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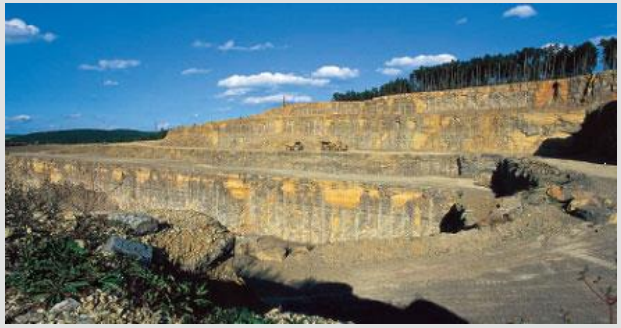
Costi, estensioni e possibili licenze all'interno del gruppo industriale

Natale Pimpinelli

Milano, 6 Dicembre 2017



Agenda

- HeidelbergCement AG
- Industrial Property lifecycle & Costs
- Essential steps for taking decisions
- Considerations on Licensing

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- **HeidelbergCement AG**
- **Industrial Property lifecycle & Costs**
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HeidelbergCement: history and development

1873	Foundation
1977	Lehigh, USA
1989	Central and Eastern Europe
1993	CBR
1995/96	China, Turkey
1999	Scancem
2001	Indocement, Indonesia
2005/06	Kazakhstan, India, Georgia
2007	Hanson
2010	Democratic Republic Congo
2015	Sale of building products North America & UK
2016	Italcementi

Founded in 1873, today, leading market positions in aggregates, cement, and ready-mixed concrete

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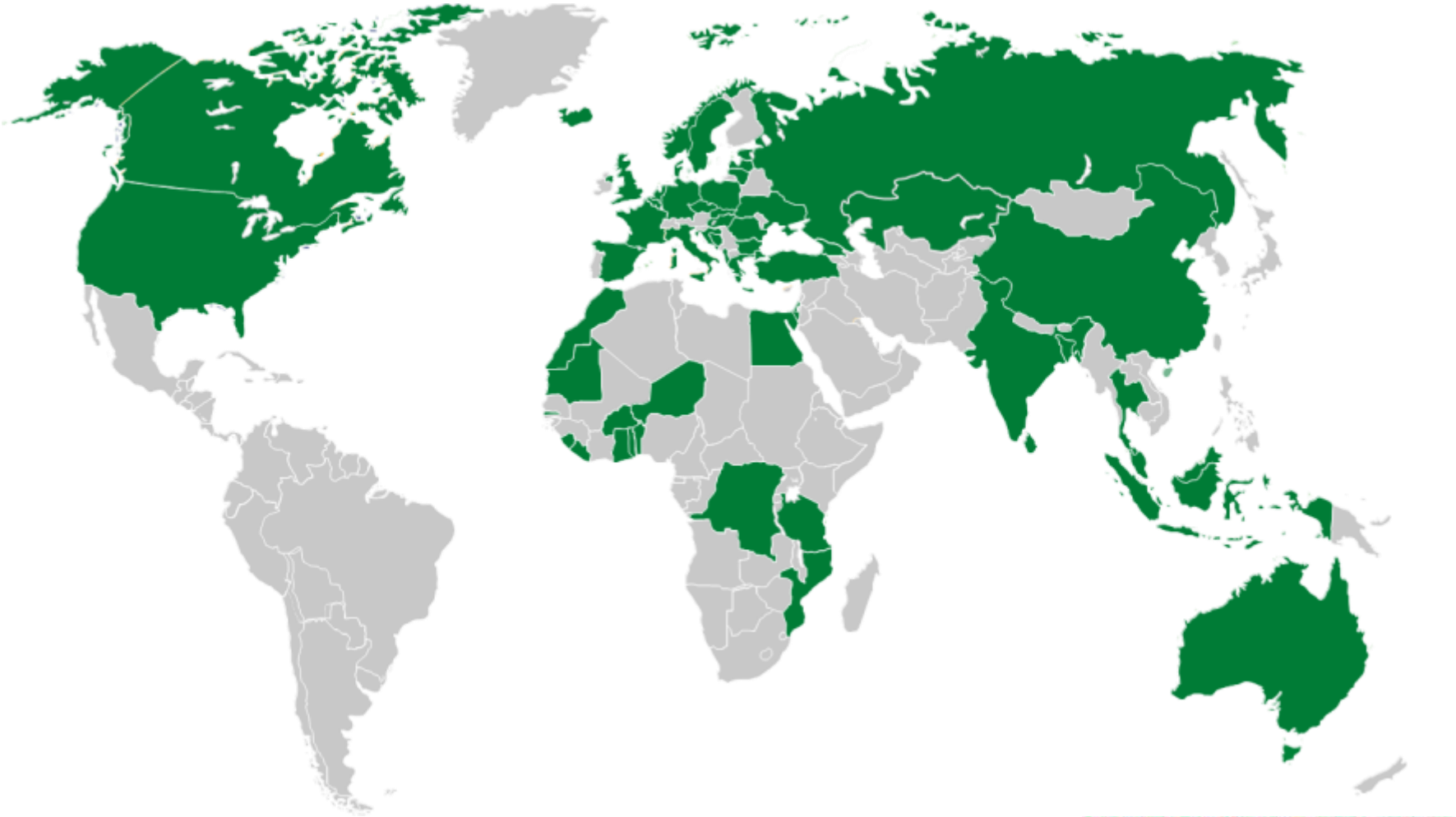
HeidelbergCement in the world – in around 60 countries

