



## WP 5



# Strategies of EU MNCs & Southern MNCs for offshore outsourcing innovation

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## Results enable us to assess claims such as:



- *“Within five to ten years we will be moving from 'made in China' to 'discovered in China' ”*

Moncef Slaoui, the Chairman of R&D for GSK, 2007

- *“A global survey of 187 major companies suggested that by 2004 over two-thirds of their total R&D was being carried out at company-owned R&D sites abroad.”*

Keeley Wilson & Yves Doz, California Management Review, 2011



# Results have

## Managerial & Policy Implications



- To the R&D Managers of EU companies the implications when pursuing **Emerging Market Growth Strategies**
- Insights into **Industry Specific** Issues and the relevance and Nature of the **Global R&D Networks**
- Implications that have relevance for the **different elements** constituting the **Innovation Systems** of **Developing countries & at Home**



# WP5 Report Structure



## ➤ Firm-level Research

To provide an all-encompassing understanding of the Firm Strategies on R&D off-shoring.

Structure	Part I	Part II
Deliverables	D 5.1	D 5.2
Papers	D 5.1	D 5.2.1 D 5.2.2 D 5.2.3

## ➤ Several sets of new firm-level data

- developed by compiling info from various sources,
- in order to undertake a comprehensive analysis on several related aspects of R&D off-shoring.



## D 5.1



# Understanding the Strategies of R&D off-shoring by Northern and Southern Firms



## D 5.1 Aims



### **R&D Organisation**

Overall Structure and Organization of R&D and Technology Creation.

### **R&D Strategy**

Strategic importance and variety of activities undertaken in Emerging Markets;  
Main location specific drivers;  
Evolution - functions, capabilities.

### **R&D Management**

Knowledge Transfer & Knowledge Integration;  
External Collaborations;  
Management Challenges  
- coordination, IP and Human Resources issues.



# Methodology - Case Study Approach



- 3 Sectors: Automotive, ICT, Agro Food

## Criterion for selection

- The chosen companies amongst the world's leading
  - large market share,
  - amongst the largest employers in their home countries,
  - amongst the leading R&D spenders in the EU.
- MNEs with R&D presence in emerging markets.
  - In most cases the company had R&D subsidiaries involved in development activities in India and China.





## Two Types of Perspectives

### ➤ HQ and Subsidiary Perspectives of EU MNCs

*Both are Essential*

- ✓ To obtain *stylized facts*
- ✓ To detect emerging trends and motivations

### ➤ Interviews from:

- HQ of EU MNCs,
- their R&D subsidiary

### ➤ Validate the data from interviews

- Press Releases, Corporate Website



# Structure of 5.1



## ➤ Cases- Perspectives from HQ and Subsidiary

	MNE HQ is in North	MNE HQ is in South
R&D Subsidiary North		
R&D Subsidiary South		



## Structure of 5.1



### ➤ Cases- Perspectives from HQ and Subsidiary

	MNE HQ is in North	MNE HQ is in South
R&D Subsidiary North	No	No
R&D Subsidiary South	North-South Matched Cases	No



## Structure of 5.1



Cases structured under 3 Classes, based on the Perspectives that were possible

	MNE Perspective		
Classes of Cases	MNE HQ North	R&D Subsidiary South	MNE HQ South
I North-South Matched Cases			
II R&D Subsidiary of MNEs			
III Southern MNEs Unmatched			



## Structure of 5.1



**Cases structured under 3 Classes**

**- Based on the Perspectives that were possible**

	<b>MNE Perspective</b>		
	<b>MNE HQ North</b>	<b>R&amp;D Subsidiary South</b>	<b>MNE HQ South</b>
<b>I North-South Matched Cases</b>	<b>I Perspective</b>	<b>II Perspective</b>	
<b>II R&amp;D Subsidiary of MNEs Unmatched</b>		<b>Single Perspective</b>	
<b>III Southern MNEs Unmatched</b>			<b>Single Perspective</b>



# Case Studies based on 3 sources of information:



## Source I

Interviews of the **managers of Subsidiary R&D centres & Innovation centres**

- Provided an understanding of:
  - the activities and agenda of the R&D centre,
  - its global & local innovation links,
  - specific locational advantages.
  
- Interviews used to obtain the names and contact details of the most suitable person at the HQ for discussing **global R&D & innovation strategies**.



