Project	ProSeLo: Proactive Service Logistics for Advanced Capital Goods
Theme	Service Logistics
Project manager	Professor Van Houtum, Eindhoven University of Technology
Partner organizations	3 universities: Eindhoven University of Technology, Erasmus University Rotterdam, University of Twente 1 business association: Service Logistics Forum (SLF) 10 companies: ASML, Ceva Logistics, DAF Trucks, Fokker Services, Gordian Logistic Experts, IBM, Océ Technologies, Marel Stork Poultry Processing, Thales, Vanderlande Industries.

Motivation

Capital goods are machines or products that are used by manufacturers to produce their end-products or that are used by service organizations to deliver their services. The primary processes of users are strongly dependent on the availability of these capital goods and they require very high availability levels. For these advanced capital goods there is a long-term trend that users are interested in buying a function rather than a product, focusing on Total Cost of Ownership (TCO). Maintenance costs form often an equally large amount as the price of the new system and direct and indirect costs of downtime can easily be higher. The transition to function-oriented markets offers a great opportunity to Original Equipment Manufacturers (OEM-s). Clients are signing full service contracts to obtain full maintenance activities and up-time management of their integral systems. The servicer needs to have a well functioning control tower to manage all maintenance activities (=Service Logistics). The objective of this control tower is to achieve the optimal solutions for system up-time and TCO.

Objectives & goals of the project

The overall objective is to perform research for innovative solutions for service control towers in order to achieve significant better system up-time whilst at the same time reducing TCO and improving competitive advantage.
At this stage, three most promising research areas have been identified: (i) The sharing of spare parts that are owned by different companies or that belong to different service contracts; (ii) New concepts to deal with last-buy decisions and to facilitate the re-use of parts, modules, and systems; (iii) New predictive maintenance concepts that make use of the possibilities that are offered by remote monitoring and diagnostics. These subjects are generally recognized as complex service business issues, but with great potential if breakthrough solutions will become available. The first two topics are aiming at significant service supply chain efficiencies, under given failure levels of systems. The third topic is aiming at the prevention of failures and thus unscheduled downtimes, by proactively replacing components. With the planned valorization activities the specific knowledge and project results will not be restricted to the consortium partners, but also be made widely available in contribution to the value-add for The Netherlands.

Research approach

Market driven research in a consortium with 14 partners. Three research work packages (WP-s) have been defined:
WP I: Shared parts for performance-based contracts. WP-leader: Prof. Dekker, Erasmus University Rotterdam. Involved partners: Fokker Services, Thales, Marel Stork Poultry Processing, University of Twente.
WP II: Last buy and re-use. WP-leader: Dr. Van der Heijden, University of Twente. Involved partners: IBM, Océ Technologies, Vanderlande Industries.
WP III: Proactive maintenance via remote monitoring. WP-leader: Dr. Elwany /Prof. Van Houtum, Eindhoven University of Technology. Involved partners: ASML, Vanderlande Industries, Ceva Logistics, DAF Trucks, Marel Stork Poultry Processing, Thales, Erasmus University Rotterdam.
An overall WP Valorization has also been defined with WP-leader Dr. Rustenburg, Gordian Logistic Experts.
The project organization will be led by Prof. Van Houtum and he will be supported by the workgroup (leaders of the WP-s) and the steering committee with senior representatives of consortium partners chaired by Ing. Gräve, SLF. The project will engage 3 PhD students, 2 postdocs, 18 master thesis projects and the dedicated experts in the partner companies. The project will be evaluated and monitored by the workgroup, the project manager and the steering committee by means of an innovation scorecard.
Total project cost is 2.222 K€, funded by Dinalog grant 1.000 K€ and the consortium partners 1.222 K€, partly in kind and cash.

Expected results

The research WP-s will lead to innovative solutions for service control towers and more in specific to business guidelines, mathematical models and decision support tools for: (a) new forms of service contracts, including pooling scenarios for parts sharing, and its logistics fulfillment; (b) the re-use of parts and systems (also leading to less waste); (c) the integration of remote monitoring parameters with decision models for pro-active maintenance.
These new concepts will strongly contribute to the competitiveness of the consortium partners and thus they can increase their market shares. With the proper valorization approach this will also be applicable for a wider spectrum of companies also for small and medium businesses. More value-add work will be moved to the control towers enabling leaner maintenance operations by local support organizations, dealers or service agents all over the world. By establishing or extending their control towers in The Netherlands, there will be a strong increase in GNP and in jobs for highly skilled people.
In 2008, the size of the export from The Netherlands of capital goods was 117 billion Euro. The maintenance costs during the 20-40 years of the exploitation phase are often of the same size as the price of a new system. Hence, the maintenance activities for the capital goods exported from the Netherlands form already a market of the same size! With the trend to move work, and thus added value, to the control tower, in principle it should be able to increase the added value in The Netherlands by service logistics by 1 billion Euro's per year, say, which would correspond to 10 billion Euro's over a period of 10 years. This project will contribute a fair part of this added value.