



UNIVERSITY OF CALIFORNIA, BERKELEY  
SCHOOL OF INFORMATION

# Organizing Single-Source Content for Authoring and Delivery of a “Transdisciplinary” Textbook

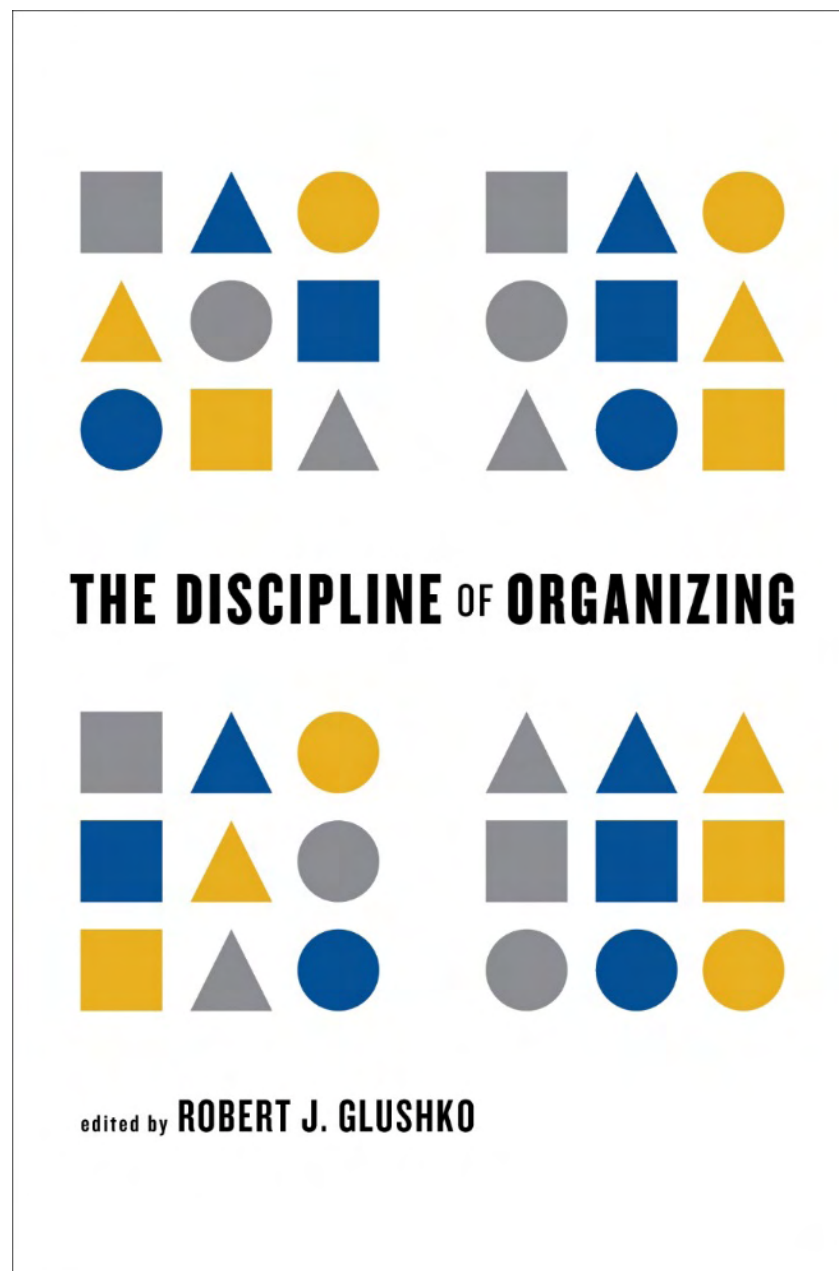


INNOVATIONS  
IN KNOWLEDGE  
ORGANISATION

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**21 July 2016**  
**Singapore**

# The Discipline of Organizing: The Book



Published by MIT Press (2013)  
as a printed book and in ebook  
formats

“Enhanced ebook” editions  
published by O’Reilly Media in  
2014 and 2015

In use in > 75 courses in > 20  
countries as of July 2016

Named an “Information Science  
Book of the Year” in 2014

# The Mandate and Challenge with Transdisciplinarity

- The concept of “organizing system” as the transdisciplinary synthesis of the disciplines that deal with “organizing” mandates a book with many authors
- It must be a BROAD textbook to represent all the disciplines that contribute to it
- It must be DEEP to treat all the disciplines with appropriate rigor and nuance

