# COST
# Technical Committee
# "Social Sciences and Humanities"

## COST Action A29

***Human and Organisational Factors in Industrial Planning and Scheduling – HOPS***

# PROGRESS REPORT

*Period: from (03-05) to (02-06)*

**(Start date of the Action: 1.4.04) (last update: 02-06)**

**This Report is prepared by the Management Committee of the Action and presented to the relevant Technical Committee. The report is a "cumulative" report, i.e. it is updated annually and covers the period beginning from the start date of the Action.**

# CONTENTS

## 1. OVERVIEW: ACTION IDENTIFICATION DATA

**COST Action *A29:* Human and Organisational Factors in Industrial Planning and Scheduling**

**TC Recommendation:** *(day/month/year)*
**CSO Approval:** *(day/month/year)*
**Start date:** *29/6/2004* (1)
**Duration:** *48*
**Extension:** *months*
**End date:** *28/6/2008*

**First MC meeting:** *29/6/2008*
**Last MC meeting:** *(day/month/year)*
**Final Report:** *(day/month/year)* (2)
**Evaluation Report:** *(day/month/year)* (2)
**TC Evaluation:** *(day/month/year)*

**Number of signatories:** *13 signatories*
*Signature in process for 3 additional countries*

**Signatories and date of signature:**

| | | |
|---|---|---|
| Austria | Greece | Poland |
| Belgium | Hungary | Portugal |
| Bulgaria | Iceland | Romania |
| Croatia *05/01/05* | Ireland *01/04/2004* | Slovakia |
| | Israel | |
| Cyprus (interested) | Italy | Slovenia *28/2/05* |
| | Yugoslavia | |
| | Former Yugoslav Rep.of Macedonia | |
| Czech Rep. *14/10/2004* | Latvia | Spain *15/04/05* |
| Denmark | Lithuania | Sweden *01/04/2004* |
| Estonia | Luxembourg | Switzerland *31/03/2004* |
| Finland *01/04/2004* | Malta *14/04/2004* | Turkey |
| France *10/01/2005* | Netherlands *10/05/2004* | United Kingdom *01/04/2004* |
| Germany *01/04/2004* | Norway | |

**Institutes of non-COST countries:** *none*
**Area:**
**Action Web site:** http://www.hops-research.org/

**Chairperson:**


| | | | |
|---|---|---|---|
| *Title, name:* | *Prof.Dr. Toni Wäfler* | *Tel.:* | *+41 62 388 25 96* |
| *Affiliation:* | *University of Applied Sciences Northwestern Switzerland* | *Fax:* | *+ 41 62 311 96 17* |
| | | *E-Mail:* | *toni.waefler@fhnw.ch* |
| *Postal Address:* | *Riggenbachstr. 16* | *web:* | *http://www.fhnw.ch* |
| *P.O. code, City:* | *4600 Olten* | | |
| *Country:* | *Switzerland* | | |


**TC Rapporteur:** Alfredas Chmieliauskas (LT)
**External Evaluator:** *none*

(1) Date of the first MC meeting.
(2) When the report is received by TC Secretaria

## 2. OBJECTIVES

The main objective of the Action is to increase the knowledge required for improving human performance in industrial planning, scheduling, and control (PSC). This requires progress in the following areas:

- *Goal 1, Basic knowledge:* Knowledge regarding human centred PSC-aspects is fragmented and far from comprehensive. These gaps have yet to be filled. Whether or not this aim is achieved, it is difficult to evaluate it quantitatively. However, the number of scientific publications of researchers that co-operate in the Action may serve as an indicator.
- *Goal 2, Generic applicability:* In order to generate the expected benefits the applicability of basic knowledge must be ensured. Therefore basic insights need to be integrated into a conceptual PSC-framework that is generic and applicable. Here again it is difficult to evaluate the achievement of this aim in a quantitative manner. However, the number of publications produced by researchers that co-operate in the Action and accepted by media that are directed to potential end users may serve as an indicator. Furthermore industrial practitioners may assess the feasibility and the usefulness of the generic PSC-framework.
- *Goal 3, Specific application:* Finally, besides basic and applicable knowledge regarding human-centred aspects of PSC, a third category of knowledge is required. This category refers to competencies in integrating the PSC-knowledge into PSC-practices in use. Whether or not such knowledge is produced by the Action can quantitatively be evaluated in two ways: (i) by the number of concrete cases of application, as well as (ii) by the increase of PSC-performance in these cases.

As it is the goal of the proposed COST Action to produce new relevant knowledge in all of the three categories outlined above we aim at a integration of the isolated knowledge islands in the domain. However, we explicitly support a pluralism of approaches and methods in order to keep a holistic perspective.

## 3. TECHNICAL DESCRIPTION AND IMPLEMENTATION

**MC Board:** In order to quicken and simplify the decision making process of the A29 MC an MC Core Group was established. Decisions are taken unanimously. The MC is informed of the decisions on the occasion of the MC meetings.

**Working groups:** Three thematic working groups have been established. Coordinators have been nominated. The working groups meet for the first time in March 05. Each working group is currently concretizing research questions, cooperation mode, joint products and a working plan. The working groups are:

- WG1: Distributed / collaborative PSC (coordinated by Dr. Jan Holmström, Finland)
- WG2: Decision support systems in PSC (coordinated by Dr. Wout van Wezel, The Nederlands)
- WG3: Research methods in PSC (coordinated by Martina Berglund, Sweden)

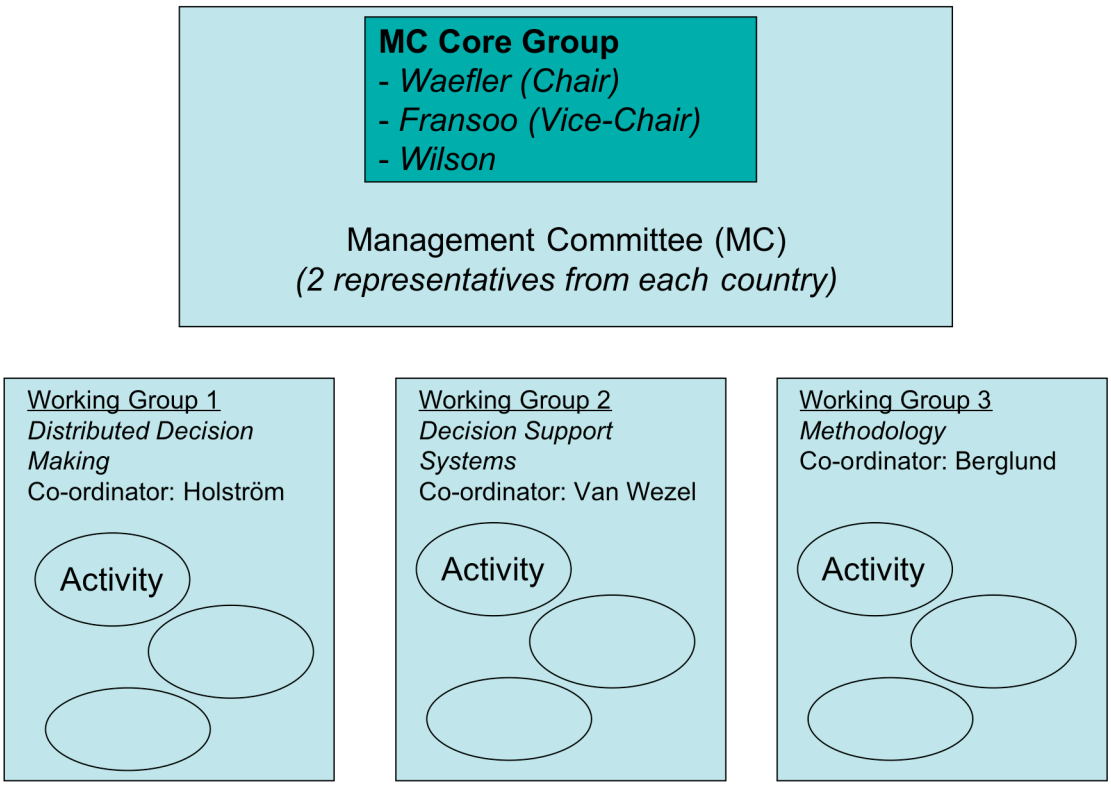
**Activities**

In the first instance it was intended, as the name WG suggests, that we would work within these groups. However during the WG meetings in 2005 it has become apparent that we are more likely to be able to submit joint proposals for future work, bring together our current activities in a rational fashion, and produce joint research papers if we create smaller more tightly focused and specific groupings. These smaller groups are called ‘Activities’. Following the nature, mechanisms and tasks of these Activities are described

*Nature of HOPS Activities:*

- The Activities in HOPS are its active working structure, as against the WGs which now provide an organisational structure to ease the management load on the MC, the MC Core Group and the Co-ordinators of the WGs.

