

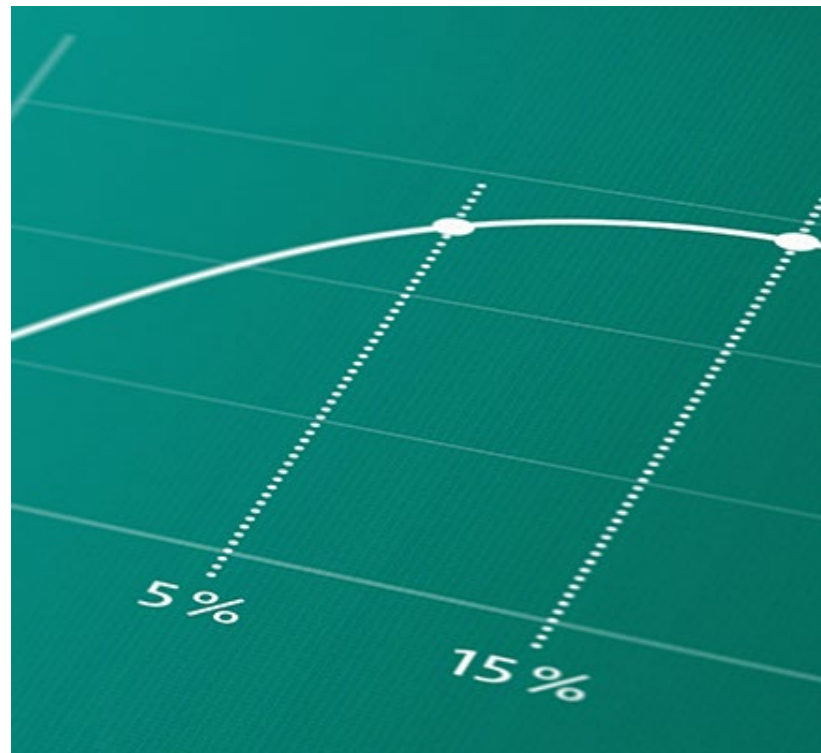
PATENT EVALUATION WITH THE NEW IPSCORE 3.0

CASE STUDY: HEAT PUMPS

JOHANNES SCHAAF | PATENT INTELLIGENCE – DATA TRANSFORMATION | NOVEMBER 2023

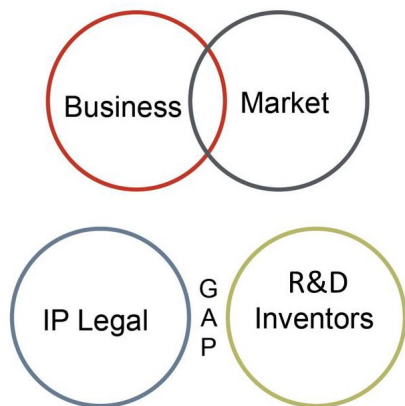
CONTENT

- Why assessment of Intellectual Property?
- Case study: Heat pumps
- IPscore 3.0 in action

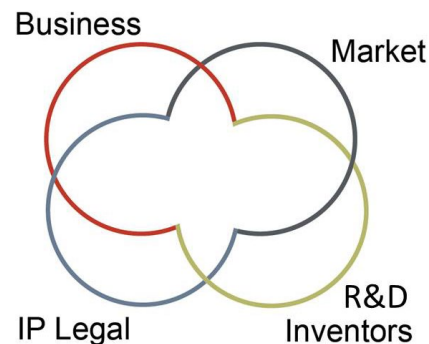


ROLE OF INTELLECTUAL PROPERTY IN COMPANIES

Most companies



IP driven companies



IP Strategy

Creation

Assessment

Protection

Commercialization
Assessment

METHODS FOR THE EVALUATION OF PATENTS

Quantitative (monetary)

Net present value

Market value
(licence analogy)

Cost

Computer-generated
estimates

"The patent is equivalent to 5
average patents"

...

"The patent is worth € 500.000"

Qualitative (multidimensional)

R&D

Marketing

Technology

Market

Strategy

Finance

Legal
issues

Finance /
Controlling

Patent
Department

"The patent protects a technology of strategic importance for an attractive market, it can be enforced efficiently, but significant investment is still needed"

