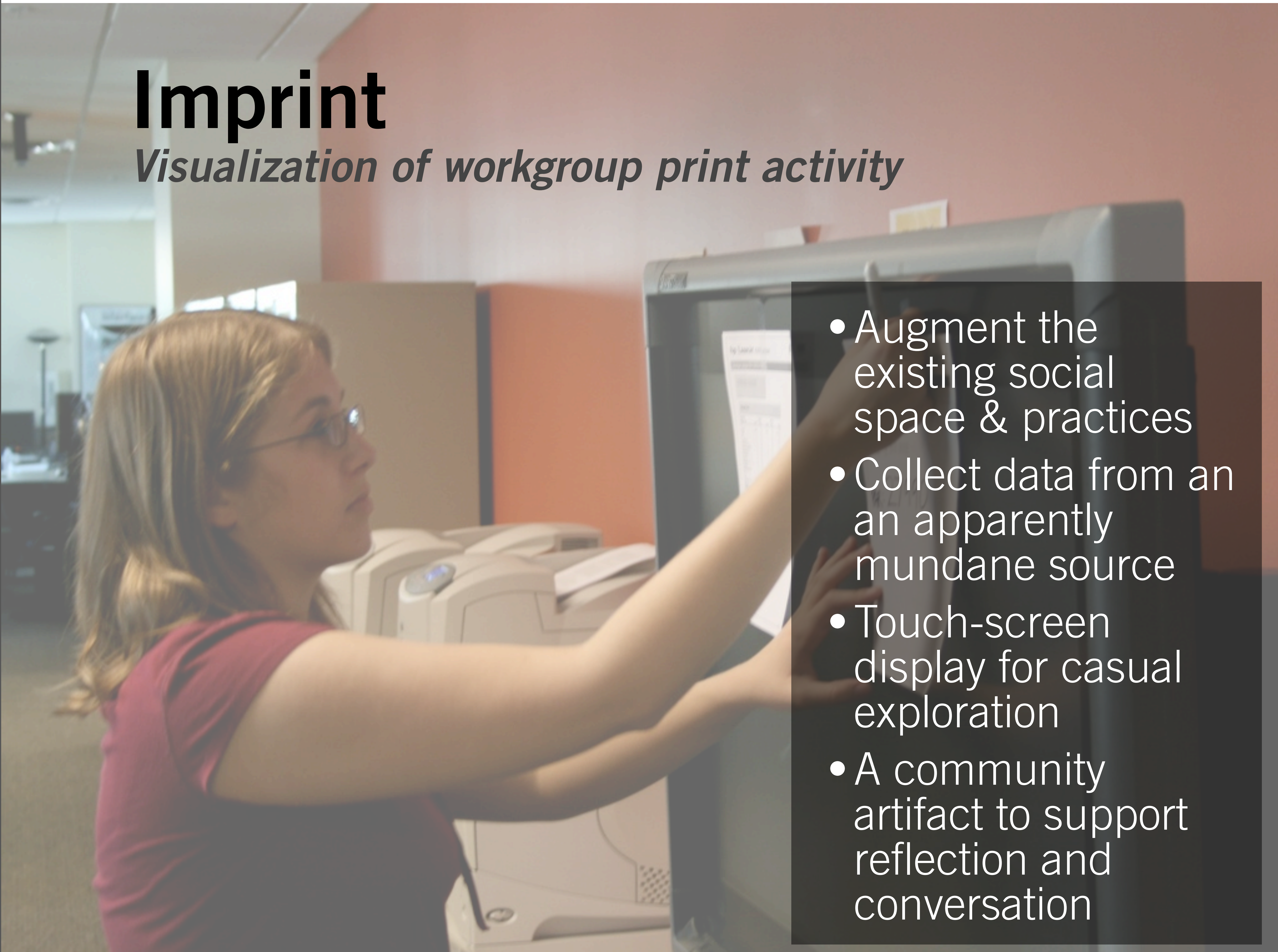
GVU Center / GT School of Interactive Computing

A confession...

I look at my colleagues print jobs ('physical eavesdropping')

Imprint

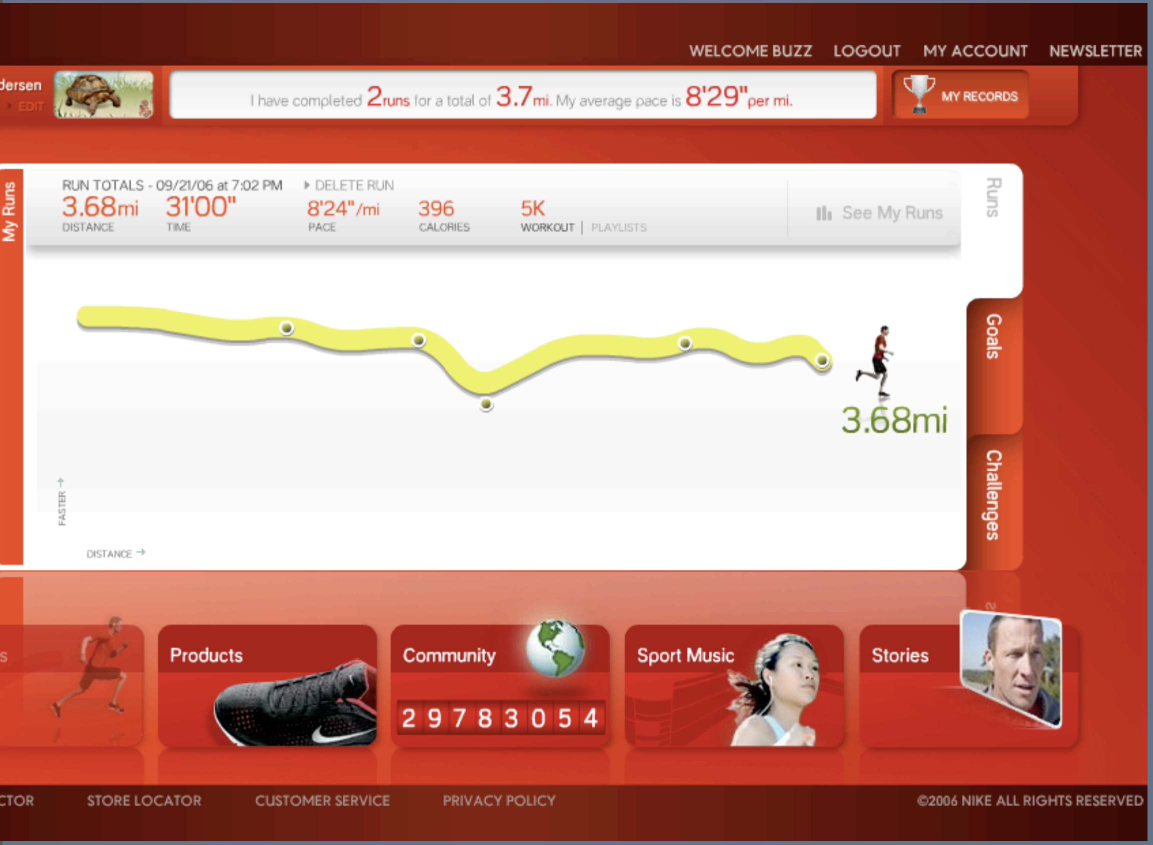
Visualization of workgroup print activity



- Augment the existing social space & practices
- Collect data from an an apparently mundane source
- Touch-screen display for casual exploration
- A community artifact to support reflection and conversation

Visualizing data for persuasion

Data for self-improvement


WELCOME BUZZ
LOGOUT
MY ACCOUNT
NEWSLETTER
I have completed 2 runs for a total of 3.7 mi. My average pace is 8'29" per mi.
MY RECORDS
My Runs
RUN TOTALS - 09/21/06 at 7:02 PM
DELETE RUN
3.68mi
DISTANCE
31'00"
TIME
8'24"/mi
PACE
396
CALORIES
5K
WORKOUT
PLAYLISTS
See My Runs
Runs
Goals
Challenges
3.68mi
FASTER
DISTANCE
Products
Community
2 9 7 8 3 0 5 4
Sport Music
Stories
STORE LOCATOR
CUSTOMER SERVICE
PRIVACY POLICY
©2006 NIKE ALL RIGHTS RESERVED

Nike+ (see www.nikeplus.com)

