Next generation of IT systems

Already today, information technology is an indispensable pillar of logistics. And if we consider logistics’ role to “produce efficiency”, it becomes even more important. A new generation of flexible and adaptive IT systems is intended to support companies in designing, planning and controlling supply chains and company networks.

Yet, companies are often still dependent on rigid, monolithic IT systems. Generally, these have to undergo complex customization or were inflexible individual solutions from the very beginning. Nevertheless, the companies operate in a market that is characterized by strong dynamic and complex interrelations.

In the key topic of Logistics-as-a-Service, technical infrastructures and logistic IT modules are now developed on the basis of service-oriented architectures (SOA).

As a result, economic and ecologically efficient logistics can be realized by means of individual and needs-oriented information technology. This new design approach allows the provision of lean, cost-transparent and quickly operational complete solutions and it is this key topic which is consistently and comprehensively transferring this approach into the logistics world. With flexible interoperable system architectures IT can adapt to the dynamics of processes and product life cycles.
The scientific challenge for this key topic is to itemize planning and control tasks in such a way so that they are available as individual IT modules. There has to be some sort of combination of universally applicable components (services) which can also be configured individually. Each individual module should be standardized as much as possible and yet at the same time it must be possible to customize it appropriately.

Levels of Innovation

While developing IT solutions and their prototypes, this key topic focuses on:

- **Simplicity**: The procurement and use of software in a virtual market place becoming easier for the users. This key topic endeavors to make the design of the software as simple as it is to access it.
- **Marketability**: On the one hand, IT solutions have to be so attractive that providers (IT-logistics-companies) can develop new markets. On the other hand, they have to offer the user (manufacturers, the retail trade, forwarders, etc.) added value, i.e. the software has to be available on demand and function well without extensive adjustments.
- **Energy efficiency**: Ecological efficiency and sustainability are to be firmly anchored in these tools: The software helps the user to conserve resources.

Potentials of this Key Topic

This key topic with its comprehensive, simultaneous logistics and IT design facilitates the complete and efficient design, planning and control of value added networks. This new decentralized approach allows for a loose coupling between companies and scalable data exchange while maintaining the autonomy of each company. But in spite of that it provides an opportunity to carry out joint planning and to optimize and control processes together.