Emerging Configurations of the Virtual and the Material

A Workshop to Consider the Intellectual Frontiers of Information Research

March 2011, Chicago

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The Following is the introductory text describing the motivations for a workshop held earlier this year to explore the foundational research directions open to iSchools. The graphic figures that follow are what was generated in real time during the workshop. A full report is in process and will be available circa February 2012.

INTRODUCTION

"A fundamental reinterpretation of the nature of information and of its organizational implications and requisite expertise for the academic library in the next 10 years is essential" (Charles J. Henry, President, Council on Library and Information Resources (CLIR), http://www.clir.org/pubs/issues/index.html#enrich)

"Information Schools ('iSchools') address the complex relationships between information, technology, and people. This is characterized by a commitment to learning and understanding the role of information in human endeavors. The iSchools take it as given that expertise in all forms of information is required for progress in science, business, education, and culture. This expertise must include understanding of the uses and users of information, as well as information technologies and their applications."[1]

When new academic fields emerge, there is often a disconnect between the supply and demand of available intellectual resources – for example 'bioinformatics' emerged as an interdiscipline in its own right only several years after a need arose for biologists who could tackle the increasingly complex and sophisticated issues regarding the management and use of voluminous data resulting from mapping the human genome. This experience has been replicated in varying forms in other scientific disciplines, as well as in the humanities, signaling the emergence of a need for transdisciplinary[2] research that extends and ultimately transforms traditional research directions in the study of information Researchers have responded to specific instantiations of these challenges, but we now see the need and opportunity to consider a broader and clearer articulation of the scope of the issues arising. We propose a research workshop to explore these challenges. There are

[1] Larsen, Ronald L. "The iSchools", Encyclopedia of Library and Information Science, Third Edition, Marcia J. Bates and Mary Niles Maack, editors, CRC Press, 2009.

[2] Wikipedia: "Transdisciplinarity connotes a research strategy that crosses many disciplinary boundaries to create a holistic approach"

many possible ‘cuts’ we can take on the emergent information research problematic – we have chosen to explore ‘new configurations of the virtual and the material’.