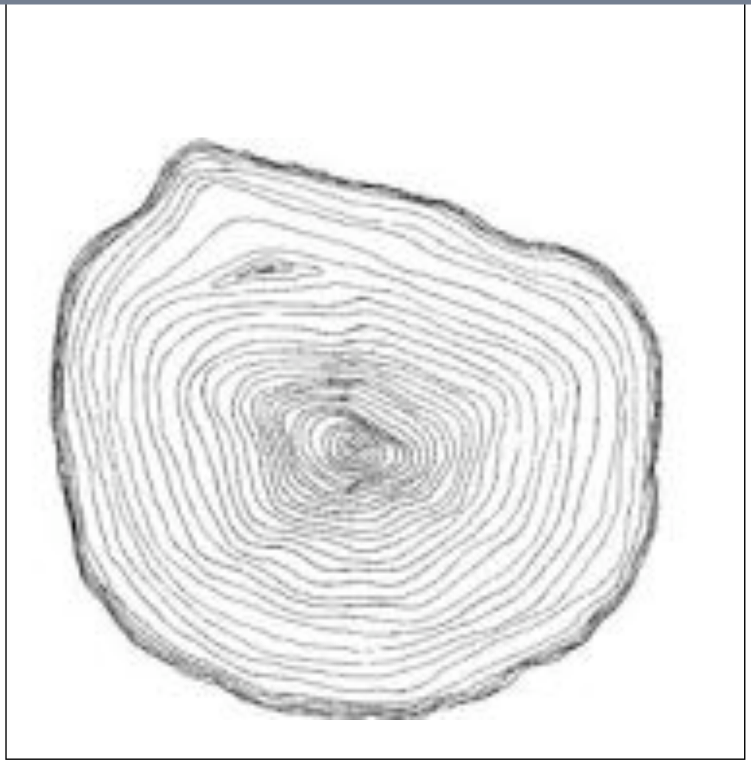
cingular
2125
Start
Contacts

Ubifit Consolvo et al.
(CHI 2007, Ubicomp 2008)

accenture
Technology Labs
In 6 months
Today !!

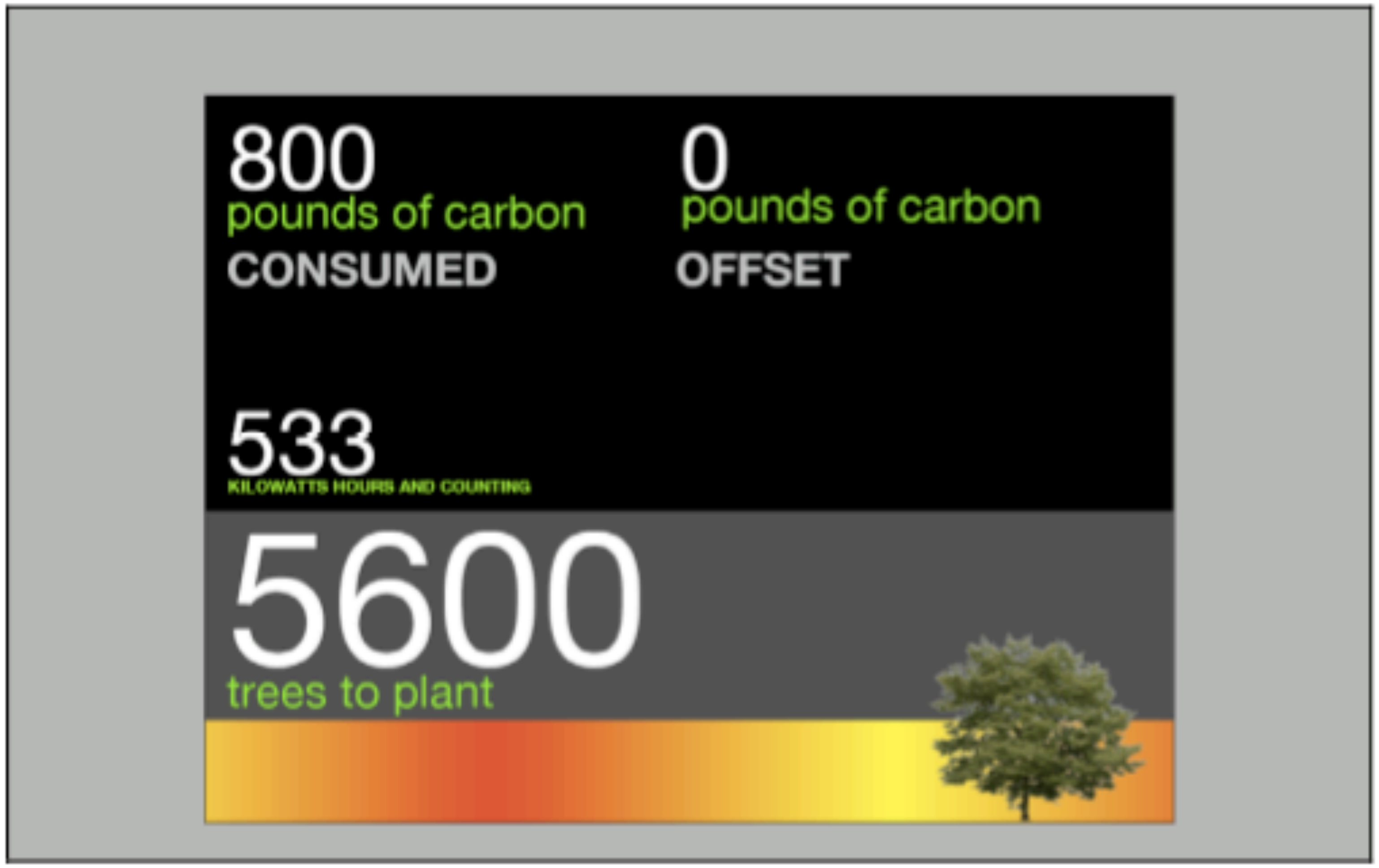
Persuasive Mirror de Valle and Opalach (Persuasive 2006)

Visualizing printing & consumption



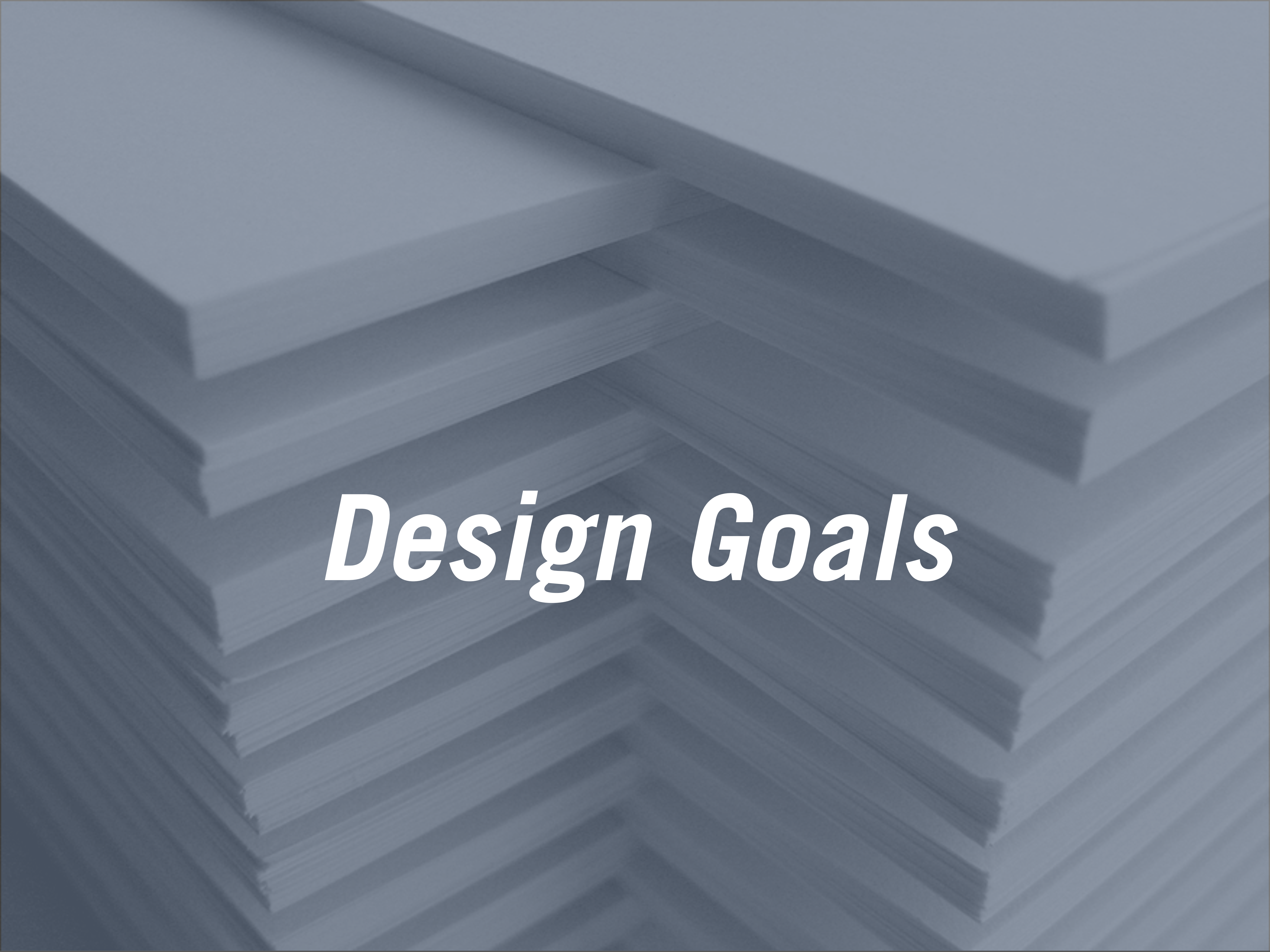
Stump (1999) by Jeremijenko

SmartCover Grasso and Munier (CSCW 2002)