**Number 1 in aggregates, number 2 in cement,
and number 3 in ready-mixed concrete**



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HeidelbergCement in figures

- **60,000 employees**
- **Core business**
  - Aggregates
  - Cement
  - Downstream activities: ready-mixed concrete and asphalt
- **3,030 locations in around 60 countries (incl. joint ventures)**
  - 595 production sites for sand, gravel, and crushed rock
  - 160 cement and grinding plants
  - 1,723 ready-mixed concrete plants
  - 115 asphalt plants
- **Cement capacity 194 million tonnes (incl. joint ventures)**
- **Aggregates reserves and resources 20 billion tonnes**




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Example of Reference Project

Bank of Cividale del Friuli – Headquarter

i.active precast concrete

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Example of Reference Project

Church of the new hospital Bergamo, Italy

i.active precast concrete

Architects: Zublena - Traversi

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Example of Reference Project

Dior Boutique, Miami (USA)

i.active biodynamic

Architect:Barbarito Bancel Architectes

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Example of Reference Project

2010 Shanghai EXPO Italian Pavillon

i.light panels

The **Italian Pavilion for Expo Shanghai 2010** is the first building ever made with i.light.

Because of the huge success of the Italian Pavilion, with more than 6 million visitors in 5 months, the Chinese Government decided to keep the building as a permanent pavilion.

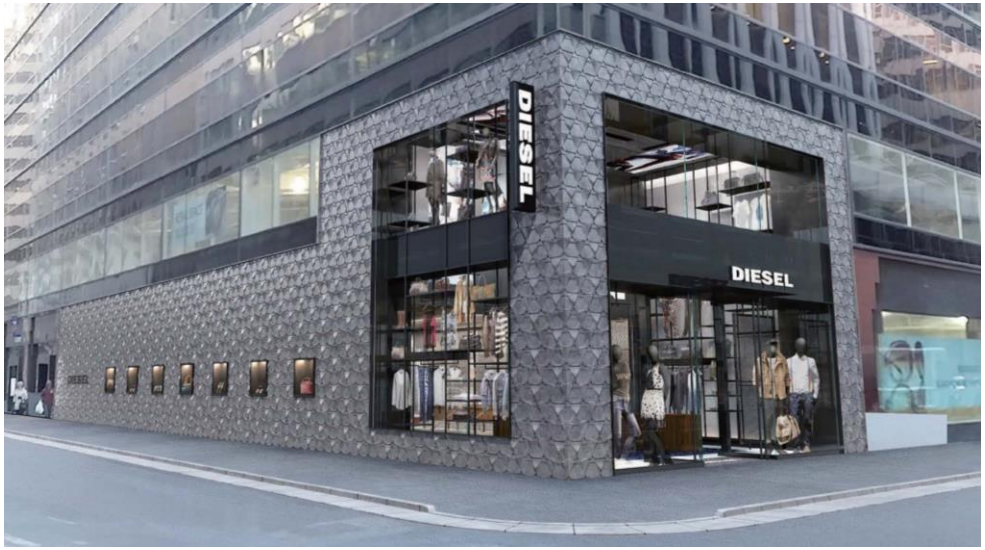
The structure will therefore continue to stand out as a radiant masterpiece among 2010's best inventions.