- Activities are defined as small groups of HOPS participants who have a relatively specific common interest within HOPS.
- Activities have interdisciplinary membership and definitely include contribution from the two worlds of "engineering/operations research" and "human factors/social sciences/psychology". Members from other disciplines, such as operations management, may tend towards either of these two fairly crude groupings.
- Ideally Activities will have not less than three and not more than six members, although numbers can be outside this range by agreement of the MC Core Group.
- Each Activity will have a title which as clearly as possible describes what its focus is and how to distinguish it from the other Activities.
- Each Activity will have a facilitator, elected or chosen by the members in whichever way they see fit, who will be the means of reporting to the MC Core Group via the Co-ordinators of the WGs.
- Each Activity will have a distinct, but hopefully complementary, area of interest and/or mission compared to other Activities.




*Mechanisms of HOPS Activities:*

- Membership of any Activitiy shall be endorsed by the MC Core Group.
- Members of HOPS can change the Activity to which they belong, or can belong to more than one Activities, by agreement of the MC Core Group.
- Activities must meet the requirements for their existence at all times and this will be reviewed by the MC at its meetings.
- Activities may be proposed by members of HOPS at any time, although it is expected that most will have already emerged at the Montreux and Malta meetings.
- Activities will have separate meetings and agree their plan of action and deliverables at each MC and WG meeting.

*Tasks of HOPS Activities:*

- Activities will support the work of HOPS internally, via the WGs and the MC, and externally in terms of research and publications etc.

- Activities will define a work plan and goals for up to October 2007 with associated deliverables and timetable for their delivery. This work plan must be defined and agreed before the end of the Prague meeting in March for all existing Activities.
- A timetable for agreement on work plan and deliverables for any new Activities must be agreed with the MC Core Group.
- Activities will produce and publish papers on both fundamental and applied research associated with the remit of HOPS.
- Activities will deliver support to the production of the framework for the field which is a requirement on HOPS by the end of its life.

**Technical working groups:**

- HOPS web site: In 2004 a Working group was established to develop and implement a A29 web site. Since 2005 the site is online (cf. 6.3)

## 4. PARTICIPATION AND COORDINATION

### 4.1 Management Committee

*Chairperson:*

- Prof. Dr. Toni Wäfler, University of Applied Sciences Northwestern Switzerland, Riggenbachstrasse 16, CH – 4600 Olten, Tel: +41 62 388 25 96, Fax: +41 62 311 96 17, e-mail: toni.waefler@fhso.ch *(Member of the MC Board)*

*Vice Chairperson:*

- Prof. Dr. Jan C. Fransoo, Technische Universiteit Eindhoven, P.O. Box 513, Pav. F12, NL-5600 MB Eindhoven, Tel: +31-40-2472681/2230, Fax: +31-40-2465949, e-mail: J.C.Fransoo@tm.tue.nl *(Member of the MC Board)*

*Croatia*

- Josip Burusic, Institute of Social Sciences "Ivo Pilar"

*Czech Republic*

- Prof. Ing. Zdenek Molnar, Czech Technical University Prague

*Finland*

- Dr. Jan Holmström, Helsinki University of Technology

*France*

- Dr. Jean-Michel Hoc, Directeur de Recherche au CNRS, IRCCyN, PsyCoTec, Nantes
- Dr. Nasser Mebarki, University of Nantes, IUT, Department OGP

*Germany*

- Dipl. Ing. Ralph Riedel, Technische Universität Chemnitz
- Prof. Dr. Rüdiger von der Weth, Hochschule für Technik und Wirtschaft Dresden

*Ireland*

- Dr. Peter Williams, University of Limerick

*Malta*

- Dr. Anthony S. Theuma, University of Malta

*Netherlands*

- Prof. Dr. Jan C. Fransoo, Technische Universiteit Eindhoven (Vice Chairperson, *Member of the MC Board)*
- Dr. Wout van Wezel, University of Groningen

*Slovakia*

- Prof. Dr. Miroslav Majtan, University of Economics Bratislava
- Dr. Stefan Marsina, University of Economics Bratislava

*Spain*

- Prof. Dr. Philip G. Moscoso, IESE Business School, University of Navarra

*Sweden*

- Martina Berglund, Linköpings Universitet
- Johan Karltun, Ingenjörshögskolan Jönköping

*Switzerland*

- Prof. Dieter Fischer, University of Applied Science Northwestern Switzerland, Dept. of Technology
- Prof. Dr. Toni Wäfler, University of Applied Science Northwestern Switzerland, School of Applied Psychology (Chairperson, *Member of the MC Board)*

*United Kingdom*

- Prof. Dr. John Wilson, University of Nottingham *(Member of the MC Board)*

## 4.2 **Participating Institutions**

*Croatia*

- Institute of Social Sciences "Ivo Pilar", Zagreb

*Czech Republic*

- Czech Technical University, Faculty of Mechanical Engineering, Department of Management and Economics

*Finland*

- Helsinki University of Technology, Department of Industrial Engineering and Management

*France*

- CNRS, IRCCyN, PsyCoTec, Nantes
- University of Nantes, IUT, Department OGP
- ENIT, Tarbes Cedex

*Germany*

- Technische Universität Chemnitz, Professur Fabrikplanung und Fabrikbetrieb, Institut für Betriebswissenschaften und Fabriksysteme
- Technische Universität Dresden, Institut für Arbeits- & Organisationspsychologie
- Hochschule für Technik und Wirtschaft Dresden, Fachbereich Wirtschaftswissenschaften

*Ireland*

- University of Limerick, Department of Manufacturing and Operations Engineering

*Malta*

- University of Malta

*Netherlands*

- Technische Universiteit Eindhoven, Department of Technology Management
- University of Groningen, Faculty of Management and Organization

*Slovakia*

- University of Economics, Faculty of Business Management, Department of Management, Bratislava

*Spain*

- IESE Business School, University of Navarra

*Sweden*

- Linköpings Universitet, Avd för kvalitet, människa och teknik
- Ingenjörshögskolan Jönköping, Maskinteknik och industriell organisation
- Chalmers University of Technology Göteborg, Div of Logistics and Transportation

*Switzerland*

- University of Applied Science Northwestern Switzerland, School of Applied Psychology
- University of Applied Science Northwestern Switzerland, Dept. of Technology
- Swiss Federal Institute of Technologie (ETHZ), Zurich, Institute of Work Psychology
- Ecole Polytechnique Fédérale de Lausanne (EPFL), STI-IPR-LGPP

*United Kingdom*

- University of Nottingham, Institute for Occupational Ergonomics
- Nottingham University Business School, Centre for Concurrent Enterprise
- The University of Sheffield, Institute of Work Psychology

4.3 **Meetings of the Management Committee**

- 29./30.6.2004, COST Office Brussels
- 19.11.2004, COST Office Brussels
- 10.3.2005, Montreux, Switzerland
- 14.10.2005, Attard, Malta (MC Core Group)
- 19.1.2006, Olten Switzerland (MC Core Group)
- 16.3.2006, (scheduled) Prague, Czech Republic

4.4 **Meetings of the Working Groups**

- 10./11.3.2005, Montreux, Switzerland (all WG's; additionally funded with EURO 4600 by the Swiss government.)
- 2.8.2005, Salerno, Italy (Special Session within ICPR-18) (all WG's)
- 14./15.10.2005, Attard, Malta (all WG's; including external experts)
- 25.11.2005, Manchester (Activity-Meeting)
- 1./2.12.2005, Nantes (Activity-Meeting)
- 7./8.12.2005, Madrid (Activity-Meeting)
- 15.12.2005, Brussels (Web Site Meeting)
- 16./17.3.2006, (scheduled), Prague, Czech Republic (all WG's)
- 07/2006, (scheduled), Masstricht NL (Special Session within IEA 2006) (all WG's)

4.5 **Short-term scientific missions**

- 29.3.2005-8.4.2005, Ralph Riedel (Chemnitz University of Technology, Germany) at Technische Universiteit Eindhoven, NL
- 1.6.2005-18.6.2005, Julien Cegarra (IRCCyN/CNRS, Nantes, France) at University of Groningen, NL
- 30.11.2005-9.12.2005, Jelka Meyer (Dresden University of Technology, Germany) at University of Applied Sciences Northwestern Switzerland

5. **RESULTS**

The Action A29 became active in the second half of 2004. The two MC meetings that took place in 2004 were used for structuring A29 and for organizing future cooperation. Three thematic working groups have been established. The thematic positioning of these groups reflects the objectives as outlined in the A29 MoU. Whereas working group 1 covers the sociotechnical characteristics of PSC, working group 2 covers the individual cognitive aspects. Both groups do research regarding basic knowledge (HOPS goal 1) and applicability (HOPS goals 2 & 3).