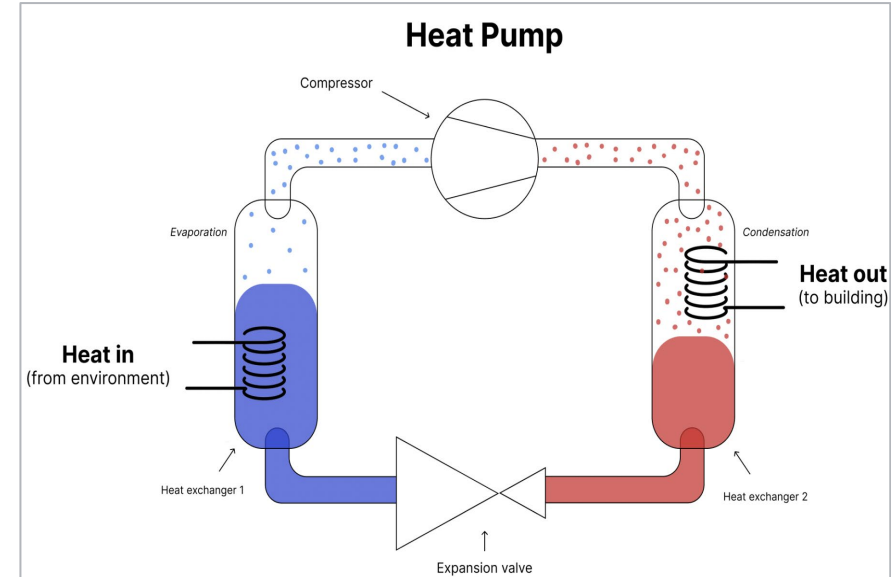
IPscore 3.0



C. Market conditions questions	Explanation	Patent 1
C1: What are the marketing options?	This assessment factor is an evaluation	5 - There is a well-known market and other
C2: What is the market growth in the business area where the patented technology is utilised?	This assessment factor determines the	15,0%
C3: What is the life expectancy of the patented technology in the market?	This assessment factor determines the	4,0 years
C4: Are competitive or substitute products active in the market?	How probable is it that competitive or	1 - There is a high degree of development of
C5: What ultimate sales price is the consumer willing to pay compared to existing known products?	What is the highest potential sales price	2 - Lower than competitors' price
C6: What is the potential extra turnover to be obtained within the business area when utilising the patented technology?	This assessment factor determines what	6,00%
C7: What knowledge does the company have of application potential and commercial opportunities?	This assessment factor requires an	4 - Knowledge of application potential and
C8: Does the patented technology embody potential revenue from licensing agreements?	Here you assess the potential for	2 - Licensing revenue is possible to a lesser
C9: Do commercial activities require special permits/ licences	In some situations special	5 - Life-term permit/ licence approval from
Comments to questions		Enter comment relating to Patent 1 below:
C1: What are the marketing options?		
C2: What is the market growth in the business area where the patented technology is utilised?		
C3: What is the life expectancy of the patented technology in the market?		
C4: Are competitive or substitute products active in the market?		
C5: What ultimate sales price is the consumer willing to pay compared to existing known products?		
C6: What is the potential extra turnover to be obtained within the business area when utilising the patented technology?		
C7: What knowledge does the company have of application potential and commercial opportunities?		
C8: Does the patented technology embody potential revenue from licensing agreements?		
C9: Do commercial activities require special permits/ licences		
Adaptation of questions and answers (change below)		Answer 1
What are the marketing options?	This assessment factor is an evaluation of	There is no known market for the patented technology

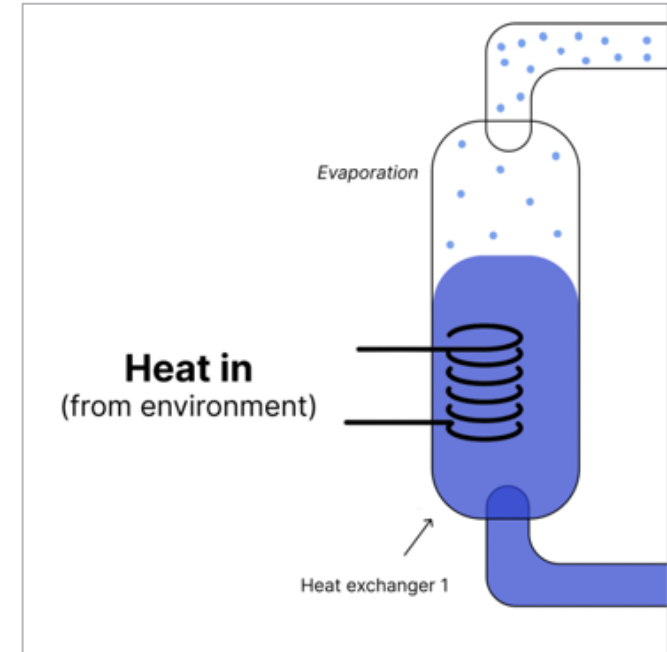
CASE STUDY – HEAT PUMPS – BASICS

- Heat pumps are devices for heating of buildings by transferring thermal energy from the outside into the building.
- Heat pumps mostly consist of an outer heat exchanger 1 and an inner heat exchanger 2 (placed outside and inside the building) and a special working fluid (called refrigerant) being pumped between the two units by a pump (compressor).
- Thus, the refrigerant takes energy from the outside environment (e.g. air or water) and transfers it into the building.



HEAT EXCHANGER

- An important component is the heat exchanger 1, where the refrigerant takes up energy from the environment, such as air or water ("heat in"), in order to bring it into the building.
- It consists of a large surface with many very small tubes (with the refrigerant running through it) and a big fan blowing air through the lamellae of the heat exchanger.
- The refrigerant enters the heat exchanger (from the bottom) as a liquid and due to the energy it takes up from the environment it evaporates, forming a gas.

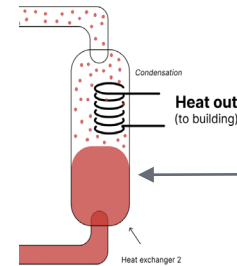


LEAKAGE

- It is highly important that there is no leakage in this cycle, where the refrigerant could leave this closed loop.
- Such a leakage could cause a breakdown or damage to the overall system – and even more important: the refrigerants quite often are substances which are highly potent greenhouse gases (in addition to ozone depletion properties).
- Since the goal is to provide an environmentally friendly form of heating, care must be taken to prevent such leakage (e.g. high-quality tubing and fittings) and once installed: to provide for a quick detection, in case such a leakage should occur.

EVALUATION OF A NEW TECHNOLOGY

- You are a producer of heat pumps for domestic purpose
- You found a patent from "Orcan Energy AG", which produces systems for recovering waste heat.
- A typical (small) example for such an installation is next to a biogas plant (Orcan product in red circle).
- The invention – as described in patent [EP2933442B1](#) – determines sub-cooling by temperature and pressure measurements at easy to reach spot of the installation



ΔT Sub-cooling
depends on
level of liquid
in vertical condenser

SUMMARY

- IPscore can be used to assess small portfolios of patents, ideas and projects
- IPscore version 3.0 is based on Excel
- Please find more information on www.epo.org/ipscore and this [patent knowledge nugget](#)

