

La Gestión de Carteras de Patentes en Empresas de Base Tecnológica: Caso Fractus

Los Lunes de Patentes – Centre de Patents UB

04/10/2010

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Fractus S.A.

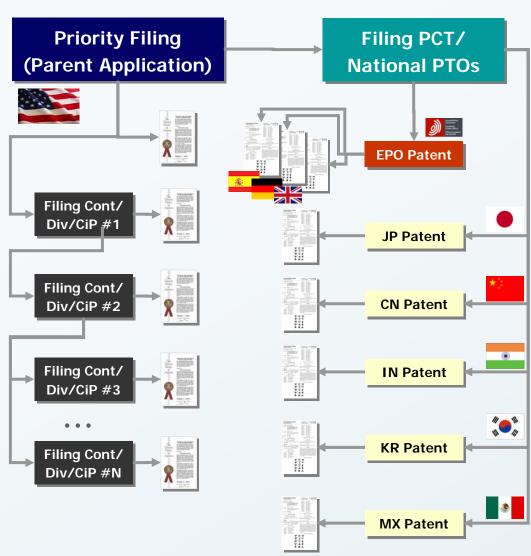
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- Caso Fractus: Empresa Basada en Tecnología y Patentes
- Diseño y Arquitectura de una Cartera de Patentes
- Costes e Inversiones en Carteras de Patentes
- Estrategias de Optimización de Inversiones en Patentes

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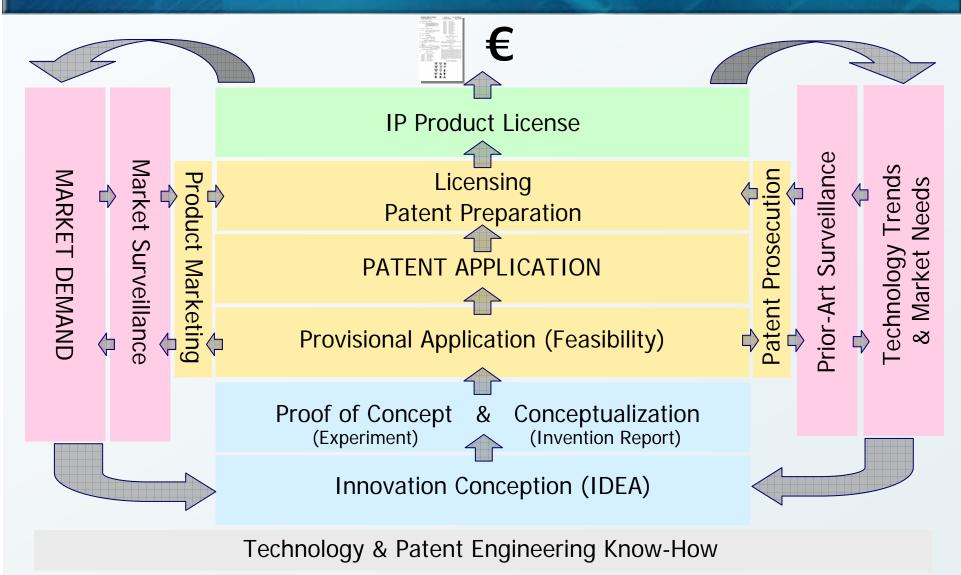
IP Product – The Patent Family



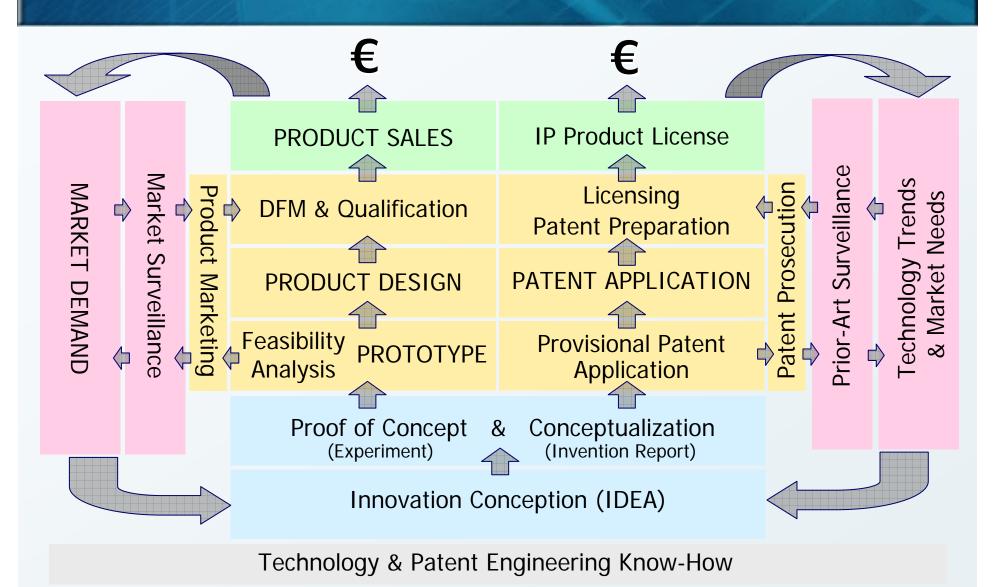
Patent Families

- All patents claimming priority from an original document are said to form a patent family.
- A patent family might comprise multiple patents (i.e. granted patents) in multiple territories.
- A patent family might include multiple patents in a single national territory (through continuations/divisionals).
- Scope of protection might be different for each patent of the family.

IP Product Development Cycle



IP vs. Tangible Product Development



Patents: Inventions and Products are Different

iPhone 3G

El iPhone que estabas esperando.



Apple Inc. has filed at least 22 international (PCT) patent applications for multiple inventions used in the iPhone (graphics display, user interface, self-rotating screen, ...)