800
pounds of carbon
CONSUMED
0
pounds of carbon
OFFSET
533
KILOWATTS HOURS AND COUNTING
5600
trees to plant

7000 Oaks and Counting Holmes (C&C 2007)

Visualization of carbon footprint of a building

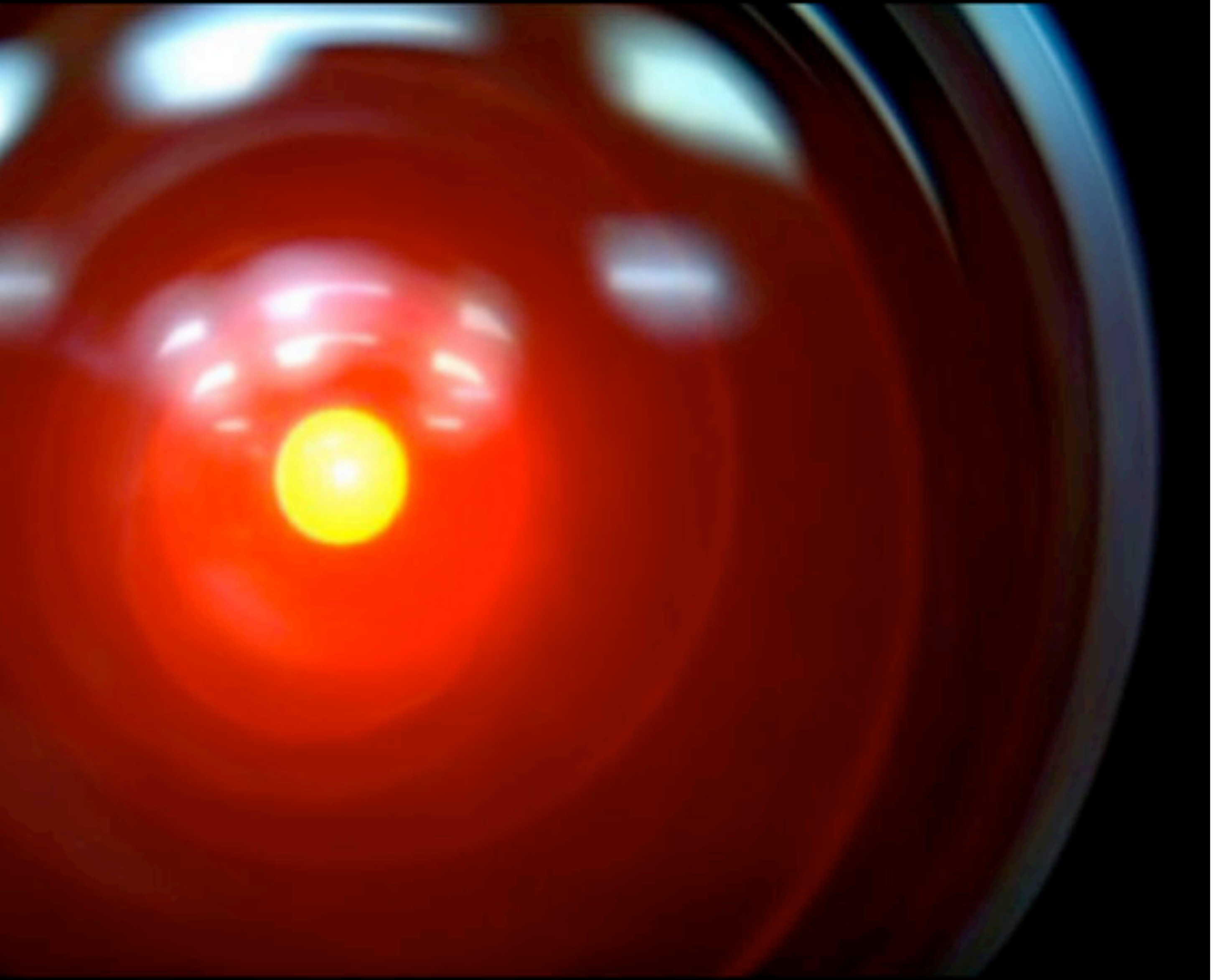


Design Goals

NOT Surveillance

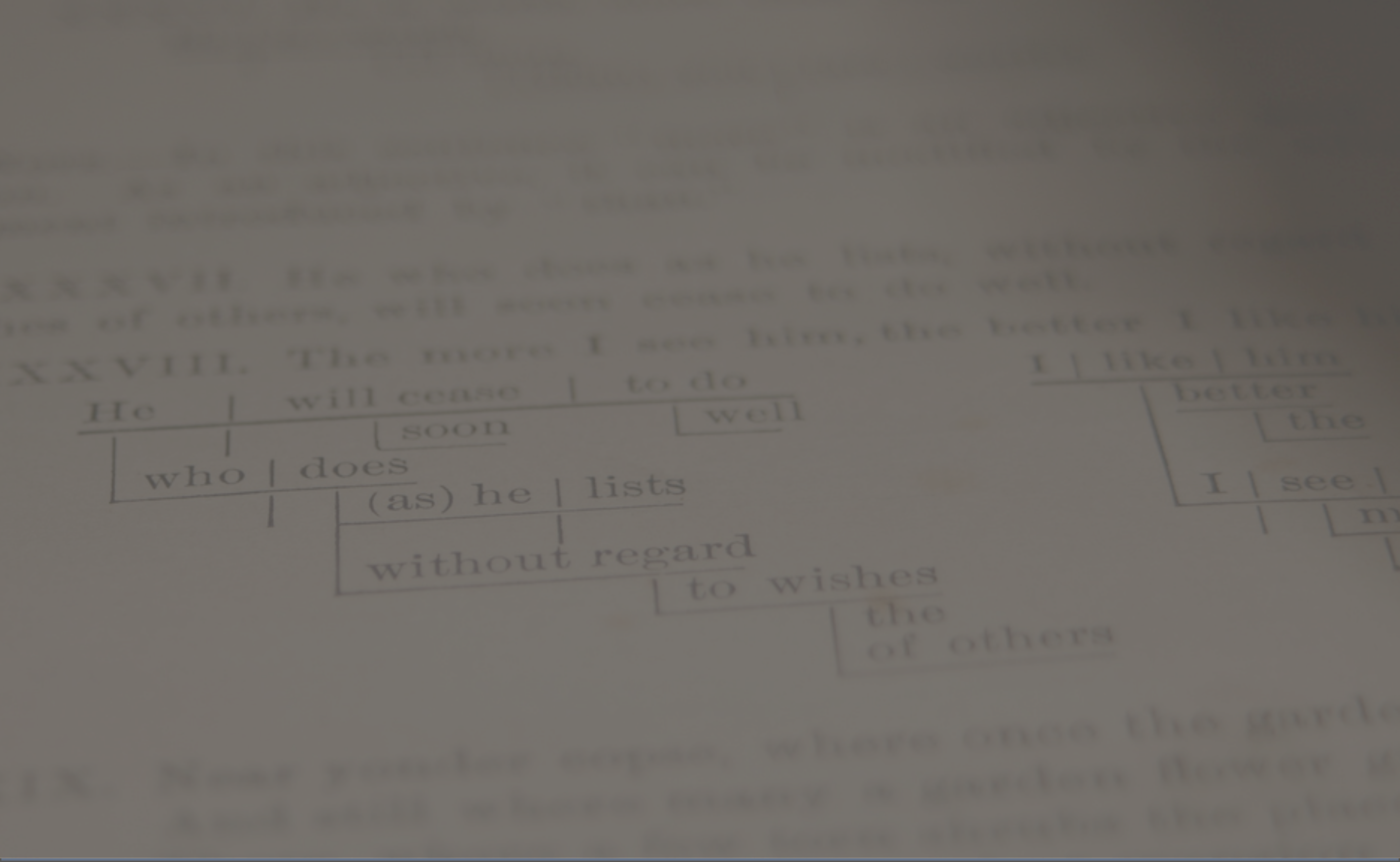
NOT Surveillance

Surveillance literally means *"watching from above"*



Sousveillance, coined by Mann et al. (2003) means *"watching from below"*

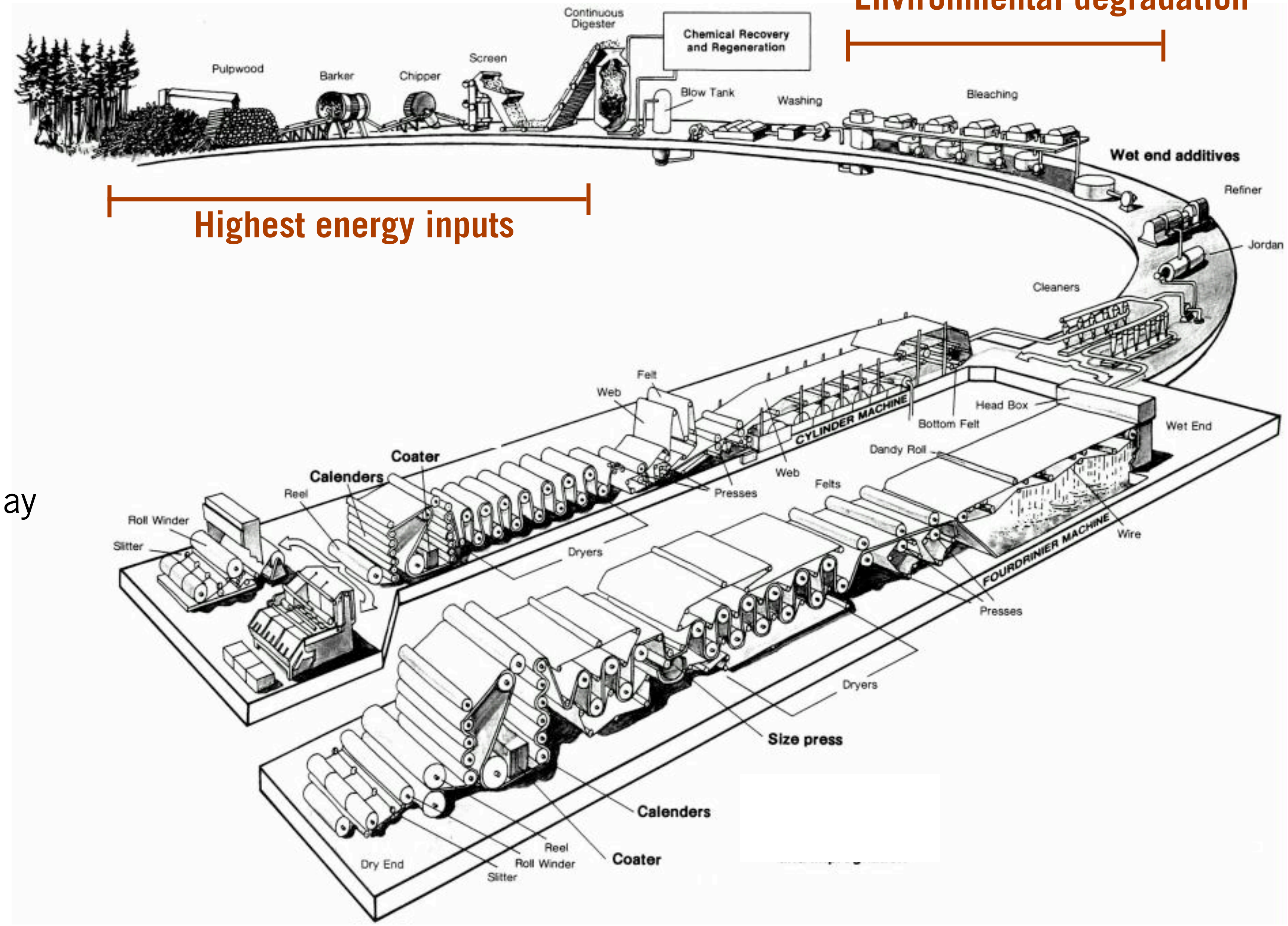
Open to Interpretation


He | will cease | to do
soon
well
who | does
(as) he | lists
without regard
to wishes
the
of others
I | like | him
better
the
I | see

Open to Interpretation

