



VTT TECHNICAL RESEARCH CENTRE OF FINLAND  
VTT TECHNOLOGY STUDIES



## Internationalisation of R&D

# Recent Trends and Arising Policy Challenges for the Future

**Six Countries Programme (6CP) workshop 17 - 18 June 2004,  
Helsinki, Finland**

Hosts:  
VTT Technology Studies, and  
National Technology Agency (Tekes)

## Background of the workshop

Science and technology (S&T) are among the primary factors influencing the global competitiveness of companies and, ultimately, the welfare of citizens in developed and developing nations. S&T are inherently global in nature and the interaction between the growing importance of S&T and internationalisation is apparent in many ways. For example, large multinational firms have played a key role in the generation and diffusion of new technological knowledge (e.g. Reger 1998). The current and future competitiveness of companies is largely based on the knowledge content of products as addressed by comparative studies of R&D intensive high-tech products (e.g. SEC 2001). Global mobility of scientists and the utilisation of their expertise - independent of their location - is expected to expand worldwide.

In analysing the internationalisation of R&D we do not start from a vacuum - a lot of experiences already exist e.g. in enterprises, in multinational companies in particular, and from the policy perspective e.g. from R&D framework programmes in the EU. Some good overviews on the topic have been completed as well and, for example, according to the OECD (1998), R&D performed abroad and by foreign affiliates represents an average of well over 12% of total expenditure on industrial R&D in the OECD area. The workshop topic is of importance and relevance from the following two perspectives that focus on the actors in the internationalisation process.

### **The company perspective**

First the internationalisation of R&D relates to the strategic foreign direct investments (FDI) of multinational and other enterprises. Companies make worldwide, cost-driven comparisons and decisions in relation to the location of production activities and headquarters on the basis of cost factors, attractive new markets and a competent, skilled labour force. An important part of these considerations are the worldwide (re)location opportunities of R&D activities. Expectations of foreign R&D may relate to strengthening the ability of firms to increase their

sales abroad, expanding their overall resources and investment, absorbing foreign technology more effectively and the availability of a highly-skilled labour force, and supporting manufacturing operations as well as designing and developing products for local markets (e.g. Andersson 1998; Odagiri and Yasuda). With the increasing importance of knowledge-intensive high-tech products to competitiveness, highly-skilled plus the low-cost labour e.g. of some South and East Asian countries becomes an attractive option. The implications of these developments are of importance not only to the business or knowledge strategies of enterprises but also to the technology policies of the countries in question.

However, the internationalisation of R&D is a complicated issue. For example, although dependence on the location of R&D staff and facilities (also driven by ICT) may decrease, the cultural, thrust and respective ties of companies to their home country may favour remaining in the country of origin. Besides big companies, small and medium sized enterprises (SMEs) face the influence of R&D globalisation as well. Small, innovative companies are in many cases global (e.g. VTT Technology Studies 2003), but supplier and end-producer medium and low tech SMEs are more domestic-oriented. Moreover, among other things the internationalisation of R&D challenges the traditional modes and procedures of intellectual property rights (IPR).

### **The policy perspective**

Secondly, the internationalisation of R&D challenges the traditional national, regional and supra-national (such as the EU) technology and innovation policies. The internationalisation of R&D raises the needs to reconsider, renew and extend traditional technology and innovation policy objectives and tools. For example, the acquisition of foreign knowledge to benefit domestic R&D and nourish high-tech export has traditionally been an important policy objective. In the future, the attraction of multinational and foreign enterprises and their R&D units becomes an important objective as

well (e.g. Reger 1998, Lovio 2003). Accordingly, for example, the question of the role of national R&D subsidies and distribution of costs and emerging benefits arises. Respectively you may ask how national can the national R&D programmes and public R&D centres remain? Traditional policy issues also arise as well, for instance, how far policies can tackle the problem of overlapping R&D under conditions of globalising R&D?

Moreover, R&D internationalisation also has policy implications on national education and training policies and on international mobility of scientists and students. R&D internationalisation also raises the question of possibilities for a systemic international R&D policy. Additionally, country size matters in relation to the policy implications of the internationalisation of R&D. In many of these issues the lessons learnt from international cooperation within the EU R&D framework programmes are of importance. Policy aspects of the globalisation of R&D increasingly relate to the future visions of developing economies. For example, enterprises may benefit from highly-skilled scientists in India and other developing countries, but in which different ways may the countries in question benefit best? With relation to this, a more general question of knowledge and technological change and the international distribution of income also arises (e.g. Krugman 1995).

