Primary and Secondary Experience as a Foundations of Adaptive Information Systems

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"information is information not matter or energy",
so
Information is to put it simply LIFE, and accordingly
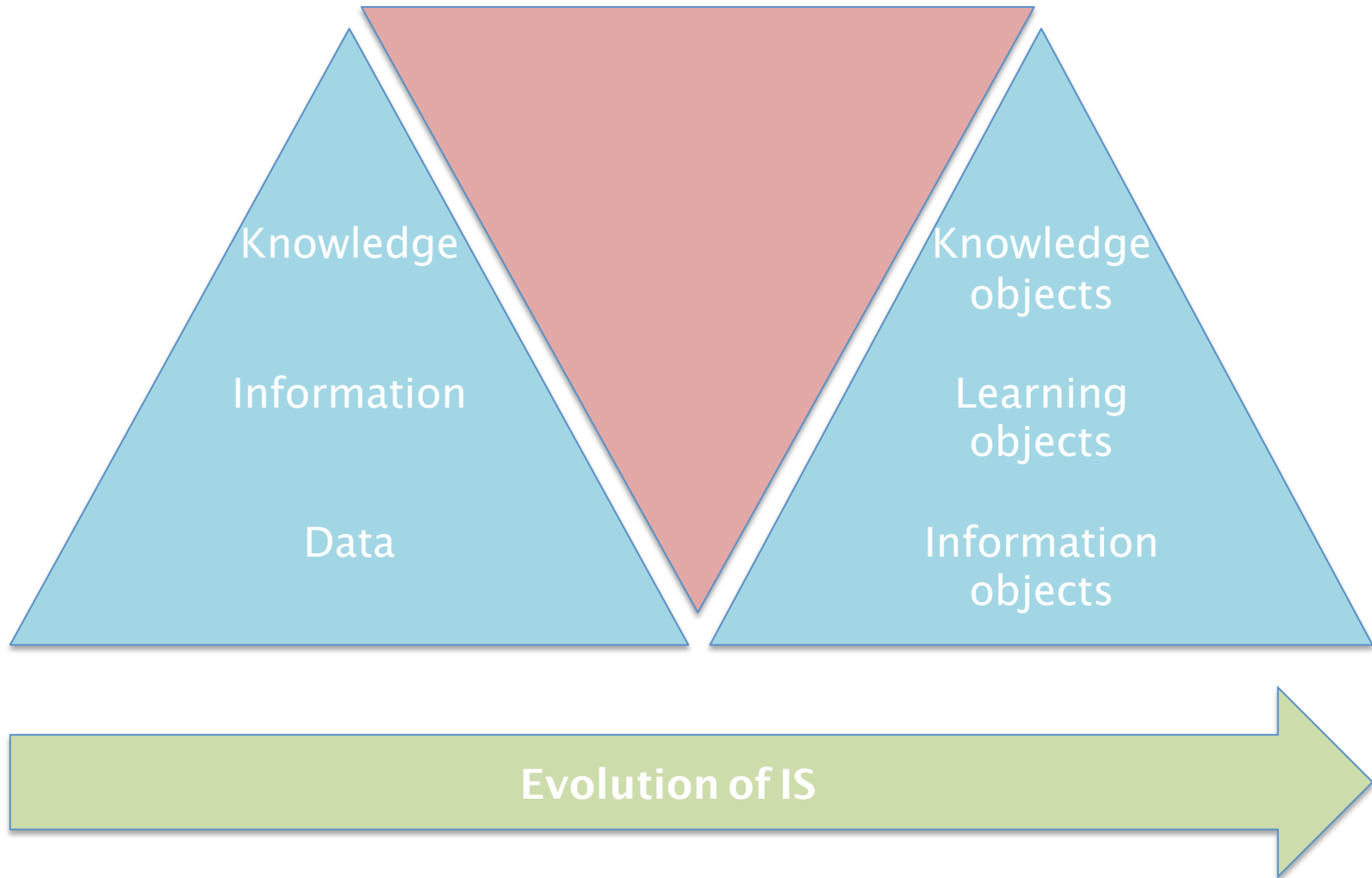**Life=Information**

Departure

Collections of messages, composed in various ways, may be considered as **'information resources'** of various kinds - **collections of papers in a journal, e-mail messages in an electronic 'folder', manuscript letters in an archive, or whatever.**

Thus, data and information may be managed, and information resources may be managed, but knowledge (i.e., what we know) can never be managed, except by the individual knower and, even then, only imperfectly.

Wilson, T.D. (2002) "The nonsense of 'knowledge management'" Information Research, 8(1), paper no. 144
[Available at http://InformationR.net/ir/8-1/paper144.html]

The Challenge

Country	2013 Total GERD		2013 GERD 2 GOV sector		2013 GERD 2 HI EDU sector		2013 GERD 2 - Biz Enterprise	
	in M EUR	Total R&D per inhab	in euro per inhabitatn	total(estimate)	eurostat	total (estimate)		total (estimate)
EU (Danube region)	16.209			1.917.923.355		4.473.639.832		10.391.073.963
Croatia	355	83,2	21,2	90.032.350,8	20,3	86.210.222,7	41,7	177.091.935,3
Austria	9.074	1.068,4	55,2	469.580.272,8	274,7	2.336.842.408,3	738,5	6.282.337.526,5
Czech Republic	2.997	284,0	52,2	548.748.271,8	77,6	815.763.714,4	154,2	1.621.015.009,8
Slovakia	610	105,7	23,1	125.108.421,9	30,4	164.644.849,6	52,2	282.712.537,8
Hungary	1.415	141,1	21,3	210.387.874,5	20,6	203.473.719,0	99,2	979.834.608,0
Bulgaria	266	36,5	10,9	78.977.879,3	3,2	23.186.166,4	22,4	162.303.164,8
Romania	557	59,6	13,7	273.278.160,7	37,4	746.029.431,4	8,5	169.552.143,5
Slovenia	935	453,9	59,1	121.810.123,5	47,3	97.489.320,5	347,5	716.227.037,5