## Case Studies based on 3 sources of information:



2. Based on the preliminary insights, interviews at the HQ, with high level management personnel
    - Chief Technology Officer, Global Development Head, Senior VP for Emerging Markets R&D, etc.
  3. Background data from Annual Reports, company websites and press releases.
- Enables us to discuss in some depth the **Global R&D Strategies and Organization** of companies that are at the **forefront of developing new technologies** and introducing new products and processes.



# Matched Cases in the 3 Sectors



Automotives	ICT	Agro-Food
firm1	firm4	firm7
firm2	firm5	firm8
firm3	firm6	





# Cases Composition



## Cases in Automotive Sector

	HQ	R&D Subsidiary	
firm1	Sweden	India	
firm2	Italy	Brazil	Turkey
firm3	Germany	India	China



# Cases Composition



## Cases in ICT Sector

	HQ	R&D Subsidiary			
firm9	Finland	India	China		
firm5	Sweden	India	China	South Africa	Estonia
firm4	Netherlands	India	China		



# Cases Composition



## Cases in Agro-Food Sector

	HQ	R&D Subsidiary	
firm7	Denmark	India	China
firm8	Denmark	India	China



## Major Findings



- Largest proportion of the MNE's R&D and technology creation happens within the EU.
- The US still remains one of their most important foreign locations outside the EU.
- However, their declared aim is to increase their presence in Emerging Markets.

Two main driving forces:

- Prospects of a large and growing Market PLUS Availability of a large pool of well-qualified scientists and engineers.



MNE	Main R&D locations Europe, US	R&D in Emerging Markets
firm9 16,000 R&D personnel 25 R&D centres		
firm2 14,000 R&D personnel 117 R&D Centres		
firm1 AB		



<b>MNE</b>	<b>Main R&amp;D locations Europe, US</b>	<b>R&amp;D in Emerging Markets</b>
<b>firm9</b> 16,000 R&D personnel 25 R&D centres	R&D Personnel - Finland & Germany accounts for 45%. - 1,500 in Poland	R&D personnel - 2400 at India Centre - 3000 at R&D centres in China
<b>firm2</b> 14,000 R&D personnel 117 R&D Centres	81 R&D Centres in Europe, 15 R&D Centres in the US	21 R&D centres, of which 10 in the Mercosur
<b>firm1 AB</b>	R&D Personnel 50% in Sweden, rest in France, US	R&D personnel 500 at India centre, 100 at Brazil centres



## R&D Organisation at firm5



- 25 R&D facilities
  - 20,800 R&D personnel (constitute 22% of the workforce)
  - **R&D sites in proximity to their main Radio base stations.**
  - Main sites in Sweden, Germany, Canada, US, Ireland, Hungary and China.
- 
- R&D activities & the most specialised competences remain **concentrated in the sites located in the Triad.**
  - R&D centres in other regions are rising indicating the increasing significance of these regions.
  - China in the recent years have upgraded rapidly, employ 3000 across its 5 R&D centres.



## R&D Organisation at firm4



- R&D investment amounted to EUR 1.6 billion (6.2% of sales)
  - 12,000 people employed in research in total.
- 
- Corporate level research was reorganized into a network of specialised Centres of Excellence.
  - Corporate Technologies (CT) serves the corporate needs, through creating '*synergy between the 3 business sectors, extending the business of these sectors or beyond these sectors*'.





# R&D Organisation at firm4



- CT- controls, coordinates international research activities
- Contributes to the development of new markets, products
- Functions alongside 3 business divisions, leverage company-wide synergies in technology, IP, research, competencies.