•	TORTABLE MOLTH GIVOTION BEVIOL, METHOD, THE ORTH THORE COLK
	INTERFACE FOR INTERPRETING A FINGER GESTURE ON A TOUCH SCREEN
	DISPLAY (WO 2008/086302)
	PORTABLE ELECTRONIC DEVICE SUPPORTING APPLICATION SWITCHING (WO
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	MULTI-TOUCH GESTURE DICTIONARY (WO 2008/085784)
	GESTURE LEARNING (WO 2008/085783)
	PORTABLE MULTIFUNCTION DEVICE, METHOD, AND GRAPHICAL USER
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	PORTABLE ELECTRONIC DEVICE, METHOD AND GRAPHICAL USER INTERFACE
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	PORTABLE MULTIFUNCTION DEVICE, METHOD, AND GRAPHICAL USER
	INTERFACE FOR TRANSLATING DISPLAYED CONTENT (WO 2008/085744)
0.	OVERRIDE OF AUTOMATIC PORTRAIT-LANDSCAPE ROTATION FOR A PORTABL
	MULTIFUNCTION DEVICE WITH ACCELEROMETERS (WO 2008/085741)
1.	METHOD, SYSTEM, AND GRAPHICAL USER INTERFACE FOR VIEWING MULTIPL
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	RECOMMENDATIONS (WO 2008/085737)
3.	Somewhat earlier this year: <u>DELETION GESTURES ON A PORTABLE</u>
	MULTIFUNCTION DEVICE (WO 2008/030975)
4.	SOFT KEYBOARD DISPLAY FOR A PORTABLE MULTIFUNCTION DEVICE (WO
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7.	PORTABLE ELECTRONIC DEVICE, METHOD, AND GRAPHICAL USER INTERFACE
	FOR DISPLAYING STRUCTURED ELECTRONIC DOCUMENTS (WO 2008/030879)
8.	PORTABLE MULTIFUNCTION DEVICE, METHOD, AND GRAPHICAL USER
	INTERFACE FOR CONFIGURING AND DISPLAYING WIDGETS (WO 2008/030875
9.	PORTABLE ELECTRONIC DEVICE FOR PHOTO MANAGEMENT (WO 2008/030779
0.	PORTABLE ELECTRONIC DEVICE FOR INSTANT MESSAGING (WO 2008/030776)
1.	2007 UNLOCKING A DEVICE BY PERFORMING GESTURES ON AN UNLOCK IMA
	(WO 2007/076210)

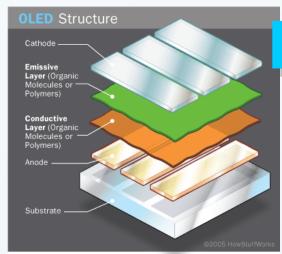
GESTURES FOR TOUCH SENSITIVE INPUT DEVICES (WO 2006/020305)

PORTABLE MULTIFUNCTION DEVICE METHOD AND GRAPHICAL LISER

Building a Patent Portfolio - Scope (1)

Intermediate Product → Final Product → Application Product







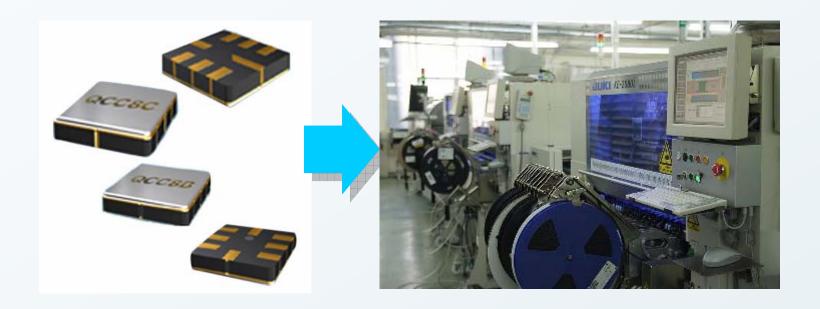




OLED → Flexible/Conformable Display → Mobile Phone

Building a Patent Portfolio - Scope (2)

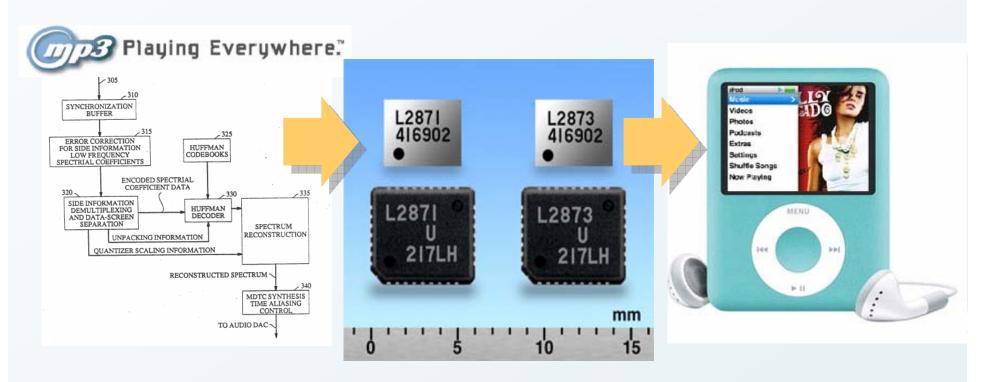
2. New Product → New Use → New Production Method



SMD Electronic Components → SMD Assembly & Soldering

Building a Patent Portfolio - Scope (3)