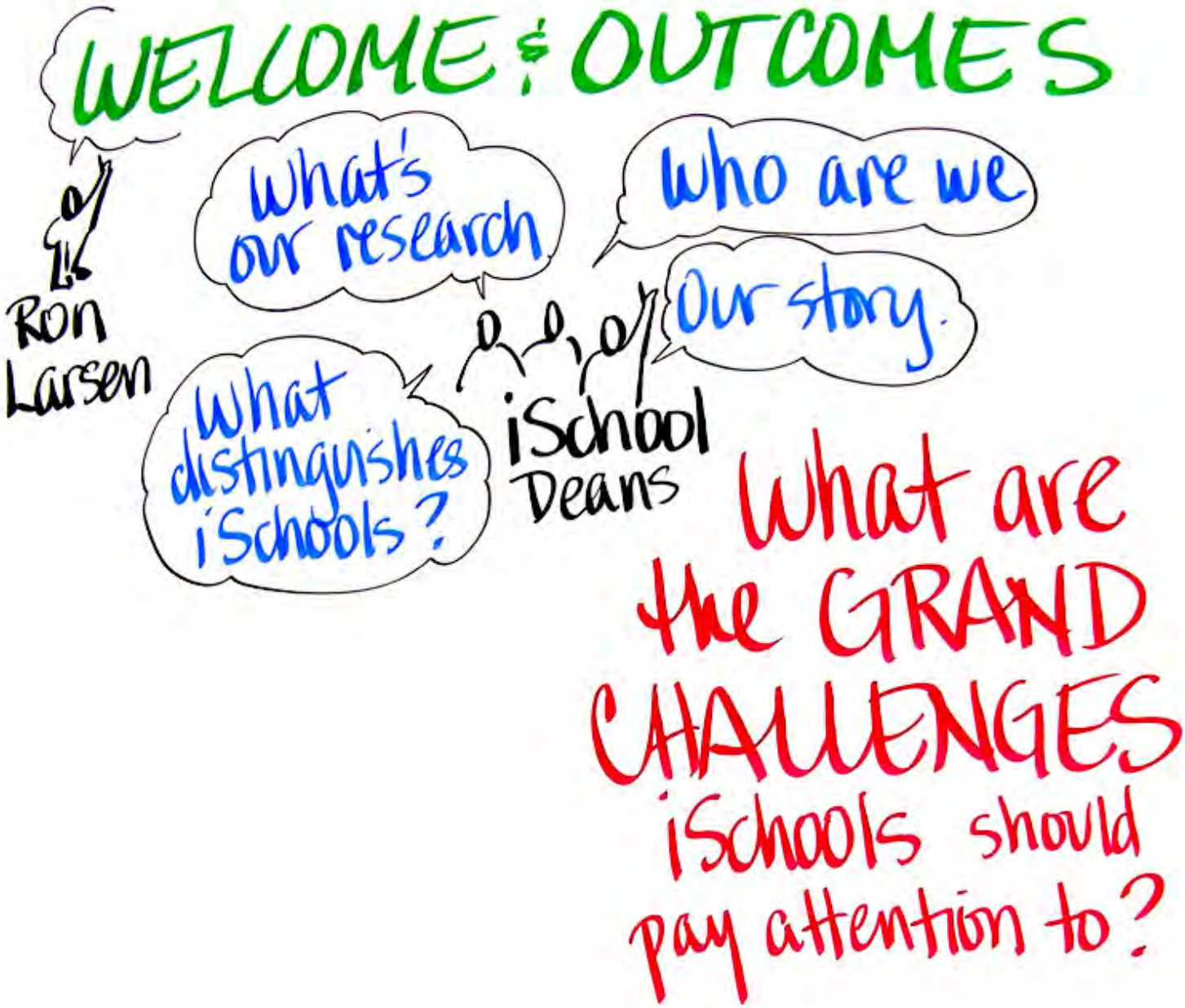
Over the past 250 years, and at an accelerating pace today driven by the relatively recent shift to computationally intensive scientific methodology involving very large information resources, virtual representations of physical spaces, materials, and phenomena have proliferated, in many cases replacing the physical as objects of study. Ugaritic texts are far more easy to read online than physically (lighting conditions in museums being less than optimal); papyri and ancient scrolls can now be read using MRI technology without injurious unrolling; archeological sites can now be examined without inherently destructive attempts to dig and rebuild. In these, and a growing number of other examples, the virtual assumes greater importance and may even seem more concrete than the material. Underlying these examples is the \exploitation of large-scale computation and information that we seek to explore in trandisciplinary terms.

Interestingly, there appears to be a flip side to the growing dominance of the virtual in studying the material. Online (natively virtual) groups are evolving into real (material) communities (consider, for example, the communities of soap opera fans as discussed by Nancy Baym). Three-D printers are increasingly used to express the complexity of digital cartographic maps and architectural designs. One measure of the magnitude of the shift to computation and information-intensive activities is Google’s development of huge clusters of servers that draw on Iceland's cold water and geothermal energy. The virtual is insinuating itself into the material and changing it, just as the social geography of the developed world was revolutionized by the laying of electrical lines so that sources of power and manufacture could be decoupled. Finally, new phenomena are occurring such as flash mobs – where the virtual (SMS) and the material (creating new forms of political action) are deeply intertwined.

Information researchers from a range of disciplines are discovering the need to examine these phenomena as instances of a larger whole. Each clearly draws on scholarship and expertise from their native disciplines, with the common element being the recognition of an emergent transdiscipline.

The central motivation for this workshop is our assertion that emerging 'new configurations' provide bellwethers of change that we ignore at our peril, and which energize (and, perhaps, even define) information research. They afford the possibility for (or, perhaps require) new transdisciplinary knowledge that cannot be forged in the foundry of any single discipline. Consider a counterexample from the 19th century. Although this was in many ways the century of classification - there was no **one** science of classification. Each discipline (etymology, linguistics, biology) discovered the principle of 'genetic classification' (classifying objects by their origin) anew. As Patrick Tort demonstrates, this occurred by happenstance (a student in, say, linguistics taking a course in evolutionary theory); even today, it is rare for classification discourse, as such,

to speak to multiple traditions. It's intriguing to play the 'what if' game that imagines what might have been, had we recognized the fundamental constructs being reinvented across scientific disciplines and intervened to nurture development of a common foundation. At this workshop, participants *will* play the 'what if' game, with the potential that we turn this supposition into a proposition forceful enough to guide information research in the near term and reframe computationally intensive and information-intensive research disciplines in the long term.


