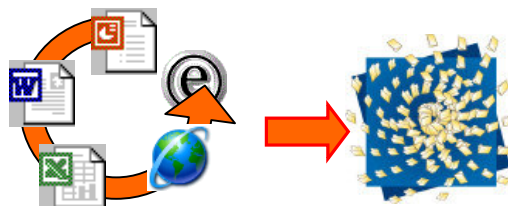


Beating information chaos with new information logistics

Outlines of presentation

Ilia Bider, IbisSoft AB, ilia@ibissoft.se

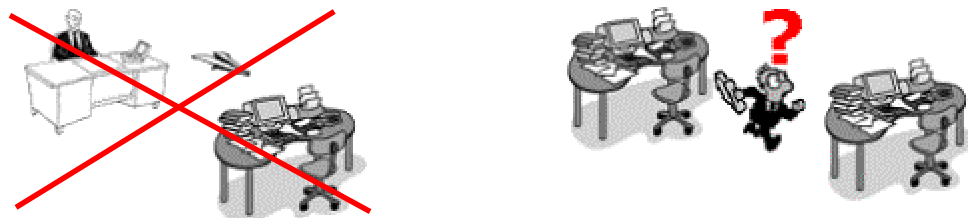
Problem. Nowadays, our PCs are packed with useful information processing tools, like word processors, spreadsheets, and presentation programs. Our productivity of creating information objects, e.g., documents, presentations, etc. reached its peak. What is more, we have readily available high speed, high capacity lines for transferring large volumes of information to almost any distance. Do we gain much by this productivity boost? No, not really. Actually, we produce and transfer more than we can process and consume. For example, our mailboxes are overfilled with information that is not relevant for us at all, or for the moment. At the same time, we cannot find what we really need. Why do we have such a situation?



Excessive use of information processing tools may result in information chaos

Root of problem. While using computer power for boosting productivity of information processing operations, we continue to employ the pre-computer era information logistics, which is shuffling documents between people and departments. The only difference is that nowadays, we do it electronically.

Solution. To fully utilize the power of modern computers in information processing, we need to radically change information logistics. The traditional logistics is based on the “conveyor belt” metaphor - **move information** to a person doing the next operation. The new logistics should be based on the “construction site” metaphor - **move a person** to information when he or she is needed.

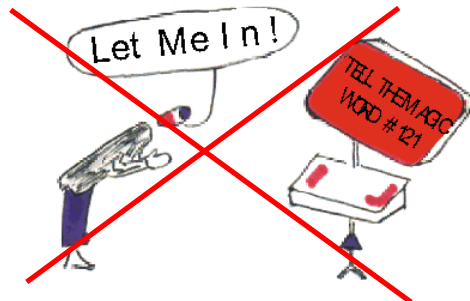


What is needed? Introduction of the new information logistics in the non-manufacturing sector is a task comparable with Ford’s revolution of introducing the conveyor belt into the production processes. Following the association with Ford’s revolution, to complete our task we need:

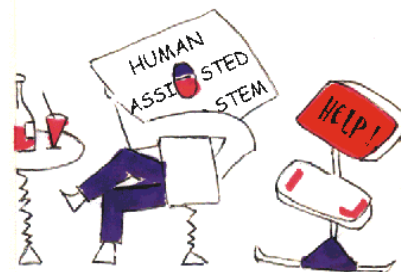
- A tool for synchronizing operations (instead of a conveyor belt), which is, obviously, a computer system
- Reengineering of non-manufacturing processes, like sales, administration, research, to fully utilize the possibilities provided by the new synchronizing tool
- Teach and inspire people to use the new logistics in their every-day work and benefit from it

Discussion – implications for research. It is impossible to complete this revolution without multidisciplinary research in several areas, for example:

Computer Science/Software Engineering. New logistics heavily relies on the synchronization tool, which is a computer system. Such tool represents a relatively new kind of computer systems, which we call “Human-assisted” to distinguish them from traditional “Human-assisting” systems.



Human-assisting system: a powerful toolkit.



Human-assisted system: an assembly line

- The design of a Human-assisted system should ensure more close cooperation between the system and its users, than the design of a traditional system. Not only the user can request assistance from the system, but the system can ask for help from its users as well. What are the languages and modeling techniques that are suitable for design of such systems? Are traditional ones, e.g. UML, appropriate?
- What kind of a user interface is required? Consideration should be made that the system imposes a new, not proven before way of working and communicating. How to make people see the benefits of it?
- What are appropriate methods of system development? Can we use the traditional ones, e.g., RUP, considering that before people have tried the new way of working it is difficult for them to understand what they may want from the system?

System Engineering.

- Process design always depends on the logistics employed for transport, and synchronization of processing operations. What are appropriate modeling techniques for presenting, engineering and reengineering of processes when the “construction site” information logistics is used? The most widespread technique for modeling business processes is the workflow technique. Does it suit the task? The field of engineering has long experience of modeling and controlling physical (production) processes. Can we use this experience for modeling and controlling non-physical (informational) processes? Do these two kinds of processes differ much on a high-level abstract level?
- How to arrange distribution of responsibilities between the system and its users? Should all the users be equally acquainted with the system, or the use of the system should be limited dependent on the role of a person in a process/organization. How to fit (yet) a new system in the zoo of already existing ones? Can the System Engineering discipline help to answer these questions?

Organizational science. The new information logistics imposes a way of working that considerably differs from the one we are accustomed to, which creates a catch-22 situation. On one hand, we are not accustomed to work in the way imposed by the new computer system, because this way cannot be introduced without it. On the other hand, we have difficulties to learn how to work with such a system because we are not accustomed to the way of working it supports. Catch-22 requires special attention to system introduction into operational practice. Can existing methods of introducing organizational change help to solve the catch? Do we need something new?