3. New Method/Process → New Product → New Use/Device/Appl.



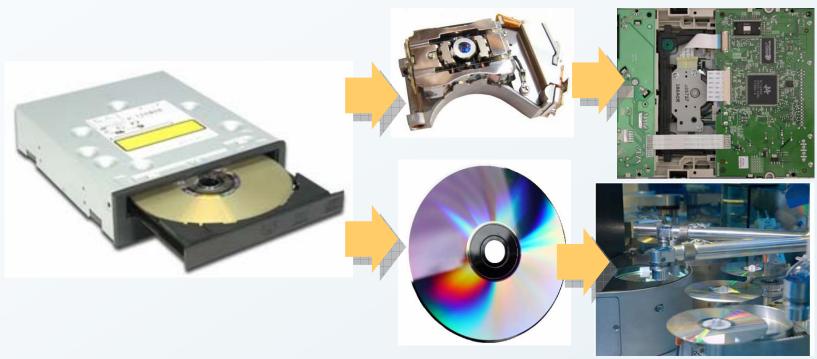
MP3 Algorithm

→ Signal Processor

→ MP3 Player

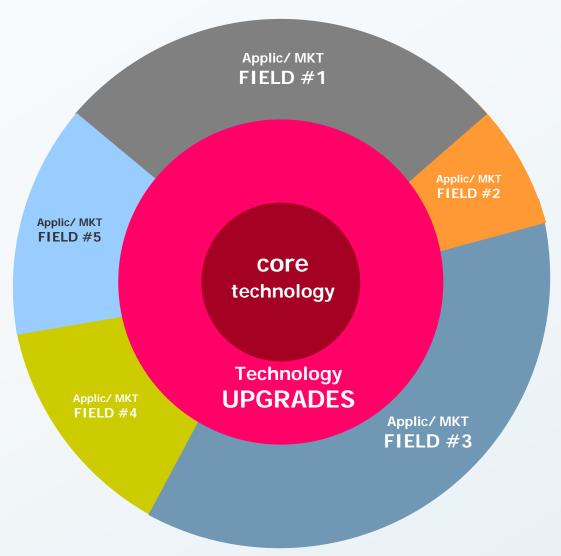
Building a Patent Portfolio - Scope (4)

4. New Apparatus → New Elements/Parts → Multiple Inventions



CD Player → Multiple Inventions: Laser Pick-Up, CD, Tracking, Recording, Manufacturing, ...

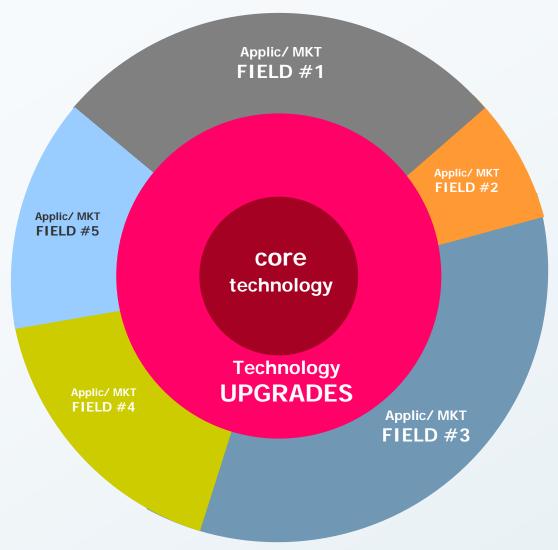
On the architecture of a PATENT PORTFOLIO



Example:

- CORE Technology: "OLED"
- Tech. UPGRADES:
 "Improvements in manufacturing, cost, wavelengths of OLEDs"
- **FIELDS** of Application/Markets:
 - Displays for Handhelds
 - TV Displays
 - Advertising Panels
 - On-vehicle signaling
 - Intelligent fabrics
 - Fashion fabrics
 - ...

On the architecture of a PATENT PORTFOLIO



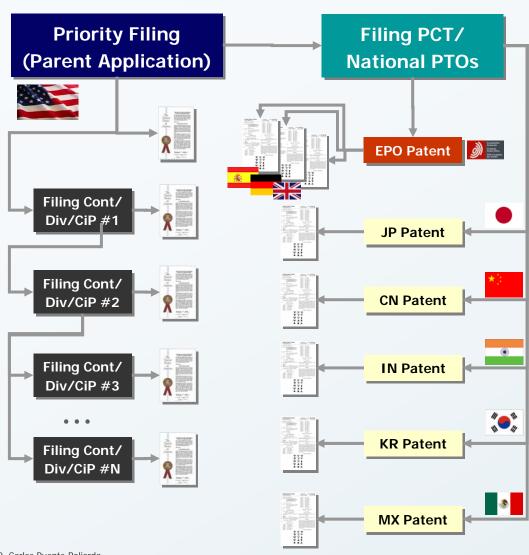
Some benefits of a layered architecture are:

- Multilayer protection: an asset of the company will be protected by multiple and different invention patents.
- Business Segmentation: Different IP assets might be used in different ways (selling, licensing, litigation) in different markets.
- Business Diversification: Risk (e.g. patent validity) is splitted in different fields, likelyhood of losing 'all eggs in the same basket' is lower.

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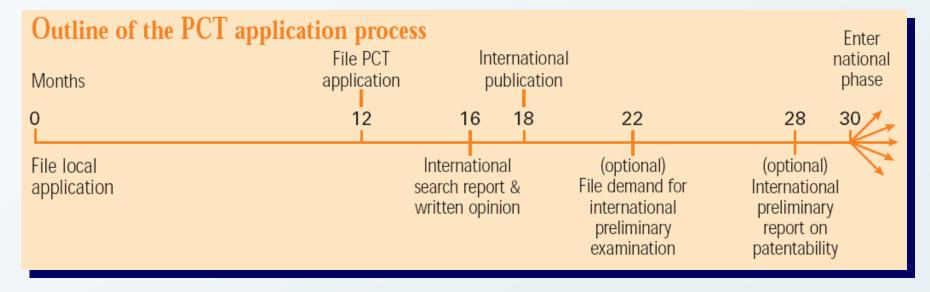
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PCT Filing and prosecution costs

■ The main costs related to a PCT patent filing are:

■ Filing of a PCT application¹: Int. Filing+Trans.+Search Fees (Note: Fees increase for docs beyond 30 pags.)	~ 3.000 €
There is an additional fee when demanding the 'International Preliminar Examination'. This exam is optional, non-binding and only provides some guidance.	1.675 €



Patent Agents Costs and Drafting Costs



Patent Agents and Patent Prosecution Attorneys are a most relevant source of cost in patent prosecution:

Typical Hourly rates for US patent agents: 250 ~ 450\$/h

Typical Hourly rates for EPO agents: 200 ~ 300€/h

The most relevant source of initial cost is retaining a patent attorney for **drafting** a new application:

US patent drafting:

2,000 ~ 9,000\$

■ EP patent drafting:

1,000 ~ 6,000€

- A significant cost reduction might be obtained if there is a high degree of involvement from client in drafting application (lower bound in the ranges above).
- Generally, patent agents charge for ANY action taken in front of the PTO: transmittal of letters and fees, and so on. This might be a surpluss cost to any PTO fee ranging from +20% ~ +100% of the fee cost.