Relevance to user / system ﹙ socio / technical ﹚ information need resulting in information behavior

Knowledge

Information

Data

Knowledge objects

Learning objects

Information objects

Evolution of IS

Information Systems Definition

artifact which consists of information, social and technical elements, creating a whole which is greater than the sum of its parts

Lee, A.S.; Thomas, M.A.; Baskerville, R.L. Going back to basics in design: From the IT artifact to the IS artifact. *Proceedings of the Nineteenth Americas Conference on Information Systems* **2013**, 1757-1763.

Information systems can be understood as the "extension of meaning engagement practice through mediating and organising social interactions"

Aakhus, M.; Agerfalk, P.J.; Lyytinen, K.; Te'eni, D. Symbolic Action Research in Information Systems: Introduction to the Special Issue. *MIS Quarterly* **2014**, *38(4)*, 1187-1200.

Besides emotions, patterns of the information system use can configure cognition and behaviour of a user in the process of accomplishing work-related tasks

Ortiz de Guinea, A.; Webster, J. An Investigation of Information Systems Use Patterns: Technological Events as Triggers, the Effect of Time, and Consequences for Performance. *MIS Quarterly* **2013**, *37(4)*, 1165-1188.

If an information system consists of social, technological and informational components, which are not separate but interrelated [6], and the social component of such a system changes according to patterns of behaviour, whereas there is an inherent inseparability between the technical and the social [7], **can we search for causality between those patterns and adaptiveness of the information technology?**

6. Lee, A.S.; Thomas, M.A.; Baskerville, R.L. Going back to basics in design: From the IT artifact to the IS artifact. *Proceedings of the Nineteenth Americas Conference on Information Systems* **2013**, 1757-1763.
7. Orlikowski, W.J.; Scott, S.V. Sociomateriality: challenging the separation of technology, work and organization. *The academy of management annals* **2008**, *2(1)*, 433-474.

To understand technology in society, we have to treat it as an action system, where its subfunctions could be performed by social or technical subsystems.

Software to be run on such a socio-technical system must be able to sense, interpret and respond [12]

to patterns of system behaviour that emerge according to internal system properties or reflections to the environment.

Stock, G. Metaman: The merging of humans and machines into a global superorganism. New York: Simon and Schuster, recited from; Hofkirchner, W. (2007). A critical social systems view of the internet. *Philosophy of the Social Sciences*.

"Experience and Nature" John **Dewey draw attention to primary and secondary experience and importance of interaction between two of them.**

Primary is one with *"minimum of incidental reflection"*

while secondary is described as

"what is experienced in consequence of continued and regulated reflective inquiry...experienced only because of the intervention of systematic thinking"

He questioned role of the objects and their relationship, proposing that secondary objects *"get the meaning contained in a whole system of related objects; they are rendered continuous with the rest of nature and take on the import of the things they are now seen to be continuous with"*

JOHN DEWEY, (1929) EXPERIENCE AND NATURE , GEORGE ALLEN & UNWIN, LTD. LONDON
http://archive.org/stream/experienceandnat029343mbp/experienceandnat029343mbp_djvu.txt

In our view, the **primary object** in designing an information system is the one in which the **observed object is excluded from the context with other objects**, while **secondary objects** are those objects which are observed as a **part of the higher-level system, consisting of the object itself and its relationships and behaviour in interaction with other related objects.**

Such a higher-level system includes an information system itself, but also its users and their information behaviour observed as a whole.

Secondary Experience research

How to build an information system artifact that could support exchange and reflection of scientific papers published by a scientist with the wider environment

How ?

First, develop a set of inquiries based on **information resources, media format, and information behavior patterns.**

Question raised are:
- What type of information resource (an abstract, a full paper, a press release, etc.) is used the most?
- What type of communication channels (a scientific journal, a digital conference proceeding, Web pages of an institution, private Web pages, or a scientist, etc.) is used the most?
- What are the patterns of information-seeking behavior in the process of accessing information resources?

What type of **interventions into the existing system of interaction between universities and their environment** (public, private, and NGO) could increase the effectiveness of this interaction.

What the **motivation drivers are that result in increased activities related** to such interactions and exchange of information resources.

Methodology

Theories

- Activity theory
- Information Behaviour
- Documents of Action
- Evolutionary Learning
- Knowledge Sharing Communities
- Sociocybernetics

if we knew what types of documents have the most impact on the environment and trigger the cognitive, communicative and co-operation processes [28] (with public, private, non- governmental organisations), we could further design amplification towards this area of the system which could then produce change in dynamics of information behaviour and related patterns. New patterns will open up new areas of research interests, which then again could be amplified or attenuated. In that way we could design feedback loops in the information system which could enable deterministic but also causal properties.

Hofkirchner, W. How to Achieve a Unified Theory of Information. TripleC: Communication, Capitalism & Critique. *Open Access Journal for a Global Sustainable Information Society* **2009**, *7(2)*, 357-368.