

AGENDA

- General Introduction to CSCW
- Collaborative knowledge building in P2P Semantic wikis
 - Knowledge
 - Data, information, knowledge
 - Collaborative knowledge building process
 - Wikis
 - Semantic wikis
 - P2P semantic wikis
- Conclusion



DATA, INFORMATION AND KNOWLEDGE

- Data represents unorganized and unprocessed facts
 - Usually data is static in nature
 - It can represent a set of discrete facts about events.
 - Data is a prerequisite to information.
 - An organization sometimes has to decide on the nature and volume of data that is required for creating the necessary information.
 - Exemple: signal... --- ...
- Elias M. Awad, Hassan M. Ghaziri, Knowledge Management, Pearson Education Inc., Prentice Hall (2004)



INFORMATION

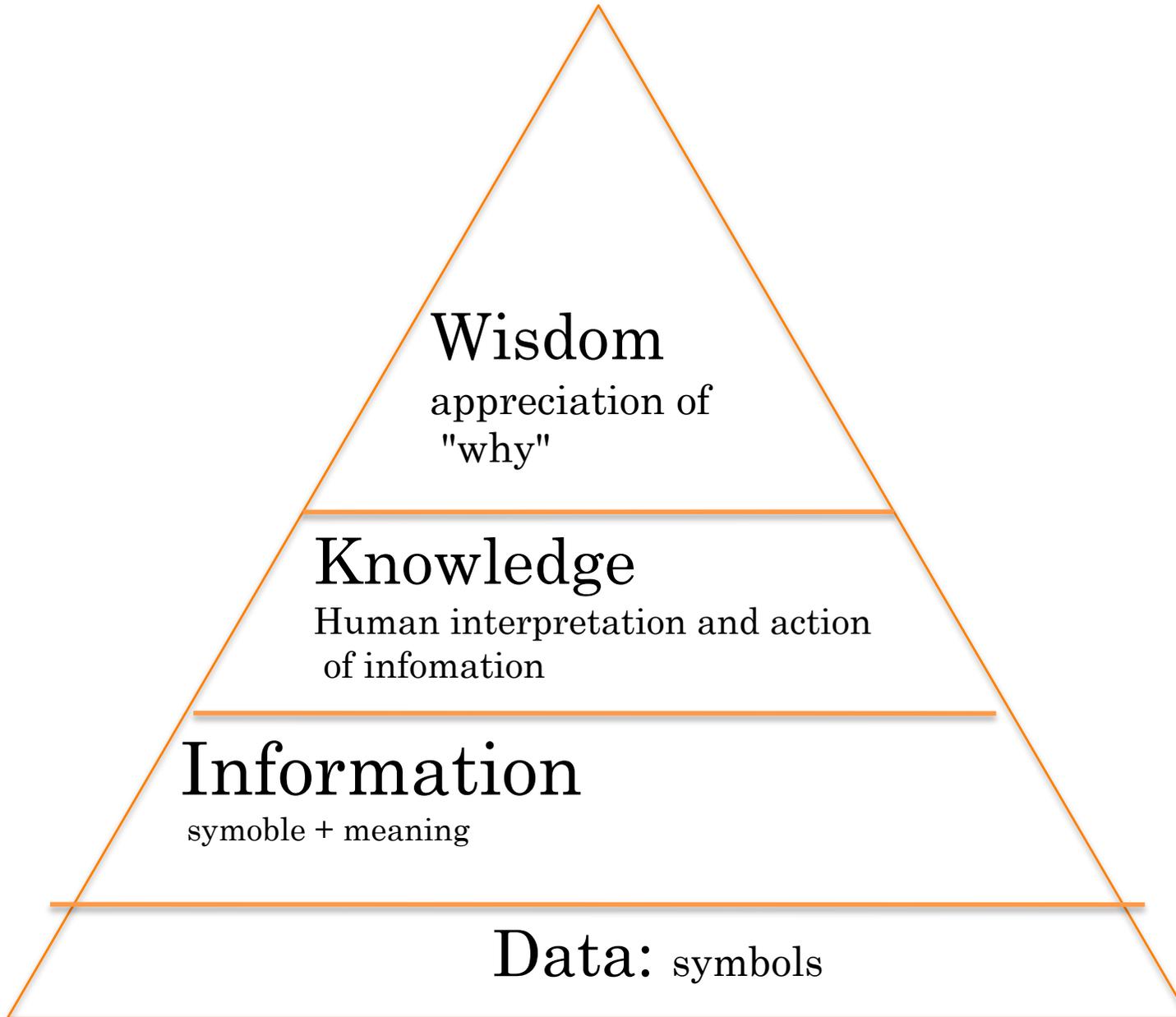
- Information can be considered as an aggregation of data (processed data) which makes decision making easier.
- Information data equipped with some meaning and purpose (...---..., SOS)