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National Filing Costs (I)



- The cost of filing a patent application depends on each country. On average, it is safe to estimate an average filing cost of ~3,500€ including filing fees, patent agent fees, search fees and translations, in the following regions: US, EPO, CN, IN, KR, RU, MX, BR.
- Filing fees in JP are higher and a good average estimate is about ~6,000€.
- Independent 'self-filing' (without the intervention of an agent) is possible both in the EPO and USPTO. Cost is limited to official fees, which in those cases are about:

■ US: 850\$ ~ 1,200\$ (depending no. of claims)

EPO: 2.250€ ~ 3.000€ (designate 7+ countries)

The above filing costs are related to the process of filing alone, and do not include the costs of drafting a patent application as described in the previous slide.

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Examination & Office Actions Costs

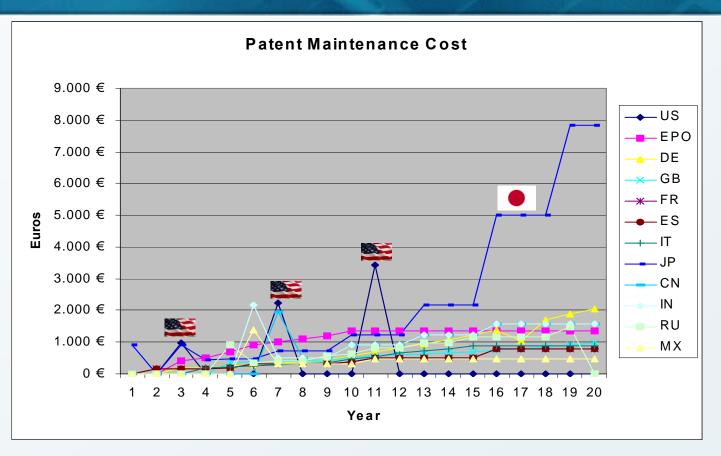


- Most PTOs charge a fee for examination in addition to the filing fees.
- Costs during the examination period are however mostly related to the office actions and the agent/attorney work to answer such office actions. On average it is adviseable to account for a cost over the examination period of time of:
 - US: ~ 6,000\$ over 30 months
 - EPO: ~ 4.500€ over 36 months
 - JP: ~ 13.000€ over 60 months
 - CN: ~ 6.000€ over 60 months
 - IN: ~ 4.000€ over 48 months
 - RU: ~ 5.000€ over 24 months
 - MX: ~ 3.000€ over 36 months



Maintenance Costs (I)





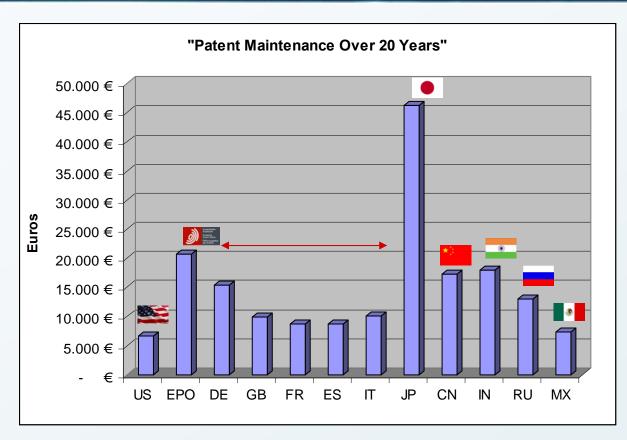
- In the US, mant. fees are only due on years 3.5, 7 and 11.5 from the date of patent grant
- **JP** has the most expensive maintenance policy.
- Generally, maintenance cost increases over time.
- Generally, maintenance fees only accrue after **3rd year**.



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Maintenance Costs (III)





- Maintenance in the US has the lowest cost:
 - Maintenance in **EPO** (5 top), JP, KR, is about: ~50k€
- Maintenance in a single EU country is more expensive than US
- EPO maintenance ceases after granting, when national maintenance fees start to apply (except for pending divisionals).



~7 k€

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Sources of Cost – 50-patent portfolio example (I)

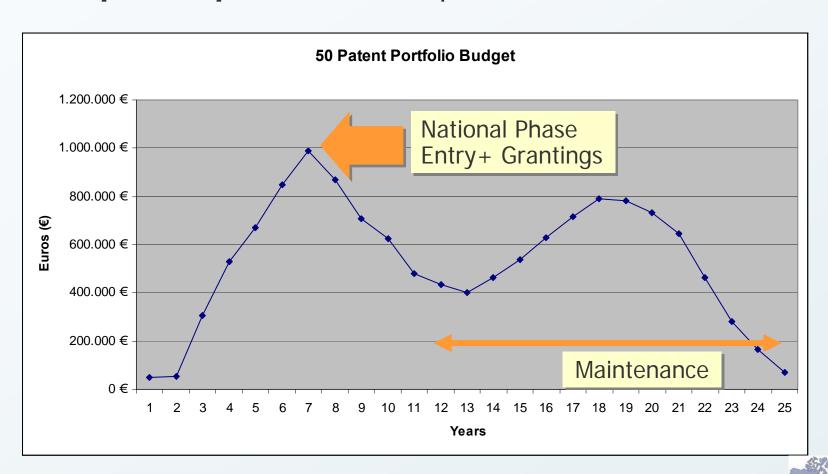
The **50-patent portfolio** example:



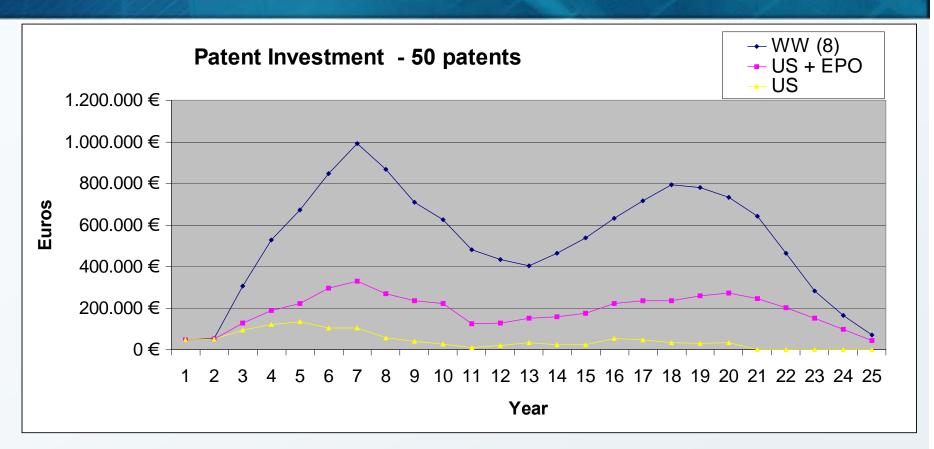
- ■10 patents/ year over a 5 year period (PCT route)
- Assume filing in 8 main jurisdictions: US, EPO, JP, CN, IN, MX, RU, BR.
- Overall budget for the entire portfolio term (25 years) is about 13m€, which on average represents about 500k€/year.