Powersave: 100w @ 22hours = $0.50 / day

Active: 600w @ 2hours = $0.25 / day


Environmental degradation

Highest energy inputs

Continuous Digester
Chemical Recovery and Regeneration
Pulpwood
Barker
Chipper
Screen
Blow Tank
Washing
Bleaching
Wet end additives
Refiner
Jordan
Cleaners
Felt
Web
CYLINDER MACHINE
Head Box
Bottom Felt
Wet End
Dandy Roll
Coater
Calenders
Reel
Roll Winder
Slitter
Web
Felts
Presses
Dryers
Wire
FOURDRINIER MACHINE
Presses
Dryers
Size press
Calenders
Reel
Roll Winder
Coater
Dry End
Slitter

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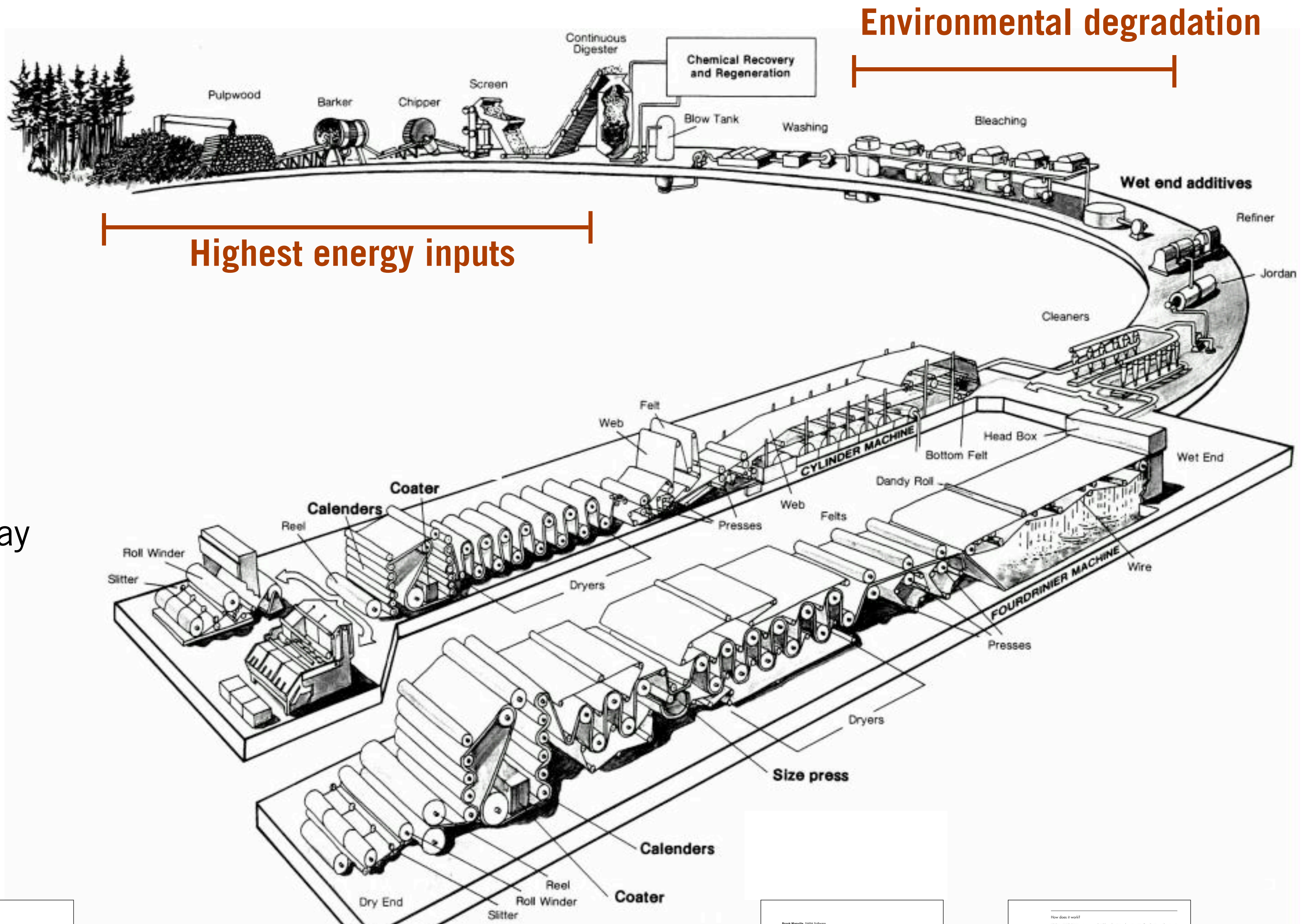
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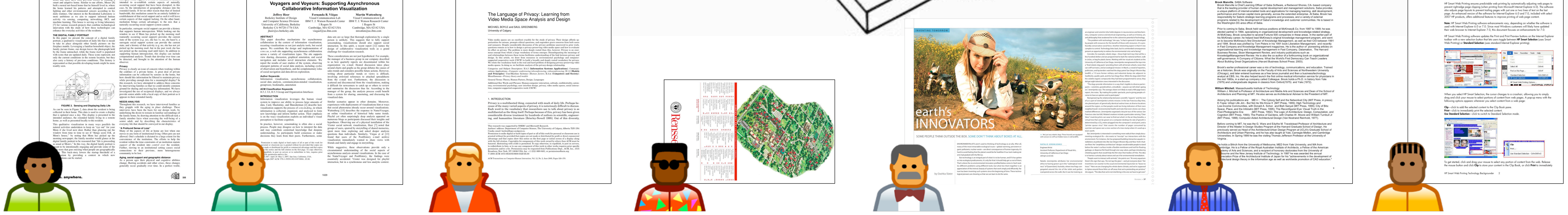
earth's INNOVATORS