Working group 3 on the other hand is positioned in a cross sectional manner. It provides an excellent platform fur mutual learning in and collaborative innovating of PSC research methods. This working group is specially important since the A29 consortium is – in accordance with the subject matter – deliberately composed in a very interdisciplinary manner. The research methods applied by the different members of the consortium are based on social sciences as well as on engineering and economic sciences. A combination of these methods is supposed to provide a major benefit for applied research in PSC.

In detail the three working groups are positioned as following:

- WG1: Distributed / collaborative PSC: This group investigates *human factors* in individual as well as in institutional collaboration in PSC. It tackles research questions such as:
    - What are good practices for distributed PSC?
    - Why is there so little collaborative PSC in industrial practice? How can respective collaboration be promoted?
    - What are the preconditions, the contingencies, and the critical aspects of good practices in collaborative PSC?
- WG2: Decision support systems (DSS) in PSC: This group investigates how individual decision making in PSC can best be supported by technology. The group aims at:
    - A better understanding of human behaviour in PSC
    - Developing a method for task description that avoids to be normative
    - The development of a DSS infrastructure and technology
- WG3: Research methods in PSC: This cross-sectional group aims at enhancing methodological competences in human oriented PSC research. It provides a platform for:
    - Evaluating the transferability of methods
    - Deepening and integrating methodological competencies
    - Developing new methods (for specific questions)

WG objectives, as well as common research questions and products have been defined by the MC. On the occasion of their first meeting in March 05 the respective working groups will elaborate a detailed working plan including deliverables and collaboration opportunities.

Results achieved by HOPS in 2005

As a result of the collaboration between HOPS members as initialized and supported by the two working group meetings (cf. 4.4) the following sub-topics emerged within the working groups:

Applicability of task analysis and function allocation approaches for planning and scheduling

- Competence-oriented planning: from individuals to organisations
- Control capacity of sociotechnical systems
- Development of a generic model of Front-end processes that align customer requirements to enterprise capability
- How human planners can improve the performance of hierarchical planning systems
- Measuring supply chain performance: current research and future directions
- Modelling Dynamics in Decision Support Systems
- Project Management and Convergence of Social Science and Engineering Domains: Opportunity at the Locus of Implementation.
- Quality of supply chain relationships across the relationship lifecycle

Around these topics HOPS Activities (cf. 3) where initialized. HOPS Activities are sub-groups

within the working groups. They are expected to submit joint proposals for future work, bring together current activities in a rational fashion, and produce joint research papers. Each Activity will define a work plan and goals for up to October 2007 with associated deliverables and timetable for their delivery. This work plan must be defined and agreed before the end of the Prague meeting in March for all existing Activities. However, failing Activities are likely to disappear whereas new Activities may emerge during the course of HOPS. Some of the Activities already met in Activity-meetings (cf. 4.4) and started to produce joint publications. Furtermore, in August 2006 HOPS organized a special session within the 18th International Conference on Production Research (ICPR-18). The following papers have been presented (published in: 18th International Conference on Production Research (ICPR-18). Conference Proceedings (CD-ROM). Salerno, Italy. July 31 - August 4.)

- A Foundation for Analysis of Human Cooperation in Multi-Party Scheduling
  *By Kaveh Nezamirad, Peter G Higgins and Simon Dunstall*
- Sociotechnical design of shopfloor planning and control
  By Toni Wäfler
- Design of integrated management systems for the extended shop-floor
  *By Philip G. Moscoso*
- A cultural framework for production management
  *By Ralph Riedel*
- Prochart toolkit to re-design production planning, scheduling and control processes
  *By J.E. Guinery, B.L. MacCarthy*
- The Contribution of Human Planners
  *By Jan Fransoo and Vincent Wiers*
- On assessing the PSC process from an MTO-perspective
  *By Martina Berglund and Johan Karltun*
- Algorithmic support for human rail shunting planners
  *By W.M.C. van Wezel , J. Riezebos*

The planning of 2006 was made in accordance with the A29 timetable as outlined in the MoU. The main objective for 2006 is the strengthening of the HOPS Activities (cf. 3).

- A workshop (AWS2) including an MC meeting as well as all working groups will be organized in March 06 (Prague, Czech Republic). This workshop serves the further establishing of the HOPS Activities. All Activities will have to define a work plan and goals for up to October 2007 with associated deliverables and timetable for their delivery. Approximately 30 members of A29 will participate in this special issue.
- In July 2006 A29 rganizes two special sessions in the 16th World Congress in Ergonomics (IEA 2006, Maastricht, NL; http://www.iea2006.org/):
    - Human and Organizational Aspects in Industrial Planning and Scheduling – Scheduling Work (Chair: Martina Berglund):
        - How human planners can improve the performance of hierarchical planning systems (309 46-HOPS, Moscoso)
        - A cognitive typology to design planning algorithms (979 46-HOPS, Wezel)
        - Complacency failure in human-machine cooperation in scheduling (526 46-HOPS, Cegarra)
        - Schedulers' Work Content – A Quantified Analysis (855 46-HOPS, Berglund)
        - Work Analysis for the Cognitive and Social Settings of Scheduling and Control (1291 46-HOPS, Wilson)
    - Human and Organizational Aspects in Industrial Planning and Scheduling – Specific Settings (Chair: Johan Karltun):
        - An Exploratory Investigation of Dynamic Scheduling Processes for Surgical Operations (943 46-HOPS, Williams)

        - Modelling decision-making activities in planning production coordinated across a supply chain (981 46-HOPS, Higgins)
        - Success factors of collaborative planning in supply networks (873 46-HOPS, Günter)
        - Performance measurement in supply networks (735 46-HOPS, Shepherd)
- A seminar (ASr2) including all working groups as well as some invited external expert will be organized in October 2006 (Madrid).
- MC Core Group meetings are organized as required, conjoint with the activities described above.
- Activity meetings as well as STSMs are wanted and supported as much as possible.
- The further progression of A29 follows the timetable as outlined in the MoU.

## 6. DISSEMINATION OF RESULTS

### 6.1 Publications and Reports

Members of A29 MC or A29 working groups have produced or have participated in producing the following numbers of publications or reports (cf. Annex 1)

- 2004: 33
- 2005: 63
- 2006: 10
- in press: 30

### 6.2 Conferences and Workshops

Members of A29 MC or A29 working groups have participated in the following conferences or workshops:

*2004:*

- 2nd World POM Conference on POM and 15th annual POM Conference, Cancun, 2004
- 6th International Workshop on Human Factors in Planning, Scheduling and Control in Manufacturing, 2004, Jönköping, Sweden. *(Organized and hosted by A29 members)*
- 8th International Conference on Manufacturing & Management (PCMM 2004), Gold Coast, Australia.
- 9th International Conference on Human Aspects of Advanced Manufacturing (HAAMAHA): Agility & Hybrid Automation, 2004, National University of Ireland, Galway, Ireland
- 12th GERPISA International Colloquium, 2004, Paris, France
- 13th international working seminar on Production Economics, 2004 Igls/Innsbruck, Austria.
- 16th Annual NOFOMA 2004, Linköping, Sweden (The Nordic Logistics Research Network)
- 44. Kongress der Deutschen Gesellschaft für Psychologie, 2004, Göttingen Deutschland.
- Bridging the Cultural Gap: Comprehending Cultural Notions in order to Address Pharmacy Personnel Management, Malte, 2004.
- EurOMa 2004 Conference, Fontainbleau, France.
- Geneme 2004, Dresden Deutschland.
- Global Repositioning of Maltese SME, Malta, 2004.
- IMS International Forum 2004 - Global Challenges in Manufacturing, Cernobbio Italy.
- Knowledge Exploration in Science and Technology , Milano, Italy, 2004
- Logistics Research Network Annual Conference, Dublin, Ireland, 2004
- Mobile virtual work, a new paradigm?. Ranäs Castle, Sweden, 2004.
- VPP2004, Technical University of Chemnitz, September

*2005:*

- 15th international conference on Flexible automation and Intelligent manufacturing, Bilbao, Spain, July 2005
- 17th Annual NOFOMA Conference, Copenhagen, Denmark, June 9-10, 2005
- 6th IFIP Working Conference on VIRTUAL ENTERPRISES, September 26-28, 2005, Valencia.
- 7th International Workshop on Human Factors in Planning, Scheduling and Control in Manufacturing, Groningen, Netherlands.
- APMS 2005 conference, Rockville, MD, USA, September 19-21, 2005.
- EPIQUE'05, Toulouse, France
- EurOMA International Conference on Operations and Global Competitiveness, Budapest, 19.-22.06.2005
- Fachtagung zur Psychologie der Tätigkeit in Obergurgl, Österreich.
- ICAM 2005, International Conference on Agility, Helsinki, Finland, July 27-28, 2005

