

IONMET

A Step Change in Metal Finishing

4 year Integrated Project

**Dr Khalid Shukri
Genacys**

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Birmingham**



Introduction

- AIM: To develop new techniques for the deposition and dissolution of metals using ionic liquids.
- EU funded project worth €12.3M with €7.1M of actual funding
- There are 33 partners involved in the project
- Industrial SME's 19 (58%)
- Research Organisations (ROR) 4
- Higher Educational Institutes (HEI) 5
- Trade Associations (ASS) 2
- Industrial non-SME's (IND) 3
- Project began April 05 and will run for 4 years



Introduction

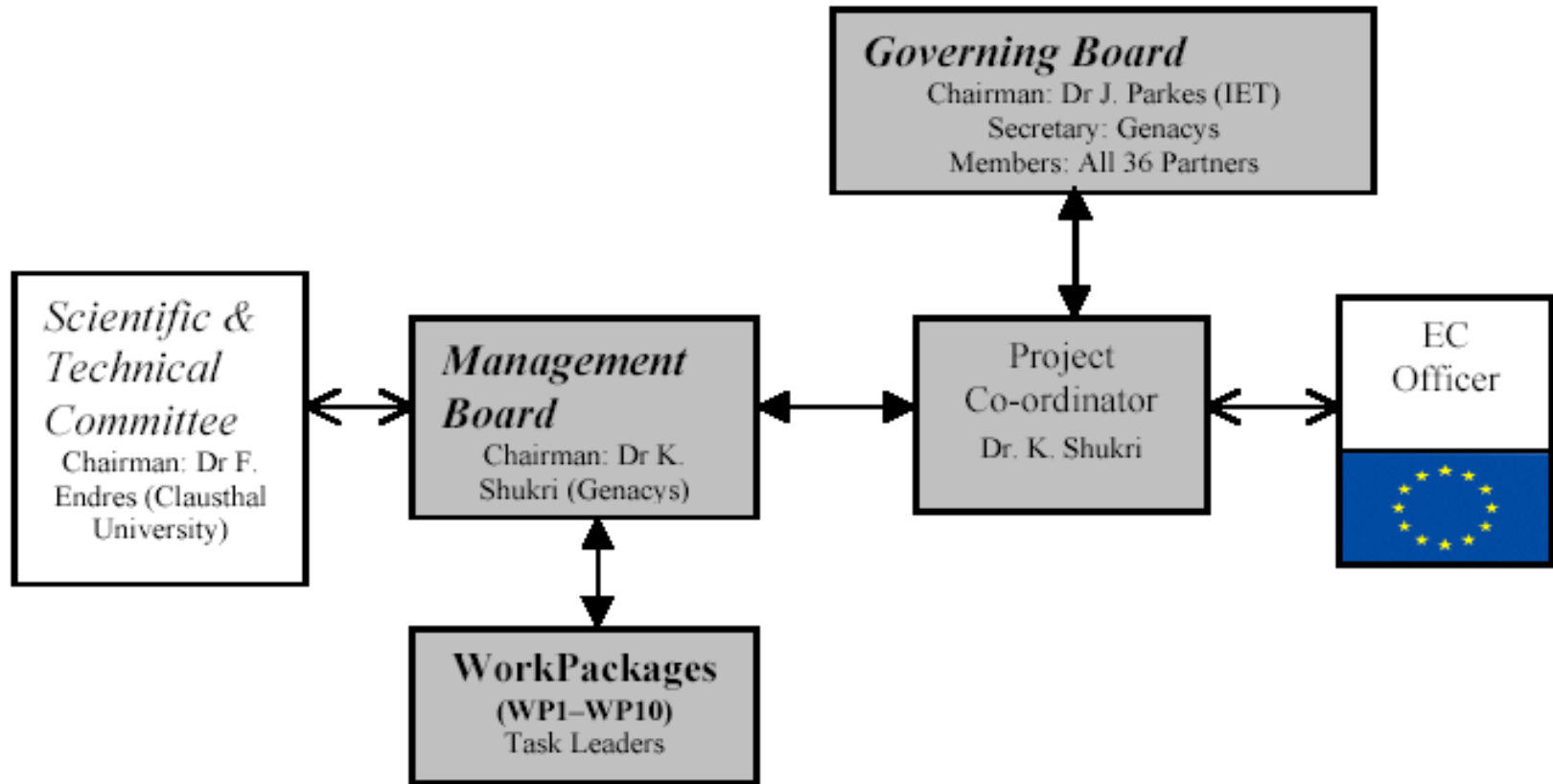
IONMET Project

- United Kingdom 7
- France 7
- Germany 5
- Spain 4
- Ireland 3
- Belgium 2
- Cz Rep 1
- Italy 1
- Netherlands 1
- Poland 1
- Portugal 1

33 Partners

11 Countries





Governing Board

Chaired by Dr Jim Parkes (IET)

The role of the Governing Board is strategic planning and overall direction of the project

Meetings to be held once every 6 months

All Partner members will nominate one person to the Governing Board



Management Board

Dr Khalid Shukri of Genacys (chairman)

Dr Ian Dalrymple of C-Tech Innovation Ltd

Prof. Andrew Abbott of the University of Leicester

Dr Inaki Azkarate of Inasmet

Dr Sophie Mailley of CEA

Mr Jacques Halut of Protection Des Metaux

Dr Uwe Koenig of Trade Association DGO

The Management Board shall be responsible for defining and executing the project management procedures. Meeting to be held once every 6 months.