*How can it be deep and broad  
at the same time?*

# {Inter, Multi, Trans} Disciplinarity?

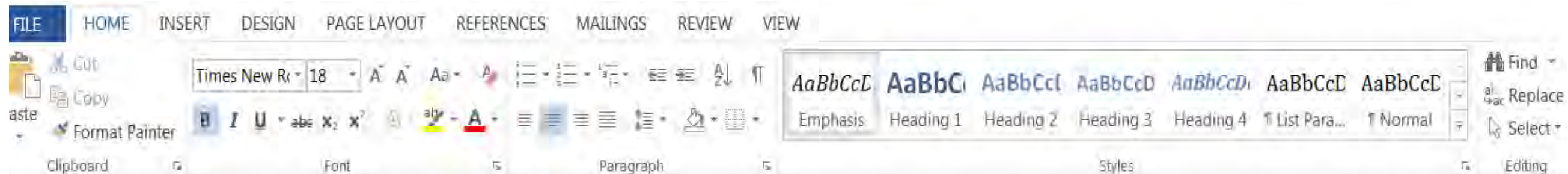
- Multidisciplinarity is easy: more than one disciplinary perspective is in the book, not necessarily about the same topics
- Interdisciplinarity is harder: authors from different disciplines discuss the same topics
- Transdisciplinarity requires integration or synthesis of common concepts, structures, and relationships from the contributing disciplines; these abstractions are then reapplied to each of those disciplines

# The Birth of TDO and the Process for Collaboration

- In January 2010, I recruited several current and former students and collaborators to write draft chapters according to my outline
- We initially used Word as the authoring software
- We initially we used generic technology (email, Dropbox, Skype) rather than tools with book-specific collaboration functionality
- The process was informal; no explicit version control, file naming rules, or precise schedules
- We just wrote drafts and commented on each other's work




# MS Word's ubiquity made it easy to solicit co-authors and reviewers




Chapter 1: Foundations for "Organizing Systems" Last Updated: 4 July 2011

information they need to do that, just as a library or museum is systematic at developing its collection.























- "*Intentionally Arranged*" emphasizes the classifications, relations, or structures created by explicit or implicit acts of organization by people or by computational processes. A collection can be arranged in physical locations, in databases or file systems managed by resource descriptions, on the Internet by a pattern of information exchanges or hypertext links, or arranged by computational analysis of these patterns. These arrangements might themselves follow patterns that are influenced by architectural principles or standards for physical environments or web applications. But we must exclude naturally-occurring patterns created by physical, geological, biological or genetic processes. A pile of debris left after a tornado or tsunami and the strata of the Grand Canyon might exhibit patterns with "consistent or characteristic arrangement" (Bates, 2006, p. 1033-1034), but they aren't Organizing Systems.

 **Ryan Shaw**  
Should we mention that a collection might be considered a resource too (e.g. for someone charged with organizing collections into collections)?

 **Ryan Shaw**  
Three big ideas that we haven't really introduced yet. Maybe we could leave it at "... emphasizes the explicit or implicit acts of organization ..."?



# ➔ Collaboration Chaos in Dropbox

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 Ch_1_20110628	6/30/2011 3:54 PM	Microsoft Word D...	
 Ch_1_20110701	7/4/2011 9:56 AM	Microsoft Word 97...	
 Ch_1_20110704 - RBS comments (Anne Wootton's confli...	7/6/2011 3:23 PM	Microsoft Word 97...	
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 Ch_1_20110704	7/4/2011 12:44 PM	Microsoft Word 97...	
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 Ch_1_20110712	7/26/2011 4:09 PM	Microsoft Word 97...	
 Ch_1_20110712CB	7/18/2011 3:16 PM	Microsoft Word D...	
 Ch_1_20110726	7/26/2011 4:09 PM	Microsoft Word 97...	
 Ch_1_20110727 (Kathryn La Barre's conflicted copy 2011...	7/30/2011 8:36 AM	Microsoft Word 97...	
 Ch_1_20110727 (Kimra Mcpherson's conflicted copy 201...	7/30/2011 8:36 AM	Microsoft Word 97...	
 Ch_1_20110727 (Leslie Tom's conflicted copy 2011-08-08)	7/30/2011 8:36 AM	Microsoft Word 97...	
 Ch_1_20110727 (Ryan Shaw's conflicted copy 2011-08-08)	7/30/2011 8:36 AM	Microsoft Word 97...	
 Ch_1_20110727	8/15/2011 11:01 A...	Microsoft Word 97...	
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# Single-source authoring with atlas.oreilly.com