- IMS-NoE (Intelligent Manufacturing Systems), Special Interest Group "The healthy human in intelligent manufacturing", Valencia, Spain (25/26.04.05)
- Interdisziplinärer Workshop „Sicheres handeln in kritischen Situationen" Thema:. Hattingen, Veranstalter: Plattform Menschen in komplexen Arbeitswelten.
- International conference of Faculty of Business Management, University of Economics in Bratislava. Bratislava 24th – 25th November, 2005.
- International Conference on Industrial Engineering and Systems Management, May 16-19, 2005, Marrakech.
- International Conference on Production Research (ICPR 18), Salerno, Italy, July-Aug 2005
- Organizational Design and Management – VIII. 8th International Symposium, Maui, Hawaii, 22-25 June, 2005.
- Production and Operations Management Society, April 2005, Chicago
- Second European Conference on Rail Human Factors, November 2003, London, UK.
- topsoft, Fachtagung für ERP-Systeme, Fachhochschule CH-5212 Schönenwerd (8. / 9. März 2005). Organisation und Informatik: erweiterte Methoden zur Optimierung der Auftragsabwicklung.
- topsoft, Fachtagung für ERP-Systeme, Fachhochschule CH-8000 Zürich (21. / 22. September 2006). Organisation und Informatik: erweiterte Methoden zur Optimierung der Auftragsabwicklung.
- University Technology Partnership (UTP) Conference, 4th - 5th April, Derby, U.K.
- Wissenschaftliche Tagung der Akademie für Regionalforschung und Landesplanung, Ravensburg.
- Workshop 2005 on Human Factor in Production Management, Scientific Seminar of Czech Technical University Prague
- Workshop Polca, Quick Response Manufacturing Centre, University of Wisconsin, Madison, USA, April 2005

### 6.3 **Web site**

In 2004 the (cf. Annex 2).specification for a HOPS web site has been elaborated.
In 2005 these specification has been implemented (coordinator: Dr. Wout van Wezel, University of Groningen NL). Extensive discussions at the various meetings have resulted in a further specification of the structure, contents, roles, and authorization schemes. The website (URL: http://www.hops-research.org/) is structured around sections. The following kinds of sections were identified:

- Working group (for example for HOPS: WG1, WG2, WG3)
- Project (for example, Cognitive issues of algorithms in WG2)
- Meeting (e.g., workshop, STSM)
- Miscellaneous

Each section can have the following elements:

- Introductory text
- What's new items
- Forum to exchange messages
- Projects
- Members
- Documents (minutes, papers, progress reports, etc.)
- Commented references
- List with relevant URL's
- Calendar with events
- Images (photo's)

Sections can be ordered hierarchically, for example, a working group can have multiple projects and meetings. The security model allows individual members to add and change

information, upload documents, etc. All contents can be either public (viewable by everyone) or private (viewable by members only). The public contents can be used to disseminate information about HOPS to the public and to publish papers. The private contents can be used to setup a virtual private working space for a project or meeting in order to exchange messages, share draft papers, etc. To be able to find relevant information in the various sections, a search engine has been added to the website.
The costs of developing the website was approximately E1200, which was within the budget. This included the design of the website and implementing the Content Management System (CMS) to be able to view and edit data using a webbrowser. Hosting and use of the search engine have been offered free of charge by one of the HOPS members (Dr. Wout van Wezel, University of Groningen NL).

6.4 **Scientific and Technical Co-operation**

Members of A29 MC or A29 working groups have established co-operations and contacts with the following scientific institutions:

*International Scientific Networks*

- Global Manufacturing Research Group (GMRG)

*Australia*

- Swinburn University, Melbourne
- University of Western Australia
- University of Wollongong

*Austria*

- University of Innsbruck

*Canada*

- University of Waterloo

*France*

- CERTOP, France
- Ecole Nationale des Mines de Saint Etienne - Competence management
- INSEAD, France

*Germany*

- Akademie Raumforschung und Landesplanung, Germany
- Stuttgart University of Applied Science
- TU Berlin
- TU Dresden, Institut für Internationale Forstwirtschaft
- TU Dresden, Klinik für Anästheosiologie
- University of Bamberg
- University of Stuttgart
- Westsächische Hochschule Zwickau (FH)

*Hungary*

- Hungarian Academy of Sciences

*Italy*

- Politecnico di Torino, Italy

*Japan*

- Graduate School for International Development and Cooperation, Hiroshima University,
- Institute for Science of Labour, Toyko, Japan
- Kyoto Institute of Technology, Japan
- Kansai University, Japan

*Netherlands*

- TU Delft

*Norway*

- Norwegian School of Management

*Singapore*

- School of Communication and Information, Nanyang Technological University, Singapore

*Slovakia*

- The Slovak University of Technology in Bratislava

*Spain*

- University of Vigo, Spain

*Sweden*

- KTH Stockholm, Dep. of Industrial Economics and Management
- National Institute for Working Life – west, Göteborg

- ROMUS, Swedish Production Research network (www.romus.se)

*Switzerland*
- Swiss Federal Institute for Forest, Snow and Landscape Research (WSL)
- Zürcher Hochschule, Institut für Datenanalyse und Prozessdesign

*United Kingdom*
- Cambridge University, England
- Cardiff University, Wales
- Heriot-Watt, Scotland
- Southampton Universities
- University of Sussex

*USA*
- New York state university
- Ohio University
- University of California Los Angeles, USA
- University of Minnesota, Minneapolis, USA
- University of Nevada, Arizona State University,.
- University of Wisconsin

Members of A29 MC or A29 working groups have established co-operations and contacts with the following research programmes:
- Part of an INCO-SSA Application: Faciliation of Research Collaboration and Strategy Development on Wooden Plant resources Management in Drylands of Ethopia, Kenya and Sudan.

6.5 **Transfer of results**

Members of A29 MC or A29 working groups have established co-operations and contacts with the following industries and bodies:

*Czech Republic*
- Buzuluk Komarov, Inc., Czech Republic**,** rubber-processing machines, piston rings and enamel chemistry
- Kovosvit, Sezimovo Usti, Czech Republic, machining centers
- Narex, Czech Republic, machine tools
- Tajmac ZPS, Czech Republic, machining centers,
- TOWER Automotive Inc., Slovakia, automobile component

*Finland*
- Aleksi Virkkunen, Tradeka, Helsinki, Finland
- Metso Automation
- Nina Tuomikangas, Cloette Fazer Confectionary, Vantaa, Finland
- Nokia

*France*
- Airbus Saint-Nazaire
- Ford, Balnquefort, France
- French National Railroad Company (SNCF – Société Nationale des Chemins de Fer Français)
- Goodrich Actuation systems
- MecaProtec, France

*Germany*
- BGAG Dresden
- C.K. Siebenwurst Modellfabrik und Formenbau GmbH & Co. KG, Dietfurt
- CBS GmbH, Chemnitz (solution provider for MS Business Solutions)
- Christian Karl Siebenwurst Modell- und Formenbau GmbH & Co. KG, Dietfurt

- Emil Löffelhardt GmbH & Co. KG
- Günther Spelsberg GmbH + Co. KG, D-58579 Schalksmühle
- ID Ingenieurgesellschaft für Datentechnik mbH, Aachen & Erndtebrueck
- Infineon Technologies, Dresden
- RKT Rodinger Kunststofftechnik GmbH, Roding
- SIGMA Chemnitz GmbH / SSA Global

*Nederlands*

- ANWB (Netherlands Automobile Association) , The Netherlands
- ATOS, Amsterdam, The Netherlands
- Bartimeus (Zeist), The Netherlands
- Corus Packaging Plus, IJmuiden, The Netherlands
- Gasunie, Groningen, The Netherlands
- GGZ-Drenthe (General Mental Health Institution, Assen, The Netherlands
- GVB (public transport), Amsterdam, The Netherlands
- Koninklijke Theodorus Niemeyer, Groningen, The Netherlands
- LogicaCMG, Groningen, The Netherlands
- Magentis, Groningen, The Netherlands
- NS (Netherlands Railways), Utrecht, The Netherlands
- Ortec, Groningen, The Netherlands
- Parker Arlon Filtration B.V., Arnhem, The Netherlands
- Power-packer Europe, Oldenzaal, The Netherlands
- Quintiq, Den Bosch, The Netherlands
- Vertis, Groningen, The Netherlands
- Vion Foods Group, Boxtel, The Netherlands