WELCOME & OUTCOMES
Ron Larsen
What's our research
Who are we
Our story.
What distinguishes iSchools?
iSchool Deans
What are the GRAND CHALLENGES iSchools should pay attention to?

PRIMING the PUMP

CORY KNOBEL

How we do science!

Pattern complexity → overwhelmed by amount of data

sensory capacity overwhelmed.

? Rewards for boundary spanning work in Univ.

DOMINIQUE BOULLIER

Get rid of Computer in our head..

Get rid of devices

New ways of looking for knowledge

Scale... always on ALERT

SHELTER to HESITATE

SHARE KNOWLEDGE in the MAKING.

ELLEN BALKA

start w/ ski areas injury epidemiology

paper airplanes like setting up health records.

? Handovers in care!

STEVE GRIFFIN

? Create user interfaces for computational data.

Geo-ref.

360° view

ALAN LIU

Agrippa

loose sheets in playlist format.

social environments hold the book together

social clusters of reading

? the Re-bound book?

PABLO BOCZKOWSKI

Daddy what's that?

what are the things we bring forward? ?

BILL ARMS

Why haven't Universities CHANGED?

Persia Mediated

lecture

expensive

Broad; Small #s of faculty

Big research.

BRITISH OPEN UNIV.

less expensive · distance learning

eCornell → disaster

? Opty.... one core course taught by all.

NOHA ADLY

DATA OVERWHELM

images text

Users refer to data despite multi languages.

SOCIAL MEDIA

New Ways to manage data

? gist of semantics

MARTIN WEISS

Spectrum allocation.

Next: Virtualize spectrum.

? Policy: create a better world?

TL TAYLOR

RAID. M2 $ for games

40 people playing.. coord. PLAY AS A RUBRIC

co-creative

radical reformulation by gamers.

BLURRED BOUNDARIES

? data mining implications

? How is co-creative way gamers work translate to "real" world.

? role of non-human actors.

RAMESH SRINIVASAN

Diversity → Digital Device → Homonogy or T diversity?

Museum data

Lived data

? Access & diversity... impact of digital world.

PRIMING the PUMP #2

SEAMUS ROSS

Ancestry.com

AUTHENTICITY
INTEGRITY
RELIABILITY

WHO owns & manages data?

sources of data?
how is it constructed?

? Role of public science?

KURTIS LESICK

I hate .ppt!

Info to data

for the paradigm for our thinking

passivity

reducing thought

authority

Ha! I broke the ppt rules.

Archival power plays...

book burning

lawsuits on data distribution

? CONTROL by....?

PAUL UHLIR

Conference on the Public Domain

Info commons on e-Science

Microbial Research Commons.

Print Paradigm → Global Digital Networks

How do we use for info exchange?

? Designing digital commons.

new models

social- not tech problem.

DISCUSSION ROUND 1

see change

what can we do w/ data

What does it mean to be an individual?

MULTIPLE IDENTITIES

generations

going retro!

how many of us gamers?

70 yr old artist working on thumbs on ipad.

leisure activities

HIT

formal spaces.

New practices NOT just the young.

reflexive.. know, or just do

gaming... group required

PERFORMATIVITY

Make it VISIBLE & REFLEXIVE

Environmental art.. making the cloud smaller

what is the cloud?

MATERIALITY

Material nature of technology.

Kids are doing CREATIVE things

vs. Defn: a digital publication is a paper that's on-line.

Stepping out of our paradigms can cost us...

Understanding vs. Influencing our role....

PRIMING the PUMP #3

JONATHAN GRUDIN

Books to Pamphlets

Guidance for using the web — "How ya gonna keep 'em..." Evolution + revolution via the Net.

? How fast!

? Lack of systematic data collection.

RICHARD COX

fiction / truth — Archive paradigm — memory

Public memory — in war we destroy libraries then recreate data systems for new memories.