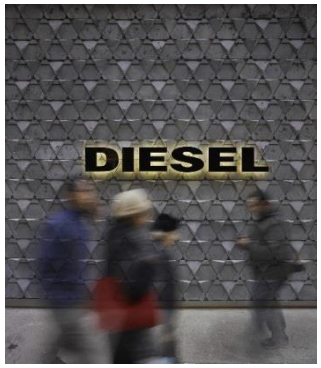
Example of Reference Project

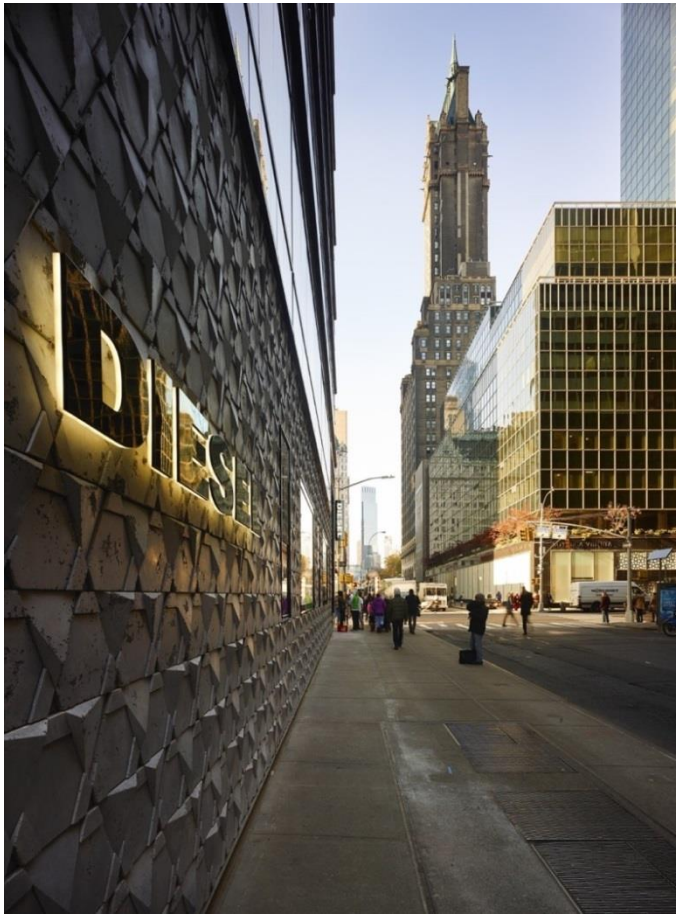
Diesel concept store, Madison Avenue - NY

i.design EFFIX CREA

Cladding elements for façade







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Example of Reference Project

Palazzo ITALIA, Milan EXPO

i.active biodynamic

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Research and Innovation at HeidelbergCement

- **R&D and product innovation in the cement, aggregates, and ready-mixed concrete business lines are concentrated in two research centers**
  - **Leimen: focus on reduction of CO_2 emissions, resource efficiency, decrease in production costs, and value added concrete solutions**
  - **Bergamo: focus on product innovations, development of high-end concrete applications, and new market opportunities**
- **All projects are defined and implemented by the teams at both centers in close coordination with the operating companies**
  - **The close collaboration from the start of the project facilitates the efficient implementation of the development results and a quick market launch**

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Agenda

- **HeidelbergCement AG**
- **Industrial Property lifecycle & Costs**
- **Essential steps for taking decisions**
- **Considerations on Licensing**

Industrial Property lifecycle

IP Process

- State of the art search
- Contact with the inventors
- Invention disclosure
- Collaboration with the external Patent Agent

- Determine filing strategy
- Application development
- Filing
- Office actions and responses till granting
- Filing abroad

- Portfolio maintenance strategy
- Payment & cost control
- Monitoring of competitors
- Determine portfolio divestiture strategy

- Opposition and validity defend
- Infringement survey
- Litigation and Suit

- Freedom to operate analysis
- Licensing or Sale strategy
- Due diligence
- Merger or acquisition

Costs

- *«Even presuming that every patent application filed will have some relevance for the business , and hence that all irrelevant patents will become redundant only at some point in their lives, it is clear that without proactive portfolio optimization, the patent budget will spiral out of control and significant resources – financial, time and human will be wasted»*

  (Josue Ortiz – UK- Intellectual Asset Management, May 2017)

- The difference between a cut of the patent costs and a potential addition due to license depends however by *how aligning the corporate strategy, in particular the R&D strategy, to the patent portfolio management.*

Patent Exploitation and alignment of business

Patent Exploitation and Strategy

- Reduction of costs and licensing in/out represent the link between protection approach and technology strategy

- The exploitation of IP requires an alignment with R&D strategies (& technologies) and marketing strategies

- The use of patents is very different across the industries : models described in literature for other businesses (pharmaceutical, automotive, electronic) cannot be used for our industry