KNOWLEDGE

- By knowledge we mean human understanding of a subject matter that has been acquired through proper study and experience.
- Knowledge is usually based on learning, thinking, and proper understanding of the problem area.
- We can view it as an understanding of information based on its perceived importance or relevance to a problem area.
- It can be considered as the integration of human perceptive processes that helps them to draw meaningful conclusions and actions
- Exemple: if SOS alert then start rescue operations





- According to Russell Ackoff, a systems theorist and professor of organizational change, the content of the human mind can be classified into five categories:
 - 1. Data: symbols
 - 2. Information: data that are processed to be useful; provides answers to "who", "what", "where", and "when" questions
 - 3. Knowledge: application of data and information; answers "how" questions
 - 4. Understanding: appreciation of "why"
 - 5. Wisdom: evaluated understanding.



KNOWLEDGE SCIENCE

- Knowledge Science is the discipline of understanding the mechanics through which **humans** and **software-based machines**
 - "know," "learn," "change," and "adapt" their own behaviors.
- Throughout recorded history, knowledge has been made explicit through symbols, text and graphics on media such as clay, stone, papyrus, paper and most recently, as **digitally stored representations**.
- The digital effort began in the early 1970's when knowledge science was recognized as a vigorous field of study beginning with the development of natural language learning programs funded by the National Science Foundation (NSF).



