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Flexible Production experts for reconfigurable assembly technology

Fact Sheet

Project Information

XPRESS

Grant agreement ID: 26674

Project closed

Start date
1 January 2007

End date
30 June 2011

Funded under
Nanotechnologies and nanosciences, knowledge-based multifunctional materials and new production processes and devices: thematic priority 3 under the 'Focusing and integrating community research' of the 'Integrating and strengthening the European Research Area' specific programme 2002-2006.

Total cost
€ 12 477 505,00

EU contribution
€ 7 999 324,00

Coordinated by
HARMS & WENDE GMBH & CO KG
Germany

Objective

The goal of XPRESS is to establish a breakthrough for the factory of the future with a new flexible production concept based on the generic idea of 'specialised intelligent process units' ('expertons') integrated in cross-sectoral learning networks for a customised production.

This knowledge-based concept integrates the complete process chain: production configuration (decrease of ramp-up time of at least 50%), multi-variant production line (varying types & volumes on a single line) and 100% quality monitoring.

This concept is demonstrated in the automotive, aeronautics and electrical industry but can be transferred to nearly all production processes. XPRESS meets the challenge to integrate intelligence and flexibility at the 'highest' level of the product ion control system as well as at the 'lowest' level of the singular machine.

The radical innovations of the 'expertonic networked factory' are knowledge and responsibility segregation and trans-sectoral process learning in specialist knowledge networks. The concept is built on co-ordinated teams of specialised autonomous objects (expertons), each knowing how to do a certain process optimally.

They have the intelligence to choose the best-known production parameters for a given task. Assembly units composed of expertons can flexibly perform varying types of complex tasks, whereas today this is limited to a few pre-defined tasks.

Communicating machines will be developed using self-organising and self-learning algorithms, data mining and common interfaces. By sharing the specific knowledge of each experton in a network, other expertons are able to learn from each other in one production line, but also between different lines as well as different production units.

This architecture allows continuous process improvement. XPRESS will be able to anticipate and to respond to rapidly changing consumer needs, producing high-quality products in adequate quantities while reducing costs.

Fields of science (EuroSciVoc)

engineering and technology > electrical engineering, electronic engineering, information engineering > electronic engineering > **control systems**

natural sciences > computer and information sciences > data science > **data mining**

engineering and technology > mechanical engineering > vehicle engineering > aerospace engineering > **aeronautical engineering**

Programme(s)

FP6-NMP - Nanotechnologies and nanosciences, knowledge-based multifunctional materials and new production processes and devices: thematic priority 3 under the 'Focusing and integrating community research' of the 'Integrating and strengthening the European Research Area' specific programme 2002-2006.

Topic(s)

NMP-2004-3.4.3.1-2 - Next generation of flexible assembly technology and processes

Call for proposal

FP6-2004-NMP-NI-4
See other projects for this call

Funding Scheme

IP - Integrated Project

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EU contribution

No data

Total cost

No data

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Total cost

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European Union, 2025