

SIMPPLE

System for Integrated Monitoring of environmental Parameters and PoLution in Europe

Warsaw University of Technology presentation:

Politechnika Warszawska, (PW) (Warsaw University of Technology) is the largest technical university in Poland, established in 1826, having more than 30,000 students and about 2,500 teaching staff. The education programme covers all fields of technology, architecture included. It is divided into 17 Faculties, each being divided into Institutes or Departments. The University takes part in many national and international research and education activities, in 60 FP5 projects and declared participation in many FP6.

The problems of sensors, sustainability of environment and application of computer science and electronics in these fields have been developed at PW since a long time. The last activities are: co-ordination of the FP5 R&D project SEWING (System for European Water Monitoring), which is successfully going on and will be concluded in August 2004 and COMBAT – Centre of Excellence in the domain of microsystems, including sensors.

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Three Faculties take part in these activities:

The Institute of Electronic Systems at the Faculty of Electronics and Information Technology is involved in research and education in the fields of: integrated circuits design and optimisation, bio- and medical electronics, measurements and sensors, microwaves and signal processing. Department of Analytical Chemistry, the Faculty of Chemistry is involved in chemical sensor theory, fabrication and applications. Finally Faculty of Environment Engineering is involved in applications of these results in environment monitoring.

So it can be stated that Politechnika Warszawska is highly qualified in the research and applications of environment monitoring systems.

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- Strategic objectives:**

- Tackling the fragmentation of experts and of solutions obtained by them in the field of environment monitoring**

- Finding the best solutions in the area of sensors, data fusion and aggregation, data transmission, visualisation and forecasting, which can be used in environment monitoring concerning water, air, soil, noise, electromagnetic fields, radiation and influence on climate changes.**

- Finding possible standard solutions, which will give results of environment monitoring well understandable for all European institutions, including governments and regional authorities, responsible for maintenance of ecosystem balance.**

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ABSTRACT

The proposed Network of Excellence (NoE) is an item of research of many institutions in Europe. Different environmental parameters in water, air and soil as well as noise, radiation and electromagnetic pollution are measured or monitored by different kind of sensors and data obtained processed transmitted and visualised in different ways and used for modelling and forecasting also for climate changes. Some parameters are not monitored; there is a redundancy for others. This NoE should integrate the efforts of most institutions involved in the problem and give as an effect a unified system of monitoring and forecasting, broadly available, easy to maintain and understandable for most users. Sensors, measurement, data processing, transmitting and visualisation can be standardised and generally available. It will create a tool for reaching the goals of Sub-Priority 1.1.6.3, item VI.1.a of FP6, using the methods listed in Priority 1.1.2. The network will enable mutual contacts, exchange of experience, scientists and equipment, giving as an effect unified and integrated system with standard hardware and software. The effect will be important for national and regional environment authorities for easy monitoring of environment.

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FP6 Priorities

1.1.6.3: Global Change and Ecosystems

**VI: Operational forecasting and modelling including climate change
Observation systems**

VI.1: Development of observing and forecasting systems

VI.1.a: Earth system observation (one NoE in 2004)

**This includes: integrated development of terrestrial, marine and
atmospheric observation. Implementation of multiplatform systems .
The optimum use of both in-situ and remote sensing instruments
and data. Socio-economic benefits.**

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Topics of SIMPPLE

Environment level	Water (W)	air (A)	soil (VS)	noise (N)	elect.magn.fields & radiation (ER)
sensors (S)	WS	AS	SS	NS	ERS
data fusion & aggregation (DF)	WDF	ADF	SDF	NDF	ERDF
data transmission & networking (DT)	WDT	ADT	SDT	NDT	ERDT
data visualisation (DV)	WDV	ADV	SDV	NDV	ERDV
Modelling & forecasting (MF)	WMF	AMF	SMF	NMF	ERMF

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Work-Packages:

Management – Politechnika Warszawska

Sensors (S) – LAAS-CNRS

Data Fusion and aggregation (DF) – LogicDis

Data Transmission (DT) – Yeditepe Univ.

Data Visualisation (DV) – Aristotle Univ.