Scientific & Technical Committee

University of Leicester, Prof Andy Abbott (chairman)

Clausthal University

University of Leicester

ARMINES Ecole des Mines de Saint Etienne (JRU)

Protection des Metaux

Rohm and Haas

Galvanotecnia Derivados

DGO

Group Mecachrome

Institute of Non-Ferrous Metals

Poeton Ltd

Porto University



Scientific & Technical Committee

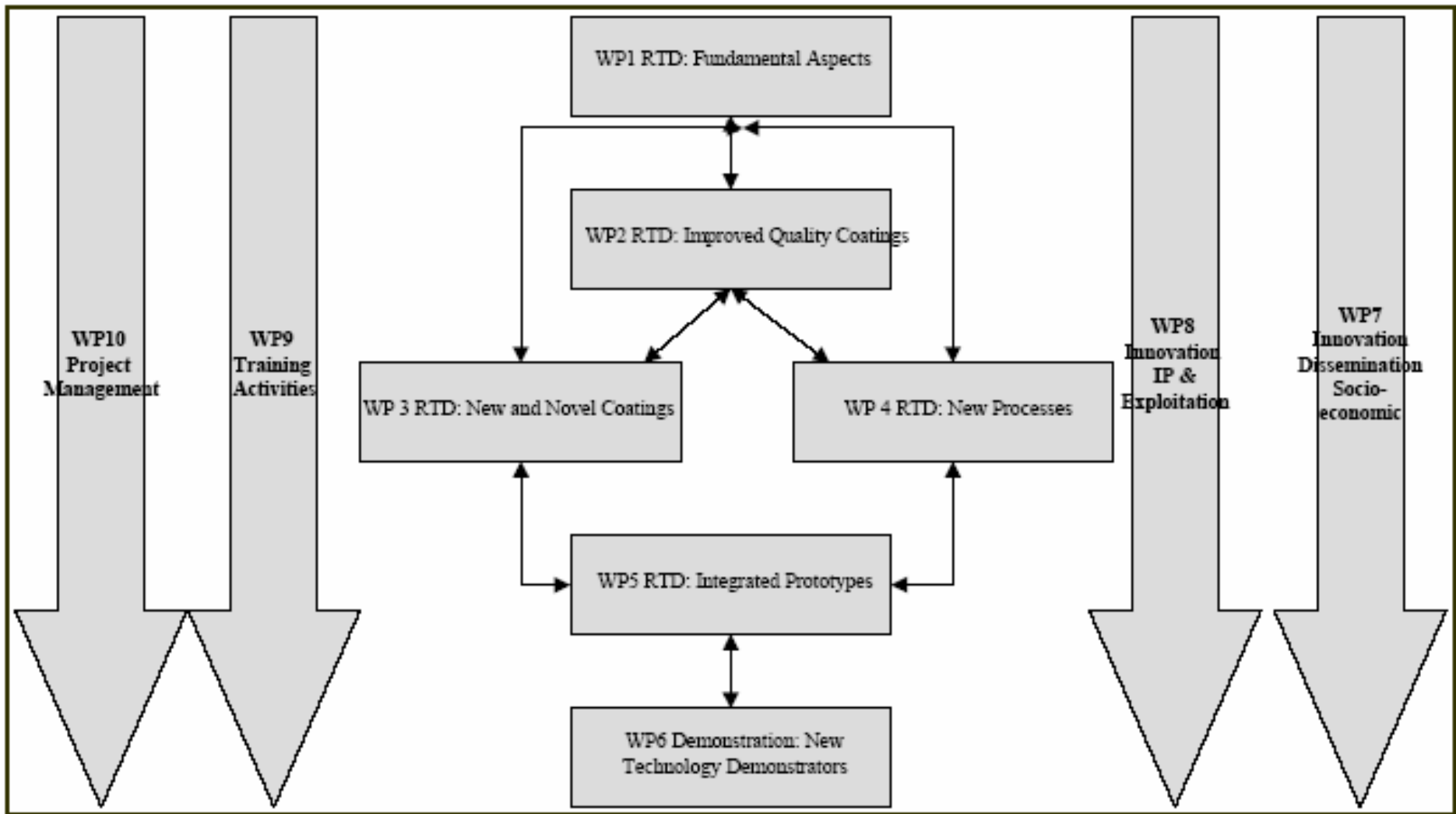
The role of the S&T Committee will be to give advice to the management board relating to all technical issues

Propose new novel ideas to help further progress the project

The Committee is not part of the decision making process, but interfaces with the Management Board to provide S&T advice and carry out tasks

Meeting to be held once every 3 months





Objectives

- To develop new techniques for the deposition and dissolution of metals using ionic liquids
- To commercialize a new group of ionic liquid solvents as drop-in replacement technologies



Objectives

- **Fundamentals**
 - Understanding ionic liquids, metal nucleation, developing new liquids
- **Improved coatings**
 - Application of ionic liquids to coatings currently deposited from aqueous solutions
- **New materials**
 - Deposition of new coatings that can not be obtained from aqueous solutions
- **New Processes**
 - Use of ionic liquids for new metal finishing processes e.g. electropolishing, electroless deposition



Summary of progress

- A very strong network established between partners
- Initial results show great potential for commercialisation
- New liquids have been made on a large tonne scale
- five pilot plants being built for silver coating, Cr, Al & alloy plating and electropolishing processes
- Nano-silver electroless deposits (100 nm) for PCB : improvement in solderability, reduction of corrosion and process temperature.
- Cr coatings using Cr(III) salts have been successfully produced. Thick and hard chrome deposits developed.
- Electrodeposition of Zn and a number of commercially Zn containing alloys: Zn/Ni, Zn/Sn, Zn/Fe and Zn/Cu.
- Electropolishing stainless steel which produced better finish on cast steel pieces than on sheet steel
- Al coating on steel with good adhesion and cohesion
- Three training events successfully run