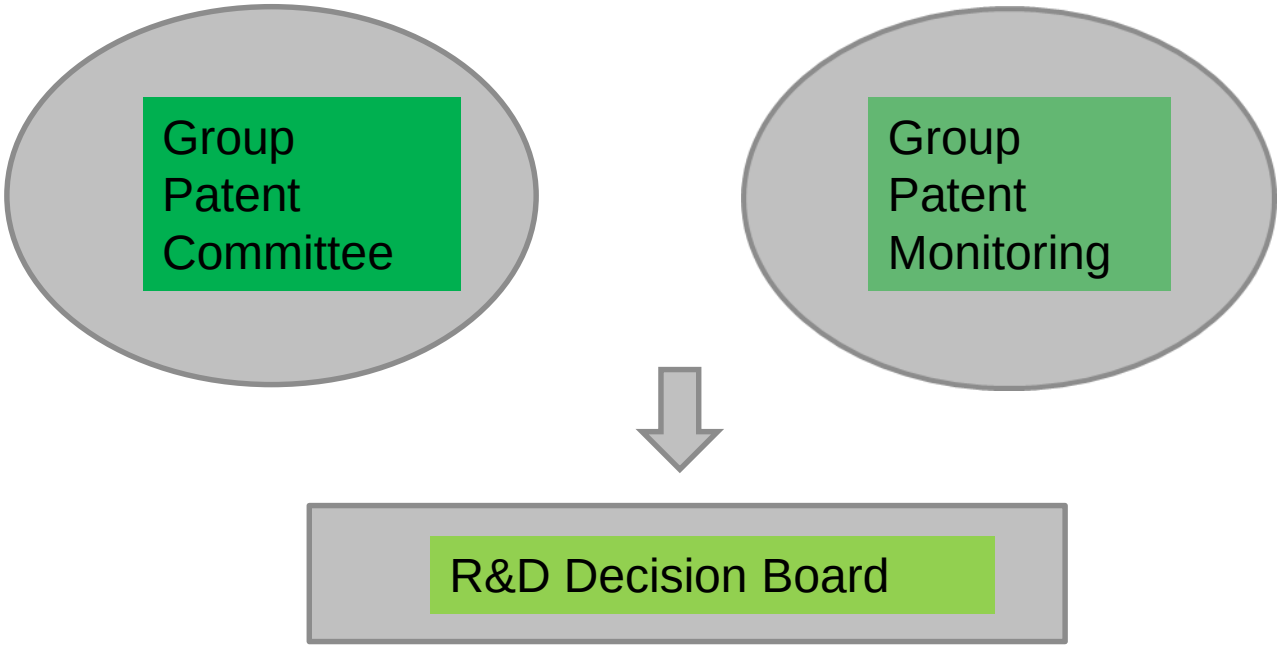
- Importance of standards for our business is fundamental

- Importance of patent for technological image of the company

- <u>It is necessary to have an objective method for taking the decisions</u>

Taking Decisions

- **Transparency**
- **Decision sharing**
- **Division of Responsibility**



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Patent Monitoring

	FYI only / interesting topic
	Relevant topic for HC / potential interference and / or threat for business
	Identified interference and / or threat for business

N° Cat.	Publication N°	Title	Applicant	Relevance / Abstract / Claims	Observation [yes / no]	Comment	Comment
1	WO2017134621 (A1)	COMPOSITION FOR USE IN BUILDING CONSTRUCTION	LABORATORI ARCHA S R L [IT] PERSONAL FACTORY S P A [IT]	The invention relates to a composition for building construction comprising a paper sludge deriving from de-inked paper recycling processes, the sludge having a grain size distribution D90 in the range of 30 to 1000 µm and an ingredient selected from the group consisting of modified cellulose, cement, furnace slag and mixtures thereof. CLAIMS: 1 . A composition for building construction comprising a paper sludge deriving from de-inked paper recycling, the sludge having a grain size distribution D90 in the range of 30 to 1000 µιη and an ingredient selected from the group consisting of modified cellulose, cement, furnace slag and mixtures thereof. 2. The composition for building construction according to claim 1 , wherein the grain size distribution D90 of the paper sludge deriving from de-inked paper recycling is in the range of 40 to 750 µιη, preferably of 50 to 450 µιη. 3. The composition for building construction according to claim 1 or 2, wherein the paper sludge deriving from de-inked paper recycling has a moisture content below than or equal to 15% by weight, preferably below than 5% by weight, more preferably below than 2% by weight. 4.....			
2	EP3208061 (A1)	METHOD FOR PRODUCING A CONCRETE MATERIAL	GÖTSCHL FRANZ [AT] SPAROWITZ LUTZ [AT]	(machine-generated translation) Method for producing a concrete building material, in particular a fiber concrete, particularly preferably an ultra-high-performance fiber concrete, for a construction site comprising the steps of: filling a coarse-grain bulk material mixture into a coarse-grain bulk material container ; - Filling a fine grain-bulk material mixture in a fine grain bulk material container , wherein the fine-grain bulk mixture comprises a binder; - Processing the coarse grain bulk mixture and the fine grain bulk mixture with the addition of water to the concrete building material. CLAIMS: 1. Method for producing a concrete building material, in particular a fiber concrete, particularly preferably an ultra-high-performance fiber concrete, for a construction site comprising the steps of: filling a coarse-grain bulk material mixture into a coarse-grain bulk material container ; - Filling a fine grain-bulk material mixture in a fine grain bulk material container , wherein the fine-grain bulk mixture comprises a binder; Processing the coarse-grain bulk material mixture and the fine-grain bulk material mixture with the addition of water to the concrete building material, the coarse-grain bulk mixture having a proportion of more than 60% by weight of an aggregate with particle sizes of more than substantially			

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Essential steps for taking decisions

For a correct , objective and aligned evaluation we need a three dimension information :

- Strength of the patent technology
- Strategic evaluation by R&D
- Market evaluation

