

ECLIPS AND GENDER ISSUES IN ENGINEERING

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ABSTRACT

The ECLIPS research project is introduced. ECLIPS scientific and technological objectives are presented. Potential impact of the project results in terms of socio-economical developments perspectives is discussed. Gender issues in ECLIPS are considered.

Key Words: research project, gender issues

Introduction

The ECLIPS Specific Targeted Research Project addresses to the area on 'Development of new processes and flexible, intelligent manufacturing systems' and sub-area on 'New concepts for global delivery'. Strong emphasis on the integration of female scientists and engineers into the ECLIPS project is provided by specific actions.

1. ECLIPS scientific and technological objectives

European industry is confronted with a number of *key challenges*:

- ✓ *To globalise* their supply chains while controlling costs and service, i.e., reducing working capital by reducing inventories.
- ✓ *To deliver even more customised and up-to-date products* to a psychologically even more individualised and self aware customer while reducing inventories.

The key research is multi-echelon supply chain (Fig. 1) planning and optimisation for industries with batch and semi-batch processes on a tactical level

(weeks/months) spanning the full life cycle of the product (Fig. 2).

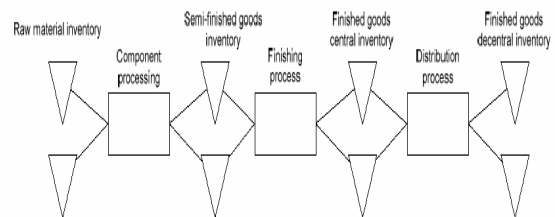


Figure 1. Example of multi-echelon supply chain

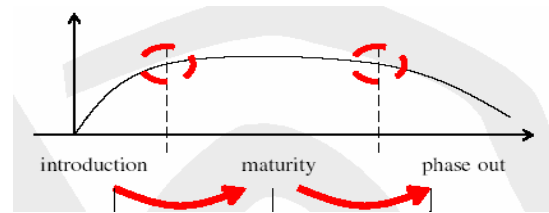


Figure 2. Product full life cycle

ECLIPS is aimed to develop advanced models and tools in domain of artificial intelligence, simulation and planning technologies in order to solve a complex problem of optimising a supply chain. The developed models will be translated for the different life-cycle phases and automated switching in a set of IT components. These components will be integrated into software add-on and they could be easily added to existing ERP and APS systems. A business game similar to the famous 'Beer game' will be developed for training employees and graduate students in supply chain management problems.

2. ECLIPS potential impacts

The following are ECLIPS potential impact in terms of socio-economical developments perspectives:

- ✓ Higher efficiency, effectiveness and flexibility of future supply chains. The most tangible benefit will be reduction of supply chain inventories by 30% that corresponds to increase of inventory turns by over 40 %. As example, for pharmaceutical industry it could result in working capital decreasing of over 4000 million EURO.
- ✓ ECLIPS will focus on developments of concepts and technology set and will prove benefits in practice in the environments of two industrial partners. The results however could be exploited to a wide range of industries: in manufacturing, wholesale and retail sale, and transport.
- ✓ ECLIPS will help to build expertise on how to build and manage global supply chains that will enhance the competitiveness of the European Industry;

ECLIPS Consortium includes:

- MÖBIUS (Belgium), coordinator, is a consulting company specialised in Business Process and Supply Chain Management,
- EURODECISION (France) is a service company specialised in Supply Chain Optimisation,
- LoQuS (Belgium) is IT service company with key expertise in integration data, applications and processes,
- Riga Technical University (Latvia) is an academic partner specialised in Supply Chain Simulation, Planning and Optimisation,
- Huntsman Advanced Materials (Germany) is a part of Huntsman group, the world largest privately held chemical company,
- PLIVA – Lachema Diagnostika (Czech Republic) is a medium size Pharmaceutical Company.

3. ECLIPS and Gender Issues in Engineering

The proportion of women in engineering fields is still behind the gains made by women in non-technical fields. Social aspect of this problem means no equal educational

and professional chances for both sexes. From economical aspect, lack of female engineers leads to a massive wastage of human resources. At present, women constitute only 15% of industrial researchers in Europe.

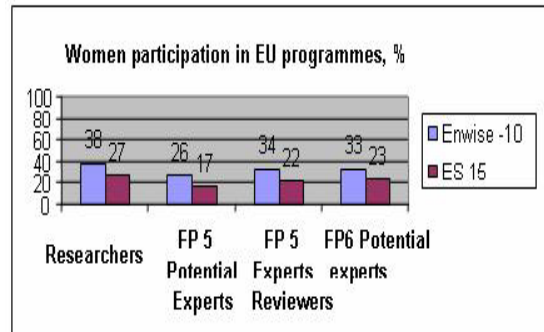


Figure 3. Women participation in EU programmes [1]

Strong emphasis on the integration of female scientists and engineers into the ECLIPS project by specific actions:

- ✓ Encourage female employees and students to participate in the project research and development activities;
- ✓ Dissemination activities and project results through important but informal professional networks;
- ✓ Specific promotion activities directed to female students, scientists and engineers.

References

1. European Report on Science & Technology Indicators <http://www.cordis.lu>

BIOGRAPHY

Galina Merkurjeva, Dr.Tech.Sc, Dr.Sc.Ing. is Professor at the Department of Modelling and Simulation at Riga Technical University. Her research and teaching are in the areas of discrete-event simulation and metamodeling, integrated decision support systems and simulation-based training.

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