Open to Interpretation

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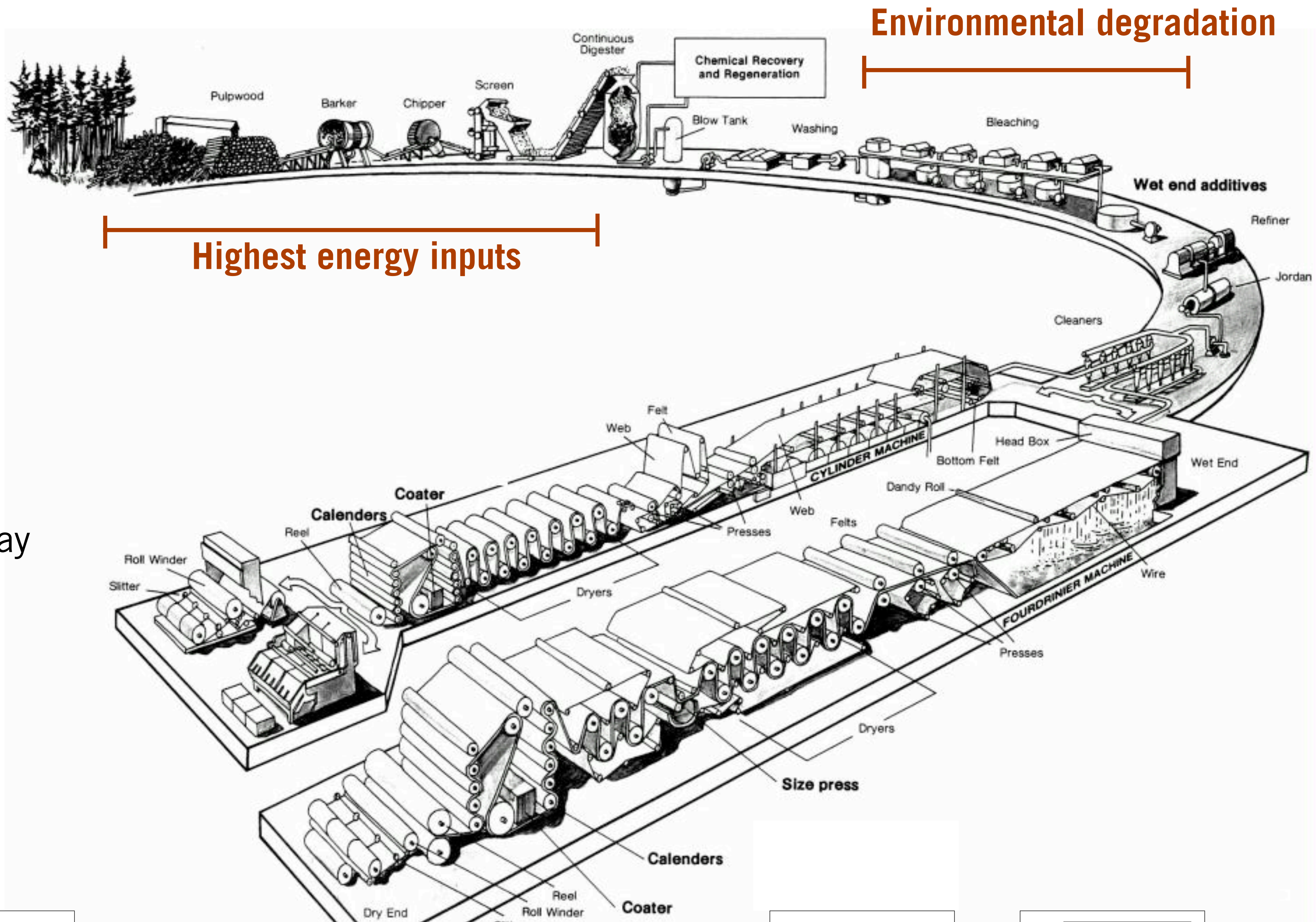
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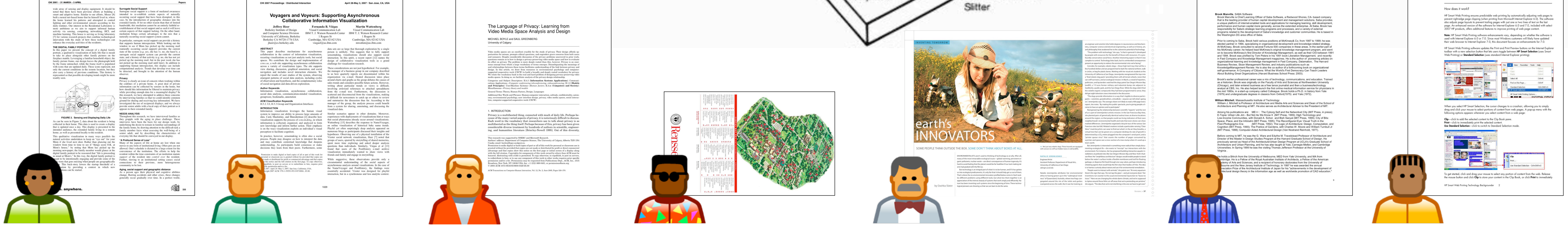

Voyagers and Voyeurs: Supporting Asynchronous Collaborative Information Visualization

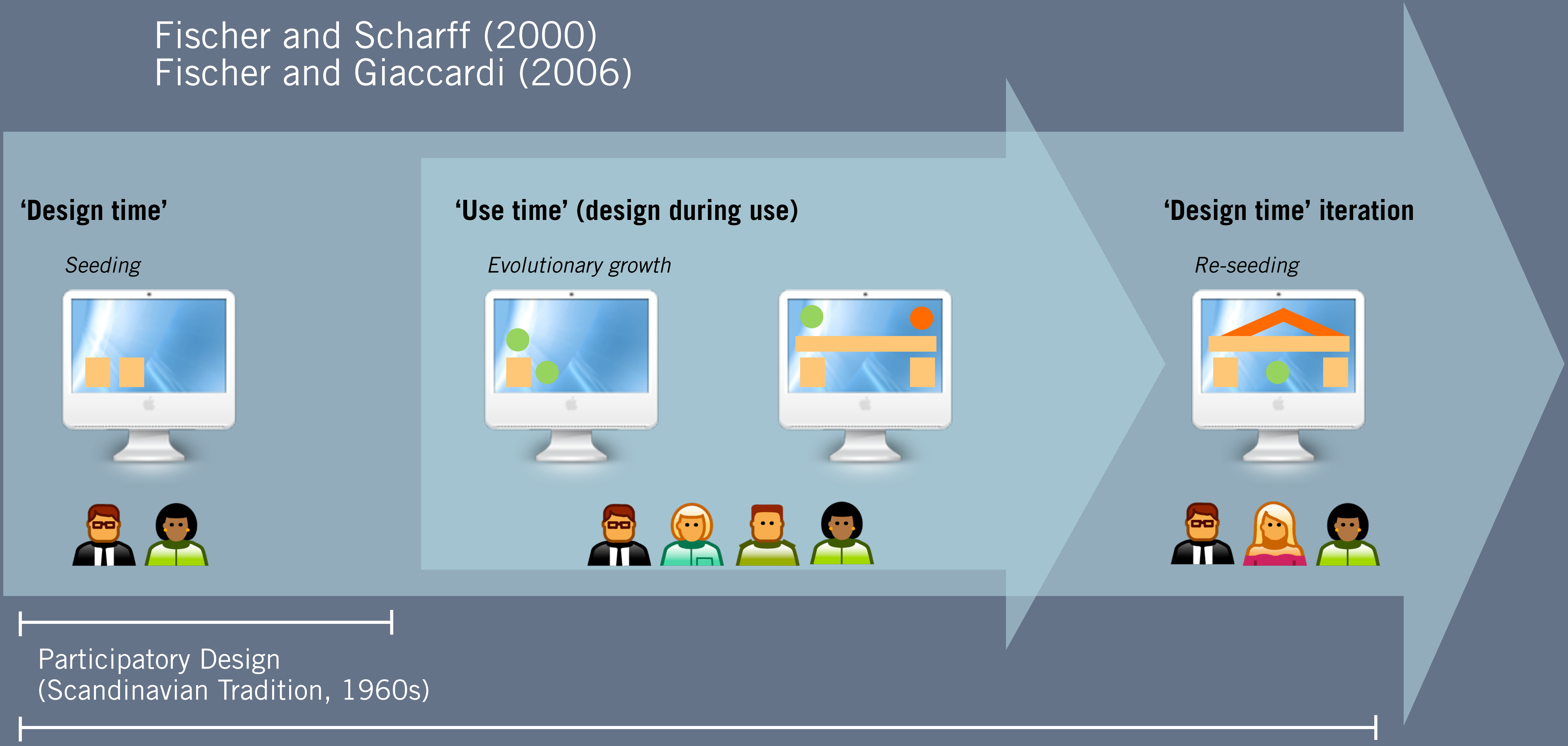
The Language of Privacy: Learning from Video Media Space Analysis and Design

earth's INNOVATORS

Meta-design

Participatory change through the design/use cycle

Fischer and Scharff (2000)
Fischer and Giaccardi (2006)