Essential steps for taking decisions

The technological factors of a **patent family** of **a Technology** can be derived by analyzing «public» indicators that are referred as external value indicators (**Scoreboard Methodology) :**

- Legal Robustness and Coverage
- Technological Relevance of the patents

➢ «Non public» elements that reflect strategic values assigned by R&D and referring to internal valuations. They are called **Strategic value indicators :**

- Strategic relevance

➢ **The purpose is to visualize for all the technologies based on the patent families a relationship between Strength of the Technology and Strategic relevance**

Essential steps for taking decisions

Scoreboard Methodology (Turin Polytecnic - Prof. G. Scellato)

		Indicators	Weight	Description
1	Legal Robustness	Grant status	High	Number of granted patents in the family
2		Search report quality	High	Presence of X & Y citations in Search Report
3		Family size	Medium	Presence of family members from specific Pat. Off
4		Residual life	Medium	Remaining time until the expiration date
5		Breadth claims	High	Scope of protection
6		Opposition survival	Medium	Survival to opposition procedure
7	Technological relevance	Number of inventors	Low	Number of inventors for applications
8		Number of citation received	Low	Number of citation of the patent
9		Number of patent references	Low	Number of references to previous patents
10		Number of literature references	Low	Number of references to scientific documents
11		Number and Type of claims	High	Proxy for the patent scope of the family
12		Number of IPC codes	Low	Proxy for the technological scope of the family
13	Strategical relevance	Relevance to Core business	High	Evaluation of pertinence to Core business
14		R&D cost of the project	High	Cost of the related projects during time
15		Presence of competitor	Medium	Presence of main competitors on the technology
16		Licensing Potential	Low	Potential license agreement

Essential steps for taking decisions

Legal Robustness and Coverage 1. Grant Status - High

- Granted patents represent the most easily enforceable portion of the invention portfolio for a Company (Guelle and Van Pottelsberghe de la Potterie, 2000)
- They are subject to the payment of periodic fees to be maintained in force

Grant Status	Score
The family contains no granted members	0
The family has an EP granted	0-20
The family has an USP granted	0-20