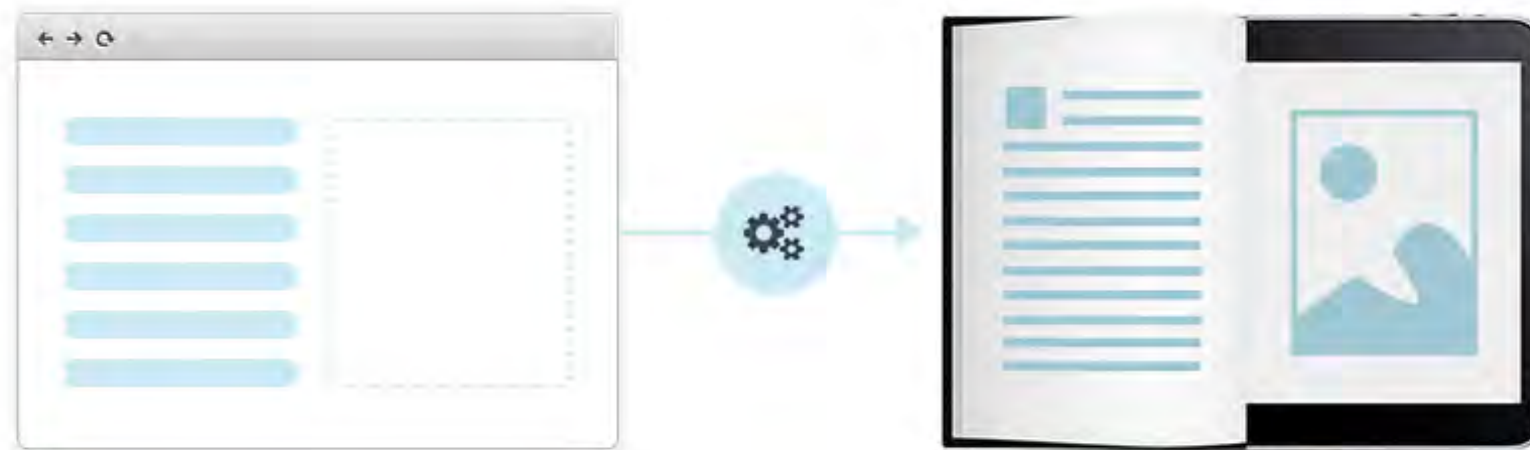
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THE DISCIPLINE OF ORGANIZING