Modelling & forecasting - vacat

Water (W) – Verbundplan

Air (A) – Univ. of Heidelberg

Soil (VS) vacat

Noise (N) – Technical Univ. of Gdansk

Electromagnetic field and Radiation (ER) – INOE

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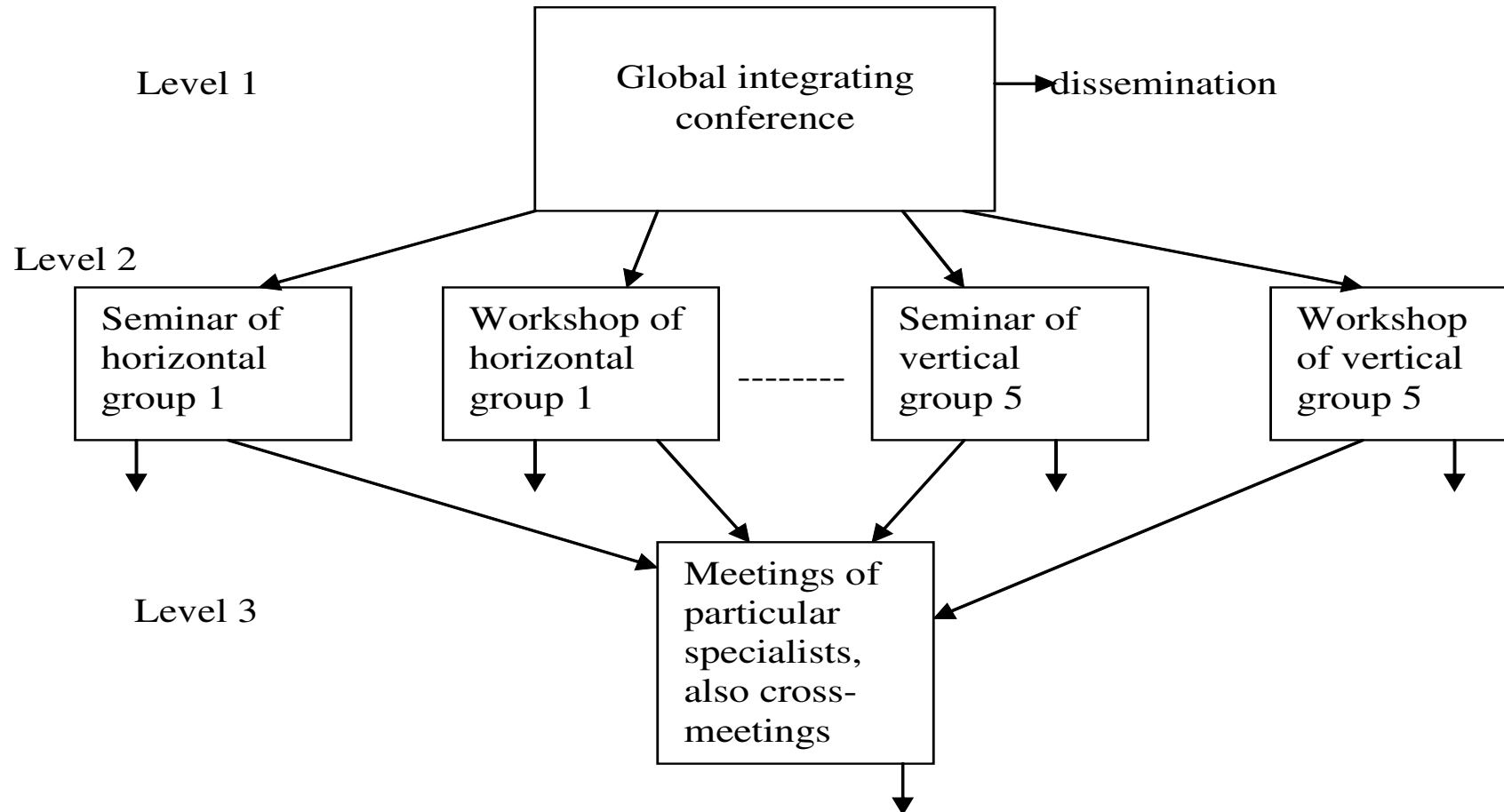
The following activities are possible in realising this NoE:

- **Exchange of experience in the environment monitoring area**
- **Organising workshops, seminars and conferences**
- **Editing printed and internet materials**
- **Standardisation of sensors used for different purposes**
- **Standardisation of software for processing data from sensors**
- **Standardisation of data transmission methods**
- **Standardisation of visualisation methods**