Sources of Cost – 50-patent portfolio example (III)

The **50-patent portfolio** example:



Geographical Policy – US Only Case



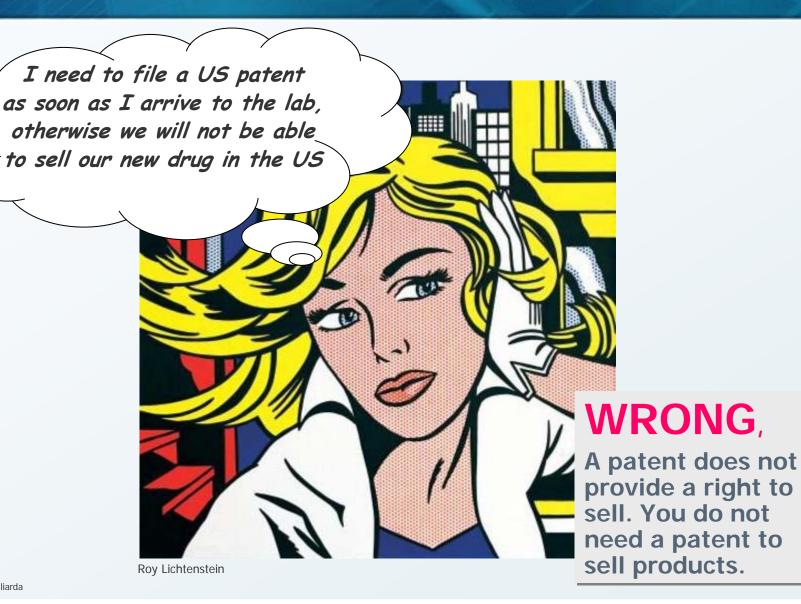
- Average total cost per patent reduced from 265k€ to 21k€!
- Total patent investment reduced from 13M€ to 1 M€!
- Average budget reduced from 500k€/yr to 43k€/yr!
- Peak cost around reduced to 135k€/year, around years 4,5,6.



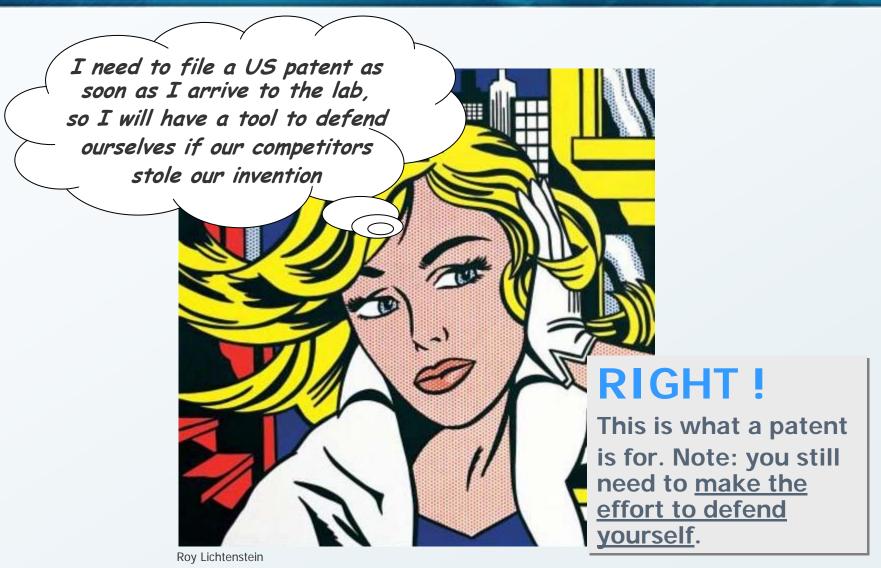
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What is a patent?



What is a patent?



What is a patent?

United States Patent [19] 6,094,413 [11] Patent Number: Guerra [45] Date of Patent: *Jul. 25, 2000 [54] OPTICAL RECORDING SYSTEMS References Cited U.S. PATENT DOCUMENTS [75] Inventor: John M. Guerra, Concord, Mass. 5,018,865 5/1991 Ferrell et al. [73] Assignce: Polaroid Corporation, Cambridge, 6/1992 Corle et al. 5,602,820 2/1997 Wickramasinghe et al. 369/126 8/1997 Lehureau ... This patent is subject to a terminal dis-* Notice: 5,666,197 9/1997 Guerra 356/359 5,715,059 2/1998 Guerra . 356/371 5,946,281 8/1999 Ito et al. 369/112 [21] Appl. No.: 09/225,844 [22] Filed: Dec. 31, 1998 Primary Examiner-Ali Nevzari Assistant Examiner-Kim-Kwok Chu Related U.S. Application Data Attorney, Agent, or Firm-Barry Gaiman; Joseph Stecewycz [63] Continuation of application No. 08/972,778, Nov. 18, 1997. Pat. No. 5,910,9420, which is a continuation-in-part of appli-cation No. 08/728,262, Oct. 8, 1996, Pat. No. 5,754,514. ABSTRACT An optical storage system suitable for optical storage and retrieval of information using a storage medium comprising a substrate, an active layer for retention of the data, and an overlying optical layer, or layers for double-sided. The . 369/275.1; 369/109; 369/44.23; 369/94; 369/112; 369/275.4; 369/283; 369/284 ontical layer serves to produce an evanescent field in or adjacent to the active layer in response to an incident beam of radiation. The evanescent field is frustrated or attenuated [58] Field of Search by the data in the active layer and produces a signal. 369/275.1, 44.12, 44.14, 44.23, 109, 112, 275.4, 44.37, 283, 284, 94; 250/201.5, 306: 356/371, 376 65 Claims, 25 Drawing Sheets

- The owner of the patent (the patentee) has "the right to prevent or STOP others from making, using, offering for sale, selling or importing a product or a process including the patented invention without the owner's permission".
- A patent provide a NEGATIVE RIGHT, i.e., the right to stop others from making unauthorized use of an invention. A patent does NOT provide a POSITIVE "FREEDOM TO USE" right, i.e., the right to make or sell a product or an invention.
- A patent is intended to **protects an invention**, **not necessarily a product**. An invention can be understood as a "**new and inventive solution to a technical problem**". A product can include multiple inventions which might be protected independently.