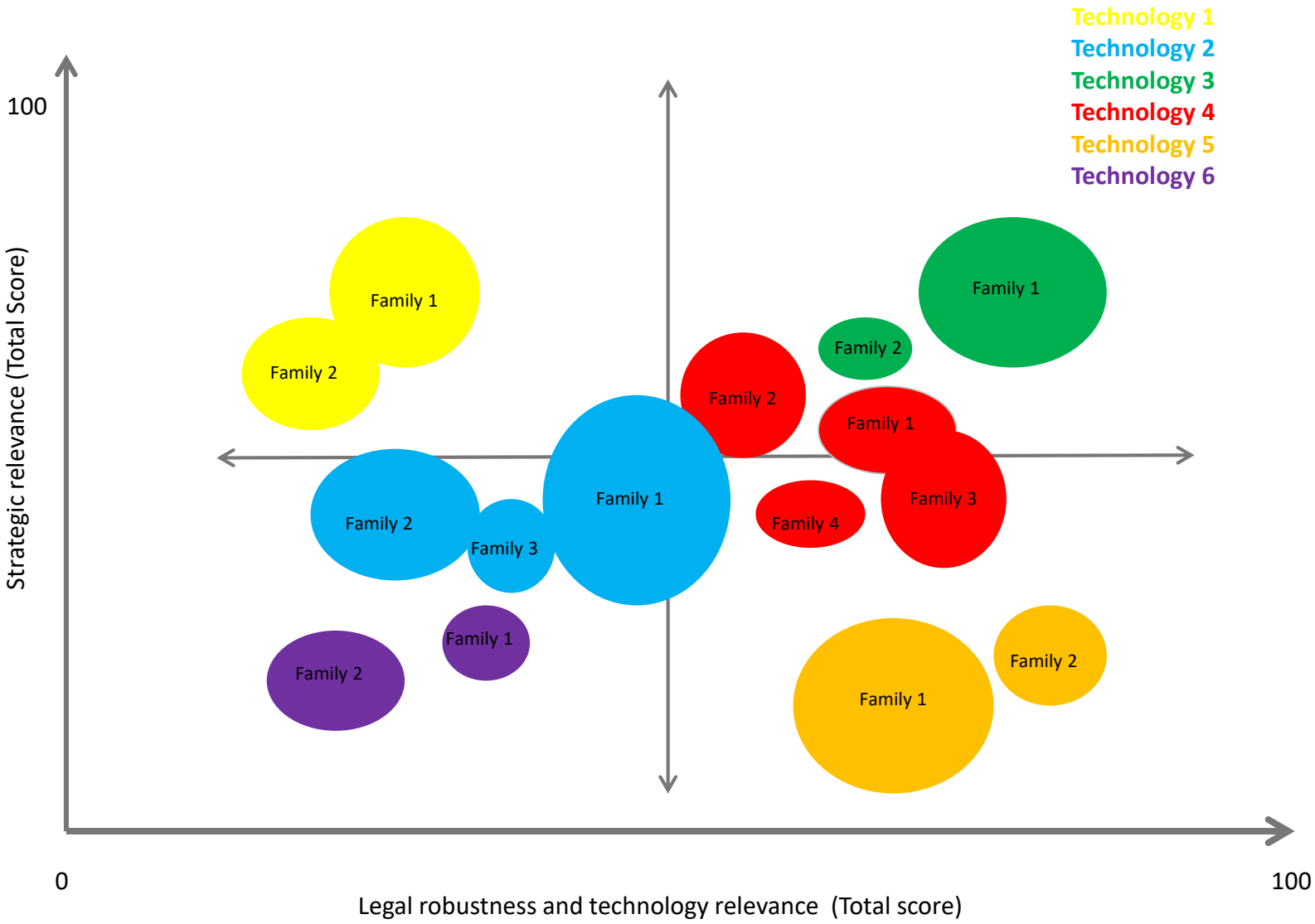
Essential steps for taking decisions

Strategic Relevance :13,14,15,16

- This part has to be analyzed by R&D and Innovation managers
- The scoreboard has to be carefully reviewed

Strategic Relevance	Score
Relevance to the Core Business	0-100
R&D costs for the projects during years	0-100
Presence of main competitors in the same field	0-50
Licensing potential	0-25

3. Essential steps for taking decisions



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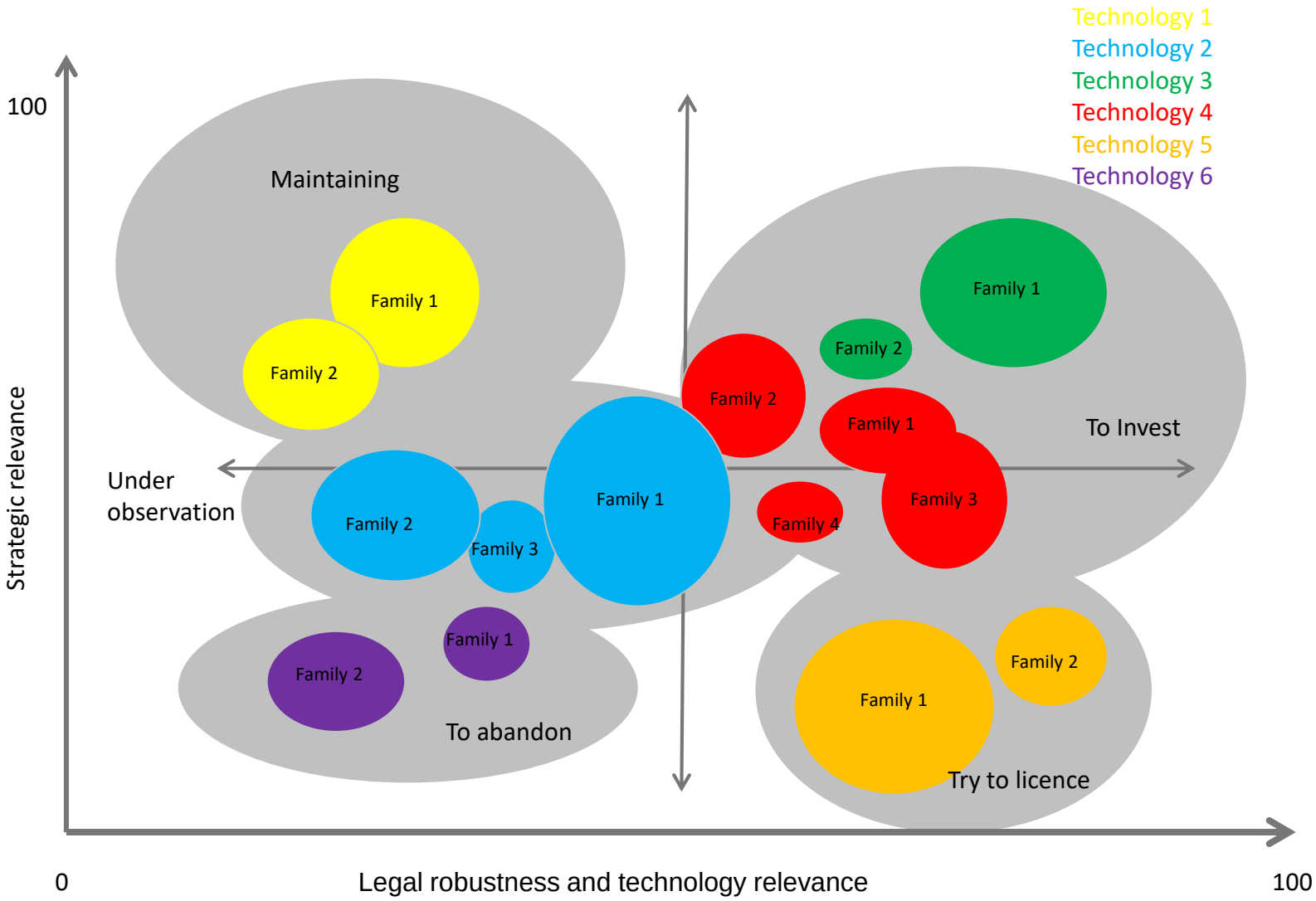
3. Essential steps for taking decisions