*Slovakia*

- Slovak Centre for Productivity, Univerzitna 1, O1O26 Zilina, Slovakia

*Sweden*

- Aerospace industry: Volvo Aero Corporation,
- Apparel industry: ETON Fashion, Lindex AB.
- Automotive industry: e.g. Autoliv AB, Volvo Cars Corp., Volvo Powertrain Corp., Volvo Logistics Corp.,
- PLAN, the Swedish Production and Inventory Management Society

*Switzerland*

- Alstom (Schweiz) Ltd. Power Service, Zentralstrasse 40, CH-5242 Birr
- Codex Information Systems AG, 4142 Münchenstein / Basel
- Ernst Schweizer AG Metallbau, CH-8908 Hedingen
- ETS Meylan (Dapples, CH)
- Forestry and wood industry in Switzerland (supply networks in Luzern, Solothurn, Bern)
- IBM Switzerland (Geneva, CH)
- KWC Armaturenfabrik, Hauptstrasse 57, CH-5726 Unterkulm
- Oerlikon Contraves AG Defence, Birchstrasse 155, CH-8050 Zürich
- Oertli Werkzeuge AG, Hofstrasse 1, CH-8181 Höri
- Parker (Geneva, CH)
- Rheinhäfen des Kantons Basellandschaft, CH 4127 Birsfelden
- SAP (Schweiz), CH-8105 Regensdorf
- SOLID (Geneva, CH)
- Swisscom Fixnet AG, FX-FWS-NDO-PDN-PIM-PPC, CH-3011 Bern
- Tornos SA (Moutier, CH)
- TRILAB Software AG, Hauptbahnhofstrasse 8, CH-4501 Solothurn

*United Kingdom*

- Aerospace industry: MBDA, Rolls-Royce & BAE Systems (UTP)
- Alcoa, Birmingham, UK
- CC Food Research Association
- Network Rail
- Other businesses: Northern Foods, MSD, Abacus, Linread, Tuberex, Steelcraft
- PROCHART Consortium members: CORUS, BAE Systems, GE Druck, Sara Lee Courtaulds, Henkel.
- Rail Safety and Standards Board

6.6 **Contacts in the ERA**

Members of A29 MC or A29 working groups have established the following co-operations and contacts in the ERA:

- Special interest group 2 'Manufacturing Scheduling and Control in the Extended Enterprise' of IMS NoE (Intelligent Manufacturing Systems Network of Excellence) funded by FP6 IST programme.
- Special interest group 2 'The Healthy human in Intelligent Manufacturing' of IMS NoE (Intelligent Manufacturing Systems Network of Excellence) funded by FP6 IST programme.

## 7. ECONOMIC DIMENSION

Estimation of total manpower (expressed in person years) dedicated in 2004 to the activities of the Action (i.e. for research projects within the HOPS topics; for dissemination of results, for participating at conferences and workshops, for participating at A29 meetings).

| *Year* | *Person Years* |
|---|---|
| 2004 | 12.8 |
| 2005 | 11.1 |
| Total | 23.9 |

Funds received from the COST budget for each year and for the entire duration of the Action utilised for Secretariat, Publications, Workshops and Seminars, MC meetings, Short-Terms scientific missions, other and Total

| *Year* | *Secretariat* | *Publications* | *Workshops / Seminars* | *MC meetings* | *STSM* | *other* | *Total* |
|---|---|---|---|---|---|---|---|
| 2004 | - | - | - | 14'004 | - | - | 14'004 |
| 2005 | 680 | | | 53'993 | 788 | 1320 | 56'781 |
| | | | | | | Total | 70'785 |

## 8. SELF EVALUATION (only in the last annual progress report)

Indicate, in no more than 1 page, what were, in the opinion of the MC, the main successes, the drawbacks (if any) and the key difficulties encountered (if any).

**ANNEX 1: List of publications and reports 2004 / 2005 / 2006 / in press**

*Published in 2004*

In 2004 members of A29 MC or A29 working groups have produced or have participated in producing 33 publications or reports:

- Bramham J, & MacCarthy, B.L. (2004) 'Providing Rapid Effective Quotations', Proceedings of 11th International EurOMA Conference, (Eds Wassenhove, L. et al), June 2004, Fontainebleau, France, Vol 2, pp 697–705.
- Buerschaper C., von der Weth, R., Hofinger, G. (2004) Lernprozesse gestalten - Zur Funktion computersimulierter Szenarien. In: U.G. Seebacher, G. Klaus (Hrsg.) Handbuch – Führungskräfte-Entwicklung: Theorie, Praxis, Fallstudien. Oberhaching: USP Publishing International, p.349-362.
- Cegarra, J. (2004). La gestion de la complexité dans la planification : le cas de l'ordonnancement [Complexity management in planning activities: the case of scheduling]. PhD Thesis, University of Paris 8.
- Dubois, A, Gadde. L-E, Hulthén, K, Jonsson, P, Sundqvist, V. (2004), "Supply Network Co-ordination – An Extended Perspective on Flexibility", IMP Conference 2004, Copenhagen.
- Engström, T., Jonsson, D. and Medbo, L.(2004). 'Perspectives on changes in the Swedish model for work life development', The Twelfe GERPISA International Colloquim", "Analysing the Variety of Capitalism and the Diversity of Production Models", Paris.
- Fischer, D., Wäfler, T. (2004). Planung darf nicht behindern. Organisator Nr. 3/04, Seiten 23-24
- Günter, H., Grote, G. & Thees, O. (2004): Supply chain management in forestry networks, in: M. Taisch, E. Filos, P. Gorello, K. Lewis & M. Montorio (Eds.): Conference Proceedings for IMS Forum 2004 - Global Challenges in Manufacturing, Cernobbio, pp. 818-825.
- Gustavsson, M. and Jonsson, P (2004), "The influence of demand-information quality on supply chain planning", 2nd International workshop on Supply Chain Management and Information Systems, Hong Kong.
- Gustavsson, M. and Jonsson, P. (2004), "Information quality influences on the sales and operations planning", Eighth International Conference on Manufacturing & Management (PCMM 2004), Gold Cost, Australia.
- Hoc, J.M., Mebarki, N., & Cegarra, J. (2004). L'assistance à l'opérateur humain pour l'ordonnancement dans les ateliers manufacturiers [human operator support of scheduling in manufacturing workshop]. Le Travail Humain, 67(2), 181-208.
- Jackson S, Wilson J R, MacCarthy B L, (2004) 'A New Model of Scheduling in Manufacturing: Tasks, Roles, and Monitoring', Human Factors, Vol. 46(3), pp 533-550
- Jackson, S., Wilson, J.R. & MacCarthy, B.L. (2004). A new model of scheduling in manufacturing: Tasks, Roles and Monitoring. Human Factors, 46, 3, pp 533-550.
- Johansson, E. and Medbo, L. (2004). 'On the use of Product Data in the Design of the Materials Supply System' Journal of Manufacturing Technology Management, Vol. 15, No. 8
- Jonsson, D., Medbo, L. and Engström, T. (2004). 'Some Considerations Relating to the Reintroduction of the Assembly Lines in the Swedish Automotive Industry', International Journal of Operation & Production Management. Vol. 24, No. 8, pp. 754–772.
- Jonsson, P. and Mattsson, S-A. (2004), "The Implication of Fit Between Planning Environments and Manufacturing Planning and Control Methods", Journal of Enterprise Management, Vol. 20, No. 4.