? Bring the "Blessings" into the work we do! Faith... hope...

LAWRENCE BUSCH

Alberti & Dürer

Now: database grid ubiquitous

? What's left out?

? ignored?

? Outliers?

? Stories?

? Lossiness?

? Resisting "gee whiz"

? What other realities are excluded?

JIM NEAL

ORAL HISTORIES. tap into data-bases- forensic studies.

HUMAN RIGHTS on WEB DOCS. Power & influence evidence

NEW MEDIA SIMULATIONS

? Research, Educ, Community svc.

DON WATERS

Scholars resist change

* Bibliographic
* On-the ground work... decades.
* Transcription work.
* New tools.

Analog to digital archive

? How to accelerate

KELVIN WHITE

Archival universe — values, rituals, heroes, symbols

Multi universes cutting thru multiple angles

? How do we use technology so its MUTUALLY BENIFICIAL between multiverses?

NANCY VAN HOUSE

Photograph video — f 3 billion images/mo

Daily Booth: image-based facebook.

? Why do people share images?

? What can image do text can't?

? Implications

? Personal transitory.. collective persistent

RON LARSEN

Text not adequate to data/understanding of world.

we're a linear species

Scale: global to local.

If we could understand our data.. There's more knowledge in there.

? Data sharing Institutions evolve.

ROGER SCHONFELD

print → electronic

what info support needed?

e courses: impact, utility, efficacy,

? structural changes in libraries

nature of research, discovery points.

CATHY MARSHALL

SUSTAINABILITY of digital archiving

personal, digital, multiple disciplines

? Digital hoarding local vs social

? BIG data vs. tiny pieces.

? Copyright.. who owns it all?

PRIMING the PUMP #4

CLIFFORD LYNCH

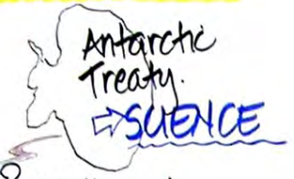
Social scale simulations
- starting to work!
- becoming cheaper

streams of social media → PRESENT & FUTURE PREDICTING

? How to feed simulations?
? IT infrastructure simulation? communication / thought.
? Artifact build out = quality check
? How good are predictions?
? Commercial/govt... what about academic?

The Fourth Paradigm
- data intensive research
- what are implications?

JOHN KING



At the pole.
Road via plane
Ice Cube.

physical vs. biological sciences

? What use trumps the other...

DISCUSSION ROUND 2

OPERATIONALIZATION — collecting & ordering data ⇒ implications for how we make meaning.

What do we do in classroom?

When have we not lived in our times?

"looking under the lampost" → looking beyond eg neurophysiology

Social Production in Creation of: Data

Newspapers around the world are actually BOOMING!

