The new Dimension of Flexibility

// Logistics service providers and commercial enterprises have to adapt their value added systems constantly and pro-actively to daily changing requirements and must also be in a position to react to unscheduled changes. Only in this way can they guarantee their competitiveness. Changeable logistics systems provide the necessary flexibility which goes far beyond what we have known so far.

The existing infrastructure in logistics does not meet the current challenges of the market anymore, for example the diversification and individualization that cause shorter and shorter product life cycles and lead to delivery conditions which are more difficult to predict: rigid logistics systems cannot adjust to the faster changing demands. Plants and facilities for processing logistics, whose lifespan usually amounts to several decades, can thus only be used efficiently for a part of this time. In addition, there are shorter contract periods between manufacturers and logistics service providers which do not provide any security with respect to long-term planning.

Projects in the Key Topic:
- Hub2Move
- smaRTI – smart Reusable Transport Items
- Stewart Gough Platform
- Tracing Intelligent Logistics Objects
- Cellular Transport Systems (associated)

Key Topic
Changeable Logistics Systems

Key topics as central innovation corridors

Within seven key topics of EffizienzCluster LogistikRuhr, the biggest research and innovation cluster of logistics, innovations are created that will change the face of logistics:
- Changeable Logistics Systems
- Logistics-as-a-Service
- Urban Supply
- Goods Transport Management
- Environment in Focus
- Logistic Design Competence
- Activation of Cluster Potentials

// Solutions for tomorrow’s logistics

In the EffizienzCluster LogistikRuhr, more than 180 partners from research and economy are working together on logistic challenges in about 40 research and associated projects. It is a requirement and target to facilitate tomorrow’s individuality - in terms of the individual supply of goods, mobility and production - with just 75 per cent of today’s resources.
In the face of today’s consumer behavior the changeability of logistics systems is becoming a value in itself and must be characterized by a new strategic flexibility. Universality, scalability, modularity and compatibility are the decisive factors when creating the ability to change.

Levels of Innovation

Uniform basis structures for informative mobile networking between infrastructure, material flow technology and goods are an essential condition for the changeability of logistics systems. In detail, the research fields include:

- Intelligent logistics objects. They know their identity as well as their status and target and thus support the transition from having centralized control to the “Internet of Things”.
- Image-based monitoring. By using an overall view provided by centralized cameras this manages the control and automated analysis of position, functional processes or quality parameters for logistics objects.
- Cellular transport systems. They replace today’s rigid material flow systems with self-controlling, autonomous transport units. These, on the other hand, can directly communicate with other intelligent objects, for example in warehouse systems.
- Cable-based handling. Parallel kinematics using cables replaces heavy steel constructions and fixed paths in warehouse operations. The cables and winches can be quickly and simply adapted to changed structures in the warehouse and can thus be activated for new functions.
- Changeable logistics nodes. Innovative hubs adjust their technical infrastructures dynamically according to the relevant needs and can also change their location quickly.

Potentials of this Key Topic

Today, optimizations in logistics frequently start with the processes. This key topic approaches the issue efficiency from the technical point of view: The intelligence for controlling logistic processes is still based in central processors today, whereas in future, it will move into the load carriers themselves. The changeability of logistics systems also sets new, higher standards for training employees: They must be constantly trained and qualified for the high-tech tasks in logistics.