- Langan-Fox, J., Anglim, J. & Wilson, J.R. (2004). Mental models, team mental models and performance: Process, development and future directions. Human Factors and Ergonomics in Manufacturing, 14, 331-352
- Meyer, J., Engel, A. & Richter, P. (2004). Teamqualität und Motivation in virtuellen Teams [Quality of teamwork and motivation in virtual teams]. In M. Engelien & K. Meissner (Hrsg.). Virtuelle Organisation und neue Medien 2004 [Virtual organisations and new media 2004] (pp. 349 - 360). Lohmar: EulVerlag.
- Müller, E. & Riedel, R. (2004). Cultural effects on the integration of technology, organisation and people. Proceedings of the 9th International Conference on Human Aspects of Advanced Manufacturing (HAAMAHA): Agility & Hybrid Automation 24th to 27th August 2004, National University of Ireland, Galway, Ireland
- Müller, E. & Riedel, R. (2004). Exzellente Unternehmen brauchen innovative Methoden und Instrumente des Produktionsmanagements. vdi-z Integrierte Produktion 05, S. 67-69
- Müller, E., Horbach, S., Ackermann, J. & Näser, P. (2004). Production Management in Competence-cellbased Networks. In: Proceedings of APE'2004 IIIrd International Conference on Advances in Production Engineering, Part I, Warsaw, Poland, June 17-19, 2004, p. 53-62, ISBN 83-916234-3-2
- Richter, P. (2004). Gesundheitsförderung in Organisationen – arbeits- und organisationspsychologische Präventionsansätze [Workplace health promotion – approaches of prevention in work and organisational psychology]. In J. Wegge & K. H. Schmidt (Hrsg.). Förderung von Motivation und Gesundheit im Unternehmen [Support of motivation and health in organisations] (pp. 197-214). Göttingen: Hogrefe.
- Riezebos, J. (2004) Time bucket length and lot-splitting approach, International Journal of Production Research, vol. 42, no. 12, pp. 2325-2338.
- Shepherd, C. (2004) Enterprise Resource Planning. In Nicholson, N. (Ed), Blackwell Encyclopedic Dictionary of Organizational Behavior. Oxford. Blackwell.
- Shepherd, C. (2004). Findings from the implementation of DATUM (Internal Report)
- Småros, J. (2004), "Forecasting collaboration in the European grocery sector: Observations and hypotheses", Laboratory of Industrial Management: Working papers, Working Paper No 2004/3, Helsinki University of Technology.
- Småros, J., & Hellström M. (2004), "Using the assortment forecasting method to enable sales force involvement in forecasting: A case study", International Journal of Physical Distribution & Logistics Management, Vol. 34, No. 2
- Småros, J., Angerer, A., Fernie, J., Toktay, B. & Zotteri, G. (2004), "Logistics Processes of European Retailers"
- Von der Weth, R. (2004). Information und Intuition. Wie man Experten bei komplexen Planungen unterstützt. In. M. Engelien & K. Meißner (Hrsg.). Virtuelle Organisation und Neue Medien 2004. Lohmar: Eul-Verlag, p. 303-312.
- Wäfler, T. (2004). An antagonistic dialogue about chaordic systems thinking (part i & II). The Learning Organization, Special Issue Chaordic systems thinking for learning organizations, 11(6), 450-465.
- Wäfler, T. (2004). Sociotechnical Analysis and Design of Shopfloor Planning and Control. In: M. Taisch, F. Erastos, P. Garello, K. Lewis & M. Montorio (Eds.). Global Challenges in Manufacturing. Proceedings of the IMS International Forum 2004, Gernobbio (I), May 17-19 2004, pp. 642-649.
- Wäfler, T., Fischer, D.(2004). Methodische Defizite eliminieren. Organisator Nr. 3/04, Seiten 30-31
- Wänström, C, Jonsson, P. and Medbo, P. (2004), "A simulation study of the demand impact on the phase-out performances", EurOMa 2004 Conference, Fontainbleau.
- Wänström, C. and Jonsson, P. (2004), "Adjusting the Materials Planning Strategy to the Phase-in and Phase-out situation", Eighth International Conference on

Manufacturing & Management (PCMM 2004), Gold Cost, Australia.

*Published in 2005*

In 2005 members of A29 MC or A29 working groups have produced or have participated in producing 63 publications or reports:

- Berger, S. (2005). Bewertungen von Planungslösungen mit REBA [Assessment of Planning Solutions with REBA]. Unpublished term paper. Dresden University of Technology.
- Berglund, M., Karltun, J., 2005, Human, technological and organizational aspects influencing the production scheduling process, in Proceedings of the 18th International Conference on Production Research, University of Salerno, Salerno
- Borter A. Développement d'un modèle d'allocation de compétences dans une organisation par projet sur la base des Systèmes Multi Agents, project report, EPFL-LGPP, July 2005.
- Donk van, D.P. & Riezebos, J., Exploring the knowledge inventory in project-based organisations: A case study, International Journal of Project Management, vol. 23, no. 1, 2005, pp.75-83.
- Donselaar, KH van, Gaur, V., Woensel, V, Broekmeulen, RACM & Fransoo, JC, An Empirical Study of Ordering Behavior in Retail Stores, Working Paper, Technische Universiteit Eindhoven, 2005
- Farrington-Darby, T., Wilson, J.R. & Norris, B.J. Investigating train driver behaviour: the use of lineside information when regulating speed. In: J.R. Wilson and B.J. Norris (eds), Rail Human Factors. London: Ashgate, 60-69, 2005.
- Fischer, D. (2005). Auftragsabwicklung nachhaltig optimieren. Technische Rundschau vom 11. Februar 2005, Seiten 24-27
- Gaalman, G.J.C. & Riezebos, J., Managing expected inventory order crossovers, Proceedings 18th International conference on Production Research, Salerno, Italy, august 2005.
- Galasso, F., Mercé, C. & Grabot, B., A Modelling Framework for Supply Chain Planning Simulation under Uncertainty, Industrial Simulation Conference ISC'05, Berlin, June 9-11 2005.
- Geneste, L., Grabot, B. & Reynoso-Castillo, G., Management of demand uncertainty within MRP2 using possibility theory, IFAC World Congress Praha 2005, July 4-8 2005.
- Grabot, B., Geneste, L., Reynoso Castillo, G. & Vérot S., Integration of Uncertain and Imprecise Orders in the MRPII method, International Journal of Intelligent Manufacturing, volume 16, number 2, April 2005, pp. 215-235.
- Guinery, J. & MacCarthy, B.L., Toolkit to re-design production planning, scheduling and control processes, in proceedings of 18th International Conference on Production Research, Salerno, August 2005.
- Günter, H. (October, 2005): Perspective taking in supply networks: an underused source for better collaborative planning? COST A29 – Human and organisational factors in industrial planning and scheduling, Working Group Meeting, Malta.
- Hacker, W., von der Weth, R., Ishig, A. & Luhn, G. (2005). Arbeitsgestaltung mit Betroffenenbeteiligung und Nutzung von Erfahrungswissen – auch bei hochautomatisierten Technologien. Zeitschrift für Arbeitswissenschaft, 1, 2005, 53-70
- Hamlin, M., MacCarthy B.L. and Guinery J., 2005, Fast Track Order Fulfilment at Henkel – The PROCHART approach, IOM Control Magazine, Vol 31, No 04.
- Hermosillo Worley, J., Chatha, K. A., Weston, R. H., Aguirre, O. & Grabot, B., Implementation and optimisation of ERP Systems: A Better Integration of Processes, Roles, Knowledge and User Competences, Computers in Industry, vol. 56, n°6, 2005, pp. 619-638.

- Hermosillo Worley, J., Grabot, B., Geneste, L.& Aguirre O., A modelling framework for human-resource based business processes, in "Supply chain optimisation: product/process design, facility location and flow control", Series : Applied Optimization ,Vol. 94, Dolgui, Alexandre; Soldek, Jerzy; Zaikin, Oleg (Eds.) Kluwer Press, 2005, 289 p. ISBN: 0-387-23566-3
- Hermosillo Worley, J., Rakoto, H., Grabot, B. & Geneste L., A competence approach in the experience feedback process, in "Integrating Human Aspects in Production Management", Series: IFIP International Federation for Information Processing, Vol. 160, Zulch, Gert; Jagdev, Harinder S.; Stock, Patricia (Eds.) 2005, Kluwer Academic Press.
- Holweg, M., Disney, D., Holmström, J. & Småros, J.: Supply Chain Collaboration: Making Sense of the Strategy Continuum, European Management Journal, Vol. 23, No. 2 (2005).
- Ilie Zudor E. & Holmstrom J. (2005), "Solution framework proposal: taking effective control over the project delivery chain with automatic identification and agent-based solutions", Assembly Automation, Vol. 25, No. 1, pp. 59 – 65
- JC Fransoo, JC. & Wiers, VCS, Action Variety of Planners: Cognitive Load and Requisite Variety, Journal of Operations Management, in press, 2005
- Jorna, R., Wezel, W. van, Kiewiet, D.J. & Boer, T. de, (2005). Analysis and support of planning in the Dutch Railroad Company. In: J. Wilson, B. Norris, T. Clarke & A. Mills. Rail Human Factors; supporting the Integrated Railway. Hampshire, UK: Ashgate Publishing
- Kaltun, J., Riedel, J. & Günter, H (October, 2005): Assessment for PSC collaboration. COST A29 – Human and organisational factors in industrial planning and scheduling, Working Group Meeting, Malta.
- Kiewiet, D.J., Jorna, R. & Wezel W. van, (2005). Planners and their cognitive maps: An analysis of domain representations using multi dimensional scaling. Applied Ergonomics, Vol 36, No. 6.
- Lehtonen J-M., Småros, J. & Holmström, J.: The effect of demand visibility in product introductions, International Journal of Physical Distribution & Logistics Management, Vol. 35, No. 2 (2005).
- Majtán, M. – Marsina, S.: Project management perspectives after accession of SR to EU. International Business Cooperation, No. 2/2005, INFORMEX Bratislava, 2005. ISSN 1336-2828. pp.23-24
- Majtán, M. – Srsnova, J.: Adjustment Processes in Slovak Manufacturing Enterprises during the years 2002-2004. In: Ekonomicke rozhlady. Bratislava. 2005, No. 3, 8 pages
- Majtán, M.: Corporate strategy and financial decisions. In: Ekonomika, financie a manazment podniku – 2005. In: Miscellany of the International conference of Faculty of Business Management, University of Economics in Bratislava 24th – 25th November, 2005. Bratislava: FPM, 2005. pp. 442-445. ISBN 80-225-2107-8
- Majtán, M.: Project management in the international cooperation. In: Ekonomika a manazment, Bratislava, 2005, No.2, 14 pages
- Marsina, S.: Importance of projects in the life of enterprise. In: Ekonomika, financie a manazment podniku – 2005. In: Miscellany of the International conference of Faculty of Business Management, University of Economics in Bratislava. Bratislava 24th – 25th November, 2005. Bratislava: FPM, 2005. pp. 429-433. ISBN 80-225-2107-8
- Meunier Martins S., Cheikhrouhou N. and Glardon R., Strategic analysis of products related to the integration of human judgment into demand forecasting, Integrating Human Aspects in Production Management. ZÜLCH, Gert; JAGDEV, Harinder S.; STOCK, Patricia (Eds.): New York: Springer, 2005.
- MOSCOSO, PH. LAGO, A. (2005). Design of Integrated Management Systems for