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Portfolio benchmark – Competitor analysis

Parameters such as prosecution success, prosecution breadth, and external recognition are studied and compared with the same parameters in the competitive patents. This allows for the calculation of a relative quality score that indicates the strength of the patent portfolio in comparison to the broader research environment.

	HeidelbergCement			Competitor 1		
	Total Records	Average Strength Score	% Recent	Total Records	Average Strength Score	% Recent
Technology A	124	37.9	14%	38	41.5	50%
Technology B	62	39.5	80%	42	55.3	32%
Technology C	71	35.4	100%	32	58.8	100%
Technology D	94	36.9	38%	103	61.4	15%
Technology E	27	41.2				
Technology F	96	52.6	55%	45	58.1	11%
Technology G	58	18.8	15%	120	22.1	48%
Technology H	136	25.3	79%	140	32.0	38%
Technology I	52	51.5	8%	12	66.8	12%

Above Average Invention Strength Convergence Above 50% Recent Activity

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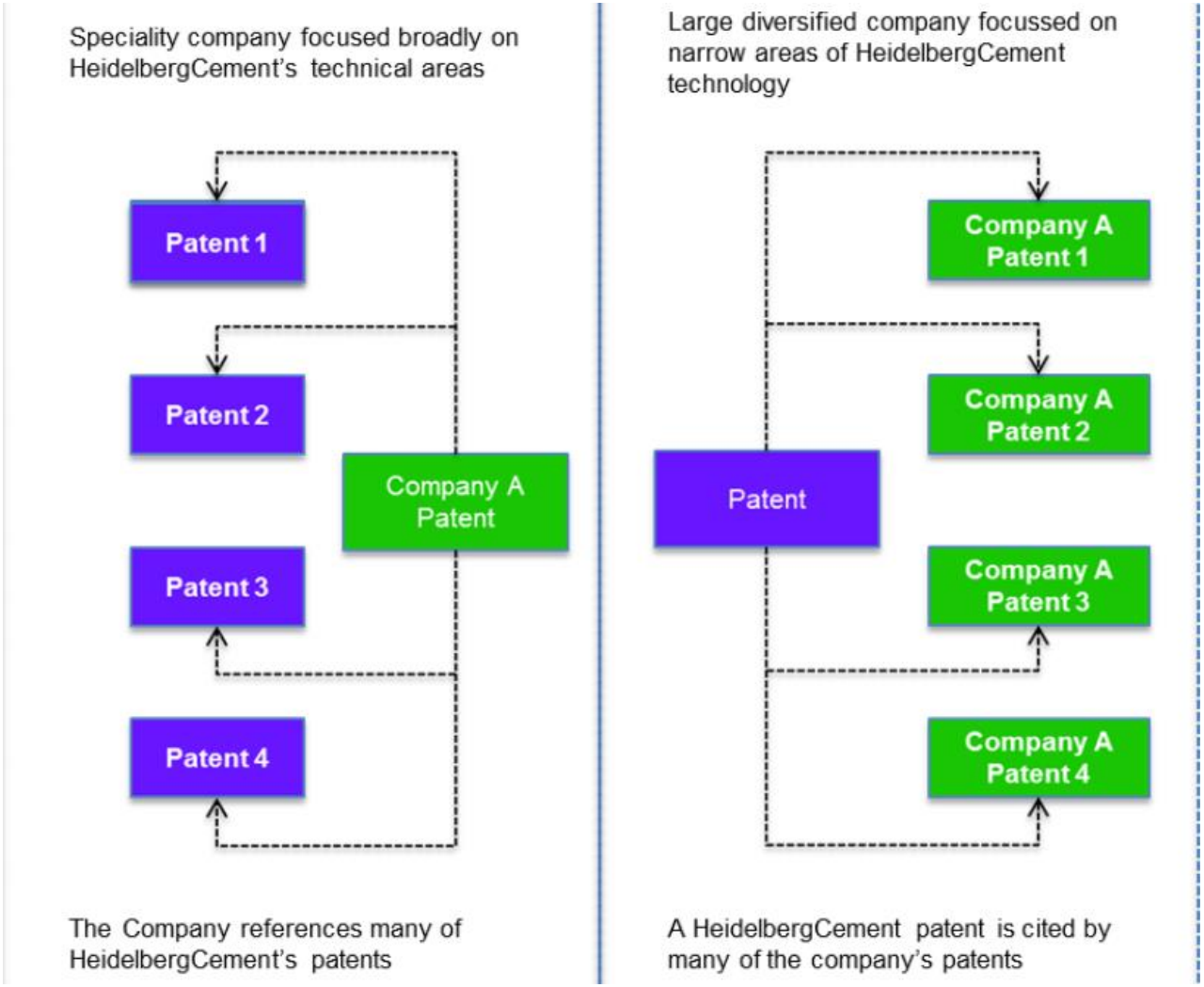
Portfolio benchmark – Competitor analysis