‘Design time’

Seeding

‘Use time’ (design during use)

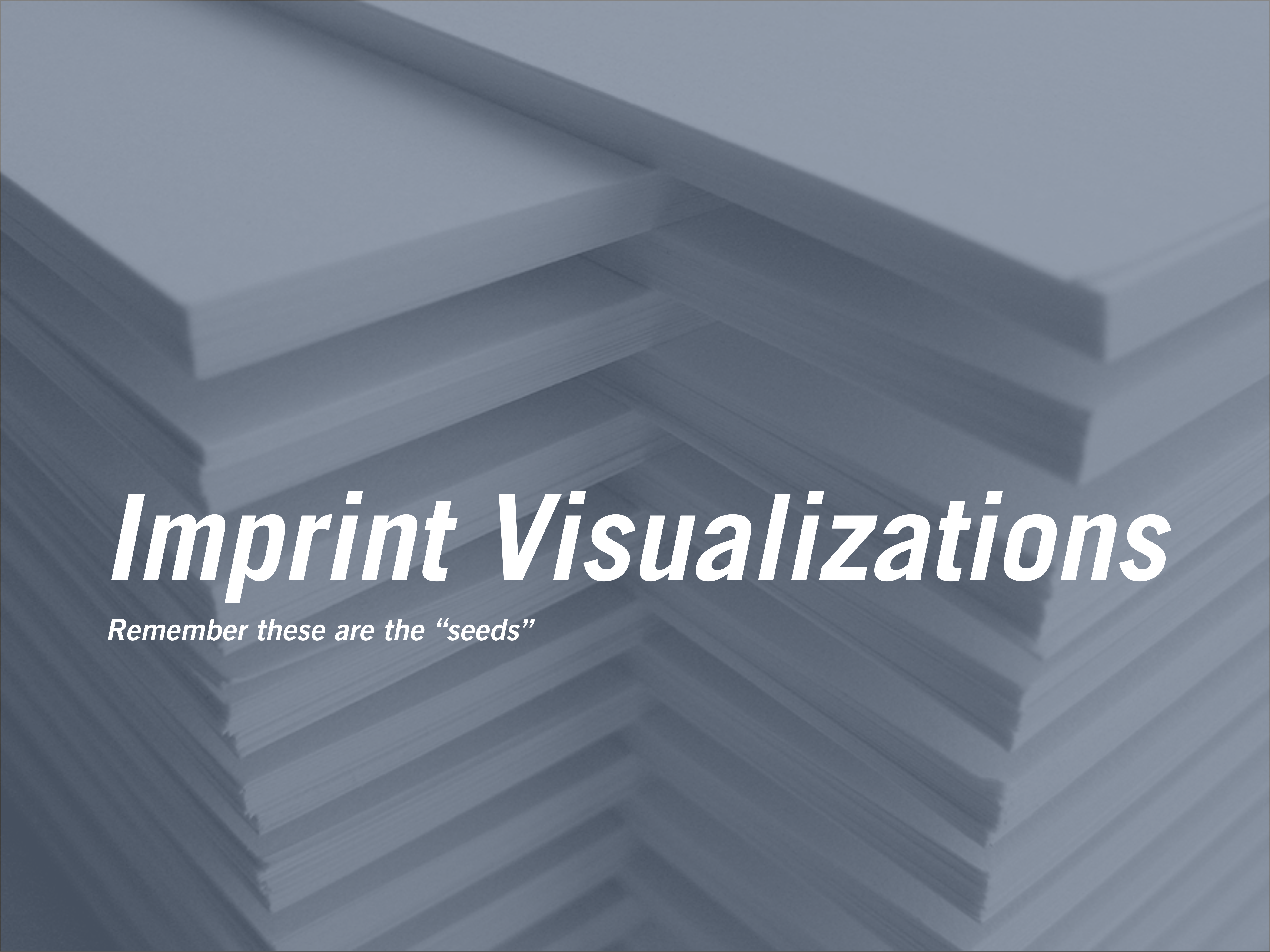
Evolutionary growth

‘Design time’ iteration

Re-seeding

Participatory Design
(Scandinavian Tradition, 1960s)

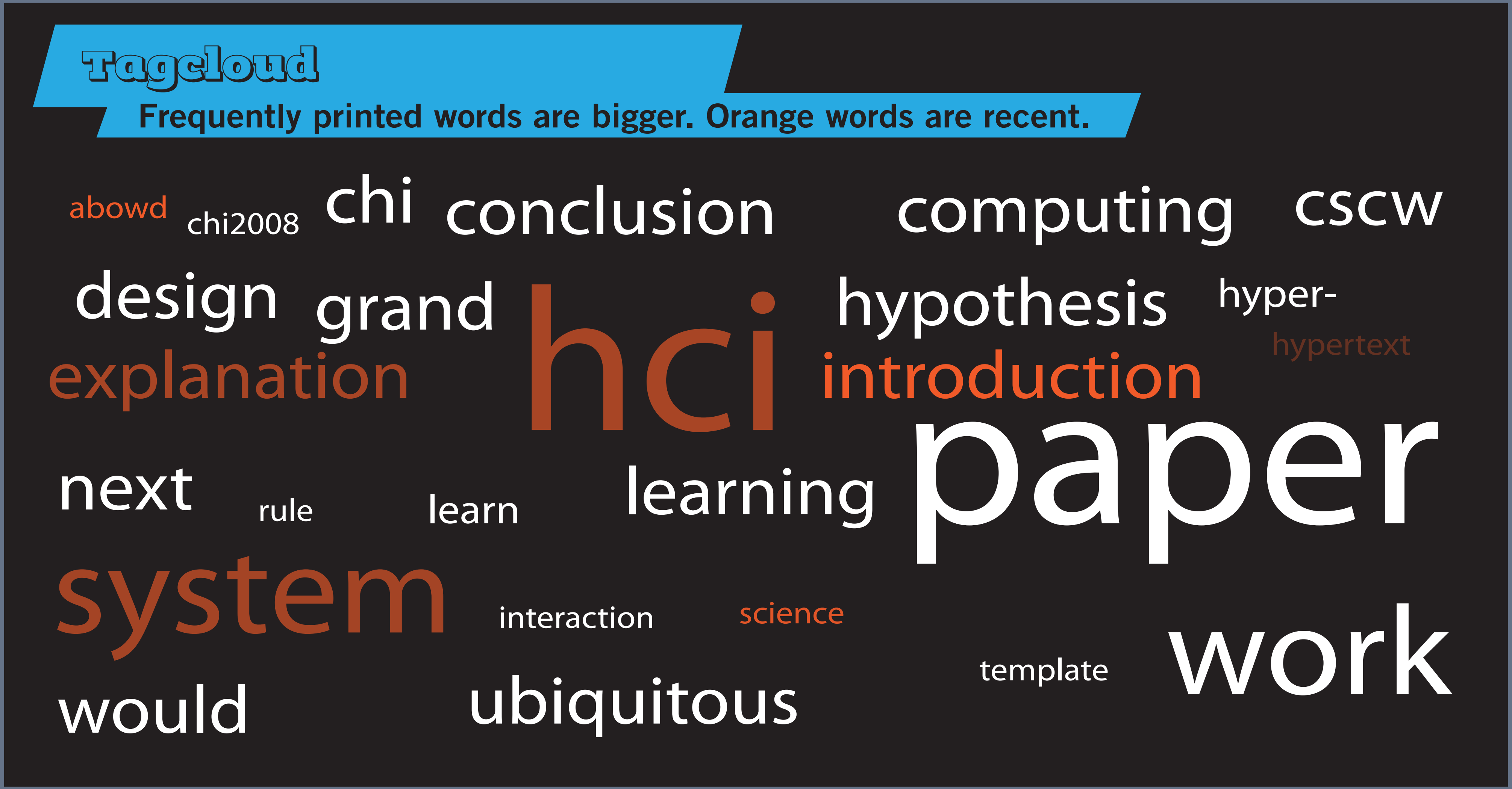
Meta-Design *(Design for design)*



Imprint Visualizations

Remember these are the “seeds”