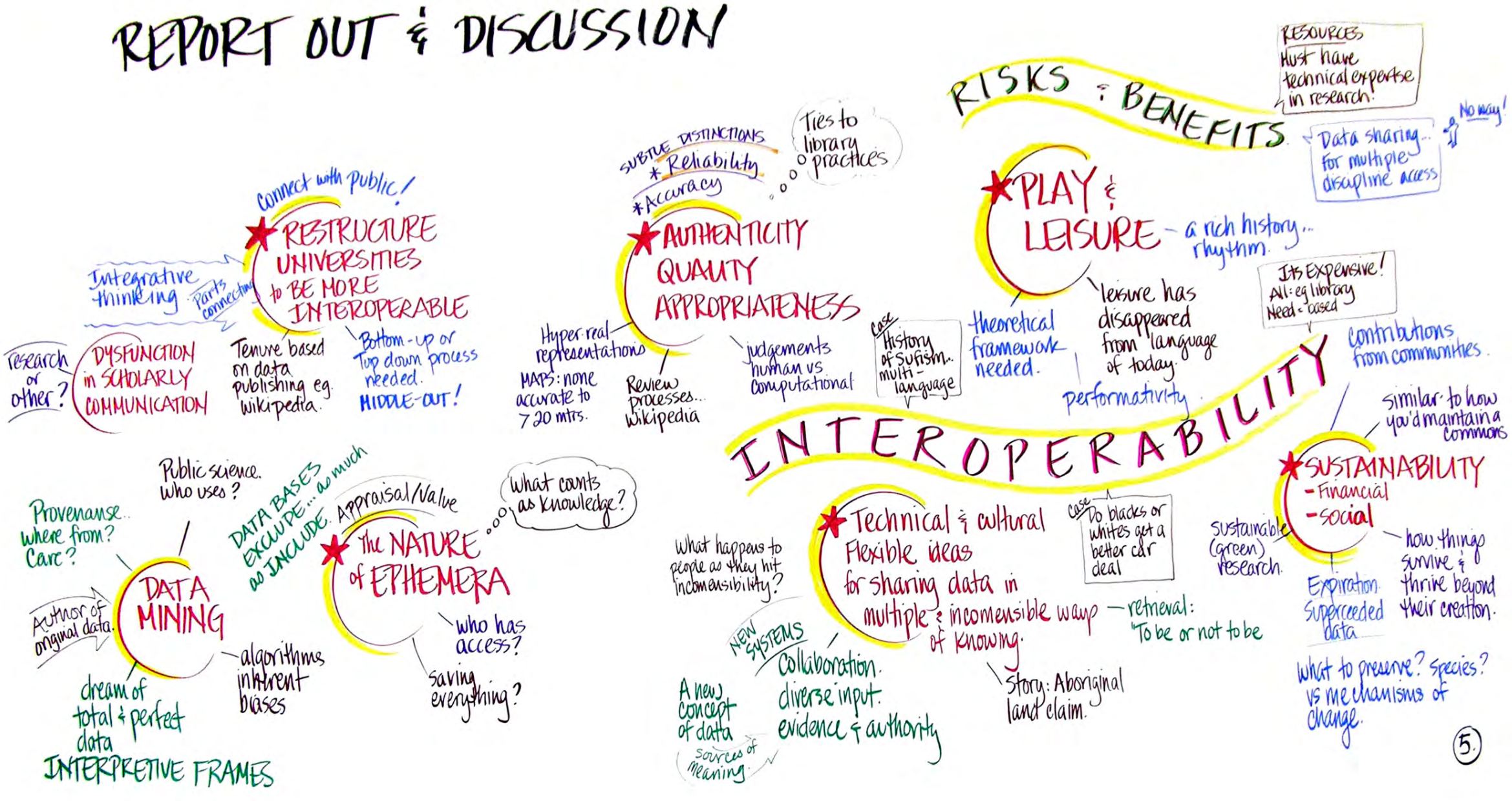
POWER
- removing pauses in transcript changes meaning.
- 6 million viewers/episode on YouTube. one guy....

JOURNALISM — dying species!
- hearing / ignoring
- under pressure
- Schools partner w/ journalism schools.

a lesson for journalism...

Geography depts. dispanded just before creation of G.I.S.

REPORT OUT & DISCUSSION



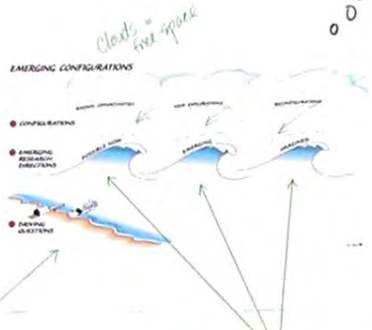
INSTRUCTIONS

Fill in the template from the BOTTOM UP!

STEP 1. Select a SCRIBE & a TIMEKEEPER.

3:00 BREAK

≈ 30 min/topic area.



STEP 4. CONFIGURATIONS

What configurations could contribute to your research?

STEP 2. DRIVING QUESTIONS

What questions are arising from your research?

STEP 3. EMERGING RESEARCH DIRECTIONS

* what's possible now?
* what's emerging... 5-10 yrs?
* what can you imagine? blue sky...

INSTRUCTIONS 3:15-4:00 pm

FIRST STEP (5 min)

In PAIRS

- Review the first chart.
- Write 2-4 most important Grand Challenge propositions

One Challenge/sticky

LAST: (10 min)

Select 2 different people to present your 2 favorite challenges to the plenary.

STEP 2. (5 min)

Collect & cluster stickys.

