



Education and Culture

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*Presentation Format*



# Findings - Micro Level Analysis

*“Chalmers University of Technology”*

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# Process for data collection

- **Who collected the data?**
  - Jannice, Sari and Andreas.
- **How did you collect the data?**
  - Interviews with 5 important actors of the Chalmers Innovation System
  - Collected data from the internet (HEI websites, legal acts etc.)
- **How many interviews did you conduct?**
  - 7 (with 6 interviewees)
- **When did you collect the data?**
  - June and July 2009
- **What is your assessment of the data collection process?**
  - Interesting, somewhat time-consuming due to conducting a lot of interviews, learned quite a lot!

# Legislative Environment

- **What characterizes the legislative environment for HEI based Innovation and IP in your country?**

- We have the **professor's privilege** which means that IP that can be covered by a patent (and in practice also other types of IPR) produced at the HEI by a teacher or similar is by default owned by individual researchers.
- Lack of IPR legislations specifically targeting the university (due to the professor's privilege).

- **What are the strengths in your legislative environment?**

- There are well established **legal acts** for general IPR protection.
- The ownership question inside HEI is fairly well defined through law and trade union agreements.

- **What are the weaknesses in your legislative environment?**

- The fact that researchers own their inventions causes a big mess as researchers are prone to collaborate a lot without caring about IPR protection which often destroys the chances for such.

- Most universities and the professors and researchers do not know what is 'really' included or not in the professors' privilege

# Political Environment

- **Which are the 3-5 most important national/regional programs/policies for supporting Science & Technology, Research and Innovation in HEIs?**
  - The government's research proposition 2008/09:50
- **What are the strengths of the existing programs/policies?**
  - The program is set on a government level establishing several important goals for focusing on innovation.
  - The government has realized the need for innovation in order for the country to become competitive and create sustainable development.
- **What are the weaknesses of the existing programs/policies?**
  - The proposition has not yet been accepted by the parliament?
  - No national policies that only targets HEI innovations.

# Brief facts about your HEI

<b>Name:</b>	Chalmers University of Technology
<b>Legal Classification:</b>	Non-profit private
<b>Location:</b>	Gothenburg, Sweden
<b><u>Number of:</u></b>	
-Students	10 000 Students
-Professors	1433 Professors and Researchers
-Researchers	704 Technical and Administrative staff
-Administrative staff	
<b>Main academic areas:</b>	Strategically prioritized areas of research: Energy, E-Science, IT and mobile communication, Climate models, Material sciences, Nano Science and nano technology, Production technology, Transport research.
<b>Main research centers:</b>	CHASE, Lighthouse, Gigahertz

# Innovation, IP and Entrepreneurship Policies at your HEI

- **Do you have Innovation, IP and Entrepreneurship Policies?**

No! As the researchers own the rights to their own inventions, the HEI has not (yet) established any centralized policies on innovation, IP and Entrepreneurship.