### **Focus of the workshop**

The Helsinki workshop aims at focusing the challenges of internationalisation of R&D activities for enterprises, technology and other relevant policy makers, as well as for the research community in this field. The workshop has the following goals: First the workshop explores and discusses the current forms, trends and experiences in different levels (company, national, supranational policy-making) in the internationalisation of R&D activities; secondly the workshop identifies and debates the arising implications of internationalisation of R&D activities on national and supranational (such as the European Union) technology and innovation strategy and policy-making; thirdly the workshop identifies and discusses the respective conse-

quences of the internationalisation of R&D activities on the current theories underlying innovation policy in different scientific disciplines that also attempt to explore novel and alternative theoretical approaches.

### **Selected references**

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VTT Technology Studies 2003 Innovation Environments of Companies in Finland, Background Study for the Evaluation of the Implementation Infrastructure For Finnish Innovation Policy, Draft 20.1.2003.

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## Structure of the workshop

### The Helsinki workshop

The workshop in Helsinki shall discuss the challenges, models and cases of the internalisation of R&D. The workshop, with open-minded discussion amongst analysts and policy-makers, touches upon current practices and explores new methods in the interpretation of impacts and policy implications of the internationalisation of R&D.

The speakers invited are asked to submit an abstract of their presentations by 1 Jun, 2004. The speakers in the sessions are asked to make short summaries of their presentations at the workshop in order to leave sufficient time for discussion.

### Day 1

During Day 1 the current state of internationalisation of R&D shall be discussed. According to the different actors such as companies and policy makers, we need to look at the current state and the recent trends from different perspectives. Ideally, we would like to cover the international perspective and the national perspective of a country from the developing and the developed world. As companies are the driving forces in the internationalisation we include a company perspective during Day 1.

### Day 2

As Day 1 mainly focuses on a positive description of the current state of internationalisation, the main concern of Day 2 is normative in nature. The issues raised are to ask about the desired state of internationalisation and about the ways to achieve them. The discussion here has to merge the two perspectives that have been separately discussed on Day 1: "Company meets policy". To emphasise the workshop type character, we suggest offering two parallel sessions focusing on different normative aspects. For each group a moderator shall be nominated to facilitate and structure the discussion. Additionally a "reporter" shall be assigned to each of the two parallel sessions to summarise the findings.

### Summary

The organisers shall prepare the study of the state of the art of the workshop topic preliminarily entitled "Local vs Global in the Internationalisation of R&D - Recent Trends and Arising Policy Challenges for the Future". The draft report shall be amended on the basis of the workshop presentations. The organisers shall publish the final report as a book or as a special issue of a reviewed journal by the end 2004.

## International experts

Eija Ahola, Research Manager  
National Technology Agency, Tekes, Finland

Paola Criscuolo, Research Officer  
SPRU, UK

Kari Ebeling, retired, former Director  
Corporate Research, UPM-Kymmene Corporation,  
Finland

Bernd Ebersberger, Senior Researcher  
VTT Technology Studies, Finland

Dermot O'Doherty, Senior Adviser  
InterTradeIreland, Ireland

Jakob Edler, Project Manager  
ISI/FhG, Germany

Markku Karlsson, Senior Vice President  
Corporate Technology, Metso Corporation,  
Finland

Moshin U Khan, Deputy Director  
NISTADS, India

Akhlaq ur Rehman Kidwai, Professor  
Member of Parliament, Parliament of India

Stefan Kuhlmann, Head of Department  
ISI/FhG, Germany

Pirjo Kutinlahti, Senior Researcher  
VTT Technology Studies, Finland

Staffan Laestadius, Professor  
INDEK/KHT, Sweden

Jos Leyten, Research Director  
TNO-STB, Netherlands

Torsti Loikkanen, Research Manager  
VTT Technology Studies, Finland

Vicky Long, Ph.D. Student, INDEK/KHT, Sweden

Raimo Lovio, Professor  
Helsinki School of Economics, Finland

Geoffrey Nimmo, Senior Innovation Advisor  
Canada Industry Ltd., Canada

Erkki Ormala, Director, Nokia, Finland

Christopher Palmberg, Researcher,  
The Research Institute of the Finnish Economy, ETLA, Finland

Pari Patel, Senior Fellow, SPRU, UK

Wolfgang Polt, Head of Office  
Joanneum Research, Austria

Markku Rajala, Director, ABR Innova Oy, Finland

Mari Rantanen, Researcher  
VTT Technology Studies, Finland

Prasada Reddy, Senior Research Fellow  
Lund University, Sweden

Jani Saarinen, Ph.D. Student  
VTT Technology Studies, Finland

András Siegler, Deputy State Secretary  
Ministry of Education, Hungary

Marjo Uotila, Project Manager  
VTT Technology Studies, Finland

Vesa Vihriälä, State Under-Secretary  
Economic Council, Prime Minister's Office, Finland