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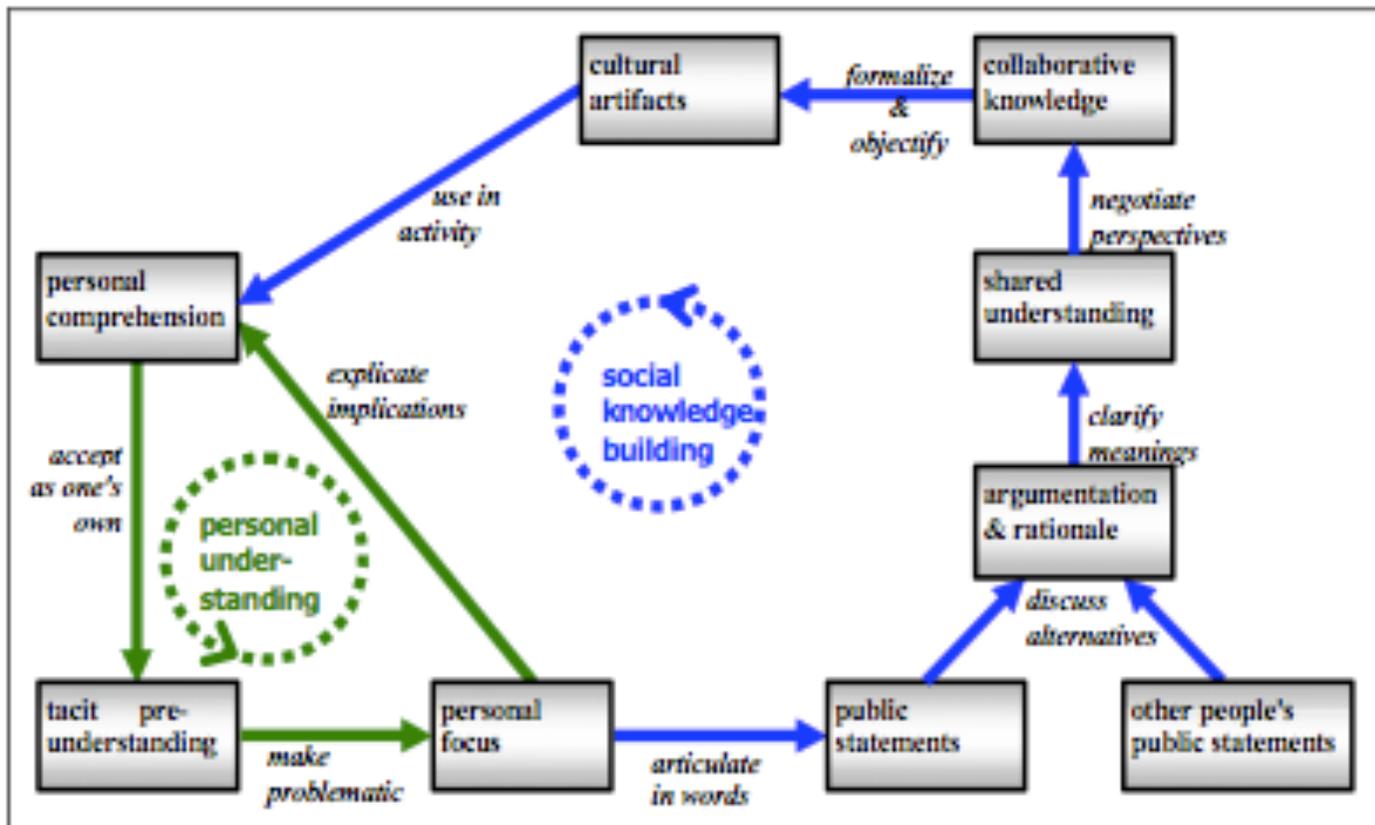


Figure 9-1. A diagram of knowledge-building processes.