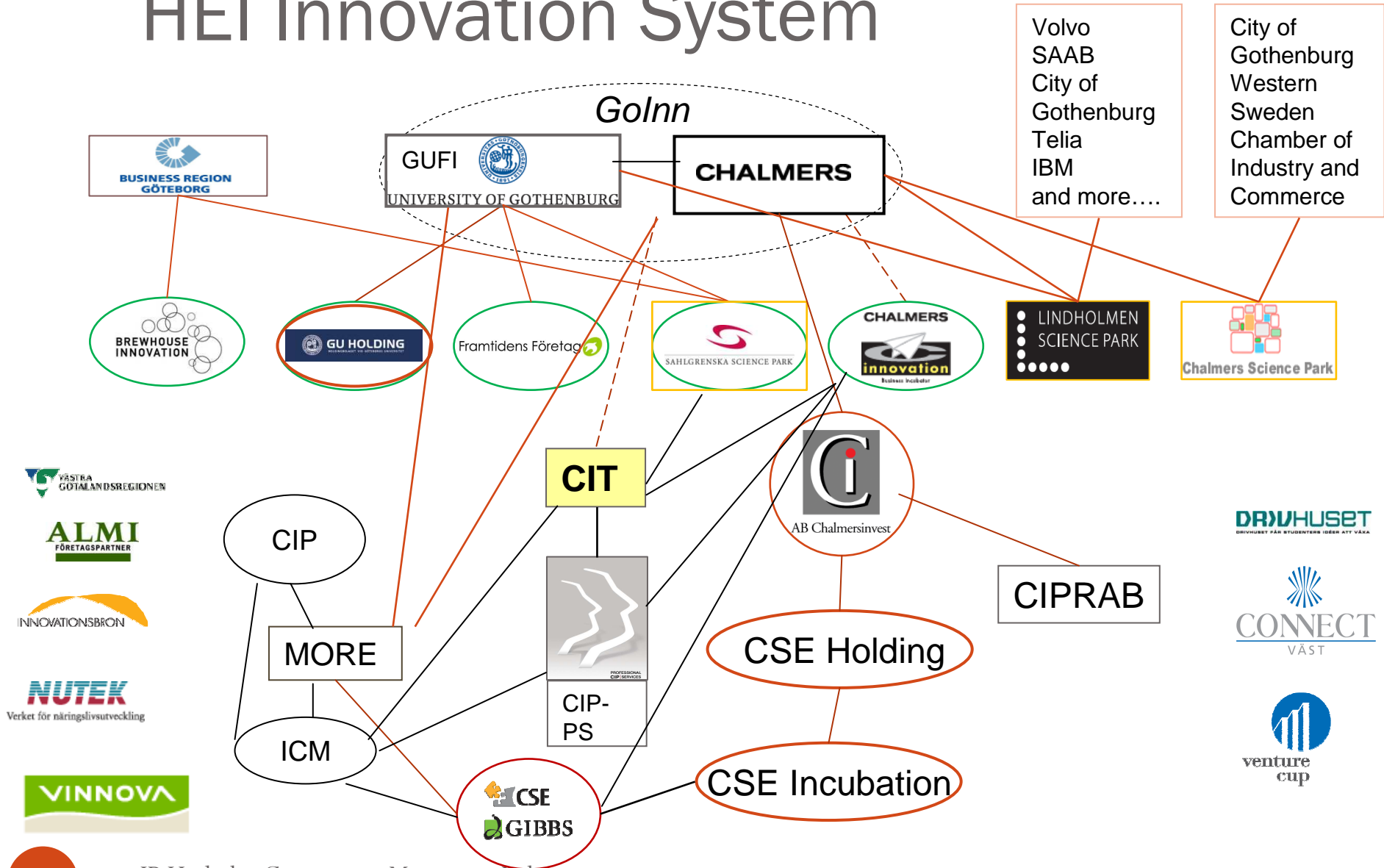
- there is however, a development plan for entrepreneurship in Chalmers with the goal of mutually reinforcing research, education and utilization
- There are however, policies on the Research center level – eg: for how to set up research projects with Industry (secrecy, contracts, negotiation, IPR, etc.)

# HEI Innovation System

- Which are the most important units/ organizations/ functions/ departments that are responsible for driving innovation in your HEI?

Name of Entity	What is the main focus of this unit?
Chalmers Innovation	Incubating innovations with a fairly defined underlying technology with the aim of creating commercial companies
CHASE (and similar research centers)	Conduct research in connection to industry partners.
CIP PS	Provide advanced Intellectual Capital Management services to HEI internal as well as external actors.
CIT	Contract research- connects Chalmers to Industry
MORE+Encubator	Provide IP Education where creating start-up companies is a part in 2 of 3 education tracks.