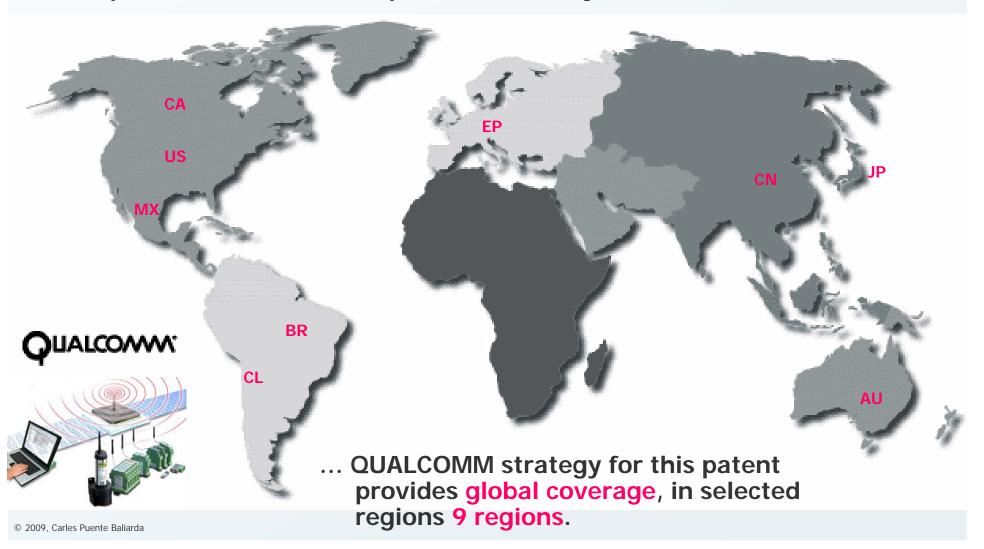
Geographical Strategy – PHARMA Example

Example: "Combination Therapy for Osteoporosis" WO9731640...



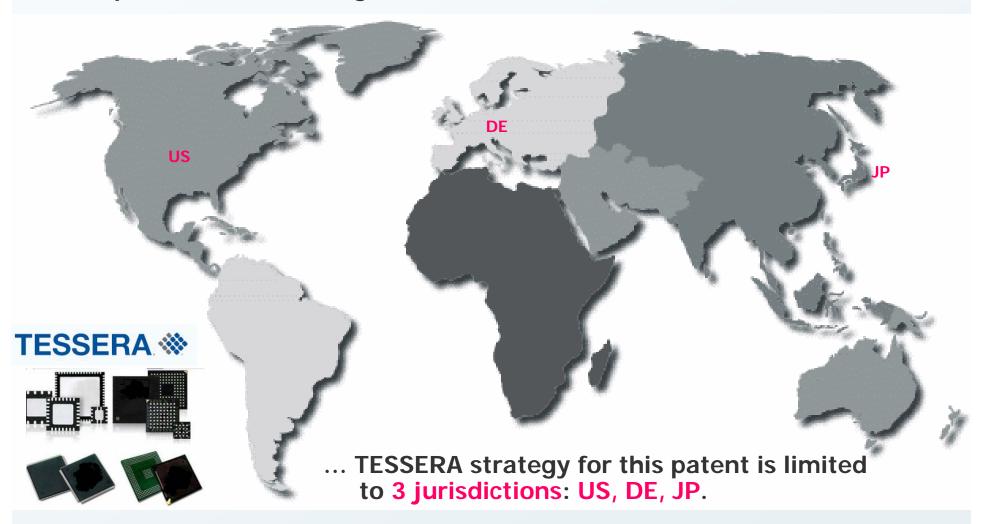
Geographical Strategy – WIRELESS Example

Example: "Phase Locked Loop for an OFDM System" WO2004093363 ...



Geographical Strategy – SEMICONDUCTOR Example

Example: "Stacked Packages" W003032370 ...



Geographical Strategy – WHERE and WHY?

So, why are there such significant differences in the geographical coverage for patents across different industries?







PHARMA
30-50 Countries

WIRELESS
3-10 Countries

SEMIC.

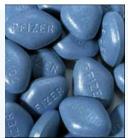
1-3 Countries



The PHARMA INDUSTRY case









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- Huge product margins (~90%) in the Pharma industry are sustained only through the value of patents.
- Production of drugs is relatively inexpensive and usually does not require heavy investments.
- **Distribution** of drugs is rather **easy** (e.g. internet) except for local government regulations.
- Heavy R&D investments required which introduce a significant entry barrier to competitors ...
- ... unless competitors can copy. Margins are so high that local pharma companies might become very lucrative business (e.g. 'Generic Labs')
- Market is highly regulated and monitored by local governments. 'Free riders' are discouraged.

The patent investment in a small country might pay-off since each country is a lucrative business per se and IP is, in general, respected.

The WIRELESS/TELECOM case







- Margins in the telecom/consumer electronics markets are moderate (5%-30%) and volume is a driving success factor in this market (e.g. Nokia with 35%-40% share).
- Product platforms might be quite globalized, although customization of productds for regional markets exist (e.g. frequency bands/standards).
- Design of complex products in a high-pace market makes competition tough...
- ... but manufacturing (and design) is being commoditized and moved to low cost regions: global manufacturing.
- Moderate margins do not incentivate respect for IP.
- A **few local competitors** have been able to survive and compete (e.g. Samsung, LG, Pantech in Korea), many failed.