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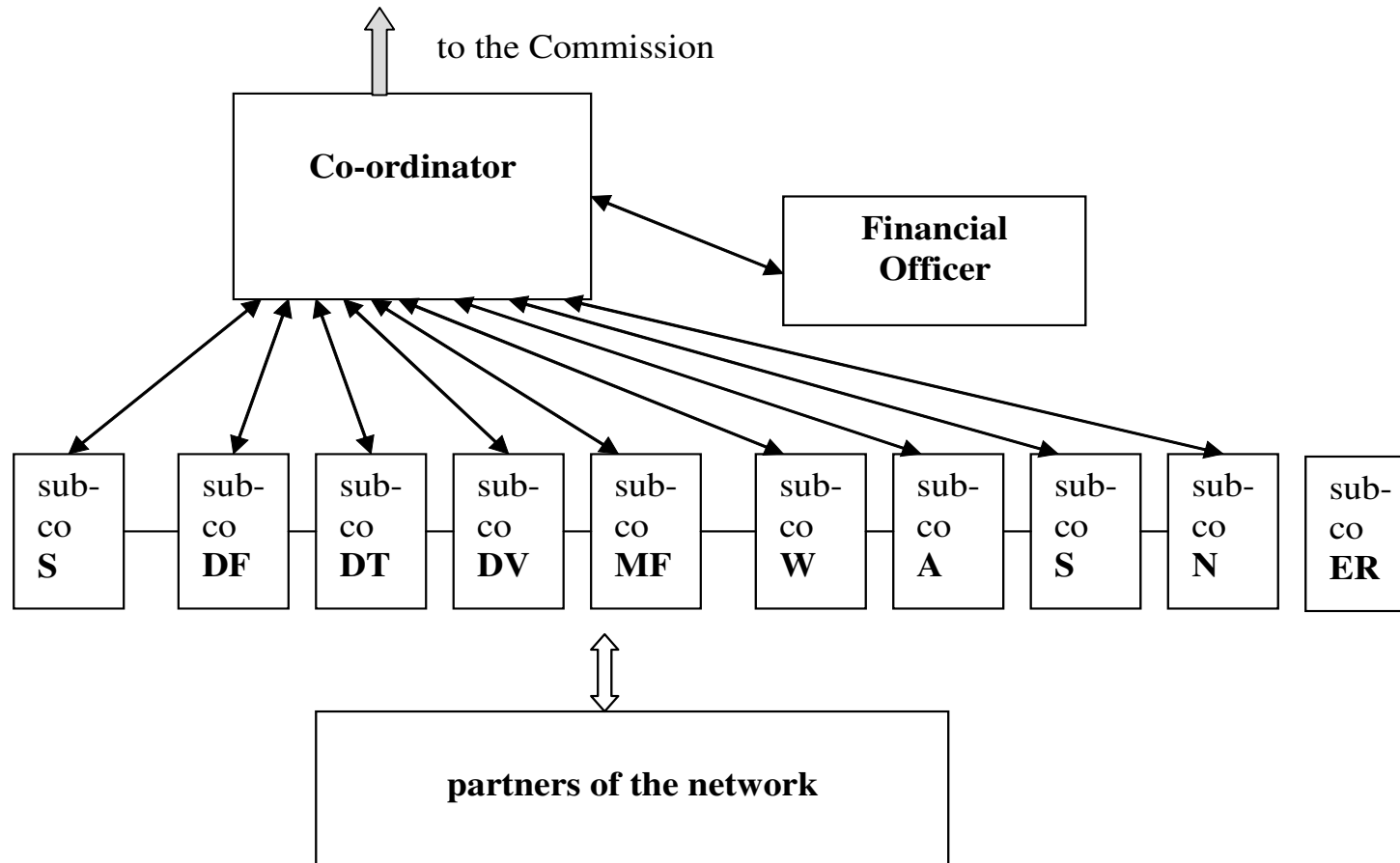
Integration of knowledge



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MANAGEMENT



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List of interested partners:

- 1. Politechnika Warszawska, PL**
- 2. Institute of Electron Technology, PL**
- 3. Technical University of Lodz ,PL**
- 4. Centrum EMAG, PL**
- 5. Gdansk University of Technology, PL**
- 6. Mining Mechanisation Centre KOMAG, PL**
- 7. Silesian University of Technology, PL**
- 8. Institute of Nuclear Physics, PL**
- 9. University of Gdansk, PL**
- 10. Ericpol Telecom, PL**
- 11. Muficata, ES**
- 12. Centro de Edafologia y Biologia Aplicada del Segura, ES**
- 13. Instituto Tecnologico de Canarias SA, ES**
- 14. Gaiker Centro Tecnologico, ES**
- 15. Technical University of Madrid. ES**
- 16. UPC, Barcelona, ES**

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List of interested partners:

17. LogicDIS S.A., GR

18. Computer Technologies Co. S.A., GR

19. IDEC, GR

20. National Centre for Scientific Research, DEMOKRITOS, GR

21. ANKARA University, TR

22. Canakkale Onsekiz Mart University, TR

23. Yeditepe University, TR

24. National Institute of R&D for Optoelectronics, RO

25. IPA CIFATT, Craiova, RO

26. National Institute of Research and Development, Cluj, Ro

27. University Dunarea de Jos from Galati, RO

28. Systea, Rome, IT

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29. TIN - IT

30. University of Genova, IT

31. University of Catania, IT

32. Institut fuer Chemo- und Biosensorik, Muenster, DE

33. ICS - Roscher GMBH, DE

34. Verbundplan, Vienna, AT

35. Joanneum Research, AT

36. Centre National de la Recherche Scientifique, FR,

37. CIMRS, SI

38. Instituto de Soldadura e Qualidade, Portugal

39. NIVA, Bergen, NO

40. CTI, IL

41. Robert Gordon University, UK

42. Environmental Network Ltd, UK

43. Developa Consult, BG

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State of the art.:

- The project is of two-stage type. The first 20-pages draft of proposal is ready.**
- The dead line is October 7**
- EPSS on-line submission was chosen with off-line proposal preparation**
- The partners are still under decision. About 35 is now ready to participate**