Knowledge and Technology Transfer at CERN

C. Parrinello, DG-KTT

Introduction

CERN is a **Knowledge Factory.**

Leading-edge **know-how** is generated at CERN all the time, both in fundamental physics and in areas of direct interest to industry and society at large.

Why Knowledge and Technology Transfer?

- Effective knowledge transfer between individuals and/or institutions is a key success factor for most technology transfer (TT) projects.

- Knowledge transfer activities (in particular training and mobility programmes) enable CERN to deliver considerable value to Member States.

Our Mission

1. Identify CERN knowledge which is “transferable” to the external world (industry in particular).

2. Enable and/or facilitate the transfer process.

5. Protect CERN intellectual property whenever appropriate through patents, etc.

Our Assets

1. Very diverse and versatile technology portfolio. Main application domains: health sector, material analysis, renewable energies, Information and Communication Technologies (ICT).

2. Strong track record at creating mobility initiatives and delivering high-level training.

3. Demonstrated capability to act as a coordinator and a driving force in high-profile global projects, e.g. ENLIGHT (Hadron Therapy), SCOAP (Open Access), etc.

Transfer Modes

- Licensing of intellectual property and consulting
- Joint R&D with external partners
- CERN training programmes and personnel mobility
- Procurement activities

Licensing, Consulting, Joint R&D

- Fast track towards product development

- In general, non-exclusive licenses are granted

2009: CERN will work towards defining a comprehensive Intellectual Property Management policy, including a specific policy towards spin-offs.

Training and Mobility

- Over 1200 people every year go through CERN Fellows, Associates and Students (FAS) Programmes

- FAS Programmes contribute to generating a highly skilled recruitment pool for Member State industry

2009: Projects joining technology transfer and mobility deliverables may qualify for specific funding schemes from the European Commission. CERN will be monitoring opportunities.

Knowledge & Technology Transfer through Procurement (1/3)

E. Autio, M. Bianchi-Streit, A. Hameri, CERN-2003-005 (yellow report)

Survey of companies involved in technology-intensive procurement contracts with CERN (1997-2001)

178 questionnaires analyzed, related to 503 MCHF procurement budget

Knowledge & Technology Transfer through Procurement (2/3)

As a result of participating in CERN procurement activities, companies can benefit in terms of

- Technological learning,
- Organizational capability development,
- Market learning,
- Marketing reference.

