



CIRP-2003-"ECN"-2

**JOINT WORKING GROUP ON
"ENGINEERING AS COLLABORATIVE NEGOTIATION"**

Meeting held on August 28th, 2003
in Montreal, Canada

MINUTES

PRESENT*: Stephen C-Y. LU (Chair); Robert WILHELM (Vice Chair); Torsten KJELLBERG; Ann KJELLBERG; Kazuo YAMAZAKI; Paul XIROUCHAKIS; Paul MAROPOULOS; Masahiko MORI; Jiancheng LIU; Jozsef VANCZA; Laszlo MONOSTORI; Li SHU; Peihua GU; Roberto TETI; A. Galip ULSOY; Warren De VRIES; Srichand HINDUJA; Mitchell TSENG; Daniel BRISSAUD; Joost DUFLON; Fumihiko KIMURA; George HUANG; Jacob; BARTAK; Deba DUTTA; Pedro CUNHA; Tom CHILDS; Jay LEE; Guenther SCHUH; Frederic NOEL; Serge TICHKIEWITCH; Mujin KANG; Gideon N. LEVY; Luc LAPERRIERE; Hans-Peter WIENDAHL; Giovanni PERRONE; Dariusz CEGLAREK; H.J.J. KALS; Waguih H. ELMARAGHY; Hoda A. ELMARAGHY; K.K.B. HON; Janez PEKLENIK; Gene MERCHANT; Francesco JOVANE

*. There were about 55-60 people attended the meeting. Many who came in late did not sign their names.

1. The meeting started at 16:00. S. Lu introduced the agenda, and all attendees approved the agenda.
2. Opening Remarks:
 - a. S. Lu made opening remarks regarding the formation of the ECN WG. (See attached PowerPoint file)
 - b. Remarks on historical perspective – Prof. J. Peklenik
 - i. 30 years of progress in technical aspects of control systems, but very limited support for human interaction within these systems.
 - ii. Human competence = knowledge + experience.
 - iii. Negotiation is the key to support human competence in manufacturing systems.
 - c. Remarks on industrial perspective – Mr. M. Mori

- i. 50% of value of a machine tool result from engineer's knowledge – other 50% is consumed by purchased materials and subsystems.
 - ii. Strong market forces: customers demand much more features at lower price. Demand for quantity of machine tools is decreasing.
 - iii. Negotiation is occurring at all steps of sales, engineering, and delivery cycle – negotiating and knowledge management methods are key issues.
 - d. Remarks on educational perspective – Prof. G. Ulsoy
 - i. Engineering education may be deficit in skills needed for quick progress into leadership roles.
 - ii. ECN and negotiating skills can be a driver for improved engineering education in the future.
- 3. S. Lu spoke on “What is ECN?”, “Why should we discuss ECN at CIRP?”, and “What are the goals of this ECN-WG”. (See attached PowerPoint file)
- 4. Remarks by Prof. Kals regarding gap between analysis and synthesis in engineering, and conflict between abstraction and decomposition in science. This gives great opportunities to ECN, which should focus on both engineering and research methods.
- 5. S. Lu showed draft ECN Website. (See <http://mspde.usc.edu/ecn>) and invited all attendees to actively contribute to the contents of this website, which will be the core of a virtual ECN research community.
- 6. Slate of officers and liaisons introduced with concurrence from attendees.
 - a. Stephen Lu – Chairman
 - b. Robert Wilhelm – Vice Chairman
 - c. Waguhi H. ElMaraghy – American Liaison
 - d. Paul Maropoulos – Europe Liaison
 - e. Fumihiko Kimura – Asia Liaison
- 7. Prof. Kals suggests a roadmap with priorities be established to focus the effort. S. Lu agreed to draft an ECN research roadmap, and post it on the ECN website. He invited members to contribute to the creation of this important information. The roadmap will be a topic of discussion for the January meeting.
- 8. Prof. P. Gu suggested that further presentations with similar ECN contents be made at the general assembly so that more CIRP members can be made aware of this new approach – S. Lu suggested that this wait until a keynote paper, based on the results of this WG, is offered in 2007.
- 9. Prof. Levy had some comments that this WG will be focused on consulting activity and not on “real” engineering. Prof. Levy offered to send another story about consulting engineering that can be used in further discussions.
- 10. Prof. Kals suggested that ECN use current STC/O and STC/Dn events as vehicles for future ECN discussions
- 11. Prof. Tseng suggested that we engage more social scientists from other disciplines in engineering negotiation studies. When possible we should use techniques that have already been developed. We need to have “mutual” educations. S. Lu agreed to invite experts in negotiation research from other fields to future meetings.
- 12. Brief story about engineering negotiations from Prof. Hon on cotton trading transactions.
- 13. Prof. W. ElMaraghy suggested that some time should be spent to clarify key terms and basic definitions that we use in future ECN discussion. Prof. Kals cautions that

we should not try to reinvent problems and solutions that already exist. S. Lu proposed to all members to conduct a series of literature surveys and comparative studies between traditional engineering approaches and ECN.

14. Prof. Wiendahl suggests that some thoughtful evaluation be made of this new approach. He suggests that we focus on system problems that we already have experience with, and seek correlations between this new thinking and our old experiences.
15. S. Lu invited CIRP colleagues to make active contributions to the contents of the ECN-WG website.
16. P. Maropoulos suggested that liaison leaders make some studies of correlation with related areas to discuss at the January meeting.
17. Attendees agree that ECN should report to STC-A (L) as well. The Chair of STC-A, Prof. Altung, agreed. S. Lu will bring this up with the liaison committee.
18. The meeting ended at 18:20.

Action Items

- S. Lu to discuss reporting to STC-A (L) with the liaison committee.
- S. Lu to draft a roadmap for WG activities and post on the ECN website before 30 November 2003.
- Need to identify Webmaster for ECB website.
- Liaison leaders make some studies of correlation with related areas by 30 November to discuss at the January meeting.

Attachments

- PowerPoint file used at ECN WG presentation (S. Lu)