## *Constituting of 4,100 Researchers*

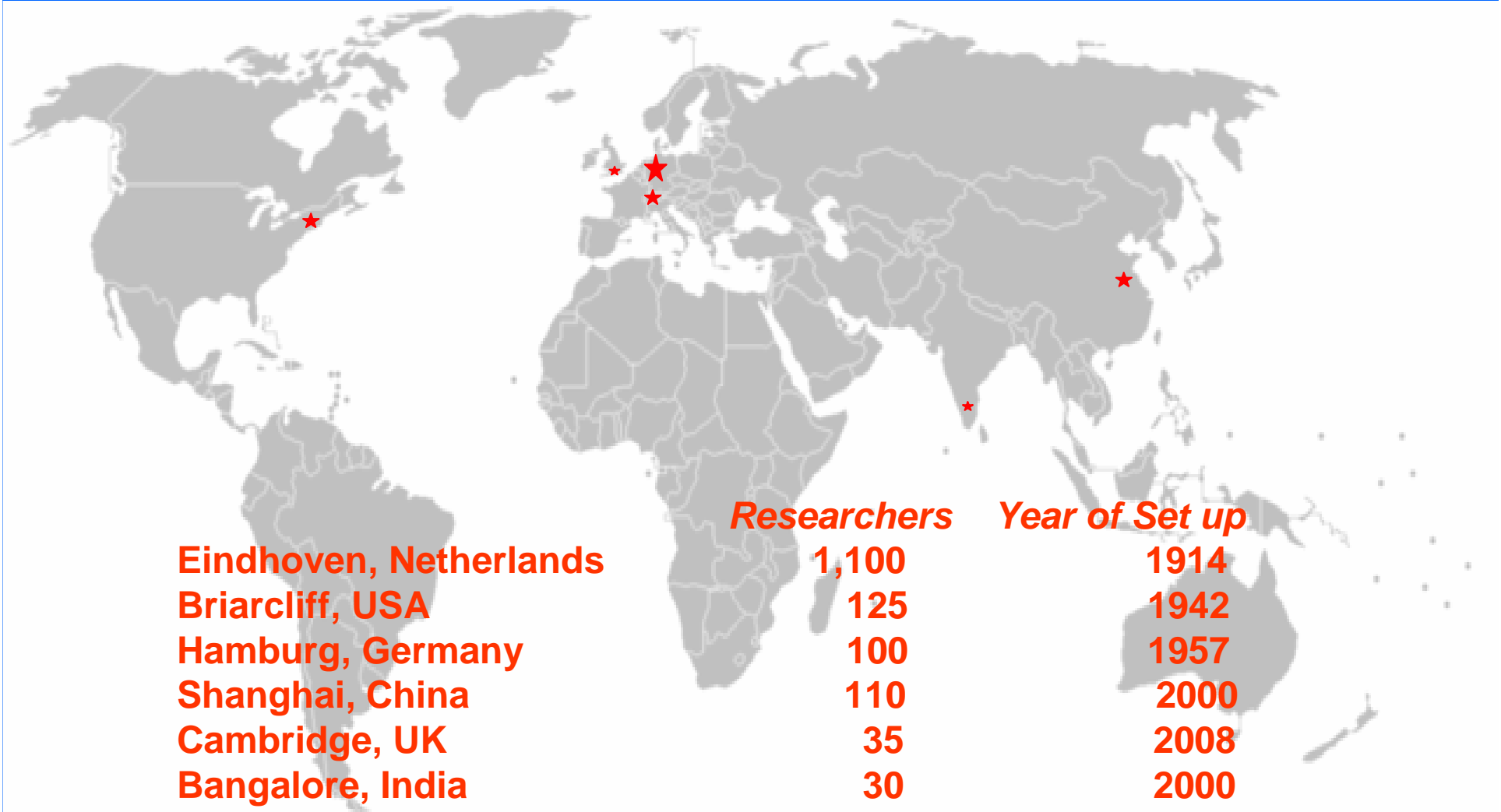
- *Firm4 Research* - 1,500 R&D Employees at 6 Labs
- *Applied Technologies* - 850 R&D Employees  
7 locations in 6 countries,  
3 are in Europe (Eindhoven, Germany, UK),  
2 in Asia (Singapore and India) and 2 in US



# Firm4 RESEARCH

- the core corporate research group

6 Labs employing 1,500 Researchers





# R&D Organisation at firm4



*‘.....not all innovations happen in corporate, new things happen in business sectors as well. In fact, three-quarters of the innovation at Firm4 is happening inside the three sectors.’*

- Corporate Technologies (CT) employs one-third and two-thirds in Firm4 3 business divisions.
- CT amounts to only 10% of the Group's total R&D expenditure, whereas,
  - 44% of the total R&D spend is in Healthcare sector,
  - 23% in Lighting,
  - 23% in Consumer Lifestyle sector.