the Extended Shop-Floor, in Conference Proceedings of the 18th International Conference of Production Research, Salerno, pp. 231-241 (ISBN 88-87030-96-0)
- MOSCOSO, PH., LAGO A. (2005). Socio-technical design of planning & control systems for the extended shop-floor, in: "Operations and global competitiveness", K. Demter (ed), OOK-Press Ltd., Budapest, June 2005, pages 191-201 (ISBN 963 218 455 6).
- Müller E.; Riedel, R.: Culture and production management - an integrated framework. In: Proceedings of the 10th International Conference on Human Aspects of Advanced Manufacturing: Agility and Hybrid Automation - HAAMAHA 2005. San Diego, 18.-21.07.2005
- Müller, E.; Riedel, R.: Production management and supply chain management in a global context. In: Proceedings of the EurOMA International Conference on Operations and Global Competitiveness, Budapest, 19.-22.06.2005
- Pépiot G., Cheikhrouhou N., Furbringer J-M. and Glardon R., A fuzzy approach for the valorisation of the competences, CD-ROM. of IESM, Marrakech, May 16-19, ISBN 2-9600532-0-6, 2005.
- Pickup, L., Wilson, J.R., Norris, B.J., Mitchell, L. & Morrisroe, G. The Integrated Workload Scale (IWS): A new self report tool to assess railway signaller workload. Applied Ergonomics, 36, 6, 681-693, 2005.
- Pickup, L., Wilson, J.R., Sharples, S. & Smith, S. A conceptual framework of mental workload and the development of a self reporting integrated workload scale for railway signallers. In: J.R. Wilson and B.J. Norris (eds), Rail Human Factors. London: Ashgate, 319-329, 2005.
- Pickup, L., Wilson, J.R., Sharples, S.C., Norris, B.J., Clarke, T. and Young, M.S. Fundamental examination of mental workload in the rail industry. Theoretical Issues in Ergonomics Science, 6, 6, 463-482, 2005.
- Richter, P., Meyer, J. & Sommer, F. (2005). Well-being and Stress in Mobile and Virtual Work. In J.H. Erik Andriessen & M. Vartiainen (Eds.). Mobile Virtual Work. A new Paradigm? Springer, London.
- Riedel, R.: A holistic, process-oriented model for creating performance incentives and employee motivation. In: Proceedings of the 10th International Conference on Human Aspects of Advanced Manufacturing: Agility and Hybrid Automation - HAAMAHA 2005. San Diego, 18.-21.07.2005
- Riedel, R.: Cultural aspects in production management. In: Proceedings of the 18th International Conference on Production Management, Salerno, 31.07.-04.08.2005
- Riezebos, J. & Wezel, van W.M.C., An industrial engineering approach to improve railway planning: a case study, Proceedings of the 15th international conference on Flexible automation and Intelligent manufacturing, Bilbao, Spain, July 2005, pp. 313-319.
- Ruttle, P. & Williams, P. (2005). “Work Domain Modelling for Planning and Scheduling Surgical Activities”. Proceedings IMC-22, International Manufacturing Committee Conference. Tallaght Institute of Technology, Dublin, Ireland, 31 Aug-2 Sept.
- Sheperd, C., Günter, H., Theuma, A., Meyer, J., Riedel, J. & Falck, M. (October, 2005): Evaluating the effectiveness of SCP collaborations. COST A29 – Human and organisational factors in industrial planning and scheduling, Working Group Meeting, Malta.
- Shepherd, C. (2005). Disestablishing the paradigms church, agnosticism and technological change. Doctoral thesis. The University of Sheffield, U.K.
- Shepherd, C. (2005). Enterprise Resource Planning. In N. Nicholson, P.G. Audia, & M. Pillutla. (Eds.), The Blackwell Encyclopedia of Management (Volume XI, Organizational Behavior). 2nd Edition. Oxford: Blackwell, p104.

- Shepherd, C. (2005). Lessons learned from SAP/HR and DATUM. UTP Conference, 4th - 5th April, Derby, U.K.
- Småros, J., Information Sharing and Collaborative Forecasting in Retail Supply Chains, Helsinki University of Technology Laboratory of Industrial Management, Doctoral dissertation series 2005/3, http://lib.tkk.fi/Diss/2005/isbn9512278286/isbn9512278286.pdf
- von der Weth, R. (2005). Planen aus psychologischer Sicht. In Ritter, E.-H. (Hrsg.) Handwörterbuch der Raumordnung. Hannover: Akademie für Raumforschung und Landesplanung. pp. 238-240.
- von der Weth, R. (2005). Reden ist Silber, Schweigen ist Gold. Metaphern der Kommunikationsthorie zur Bemeisterung der Praxis. In G. Hofinger (Hrsg.). Kommunikation in kritischen Situationen. Frankfurt a.M.: Verlag für Polizeiwissenschaften, p. 27-40.
- von der Weth, R. (2005). Wissen und Innovation in Unternehmen. In: D. Frey & C. Hoyos (Hrsg.) Wirtschaftspschologie. Weinheim: Beltz, pp. 420-426.
- von der Weth, R. (im Druck). Reorganisation im Personalmanagement. Herausforderung Komplexität. In: P. Wald (Hrsg.). Neue Herausforderungen im Personalmanagement. Wiesbaden: Gabler.
- Wäfler, T. (2005). Sociotechnical design of shopfloor planning and control. In: 18th International Conference on Production Research (ICPR-18). Conference Proceedings. Salerno, Italy. July 31 - August 4.
- Wehrli F., Développement d'un outil d'évaluation de ressources à l'aide d'indicateurs sur la base de critères intégrant les principes de logique floue, project report, EPFL-LGPP, July 2005.
- Wezel, van W.M.C. & Riezebos, J., Algorithmic support for human rail shunting planners, 18th International conference on Production Research, Salerno, Italy, august 2005.
- Wezel, W. van, (2005). Task oriented support for train shunting planning. In: Proceedings of the Second European Conference on Rail Human Factors, November 2003, London, UK.
- Wilson, J.R. and Norris, B.J. Rail human factors: past present and future. Applied Ergonomics, 36, 6, 649-660, 2005.
- Wilson, J.R. and Norris, B.J. Rail Human Factors: Past Present and Future. In: J.R. Wilson and B.J. Norris (eds), Rail Human Factors. London: Ashgate, 3-12, 2005.
- Wilson, J.R. Participation and its role in human factors. In: P.Carayon, M. Robertson, B. Kleiner and P.L.T. Hoonakker (eds) Human Factors in Organizational Design and Management – VIII, Proceedings of the 8th International Symposium, Maui, Hawaii, June 22-25, 53-62, IEA Press: Santa Monica, 2005.
- Wilson, J.R., Collaboration in Mobile Virtual Work: a Human Factors View. In: E. Andriessen and M. Vartiainen (eds). Mobile Virtual Work. Springer Verlag, 129-151, 2005.
- Wilson, J.R., Norris, B.J., Clarke, T. & Mills, A. (eds) Rail Human Factors: Supporting the Integrated Railway. London: Ashgate, 2005).
- Wilson, J.R., Pickup, L. Norris, B.J., Sharples, S. & Mitchell, L. Understanding of mental workload in the railways. In: J.R. Wilson and B.J. Norris (eds), Rail Human Factors. London: Ashgate, 309-318, 2005.