# HEI Innovation System





# HEI Innovation System

## Innovation entity 1 - Chalmers Innovation

- Legal classification and customer orientation (internal/external):  
External foundation where the board is elected by the HEI,  
internal/external orientation.
- What are the academic and professional profiles of the people employed? Mostly marketing people with business experience.
- How is the entity funded? 95% government base funding, 5% from rents.
- What are the main responsibilities and activities of this entity?  
Offering incubation and business development services for  
technology based innovations

# HEI Innovation System

## Innovation entity 1 (cont.)

- What are the strengths of this entity?
  - Chalmers Innovation has a good track record- several companies have been established.
  - Most successful exit - 'System OK' – sold for 10 million dollars
  - Several experienced business developers work here.
- What are the weaknesses of this entity?
  - Grant dependant
  - The business model demands long durability as the innovation projects have fairly long lead times.
  - Hard to engage researchers – there are no demands on researchers to create innovations from their research

# HEI Innovation System

## Innovation entity 2 - CHASE research center

- Legal classification and customer orientation (internal/ external):  
Internal entity belonging to HEI both internally and externally oriented.
- What are the academic and professional profiles of the people employed? Engineering only.
- How is the entity funded? Base funding 33% from HEI and 66% from the two other actors involved in the center (Vinnova and Industry partners)
- What are the main responsibilities and activities of this entity?  
Conduct research with industrial applicability in the field of antenna systems technology.

# HEI Innovation System

## Innovation entity 2 (cont.)

- What are the strengths of this entity?
  - There are processes for taking care of results (through disclosure) and transfer IP to industry partners.
  - One of just a few centers in Chalmers that does NOT have the Professor's privilege
- What are the weaknesses of this entity?
  - Even if the professor's privilege is waived inside CHASE, this applies only to this unit. It is up to the individual researchers working half time in this project to act in an ethical way and not take away results/IP from inside CHASE.

# HEI Innovation System

## Innovation entity 3 CIP Professional Services (CIP PS)

- Legal classification and customer orientation (internal/external)  
External private entity owned by Chalmers but not a part of HEI in the traditional sense.
- What are the academic and professional profiles of the people employed? Engineering and Law- all have business experience.
- How is the entity funded? 100 % Services
- What are the main responsibilities and activities of this entity?  
Providing services in the field of intellectual capital management with focus on the business arena (not e.g. patent administration and litigation).

# HEI Innovation System

## Innovation entity 3 (cont.) - CIP Professional Services (CIP PS)

- What are the strengths of this entity?
  - CIP PS is the only actor that can manage intellectual assets from extremely basic research all the way to the commercialization processes.
  - Handles technology and knowledge as they are (not necessarily focused on turning them into physical products) and builds structures for order and control.
- What are the weaknesses of this entity?
  - The organization is still in an early development stage and they are pioneers in the way they think – people do not understand the value of what they are doing

# HEI Innovation System

## Innovation entity 4: CIT (Chalmers Industrial Technologies)

- Legal classification and customer orientation (internal/external):  
External foundation where the HEI elects the board of directors-  
external and internal orientation.
- What are the academic and professional profiles of the people  
employed? Engineer/Science dominated, all have business  
experience.
- How is the entity funded? 95 % contract research and development  
and 5% EU and Sida financed development projects
- What are the main responsibilities and activities of this entity?  
Conducting contract research by connecting Chalmers to external  
industry actors. Designing and managing innovation system projects  
internationally

# HEI Innovation System

## Innovation entity 4 (cont.) CIT (Chalmers Industrial Technologies)

- What are the strengths of this entity?
  - CIT is the only unit that knows Chalmers research activities inside out and knows which researcher to connect to which industry actor's specific needs.
  - CIT seek and find strong individuals with competence and leadership skills to employ.
- What are the weaknesses of this entity?
  - CIT is not a part of Chalmers core business.
  - The employees are too technology oriented.