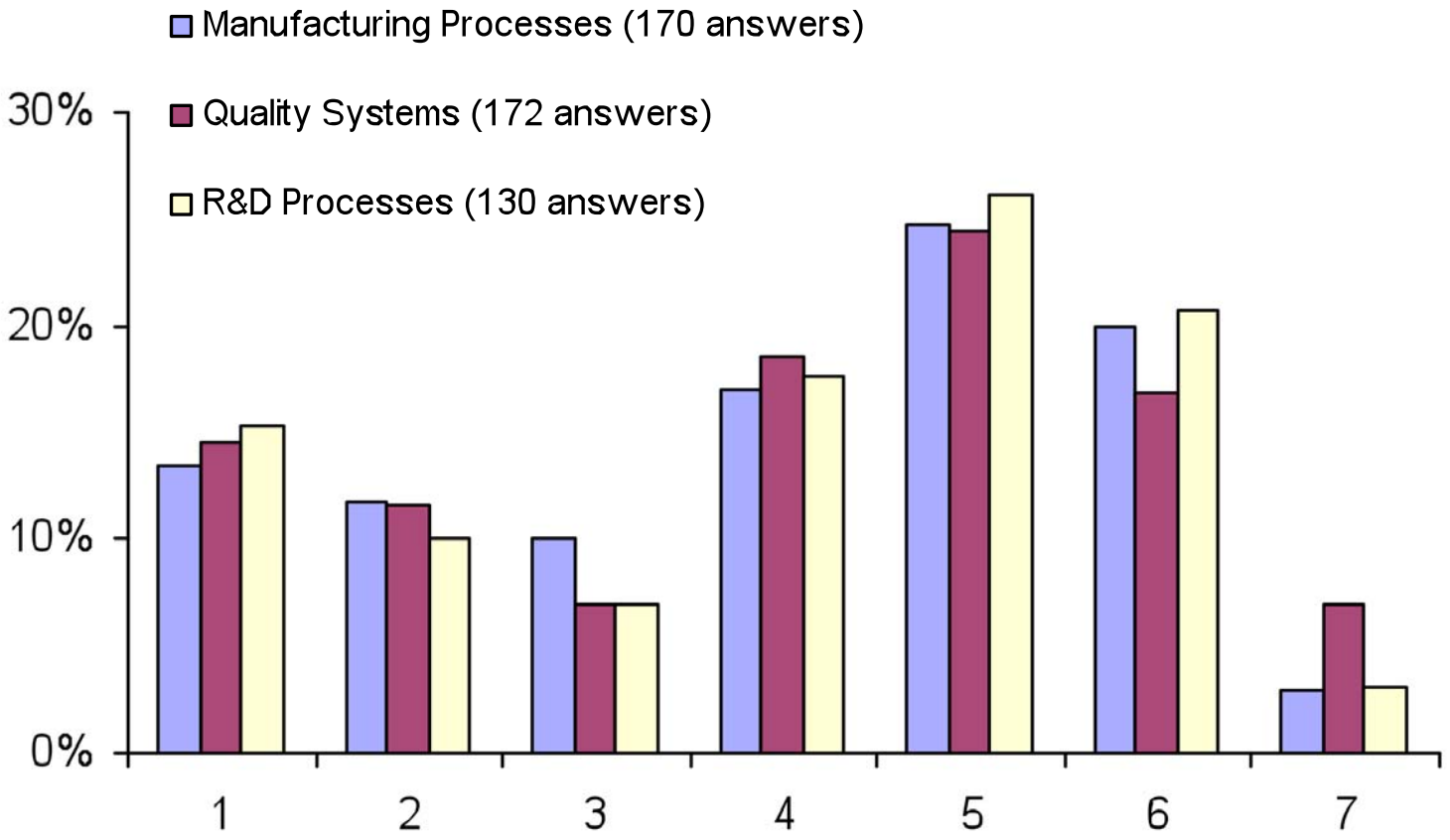
Knowledge & Technology Transfer through Procurement (3/3)

Survey results:

- 44% indicated technological learning
- 42% increased their international exposure
- 38% developed new products
- 36% indicated market learning
- 13% started new R&D teams

- 52% would have had poorer sales performance without CER N
- 41% would have had poorer technological performance