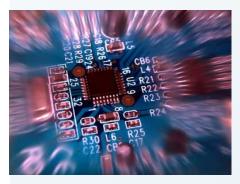


Portfolio reach should be global, yet only focusing on main markets/mass-production regions. Entry barriers are high enough to prevent competitors in small mkts.

The SEMICONDUCTOR INDUSTRY case







- Margins in the semiconductor electronics markets are moderate (5%-30%) and volume is a driving success factor in this market.
- IP leverage sometimes is able to keep **high margins** for high added value products (e.g. Intel).
- Products are highly globalized and standarized. Local design and customization strongly discouraged.
- Huge investments in production are required. Strong concentration in selected regions. Local manufacturing virtually unexistent.
- High investments in R&D required, quite respect for IP to protect margins, synergies and cooperation.

Blocking a few strategic markets is usually enough to prevent unfair competition. Global licensing agreements with global players possible. Blocking key production centers also to be considered.

Not ALL patents are EQUALLY VALUABLE



Each patent contributes different to the value of the patent portfolio, which does not only depend on the technical content of the patent, but also on legal and business factors:

Business Factors:

- Impacted Revenue
- Value Contribution into Impacted Market
- Essentiallity in Impacted Market (i.e. lack of alternatives).
- Competitive Advantage
- Focus on Strategic Markets

Legal Factors:

- Quality of claims: diversification, quantity, language
- Focus of claims: clarity of infringement.
- Validity likelihood: contrasted prior-art.
- Enforceability
- Prosecution History (US)

Technology Factors

Scope of Technology: Fundamental vs. Marginal Contribution

Patent Portfolio SCORING and RANKING

			F	PATENT	PORTI	FOLIO S	CORIN	G AND	RANKII	NG				
	Business					Legal				Technical				
Portfolio Patent		Impacted Revenue		Essentiallity	Competitive Advantage	Strategic	Quality of claims	Focus of claims	Validity likelihood	Enforceability	Prosecution History (US)	Scope of Technology	Patent I	Patent Class
Core	Patent 000001	3	3	2	3	2	1	2	2	1	2	2	2,1	Α
	Patent 000002	2	2	1	2	1	2	3	1	2	3	3	2,0	A
	Patent 000003	1	1	2	3	3	1	3	3	1	3	3	2,2	Α
	Patent 000004	3	3	1	3	3	3	1	3	3	1	1	2,3	A
Upgrade	Patent 000005	1	3	3	1	2	1	2	2	1	2	2	1,8	В
	Patent 000006	1	2	1	0	0	1	0	0	0	1	2	0,7	С
	Patent 000007	2	1	2	2	2	1	1	2	2	1	2	1,6	В
	Patent 000008	1	2	3	3	1	2	3	1	1	2	3	2,0	A
Field #1	Patent 000009	3	1	3	3	3	1	3	3	3	1	3	2,5	A
	Patent 000010	3	3	1	1	3	3	2	1	3	3	1	2,2	A
	Patent 000011	2	1	2	2	1	2	1	2	2	1	2	1,6	В
Field #2	Patent 000012	2	1	2	3	2	3	2	3	1	2	3	2,2	A
	Patent 000013	2	0	2	- 2	0	0	0	0	0	1	1	0,7	C
	Patent 000014	1	2	3	3	1	2	1	2	3	3	1	2,0	Α
	Patent 000015	2	1	2	3	2	3	2	3	2	1	2	2,1	A
	Patent 000016	2	1	2	2	1	2	2	2	2	1	2	1,7	В
	Patent 000017	1	2	3	1	2	3	1	1	1	2	3	1,8	В
Field #N	Patent 000018	3	1	3	3	1	3	3	3	3	1	3	2,5	A
	Patent 000019	3	3	1	3	3	1	3	3	3	3	1	2,5	Α
	Patent 000020	0	1	2	1	0	0	2	0	0	1	1	0,7	C
													WEIGHT	ING

WHERE: The MARKET/REGION/VALUE Matrix



	Geographical Policy Matrix								
Patent Class	Core	Upgrade	Market #1	Market #2	Market #3	Market #4			
A	US, EP, JP, CN, IN, RU, KR, MX, BR	US, EP, JP, CN	US, EP, JP, CN, IN, RU, KR, MX, BR	US	US, EP	US			
B = 100 mm	US, EP, JP	US	US, EP, JP	US	US	US			
C	US	N/A	US	N/A	N/A	N/A			

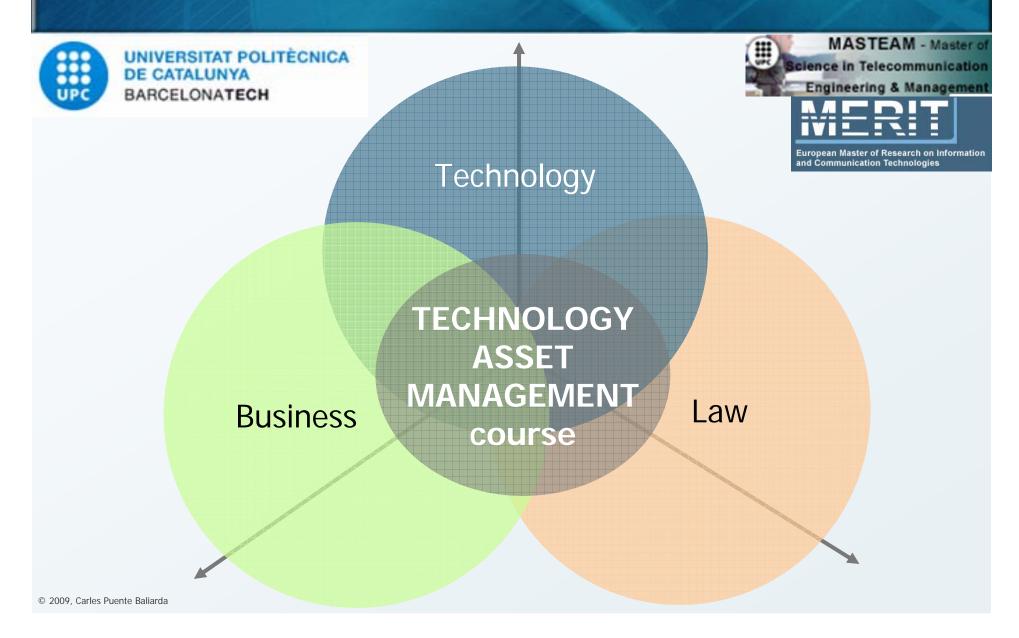
Contacto

Dr. Carles Puente i Baliarda

<u>carles.puente@upc.edu</u> D4-214 (C.Nord, UPC)

- Professor, Universitat Politècnica de Catalunya (UPC),
 Dept. TSC (1994-1998, 2008-2010)
- Co-founder and Chief-Technology Officer, Fractus S.A. (1999-2008). Chief Scientist (2008-2010).