**A number of Trends in relation to  
R&D in Emerging Markets are  
visible**



# Trends



- A great deal of the activities in Emerging Markets concerned with adapting products and processes to the local market.
- At the same time a number of companies are in the process devising low cost products specifically for these markets.
- To develop products and solutions **specifically targeting the Emerging Markets**, rather than serving these markets by undertaking minor modifications to the expensive products that serve European markets



# Main Drivers for locating R&D in Emerging Markets



- **Developing Low Cost Products & Solutions**
  - **However, as yet none of the interviewed companies had first introduced a new generation of product for the global market in India or China.**



# Main Drivers for locating R&D in Emerging Markets



R&D related to the **Development of Local standards**

- This is able to explain the large R&D presence of some EU telecommunications companies in these markets



# R&D for Development of Local Standards



firm9 R&D center in Hangzhou, China  
Development of local technology standard TD-SCDMA

## Evolution

- Set up in 2007 with 500 R&D employees, grown to 1600 R&D employees
- Amongst the top 3 global R&D centres of firm9
- Fully integrated into the global network of Centers of Competence, lead centre in the development of TD-LTE.





# firm9 R&D center in Hangzhou, China



## Strategy

- Local Collaboration with government, industry stakeholders, universities, to develop a network solution for this technology.
- Location Specific Advantage:
  - Technology development a Government priority
  - A large pool of local engineers with right skills in an emerging area of technology.
- Flexibility to Ramp up the development due to the relatively lower cost of skills
- Market Proximity



# Specialisation Evolved in the functions at the R&D centres



- Long established R&D and engineering centres of EU firms have evolved from providing:
  - **low-cost, low-level support for peripheral activities** to becoming **global centres for excellence** providing support to the R&D carried out in the rest of the company.
- This is especially the case for Design and Development of Software in the **ICT companies** in India.
- It is also important for both software and engineering services for the **Automobile companies**.



# Drivers of R&D in Emerging Markets



- *The need to achieve Greater Efficiency in R&D and to ensure greater returns to R&D*
- By conducting non-core developments, relatively cheaply
- By developing Specialised capabilities and expertise in certain functions at the R&D centres



# Firm4 Innovation Centre (PIC) Bangalore, India



## Evolution

- Set up in 1992 as a small group providing routine services for Global Development teams
- Driven by the need to consolidate the company's growing number of small engineering software operations worldwide and to create a large software centre outside Eindhoven.
- Now an integral part of Global Development, specialising in software based solutions for firm4 Business Units
- Has acquired has Systems Capabilities, Extensive know-how & expertise in software engineering, technology domains.
- Expanded to 750 people, taking lead for global projects.



# Firm4 Innovation Centre (PIC), Bangalore, India



- **200 projects** undertaken at PIC currently, 90% of these involve product development.
- Lately, special development projects to serve the local market

*‘Acquired several companies in India last 2 years, .. specifically to undertake the value part of the business to develop products that were simple to use and less expensive.’*

- The intention is that once such products are developed they can cater for demand in the company's other markets around the world.



# Firm4 Innovation Centre (PIC), Bangalore, India



*'The strategic direction of the business is set by the business team, we impact and create value by our contribution in the roadmap and project delivery. We manage the projects independently but in close collaboration with other teams, as our solutions are to be integrated in the system and must delight our customers.'*

**Reporting-** Individual product teams report to an Innovation Manager in the Business Unit they work for, while, the head of PIC reports directly to the Chief Technology Officer at the HQ.

**Funded -** by the business units they work for.



# Firm4 Innovation Centre (PIC), Bangalore, India



## Knowledge Integration

- Presence of a small group that are part of the Corporate Technologies ensures that the developments at the centre in India feed in directly to the activities of the company worldwide.
- A number of experienced people from the headquarters working at the centre.
- An Open Innovation Strategy
  - collaborations with various public and private entities
  - To access technology know-how,
  - Find new application areas, develop products and solutions, and to commercialise the technology.



# Conclusions



- ‘Despite the risks, pitfalls- industry leaders gain the triple benefits**
- shorter time-to-market, lower costs, better products’**

## **Already known**

- People management structures that accommodate cultural & behavioural differences with effective communication channels**
- Operational efficiencies gained through**
  - modular architecture,**
  - clear governance rules,**
  - IT systems designed for collaboration.**
- Multi-level business focused metrics**





# Conclusions



- **Place End-to End Product Mandate**
- **Complete Project Responsibility delegated to the R&D centres to facilitate effective coordination**
  - **technology, execution & collaboration within the organisation and externally**
  - **project responsibility only in this location, not done anywhere else**



## Conclusions



- **In the case of locations with global mandate**
  - **Develop standardised products that are applicable to global market**
  - **drive technology development through collaborating with standardization bodies together with industry global suppliers and global service providers**
- **In the case of localisation**
  - **Modularity of components also allows to react flexibly to the different local demand**
  - **Faster local responsiveness**



**Thanks for your attention/questions**

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