by ROBERT J. GLUSHKO

Edit Cover


Back to all books

# The Discipline of Organizing

## Files

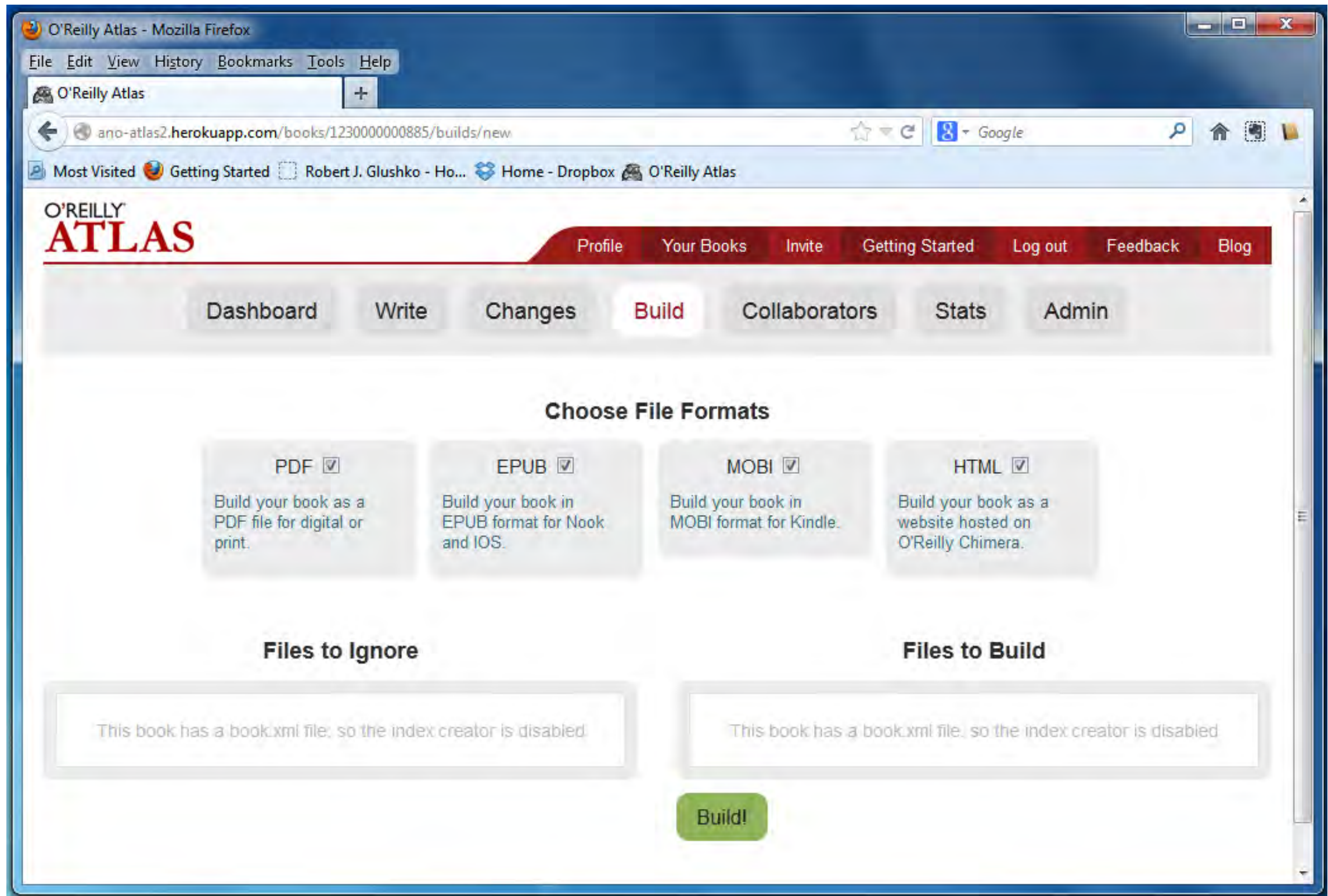
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- Abstract.xml
- Acknowledgements.xml
- Bibliography.xml
- Bookinfo.xml
- Chapter1.xml
- Chapter10.xml