- Suggestion: 2-3 people SORT
- Put clusters in the rays.
- Write a main theme for the cluster in a circle.

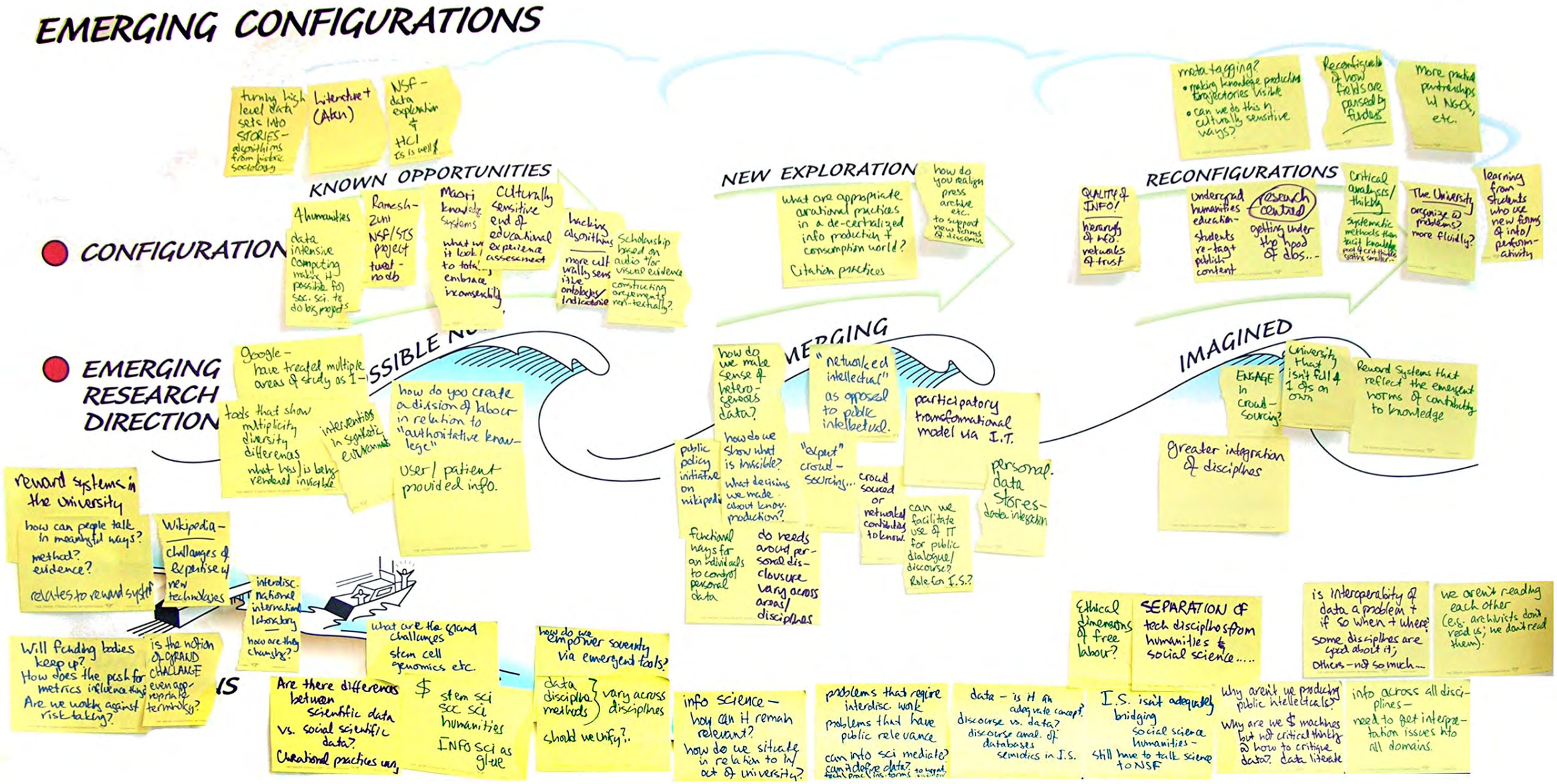
STEP 3. (25 min)

DISCUSSION of each cluster.