*So far published in 2006*

In 2006 members of A29 MC or A29 working groups have so far produced or have participated in producing 10 publications or reports:


- Farrington-Darby, T. & Wilson, J.R. The nature of expertise. Applied Ergonomics, 37, 1, 17-32, 2006.

- Fransoo, JC. & Corbett, JC., The entrepreneurial newsvendor, Working paper, Technische Universiteit Eindhoven, 2006.
- Houe, R., Grabot, B. & Geneste, L., Competence Management for Business Integration, in "Adaptive Technologies and Business Integration: Social, Managerial and Organizational Dimensions", M.M. Cunha, G. PUtnik, B.C. Cortes Eds, accepted january 2006.
- Kaipia, R., Korhonen, H. & Lakervi H. : Planning nervousness in a demand supply network: an empirical study, International Journal of Logistics Management, Vol. 17, No. 1, (2006).
- McKay, K.N. & Wiers, V.C.S. (2006). The Human Factor In Planning And Scheduling. In: J.W. Herrmann (Ed.), Handbook of Production Scheduling. New York: Springer.
- McKay, K.N. & Wiers, V.C.S. (2006). The Organizational Interconnectivity of Planning and Scheduling. In: R.J. Jorna, A.M. Meystel, W.M.C. van Wezel (Eds)., Planning in Intelligent Systems: Aspects, motivations, and methods. New York: Wiley.
- Riezebos, J. & Gaalman, G.J.C., Modeling expected inventory order crossovers, 14th international working seminar on production economics, Innsbruck, Austria, february 2006.
- Shepherd, C., Holman, D., Axtell, C.M., & Clegg, C.W. (2006). Changes in modern manufacturing practices. In W. Karwowski (Ed.), International Encyclopedia of Ergonomics and Human Factors. 2nd Edition. London: Taylor and Francis, pp. 2065-2069.
- Van Wezel, W., R.J. Jorna & A.M. Meystel (eds.) (2006). Planning in Intelligent Systems: Aspects, motivation, and methods. New York: John Wiley & Sons
- Wilson, J.R. and Norris, B.J. Human factors in support of a successful railway: a review. Cognition Technology and Work, 8, 4-14, 2006.


*Publications submitted or in press*

Members of A29 MC or A29 working groups have produced or have participated in producing 30 publications or reports that are submitted or currently in press:


- Cegarra, J. (submitted). A cognitive typology of scheduling situations: A contribution to laboratory and field studies.
- Cegarra, J., & Hoc, J.M. (submitted). Étude de l'expertise dans les stratégies de planification : les apports d'une situation complexe de terrain [Expertise in planning: A contribution from a field study in a complex situation].
- Cegarra, J., & Hoc, J.M. (submitted). Human-computer cooperation in scheduling: The role of algorithm and result comprehensibility on complacency.
- Farrington-Darby, T., Wilson, J.R. & Clarke, T. Expertise in rail network controllers. Accepted to appear in Ergonomics, 2006.
- Fischer, D., Fransoo, JC. & Moscoso, P., Human Planners, Planning Structure, and the Vertical Bullwhip, Working Paper, Technische Universiteit Eindhoven, 2006 (to be presented at IEA Conference, Maastricht, Netherlands)
- Günter, H. & Grote, G. (to be presented in July, 2006): Success factors of collaborative planning in supply networks, 16th World Congress on Ergonomics (International Ergonomics Association), Maastricht, The Netherlands.
- Günter, H., Grote, G. & Thees, O. (in press). Information technology in forestry supply networks: does it lead to better collaborative planning? Journal of Enterprise Information Management.
- Hacker, W. & von der Weth, R. (in preparation). Denken, Entscheiden, Handeln. In: P. Badke-Schaub, G. Hofinger & K. Lauche: Human Factors: Psychologie der Sicherheit.

Berlin: Springer
- Himdi, K. & Cheikhrouhou, N., Analysis and comparison of forecasting techniques applied to transportation, project report, EPFL-LGPP, feb. 2006.
- Holmström, J., Korhonen, H., Laiho, A. & Lakervi, H.: Managing product introductions across the supply chain: findings from a development project, forthcoming in Supply Chain Management: An International Journal
- Kaipia, R. & Lakervi, H.: Information-sharing in supply chains - five proposals on how to proceed, forthcoming in International Journal of Logistics Management.
- Kaipia. R. & Holmström, J.: Selecting the right planning approach for a product, forthcoming in Supply Chain Management: An International Journal.
- Riedel, R., Fransoo, JC. & Wiers, VCS., Modeling Dynamics in Decision Support Systems, Working Paper, Technische Universiteit Eindhoven, 2006 (to be presented at IEA Conference, Maastricht, Netherlands)
- Riedel, R., Mueller, E.: Mastering globalisation - meeting new challenges for planning and operations management. 16th International Conference on Flexible Automation and Intelligent Manufacturing (FAIM) 26.-28.06.06 Limerick
- Riedel, R.: Cultural aspects in production management. International Journal of Production Economics (submitted)
- Riedel, R.; Fransoo, J.C.; Wiers, V.C.S.: Modelling Dynamics in Decision Support Systems. 16th World Congress on Ergonomics, 10.-14.07.06 Maastricht
- Riedel, R.; Mueller, E.: Production Management and Supply Chain Management in a global context. International Journal of Manufacturing Technology and Management (submitted)
- Riezebos, J., Inventory order crossovers, International Journal of Production Economics, Articles in Press
- Sheperd, C. & Günter, H. (to be presented in July, 2006): Performance measurement in supply networks, 16th World Congress on Ergonomics (International Ergonomics Association), Maastricht, The Netherlands.
- Shepherd, C. & Günter, H. (in press): Measuring supply chain performance: current research and future directions. International Journal of Productivity and Performance Management.
- Shepherd, C. (in press). Constructing enterprise resource planning: A thoroughgoing interpretivist perspective on technological change. [special section - beyond positivism and statistics: neglected approaches to understanding the experience of work], The Journal of Occupational and Organizational Psychology.
- Van Wezel, W. & R.J. Jorna. Cognition, tasks, and planning; supporting the planning of shunting operations at Netherlands Railways. Accepted for publication in Cognition, Technology, and Work.
- Van Wezel, W., D.P. van Donk & G. Gaalman. The Planning Flexibility Bottleneck in Food Processing Industries. Accepted for publication in Journal of Operations Management
- Von der Weth, R. (in print). Der Grenzraum als klassisches Feld von Chancen und Konflikten. Conference proceedings. Wissenschaftlichen Tagung der Akademie für Regionalforschung und Landesplanung, Ravensburg. Hannover: Akademie für Raumforschung und Landesplanung
- Von der Weth, R. (in print). Die Sinnlichkeit des Wissens und die Weisheit der Dinge. In: P. Sachse & W. Weber. Neuere Entwicklungen der Tätigkeitspsychologie (Arbeitstitel). Zürich:vdf.
- Von der Weth, R., Richter, P., Riedel, R. & Weinert, S. (in print). Human oriented design and planning, Proceedings of ISSADHF 2006.
- Von der Weth, R.; Richter, P.; Riedel, R.; Weinert, S.: Human oriented design and planning. 9th International Symposion of the ISSA Research Section, 01.-03.03.06

Nizza
- Wilson, J.R. & Farrington-Darby, T. (2006). Work Analysis for the cognitive and social settings of scheduling and control. Accepted for IEA 2006, Maastricht.
- Wilson, J.R., Dawson, W., Farrington-Darby, T., Norris, B. & Cheng, P. (2005) Domain analysis in bakery scheduling: a model-driven, design-oriented ethnographic enquiry. In preparation for Journal of Operations Management.
- Wilson, J.R., Dawson, W., Jackson, S., Norris, B. & Cheng, P. (2006). Using their loaf: the skill of bakery schedulers. In preparation for Cognition Technology and Work.

**ANNEX 2: Specification HOPS website**

## I. Web site for HOPS

**Content**
According to table below.

A simple and straightforward layout, fast to download, comparable to other actions websites.

A structure of the content that is easy to navigate in, similar structure for MC, WGs and human factors workshop as well as additional initiatives.

**Priorities**
The different contents of the website are differently prioritised.
1 means that it should be included as soon as possible
2 means that it should be strived for to be included.
3 means that it may be included if found applicable.

**Technology**
The website can be hosted by Wout von Wezel in his private company's web server.
Wout will take care of the necessary programming and the practicalities necessary for putting the web site into operation since he has the necessary knowledge for managing this job.

**Cost**
It is expected to be decided that a sum of € 2000 will be possible to reserve for maintaining the website during the next year. This will then cover the expenses for putting the website into operation.