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Market Evaluation

In order to have *the third dimension* about the value of the market associated to the Technology it is necessary the alignment of marketing /commercial departments

		ITEM	SCORE		
		Technology 1	Low	Medium	High
Market Evaluation	1	Size of the market	X		
	2	Potential growth of the market		X	
	3	Environmental opportunities/Risks		X	
	4	Number of potential Customers			X
	5	Potential Profitability of Customers	X		
	6	Political/standard risks of the market	X		
Customer Advantage	1	Price Premium		X	
	2	Cost Saving	X		
	3	Operational efficiencies	X		

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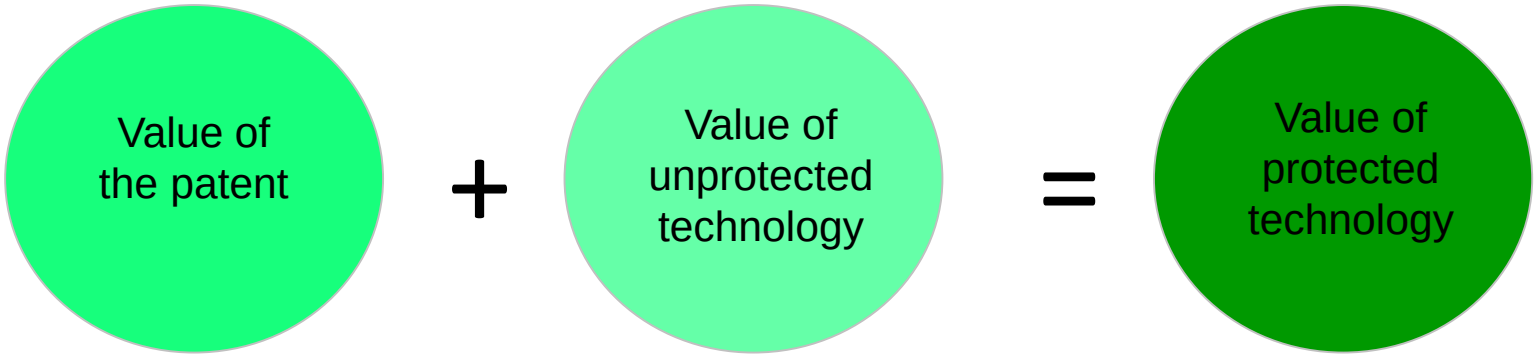
Considerations on Licensing

- Theoretically it should be decided if it is preferred to license the technology or try a direct sale
  - Licensing :
    - The technology is expected to be commercial successful
    - It is necessary a remuneration structure with royalty schedules
  - Sale :
    - Immediate cash
    - Avoidance of maintenance and prosecution cost
- Attention at the hidden costs
  - Search costs (difficult in finding potential buyers/licensees)
  - Information processing costs (due diligence on buyer/licensee)
  - Costs during negotiations (auditing IPR for ensuring a valid enforcement , setting the term of the agreement)
  - More than 50% licensing negotiations fail for the inability to agree on such terms (Razgaitis, 2006)

Licence Considerations



Apparently an obvious relationship, but often :

- IP rights have a limited value , at least in our field, without associated know-how
- Market value of technology can be related also to non technical factors and to the freedom to operate (access to market)
- Are you ready to license your know-how ? (Conventional – Unconventional)

Conclusion

- Both for a transparent IP costs reduction and for Licensing in/out it is necessary to start by an evaluation of the strength of our patent portfolio and how it matches with the strategic projects of R&D and Innovation

- For having a aligned evaluation of the situation is essential also the contribute of marketing people in order to assess the right economic value to the patents to be licensed

- Licensing is a strong tool but it has to be carefully managed

Sources

- Patent Evaluation and exploitation (Prof. G. Scellato- Turin Polytechnic)
- Patent Valuation: improving decision making through analysis (Murphy et al. (2012) Wiley Finance
- Clarivate Analytic (clarivate.com)
- WIPO : Successful technology licensing (http//www.wipo.int/edocs/pubdocs/en/licensing/903/wipo_pub_903.pdf)
- The challenge of misaligned patent porfolios (Josue Ortiz - Intellectual Asset Management May 2017)
- Lizenzvertrage –License Agreements Pagenberg/Geissler (1992)

for better building

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