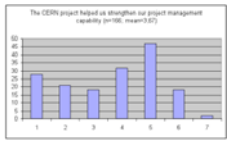
Company estimated improvements



1= disagrees, 7=strongly agrees

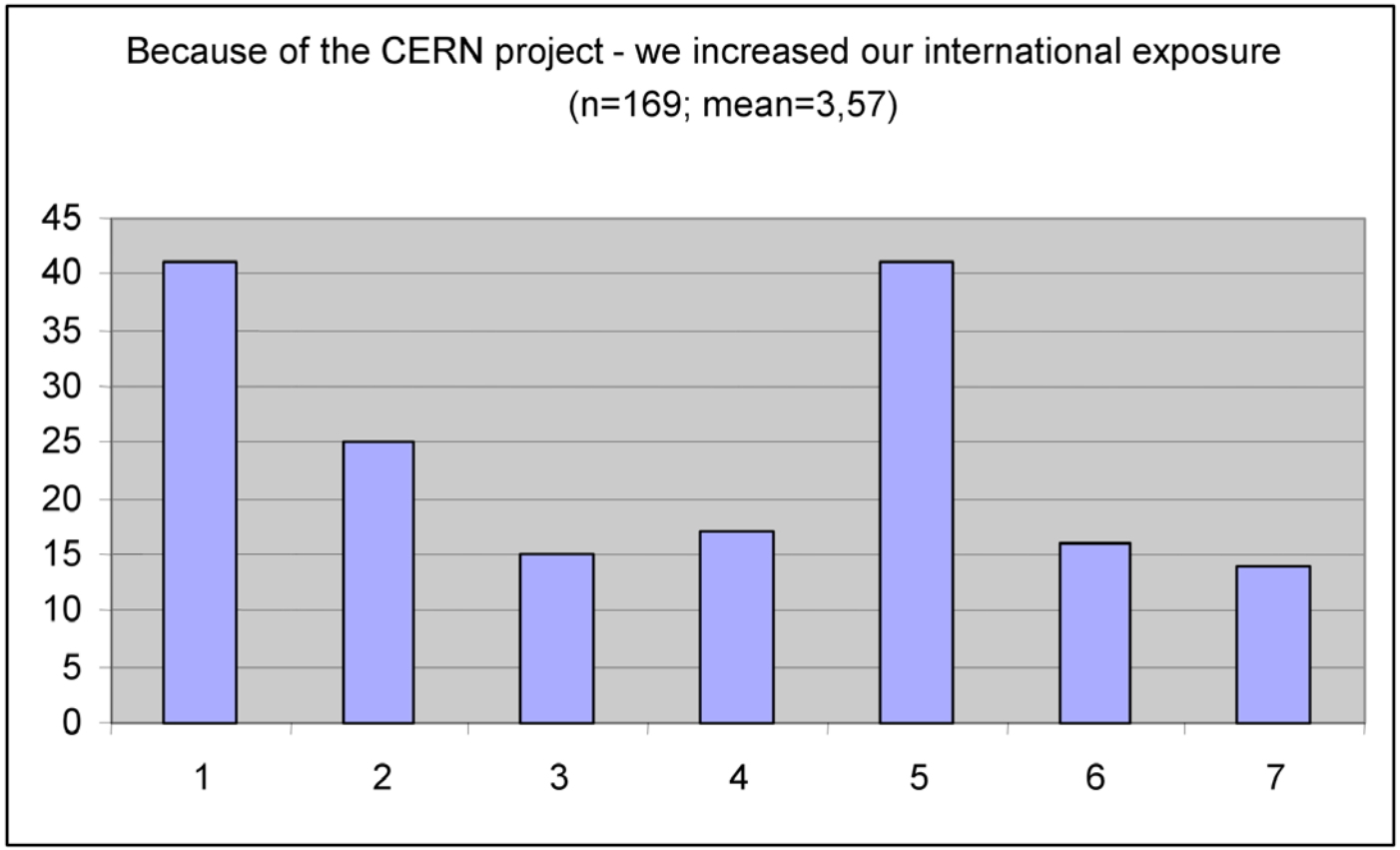
Number of new products developed as a direct outcome of the CERN project

Project Management Improvement



1= disagrees, 7=strongly agrees

Increase in international exposure



1= disagrees, 7=strongly agrees

Knowledge & Technology Transfer Facilitators

Increase worldwide visibility of CERN Knowledge & Technology portfolio and facilitate access to it, by:

a) Setting up a CERN « Alumni » program, as a powerful tool to advertise and generate additional opportunities for KTT activities.

c) Offering Member State institutes and companies a simple, direct and free communication channel with CERN, providing them with timely information on KTT opportunities through a newsletter.

d) Creating networking activities linking CERN Alumni and Member State institutions, in particular for recruitment purposes.

Conclusions

The KTT Group aims to implement a proactive and combined approach to Knowledge & Technology Transfer.

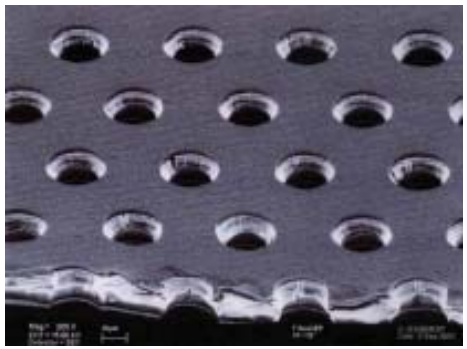
Specific initiatives will be launched in 2009, aiming to increase the visibility of CERN Knowledge & Technology portfolio and to facilitate access to it for Member State companies.

Technology Example

Microvias in multilayer PCBs

Microvias are microscopic holes (usually ~ 70µm), interconnecting adjacent layers of Printed Circuit Boards (PCBs). Microvias enable The production of high density, cost-effective printed PCBs.

Benefit's of CERN's patented method for producing microvias:



- Low initial investment and production cost.
- Much shorter hole production time as compared with other microvia processes.
- Vias of several possible dimensions, from microns to centimeters.
- Process compatible with all standard PC assembly lines.