TECHNOLOGY ASSET MANAGEMENT ('TAM') course at UPC





Base Tecnológica: Caso Fractus

Dr. Carles Puente Baliarda TSC Department, UPC Fractus S.A

Patents: Inventions and products are different (II)

iPhone 3G

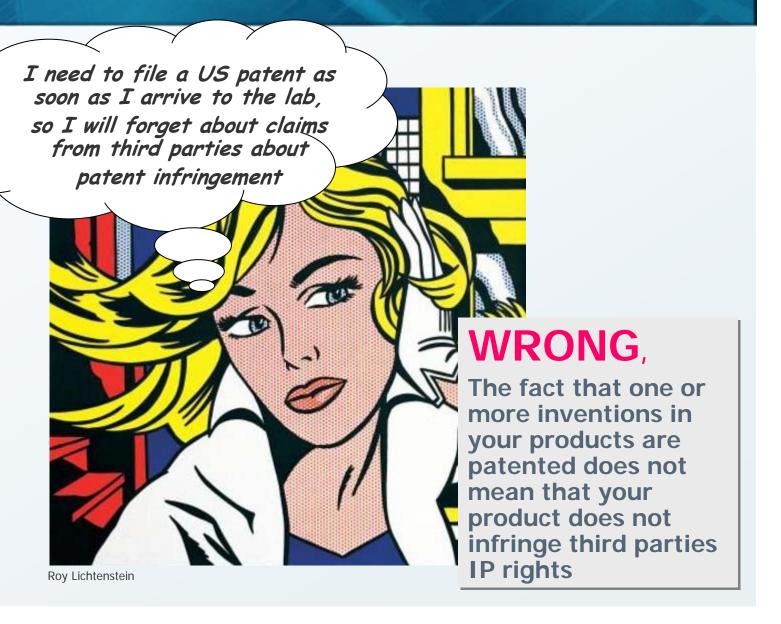
El iPhone que estabas esperando.



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,	DIFFERENT GESTURES (WO 2008/030972)
6.	EMAIL CLIENT FOR A PORTABLE MULTIFUNCTION DEVICE (WO 2008/030970)
7.	PORTABLE ELECTRONIC DEVICE, METHOD, AND GRAPHICAL USER INTERFACE
_	FOR DISPLAYING STRUCTURED ELECTRONIC DOCUMENTS (WO 2008/030879)
8.	PORTABLE MULTIFUNCTION DEVICE, METHOD, AND GRAPHICAL USER
^	INTERFACE FOR CONFIGURING AND DISPLAYING WIDGETS (WO 2008/030875)
9.	PORTABLE ELECTRONIC DEVICE FOR PHOTO MANAGEMENT (WO 2008/030779)
0.	PORTABLE ELECTRONIC DEVICE FOR INSTANT MESSAGING (WO 2008/030776)
1.	2007 UNLOCKING A DEVICE BY PERFORMING GESTURES ON AN UNLOCK IMAG
2	(WO 2007/076210)
2.	2006: GESTURES FOR TOUCH SENSITIVE INPUT DEVICES (WO 2006/020305)

What is a patent?



What is a patent?



Roy Lichtenstein

WRONG,

Companies copy and make unauthorized use of IP rights quite often (even unintentionally). Patents do not prevent copying but provides a mean to stop it or at least get compensated.

WHEN AND WHY?

Several schemes are usually followed before taking the decission of filing a patent:

Conservative:

- Make a prior-art review before filing
- Make a business case for the patent investment
- Get approval from innovation/IP comittees before filing

Moderate:

- Make a prior-art search before filing
- Delegate on a team of business/technical experts the filing decission.

Pro-Active:

Delegate on a team of 1-2 experts the decission on filing a provisional.

Agressive:

SFAQL : Shot First Ask Questions Later

WHEN AND WHY depends on WHO you are..

Large Innovative Corporation

- Many R&D project run in parallel
- Multiple business units
- Global reach.
- Already owning large portfolio
- Participating in patent pools
- Tough Competition in Product Market

Large Tech & Licensing Company

- Many R&D projects run in parallel
- Multiple business units
- Global reach
- Already owning large portfolio
- Patent Licensing is a core business

Large Tech-User Corporation

- Focus on services or traditional product business
- Patents seen as a 'defensive' (¿?) tool to protect product business
- Present in technology intensive markets

Technology Start-Up

- Highly innovative, creative
- In-house top-experts
- Low resources
- Many activities handled together
- Patent Licensing might become a core business

Some possible/common strategies ...

Large Innovative Corporation

- Usual to operate in a Conservative mode.
- Conservative mode adds costs upfront (searches, comittes) and delays decissions. Moderate mode could be an alternative.

Large Tech & Licensing Company

- Moderate to Pro-Active modes are possible.
- Specific incentives to R&D teams to produce patentable inventions and file patents.

Large Tech-User Corporation

- Usually operate in a Conservative mode.
- Patents seen as **defensive** tools to protect their product/service business.
- High exposure to litigation, should seek protection from main tech product suppliers.

Technology Start-Up

- SFAQL is best than Conservative/Moderate.
- Prior-art searches are not always required since internal experts already have a substantial perspective on state of the art.
- Pro-Active mode is highly adviseable.

IP Product Development ...

For a technology and patent based company, IP rights are the substance of their IP product portfolio. Patents can be turned into effective IP Products subject to development cycles analogous to traditional products.

