

INFORMATION AND COMMUNICATION TECHNOLOGIES IN RECYCLING MANAGEMENT





CONCEPTION, RESEARCH AND DEVELOPMENT

Modern information and communication technologies (I&C) have gained enormous importance for efficient logistic processes. Also in recycling management I&C systems are an essential key for more efficiency and profitability and, last but not least, to realize the step from the recycling enterprise to the profitable working resource trader.

When applying innovative I&C systems many enterprises in the recycling management sector enter unknown territory and need assisting technical and logistic expertise. To make full use of the potential of the new technology it is necessary to select EDP systems being compatible with the processes, the staff and the goals of the enterprise. The central question to answer is: Which hard- and software is the right one for your specific tasks and goals?

The appropriate IT for your requirements

The great number of different hardware and software components and the numerous providers with their different service offers in a highly dynamic market lead to a complex task. In this tense atmosphere Fraunhofer IML supports you from the requirement-based concept up to implementation. This applies to both the used software (e.g. ERP systems, route-planning software) and hardware, if needed (e.g. telematic systems and RFID components). Upon request Fraunhofer IML also supports the development of innovative software systems for specific tasks.

Practical tests on the WICI testing site

Especially for the requirements in the disposal and recycling management Fraunhofer IML founded the WICI testing site. WICI is a demonstration, testing and development environment in which the competent and neutral experts of Fraunhofer IML examine, test and customize I&C systems for their customers.

Proceeding

Fraunhofer IML is working process and system orientated and investigates the enterprise processes with the necessary thoroughness – always focused to the entire system of technologies, processes and staff. An I&C project process is usually divided into six essential phases:

1. Analysis of the actual situation and process analysis
2. Weak-point and potential analysis for the introduction of new I&C systems
3. Requirements specification
4. Invitation of tenders and selection of suitable systems
5. Selection of appropriate supplier(s)
6. Assistance for the realization and support in the start-up



Mathematical optimization – the mastery of complex tasks

Logistic networks are becoming more and more complex and have to meet continuously increasing demands in view of reliable schedules, response time and costs. The planning and controlling of such networks requires the application of suitable methods of mathematical optimization, each matched to the specific requirements of the value creation chain.

Methods of mathematical optimization are used on different planning and controlling levels. This reaches from strategic planning, e.g. of the goods flows over the single value creation stages up to the daily dispatch of the vehicle fleet within the scope of route planning.

Examples for the successful application of mathematical methods in disposal and recycling management are the optimal assignment of goods flows to transshipment and processing plants over several transport stages or the route planning for skip or roll-off containers.

The Fraunhofer IML experts develop practical, mathematical optimization models and efficient algorithms especially customized for your application and also beyond the known standard situations. A realization of the mathematical models in form of a software prototype makes the received results tangible and establishes proof of the practicability of the developed solution.

Our offer is directed to both enterprises of the disposal and recycling management and software and system vendors.

The benefit of I&C projects

- Cost reduction and efficiency increase by optimization
- Reduction of the planning period up to real time planning
- Transparent and comprehensible planning processes
- Standardization of the quality level in the planning
- Proof of practicability by the implementation in software prototypes

Services

- Enquiry and analysis of need, definition of the requirements
- Market studies, pre-selection and assessment of existing I&C solutions
- Invitation of tenders, evaluation of offers and recommendation for allocation
- Conception and development of requirement specifications for solutions to be developed (internal or external development)
- Development of software prototypes for specific applications
- Carrying out acceptances and assistance in the realization