## Collaborators



## Messages

Post Message

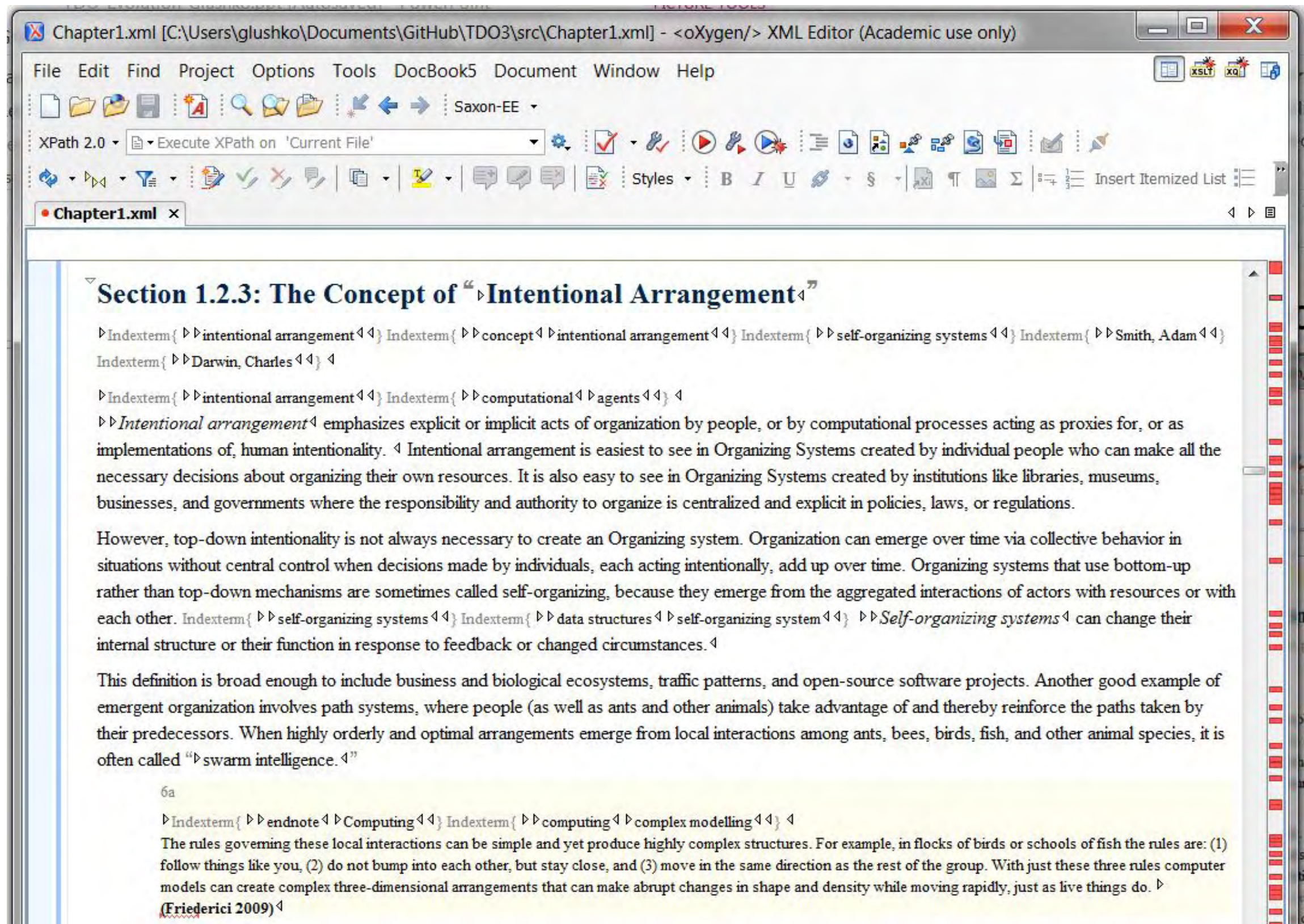


# Impact of Atlas Technology on the “Architecture of Participation”

- Atlas made it obvious that native XML editing would yield more content-based markup
  - More interaction and navigation support
  - Semantic web and linked data applications
  - More flexible automation of publishing process
- But XML was more difficult for most authors, and many of them stopped working on their chapters