Yuan Zhou, Deputy Director-General  
National Research Center for S&T for Development, China

Paul Zeeuwts, Chairman of 6CP, President of IWT  
IWT, Belgium

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# Programme of the workshop 17 June 2004

## Day 1: Recent trends

12:30 Registration

13:30 Opening and introduction:

Chair: Bernd Ebersberger, Senior Researcher, VTT Technology Studies

Paul Zeeuwts, Chairman of Six Countries Programme, IWT

Eija Ahola, Research Manager, National Technology Agency

Torsti Loikkanen, Research Manager, VTT Technology Studies

### **Actors in the innovation system – international and national perspectives**

13:45 Innovation based strategy to meet the challenges of globalisation: the case of Finland

Vesa Vihriälä, State Under-Secretary, Economic Council, Prime Minister's Office

14:30 Break

14:45 Internationalisation of R&D from different country perspectives

Canada: Geoffrey Nimmo, Senior Innovation Advisor, Canada Industry Ltd.

India: Akhlaq ur Rehman Kidwai, Professor, Member of Parliament

China: Yuan Zhou, Deputy Director-General, National Research Center for S&T for Development

16:15 Coffee

### **Companies' perspective**

16:45 Internationalisation of R&D - company perspectives

Professor Kari Ebeling, retired, formerly Director, Corporate Research, UPM-Kymmene Corporation

Markku Karlsson, Senior Vice President, Corporate Technology, Metso Corporation

Markku Rajala, Director, ABR Innova Oy

17:40 Concluding remarks – Bernd Ebersberger, Senior Researcher, VTT Technology Studies

17:45 End of day 1

### **Social program**

19:00 Boat leaving from Kauppatori / Market Square

Short guided boat tour with historical highlights of Suomenlinna Sea Fortress and Helsinki

20:00 Dinner on Suomenlinna Island – Pirunkirkko

23:15 Back to the Market Square

# Programme of the workshop 18 June 2004

## Day 2: Arising policy challenges for the future

### Plenary session

9:15 Keynote presentation: State of the art and challenges of research for the Internationalisation of R&D  
Pari Patel, SPRU

10:00 Keynote presentation: Internationalisation of R&D from industrial perspective, Erkki Ormala, Nokia Corporation

10:20 Go to parallel sessions

### Parallel sessions

10:30 **Parallel Session 1: National and international actors / level**

Chair: András Siegler, Ministry of Education

Rapporteur: Wolfgang Polt, Joanneum Research

Parallel Session 1 elaborates on questions such as

How much internationalisation is desirable?

How can this be achieved?

What measures are available to influence the degree of internationalisation of R&D?

Is there a need for new policy instruments?

The prospective contributors to this stream:

*"Internationalisation of R&D of German companies"*, Jakob Edler, ISI/FhG

Commented on by Christopher Palmberg, The Research Institute of the Finnish Economy, ETLA

*"Study on internationalisation of corporate R&D"*, Prasada Reddy, Lund University

Commented on by Wolfgang Polt, Joanneum Research

*"Tekes Technology Programmes in Internationalising R&D"*, Eija Ahola, National Technology Agency Tekes

Commented on by Paul Zeeuwts, IWT

*"European RTD programmes and global benefits"*, Pirjo Kutinlahti and Marjo Uotila, VTT Technology Studies

Commented on by Jos Leyten, TNO-STB

10:30 **Parallel Session 2: Local level**

Chair: Mari Rantanen, VTT Technology Studies

Rapporteur: Stefan Kuhlmann, ISI/FhG

Parallel Session 2 aims to single out answers to questions like

Who is locally affected by the internationalisation of R&D?

What can local actors do to interfere?

How can challenges be turned into benefits?

What lessons can be learned from case studies such as Lovio's case Varkaus?

The prospective contributors to this stream:

*"Establishment of foreign R&D in Varkaus"*, Raimo Lovio, Helsinki School of Economics

Commented on by Paola Criscuolo, SPRU

*"Technology transfer and absorption strategies – Case Ireland"*, Dermot O'Doherty, InterTradeIreland

Commented on by Jani Saarinen, VTT Technology Studies

*"Comparative study of ICT in India and China"*, Moshin U. Khan, NISTADS

Commented on by Stefan Kuhlmann, ISI/FhG

*"The relocation of ICT R&D activities"*, Staffan Laestadius and Vicky Long, INDEK/KHT

Commented on by Torsti Loikkanen, VTT Technology Studies

12:30 Lunch

13:30 Plenary session: Future perspectives of internationalisation of R&D

Summaries by the reporters from the sessions

Discussion

Next event of Six Countries Programme in April 2005, The Netherlands

15:00 End of the Workshop

**Social program**

17:00 - 18:30 Optional guided walking tour through Helsinki