# HEI Innovation System

## Innovation entity 5: MORE education and Research institution and Encubator

- Legal classification and customer orientation (internal/external): **Internal entity targeting internal/external actors.**
- What are the academic and professional profiles of the people employed? **Interdisciplinary- engineering, psychology, BA- all with business experience.**
- How is the entity funded? **Largest part of base funding from HEI and external actors. Income generation- mostly from contract research and spin-offs.**
- What are the main responsibilities and activities of this entity? **Gives education in IP where a part of the education includes start-up creation and evaluation of early stage research projects.**

# HEI Innovation System

## Innovation entity 5 (cont.) - MORE and Encubator

- What are the strengths of this entity?
  - Learning & utilization combined!
  - Students create start ups as part of their education
- What are the weaknesses of this entity?
  - Too entrepreneurial sometimes.
  - Too dependant on income generation.
  - The potential is still to be fully reached.

# Innovation Activities, Processes, Practices and Procedures

1. What do you consider to be **good examples of information and communication processes** in the areas of innovation and IP in your HEI?
  - **Visits to potential customers** is one of the most important information and communication processes inside Chalmers as there is **no central organization which manages external contacts** in spite the fact that such contacts are incremental to really drive innovation and IP inside a HEI (needs to be connected to current application needs etc.).
  - Actors such as CIT and CIP PS are responsible for driving this process.

# Innovation Activities, Processes, Practices and Procedures

2. What do you consider to be **good examples of awareness building and education processes** in the areas of innovation and IP in your HEI
  - The ICM/CSE/GIBBS schools gives systematic education in innovation and IP to master students.
  - ICM targets e.g. **value creation in a very early research stage** and builds control positions in real research projects inside the HEI.
  - CSE/GIBBS students **create their own start-up companies** after evaluating ideas in the field of biotechnology and more traditional technological disciplines. Several of these companies have become very successful.
  - Chalmers Innovation – offers training for researchers in IP and Innovation
  - Chalmers offers– training in IP for PhD students

# Innovation Activities, Processes, Practices and Procedures

3. What do you consider to be **good examples of processes for 'searching for value in research'** in your HEI?

- CIT looks through recently released PhD reports for potential value.
- Chalmers Innovation provides scholarships for research assessment which may work as an incentive for researcher to search for value themselves.
- The ICM education recently launched the IC Incubator  
Students together with CIP PS go into very early stage research projects to search for value by defining all intellectual assets inside a project (not only those that may be protected by IPR)

# Innovation Activities, Processes, Practices and Procedures

4. What do you consider to be **good examples of processes for 'assessing the value identified in research'** in your HEI?
  - In the later stage of the IC Incubator, ICM students together with CIP PS is assessing value in relation to:
    - Control position
    - Technology market assessment
    - Technological viability
  - Encubator – conducts 'tech market analysis'
    - Evaluate technology ideas to see if it has commercial potential (from technology to market)
  - Chalmers Innovation
    - assesses technology – to ascertain if it is viable 'enough' (later stage)
  - IP Unit, Consortium Meetings in India

# Innovation Activities, Processes, Practices and Procedures

5. What do you consider to be **good examples of processes for ‘evaluating possibilities for protection and seeking protection for innovations’** in your HEI?
  - Both CIP PS and MORE research institution (including ICM/CSE/GIBBS educations) perform this as **a part of the general value assessment** as control position is a part of the general market value for an invention.
  - The ICM education also performs **advanced relationship mapping** in order to clear which parties can make claims on the control over the invention (very important in Sweden where individual researchers own which often creates a mess from a control perspective)
  - Encubator – works very closely with the Patent Bureaus to create patent claims

# Innovation Activities, Processes, Practices and Procedures

6. What do you consider to be **good examples of commercialization processes** in your HEI?
  - Chalmers is very good at incubating innovations.
    - Chalmers Innovation
      - Has started over 100 companies
      - Focus on defined ideas.
      - Good at marketing.
    - Encubator
      - Incubates companies at an earlier stage than Chalmers innovation.
      - Very good at making idea evaluation and looking for control positions which has lead to several companies driven by newly graduated students.
    - CIT
      - Excellent at creating commercial application from research results
      - Great at defining company needs and matching it with research



# Innovation Activities, Processes, Practices and Procedures

7. What do you consider to be **good examples of ongoing processes** in the areas of innovation and IP in your HEI?
  - Several actors that works with innovation and IP are very good at linking their work to educational activities.