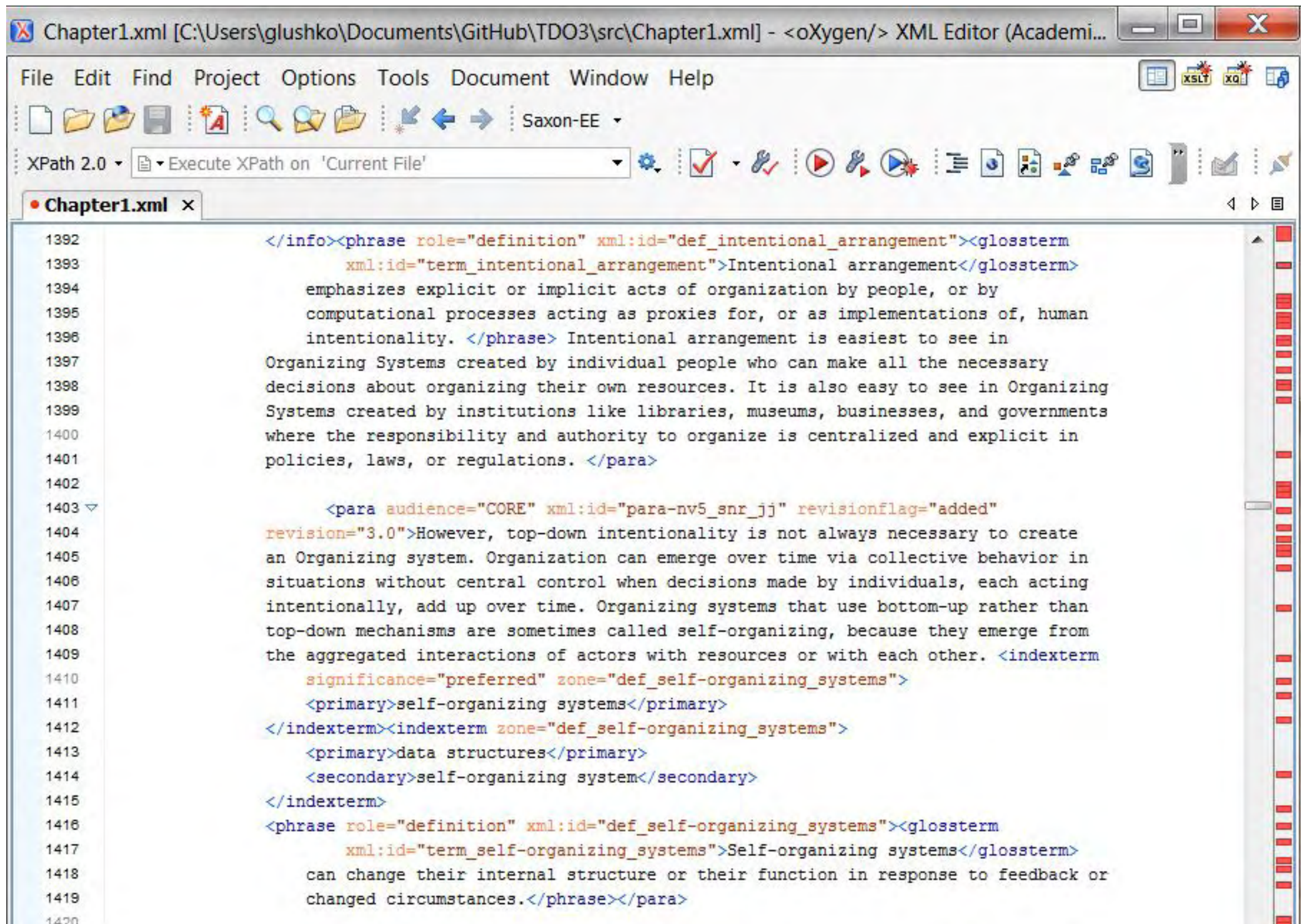


# XML – “Author” Mode





# XML – “Text” Mode

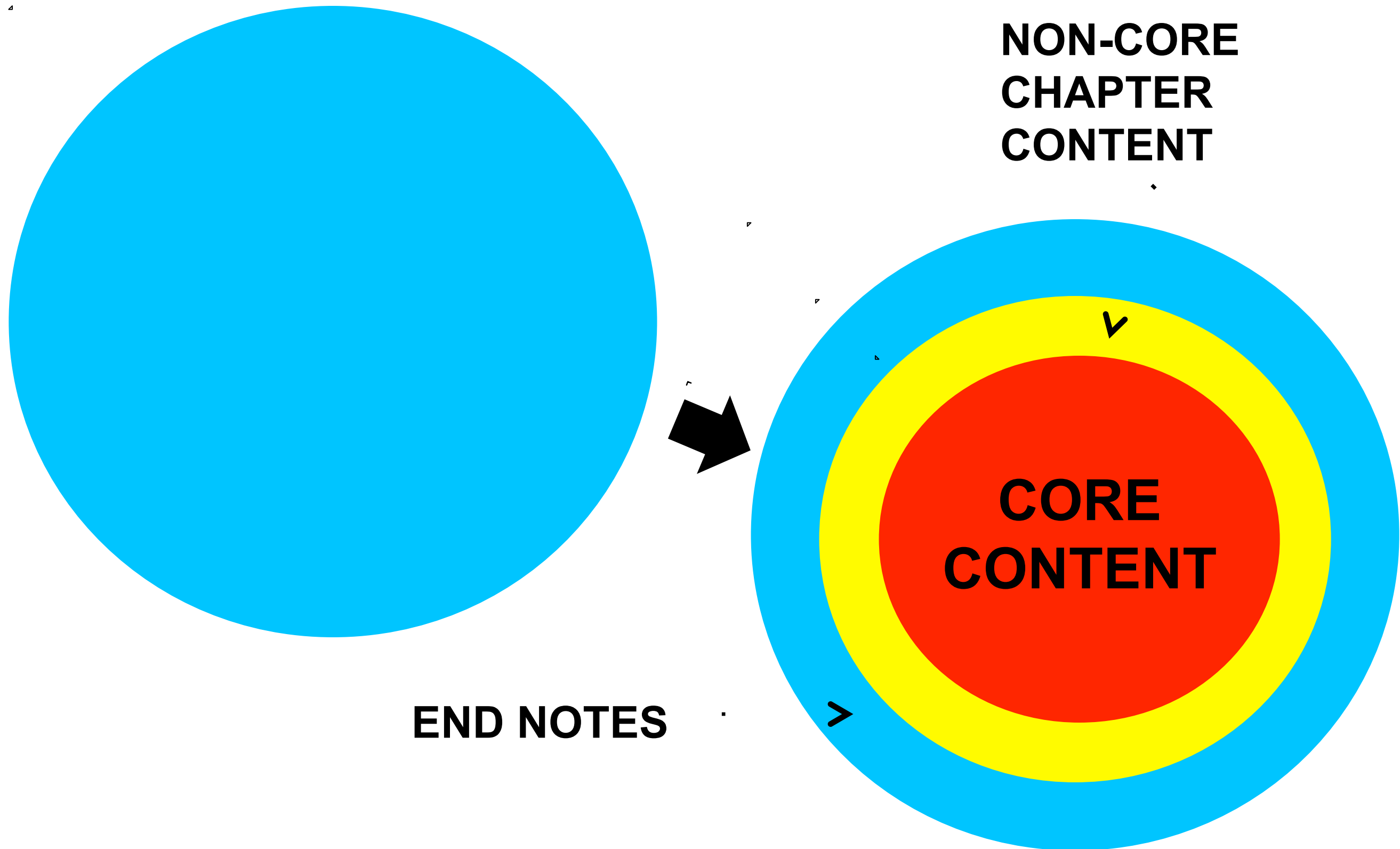


```
Chapter1.xml [C:\Users\glushko\Documents\GitHub\TDO3\src\Chapter1.xml] - <oXygen/> XML Editor (Academi...
File Edit Find Project Options Tools Document Window Help
XPath 2.0 Execute XPath on 'Current File'
Chapter1.xml x
1392 </info><phrase role="definition" xml:id="def_intentional_arrangement"><glossterm
1393     xml:id="term_intentional_arrangement">Intentional arrangement</glossterm>
1394     emphasizes explicit or implicit acts of organization by people, or by
1395     computational processes acting as proxies for, or as implementations of, human
1396     intentionality. </phrase> Intentional arrangement is easiest to see in
1397     Organizing Systems created by individual people who can make all the necessary
1398     decisions about organizing their own resources. It is also easy to see in Organizing
1399     Systems created by institutions like libraries, museums, businesses, and governments
1400     where the responsibility and authority to organize is centralized and explicit in
1401     policies, laws, or regulations. </para>
1402
1403 <para audience="CORE" xml:id="para-nv5_snr_jj" revisionflag="added"
1404     revision="3.0">However, top-down intentionality is not always necessary to create
1405     an Organizing system. Organization can emerge over time via collective behavior in
1406     situations without central control when decisions made by individuals, each acting
