

Matters of Scale and the Scales that Matter

Cory P. Knobel, Marianne E. Ryan, and Steven J. Jackson
University of Michigan – School of Information
{*cknobel, meryan, sjackso*}@umich.edu

Submitted for Track II: The Grand Challenges

Considering grand challenges facing the I-School movement in the next phase of evolution, matters of scale and aggregation in both the frameworks used and the phenomena described play a critical role. Research streams coming out of the I-School movement address a wide range of these scales from the individual user at the cognitive level, to national civic participation through the use of ICTs, to global coordination of research teams in “Big Science” initiatives. While all of these projects are contributing important new knowledge, they remain mostly isolated from each other like islands in an archipelago.

Looking at research conducted in our own department, it is clear that economics of resource scarcity prevent interesting and significant projects from emerging. Either the scholars have not communicated with each other in a way that would spark the research, or they are aware of potential but lack time or funding, or there is a sense that exploring all permutations of possible research within a department is an impossible goal. Hitting upon groundbreaking research (and the right collaboration to produce it) is in the hands of serendipity - or sheer will. Still, the last ten years have produced stellar interdisciplinary work, and the I-School has emerged with an identity that has caught the academic worlds attention. We are overcoming the grand challenge of justifying who we are, and now turn to the grander challenge of defining how we view the world and generate new knowledge.

As the “new I-School community” has developed a rudimentary sense of the idea space, we have realized it to be complex, elusive to define, and requiring distinct efforts in coordination. A grand challenge would be met by building infrastructure that defines the level of scale in the analytical tools we build, and is explicit in the level of aggregation our research addresses. To stimulate discussion, based on this context, we pose the following questions:

- How do things in the information world (systems, organizations, governments, etc.) get – and stay – big? Conversely, how do apparently big things get small? What sorts of explanatory resources can we, as an I-school community, bring to bear on such questions? How might our answers differ from other scholars who have taken up questions of scale?
- How might questions of scale line up with and/or cut across other sorts of divisions and alignments within the field? Is it possible to construct a model that describes the levels of scale studied by information science research, and to standardize it among research communities? Is this desirable?

- Is there a difference between “levels of scale” and “levels of aggregation”? If so, how does this change the ways in which we define, describe, assign agency, and generate frameworks to address grand challenges? What are the consequences of lexicon here?
- How are coherencies and correspondences *across* scale achieved and maintained? What are the “keystones” that hold together this infrastructure? Are they theories (mesotheories)? Models? Something we havent put together yet?
- What are the tools that will allow us, as a community of practice (or many communities of practice) to share knowledge across researched levels of scale?
- What are the advantages and disadvantages of tying all of these levels of scale together and generating a clearer map of the idea space in information science?
- How would other grand challenges benefit from a cogent framework in which to place matters of scale, and for particular research initiatives, a clearer view of the scales that matter?