# Innovation Activities, Processes, Practices and Procedures – Summary

- In your assessment – what are the **strengths and weaknesses** of your current activities, processes, practices and procedures for Innovation and IP management in your HEI?
- There are several actors that have a very advanced thinking in Innovation and IP management such as CIP PS and MORE+Encubator.
- There are actors that are very good at what they do for innovation (even if they do not have a very advanced thinking in IP) such as CIT.
- The biggest weakness is the general lack of IP knowledge due to the fact that this is up to the individual researchers who- this far- have been very poorly educated in this area.
- Another weakness is the lack of a system that supports licensing of technologies and the lack of lawyers!

## Historical Review –Ownership

- Who has received ownership (at the time of creation) for HEI based IP during the last 3 years?

Year	HEI (%)	Professor/researcher /inventor (%)	3 <sup>rd</sup> Party Partners (%)	Other (%)	Total 100%
2006	1	89	10		100%
2007	1	89	10		100%
2008	1	89	10		100%
Historical total (since HEI foundation):	1	89	10		100%

# Historical Review – IPR

- What **type of IPR** protection is most frequently applied for?
- In the last 3 years?
  - Patents
  - Historical total since HEI foundation?
    - Patents
- **In which countries** is IPR protection most frequently applied for?
  - In the last 3 years?
    - The European Union
  - Historical total since HEI foundation?
    - US, the European Union and others.

# Historical Review – Licenses

- How many license contracts has the HEI as a whole signed?
  - In the last 3 years?
    - 11
  - Historical total since HEI foundation?
    - 40
- What is the most common subject of license (invention, brand, software, etc.)?
  - In the last 3 years?
    - Invention
  - Historical total since HEI foundation?
    - Invention

# Historical Review – Start-ups/Spin-offs

- How many start-ups/spin-offs has the HEI as a whole created?
- In the last 3 years?
  - Around 60 (30 Enubator, 30 Chalmers Innovation)
- Historical total since HEI foundation?
  - Over 150 (Chalmers Innovation over 100) (Encubator over 50 maybe)

# Culture for innovation

- **How would you assess the culture of innovation at your HEI:**
  - The people working with Innovation and IP are very committed.
  - The researchers (who own the rights to their inventions) are in general not very committed to innovation and IP management.
  - Several people would like to take more responsibility for the HEI Innovation and IP Management processes but are hindered since HEI does not own IP.
  - Resources always an issue- however, people are in general fairly satisfied.
  - Due to the fact that there is no possibility to work centrally with Innovation and IP (due to lack of control)- the ways of working with these issues are not always very conscious and systematic.

# Culture for Innovation

- People that work with Innovation and IP generally gain a lot of energy from working with it.
- People feel that they have good relationships both within their unit and to other innovation system units. However, as many new initiatives to manage IP and Innovation are establishing instead of building on old ones- probably some difficulties to collaborate.



# Culture for innovation

- **What characterizes the culture in your HEI?**

- Very open
- Not so hierarchical
- Engineer and research-focused.

- **What values are important?**

- People wants to change the system and the world.
- Passion, drive
- Value creation

- **How would you like to improve the culture in your HEI?**

- More researchers need to understand the importance of IP and Innovation in order for the different parties to be able to communicate and create value
- Need to have a wider competence pool – to include more lawyers, psychologists, economists, etc.

# Final Assessment

- **What factors/measures do you use in your HEI to determine if you are successful or not in being an 'Innovative University'?**
  - Commitment
  - Development
  - Value of start-up companies
  - Number of patents
  - Sale incomes (from start-up companies)
- Based on the factors listed above – **how satisfied are you** with how your HEI is performing with Innovation and IP Management?
  - Most actors are fairly satisfied.