Tag Cloud

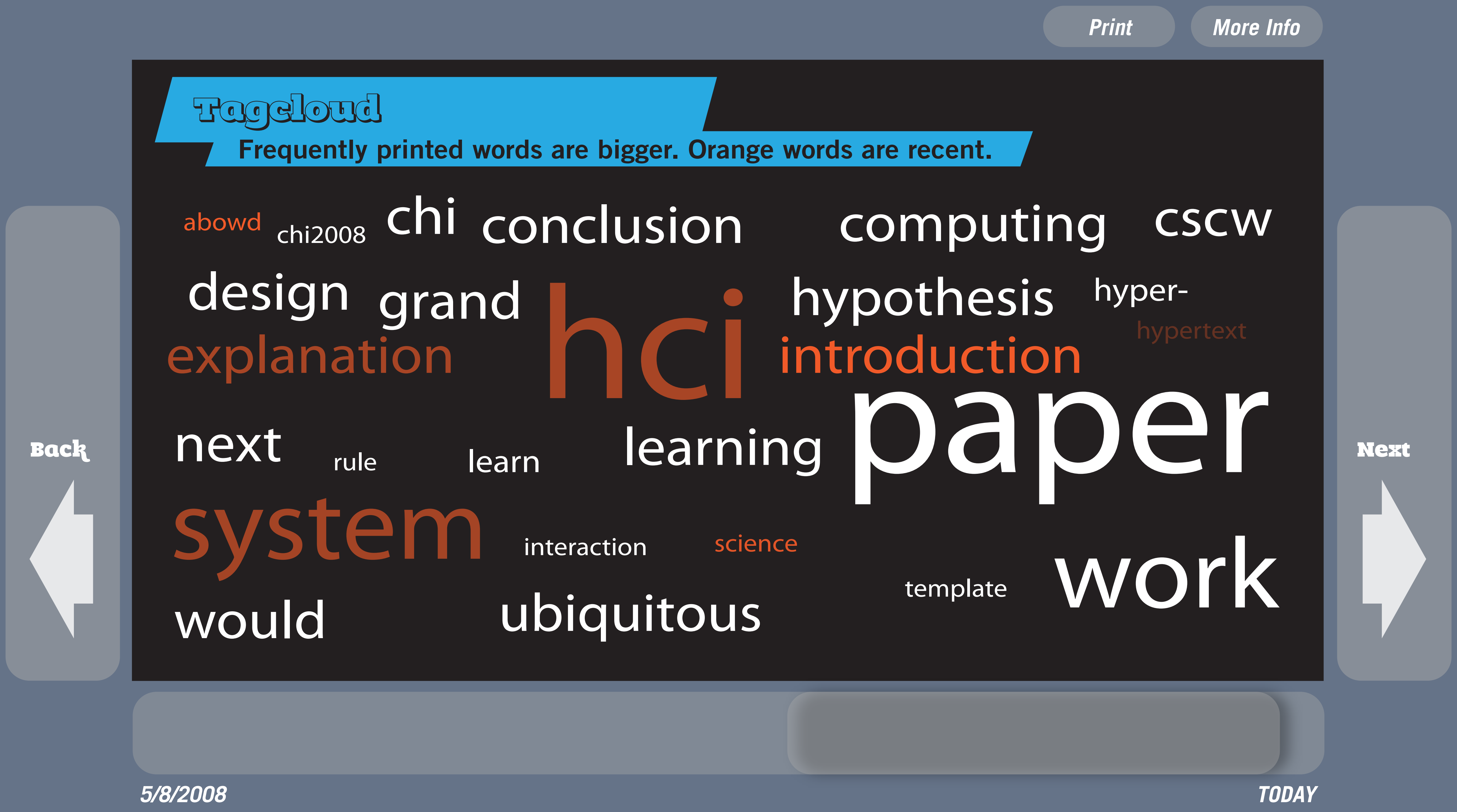


Tagcloud

Frequently printed words are bigger. Orange words are recent.

abowd
chi2008
chi
conclusion
computing
cscw
design
grand
hci
hypothesis
hyper-
hypertext
explanation
introduction
next
rule
learn
learning
paper
system
interaction
science
template
work
would
ubiquitous

Tag Cloud

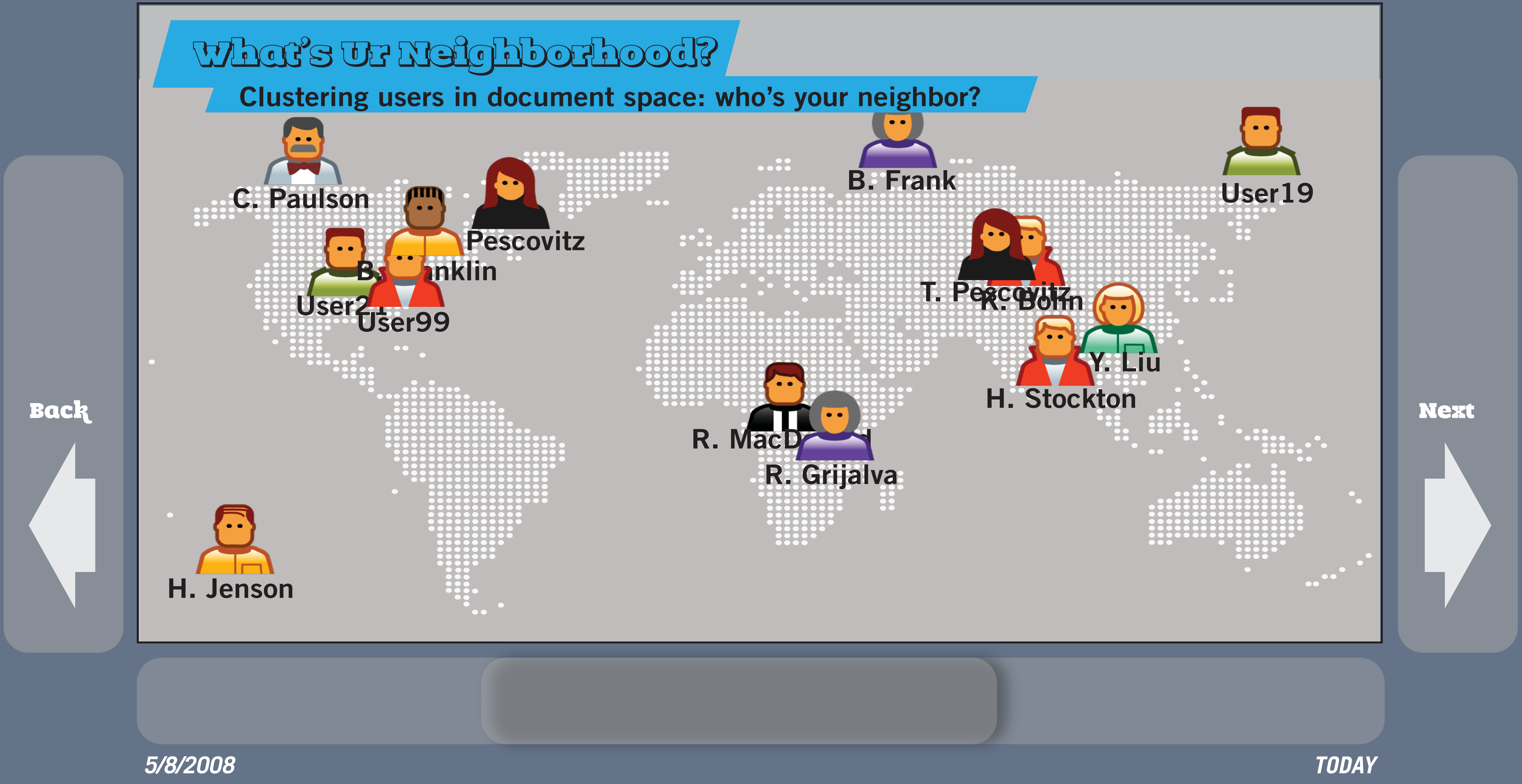

Print
More Info
Back
Next
5/8/2008
TODAY

Tagcloud

Frequently printed words are bigger. Orange words are recent.

abowd chi2008 chi conclusion computing cscw
design grand hci hypothesis hyper-
explanation introduction hypertext
next rule learn learning paper
system interaction science
would ubiquitous template work

Neighborhood



What's Ur Neighborhood?

Clustering users in document space: who's your neighbor?