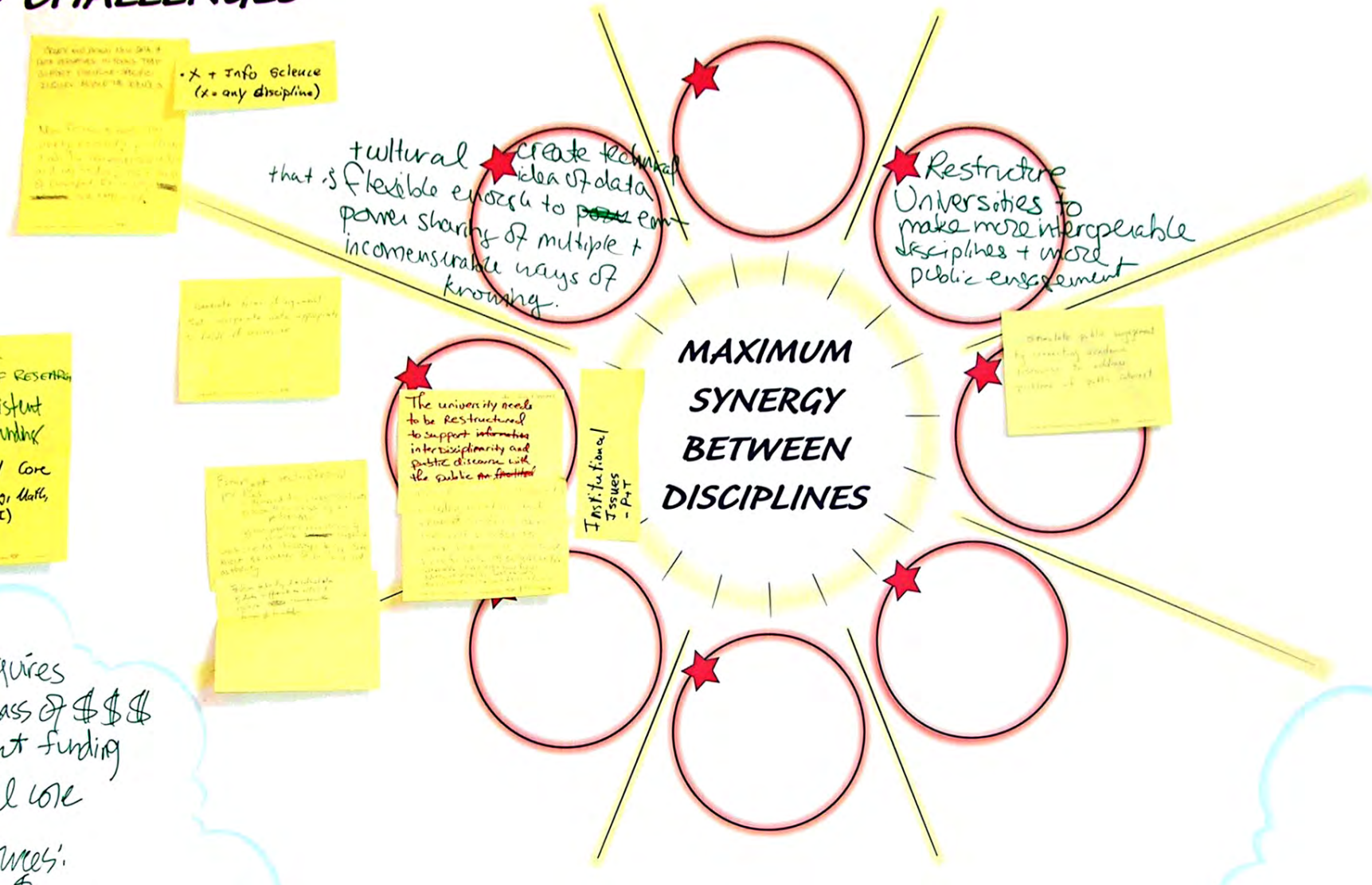
During discussion: write RESOURCES, PROJECTS & PEOPLE directly on the chart

- How would each cluster contribute to maximum synergy between disciplines?
- Hone in on the 8 most promising challenges.
- Capture the essence of the challenge in the circle.