1407     intentionally, add up over time. Organizing systems that use bottom-up rather than
1408     top-down mechanisms are sometimes called self-organizing, because they emerge from
1409     the aggregated interactions of actors with resources or with each other. <indexterm
1410         significance="preferred" zone="def_self-organizing_systems">
1411         <primary>self-organizing systems</primary>
1412     </indexterm><indexterm zone="def_self-organizing_systems">
1413         <primary>data structures</primary>
1414         <secondary>self-organizing system</secondary>
1415     </indexterm>
1416 <phrase role="definition" xml:id="def_self-organizing_systems"><glossterm
1417     xml:id="term_self-organizing_systems">Self-organizing systems</glossterm>
1418     can change their internal structure or their function in response to feedback or
1419     changed circumstances.</phrase></para>
1420
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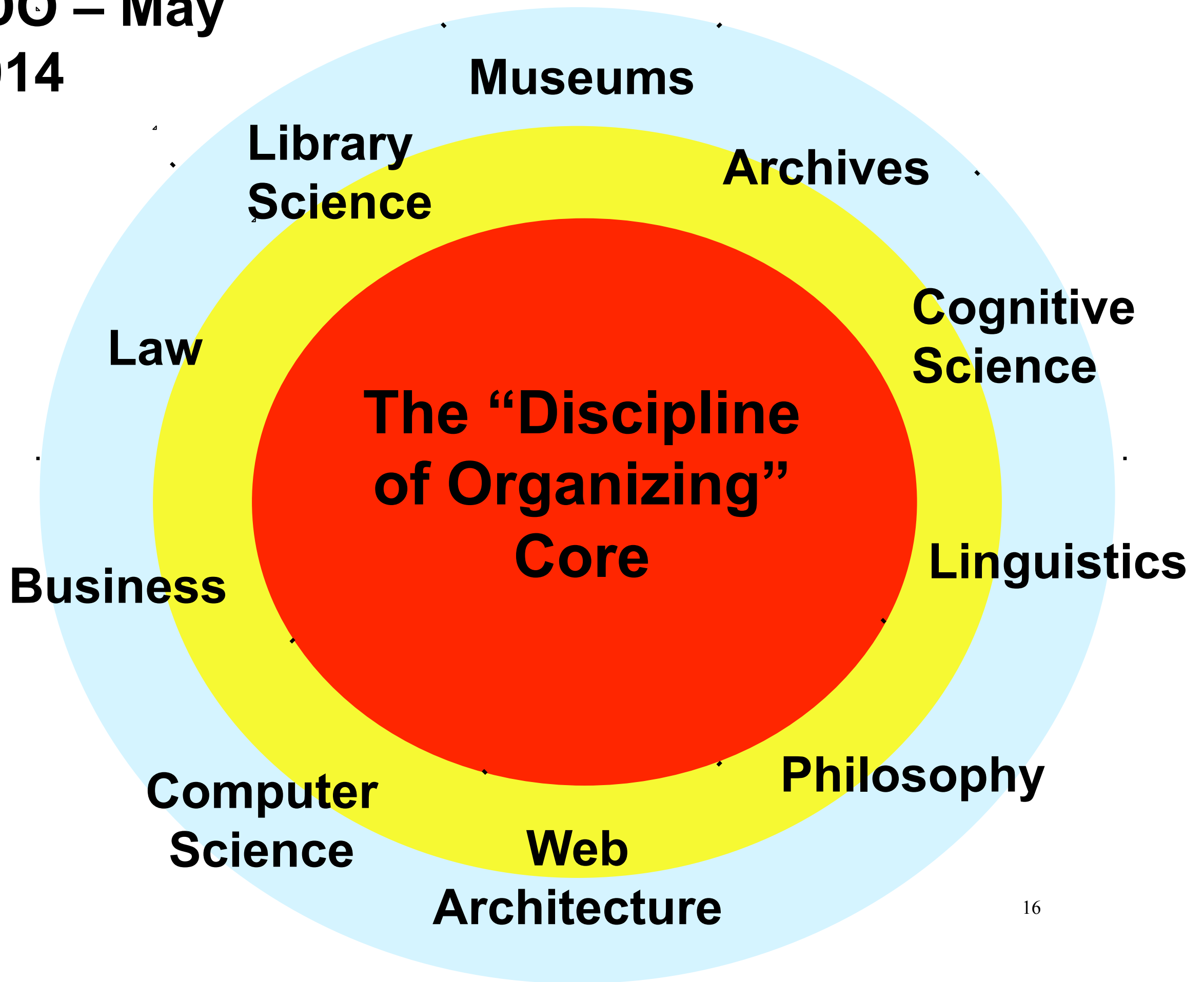
# Impact of Technology on the “Content Architecture” of the Book

- The change in the authoring technology **required** me to take back control of the content, finish all the unfinished chapters, and edit the entire book end-to-end
- It also **enabled** me to undertake a radical restructuring of the book to attack the breadth vs. depth challenge and make the book truly transdisciplinary

# “Factoring” the Book’s Content



**TDO – May  
2014**





# Tagged Notes and Paragraphs

iPad

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Library



Robert J. Glushko et al

The Discipline of...Professional Edition



require or prohibit the collection of certain kinds of objects or types of information.<sup>36</sup>[Law]

Libraries typically select resources on the basis of their utility and relevance to their user populations, and try to choose resources that add the most value to their existing collections, given the cost constraints that most libraries are currently facing. In contrast, museums often emphasize intrinsic value, scarcity, or uniqueness as selection criteria, even if the resources lack any contemporary use. Both libraries and museums typically formalize their selection principles in *collection development*

policies that establish priorities for acquiring resources that reflect the people they serve and the services they provide to them. Precise and formal *selection* principles enable users of a collection to be confident that it contains the most important and useful resources.

**Mus** Adding a resource to a museum implies an obligation to preserve it forever, so many museums follow rigorous *accessioning* procedures before accepting it. Likewise, archives usually perform an additional appraisal step to determine the quality and value of materials offered to them. In archives, common appraisal crite-

# But... Big Challenges Remained

- Interaction design
  - Publishing business models
  - Software capabilities of ebook platforms
- 
- And these challenges conspire with each other!