Source: Group Cognition,
Computer Support for Building Collaborative Knowledge



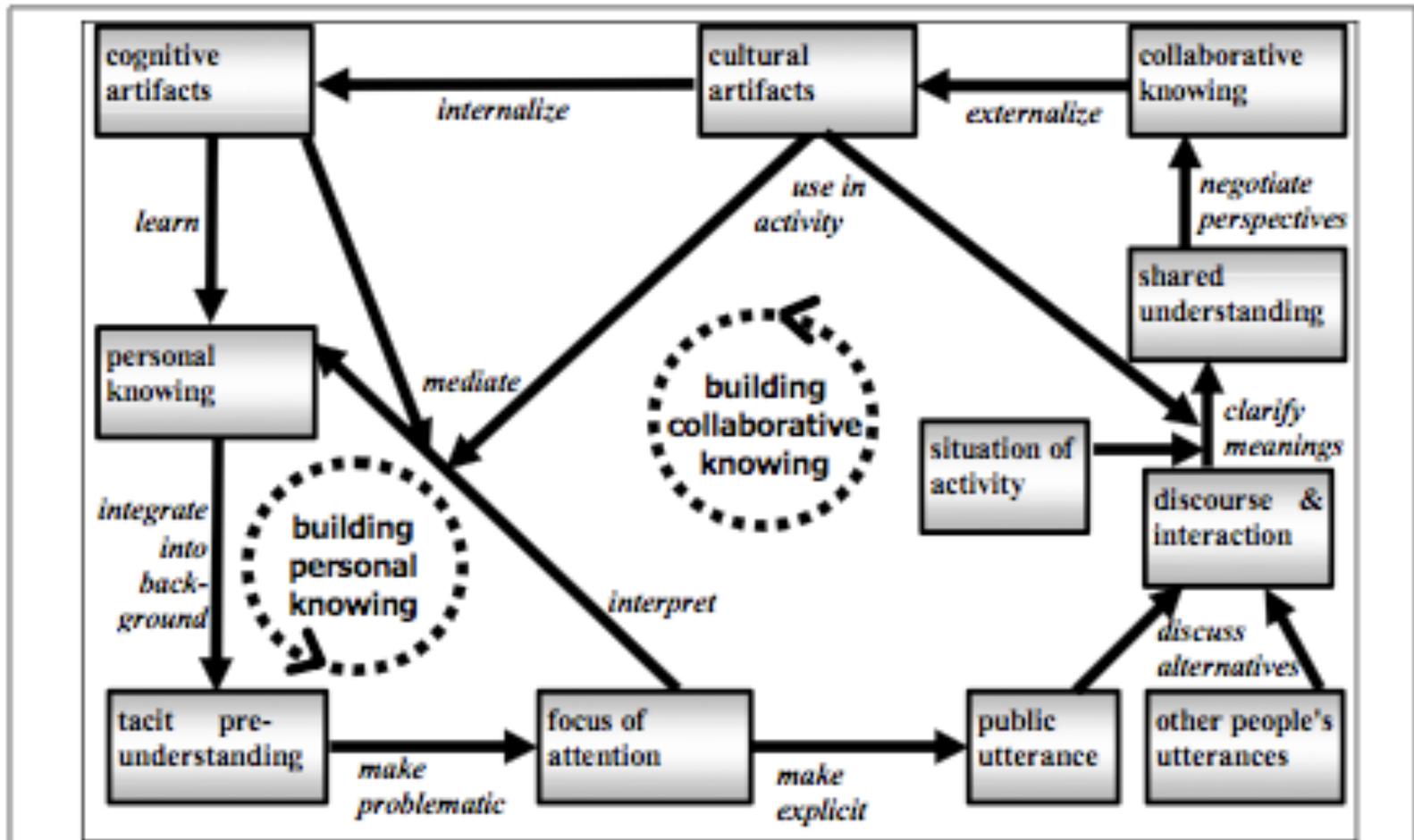


Figure 15-3. A diagram of the cycle of knowledge building. Adapted from figure 9-1 in chapter 9.

Source: Group Cognition,
Computer Support for Building Collaborative Knowledge

Forms of computer support phases of collaborative knowledge building

	Phase of knowledge building	Form of computer support
a	articulate in words	Articulation editor
b	public statements	personal perspective
c	other people's public statements	comparison perspective
d	discuss alternatives	Discussion forum
e	argumentation & rationale	argumentation graph
f	clarify meanings	glossary discussion
g	shared understanding	Glossary
h	negotiate perspectives	Negotiation support
i	collaborative knowledge	group perspective
j	formalize and objectify	bibliography discussion
k	cultural artifacts and representations	bibliography or other community repository

QUERY

Select ?s ?p ?v where { ?s ?p ?v.

```
Filter(regex(str(?s), \
request.getParameter("search")+"\\") ||
regex(str(?p), \""+request.getParameter("search")
+"\\")" ||
regex(str(?v), \""+request.getParameter("search")
+"\\"))}
```



CONCLUSION

- SWOOKI is the first P2P Semantic Wikis
- SMW + WOOKI
- CCI Model for SWOOKI data type
- New collaborative modes
 - Off-line work
 - Transactional changes
 - Collaborative knowledge building



CONCLUSION

- Availability, fault-tolerance, load-balancing
 - Locality transparency
- Performance
 - Execution query: local execution
 - Messages delivery: LpbCast , one round, WOOT does need extra messages
- Data synchronization:
 - Convergence in one round, no extra messages for integration
 - Complexity : $O(n^2)$



OPEN ISSUES AND PERSPECTIVES

- Security
 - In wikis security policies presented as attribute of the page
 - Replicate security policies
 - Use the same approach to hand this new data type (operations, CCI Model)
- Distributed queries to reduce the load and share cost
- SMW + partial replication (reduce traffics, infinite storage)
- IkeWiki + WOOKI
- IkeWiki + partial replication