EMERGING CONFIGURATIONS



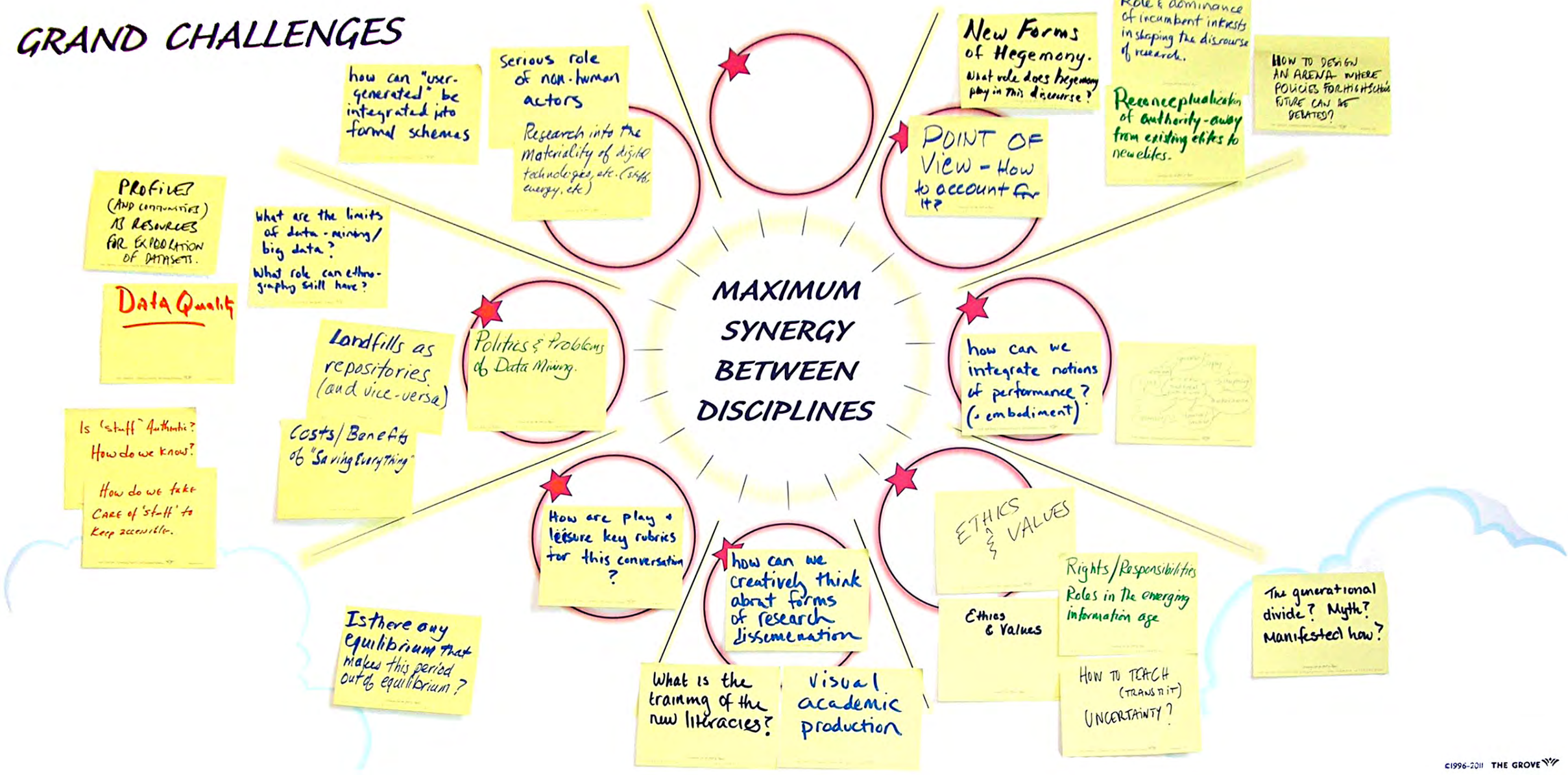
GRAND CHALLENGES



Research requires
- critical mass of $$$
- consistent funding
- technical core

Resources:
$
time
People - HCI

GRAND CHALLENGES



GRAND CHALLENGES