C. Paulson
Pescovitz
B.
nklin
User21
User99
B. Frank
User19
T. Pescovitz
K. Bohn
Y. Liu
H. Stockton
R. MacD
R. Grijalva
H. Jenson
Back
Next
5/8/2008
TODAY

Paper used

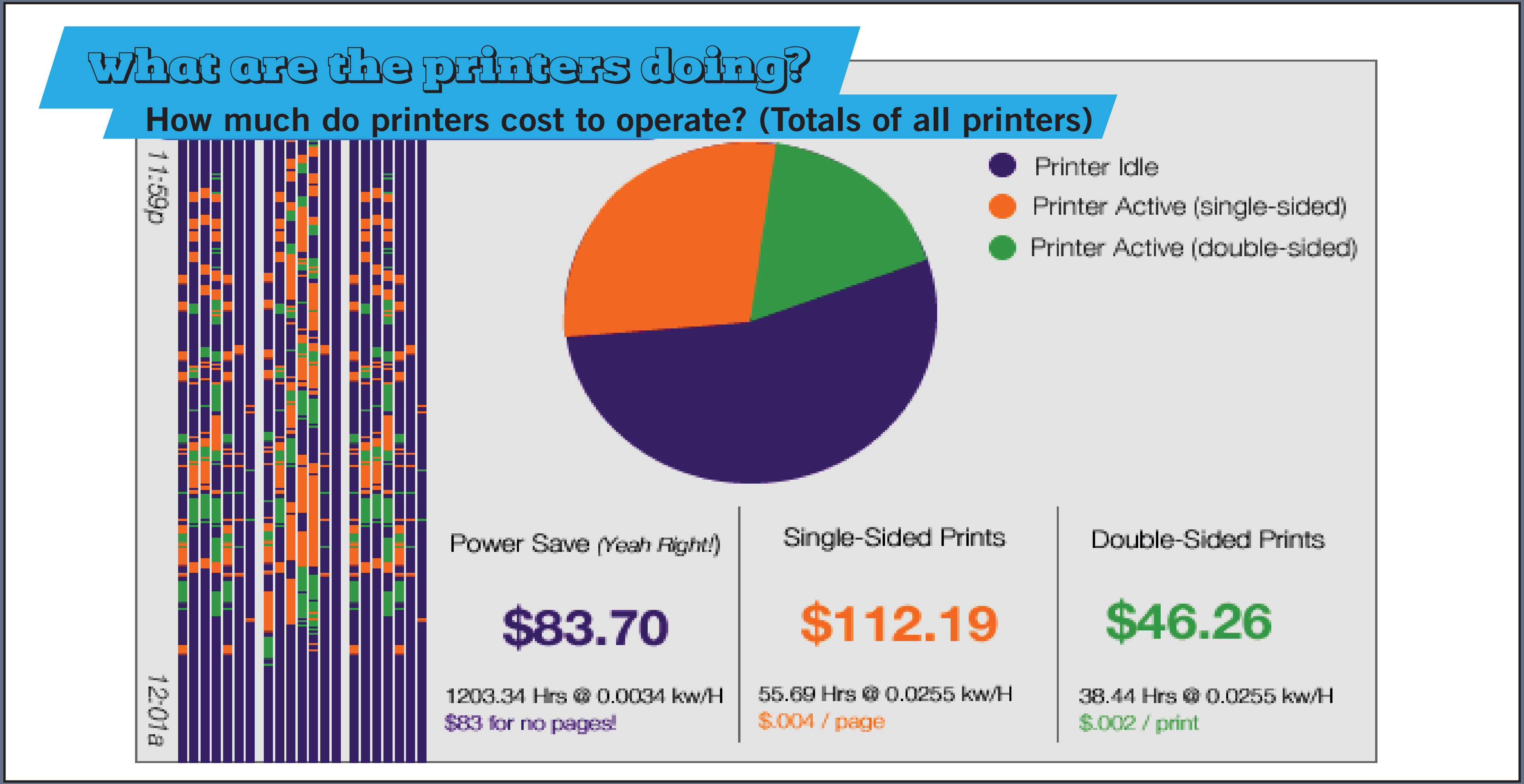
REPLACE WITH A REAL SCRENSHOT!

‘Work’ versus ‘Play’

REPLACE WITH A REAL SCRENSHOT!

Printing Costs (Active vs Idle)

Back



what are the printers doing?

How much do printers cost to operate? (Totals of all printers)

● Printer Idle
● Printer Active (single-sided)
● Printer Active (double-sided)

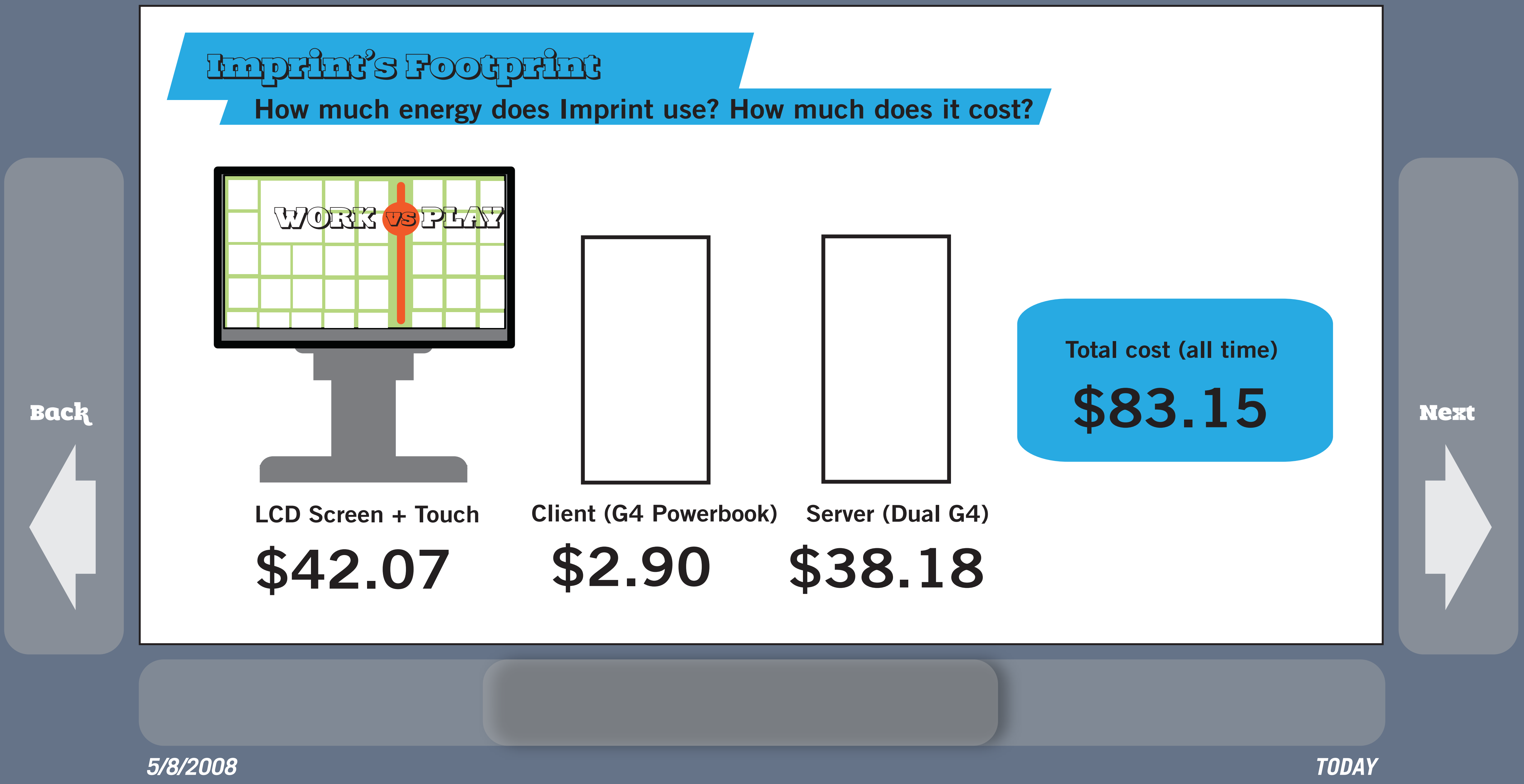
Power Save *(Yeah Right!)*	Single-Sided Prints	Double-Sided Prints
$83.70	**$112.19**	**$46.26**
1203.34 Hrs @ 0.0034 kw/H	55.69 Hrs @ 0.0255 kw/H	38.44 Hrs @ 0.0255 kw/H
$83 for no pages!	$.004 / page	$.002 / print

Next

5/8/2008

TODAY

Imprint’s Footprint



Imprint’s Footprint

How much energy does Imprint use? How much does it cost?

LCD Screen + Touch	Client (G4 Powerbook)	Server (Dual G4)
$42.07	$2.90	$38.18

Total cost (all time)

$83.15

Presented at CSCW 2008 San Diego CA, November 10-12, 2008. All slides are Creative Commons Licensed “non-commercial share-alike.” zach@cc.gatech.edu

User Suggested Vis

What will you guys suggest?

Back

?

Next

5/8/2008 *TODAY*

Deployment Study...

Email zach@cc.gatech.edu to sign up / find out more.

Thanks! Questions?

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People print. A lot.

3.2 billion reams (2004).

Office paper used by businesses. NADEP Environmental Program Office Report 2005.

http://www.flickr.com/photos/alexsegre/

It’s not that simple...