

Intellectual Property & Entrepreneurship

Turning inventions to startups



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Forms of Intellectual Property



PATENT

Hardware & Software

REGISTERED TRADEMARKS

**“Thumb Drive” &
“TOUCH”**

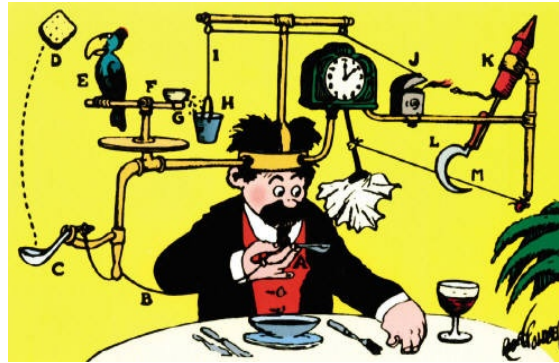
REGISTERED DESIGNS

Shape of device

COPYRIGHT

Software & User Manual

Patent facts

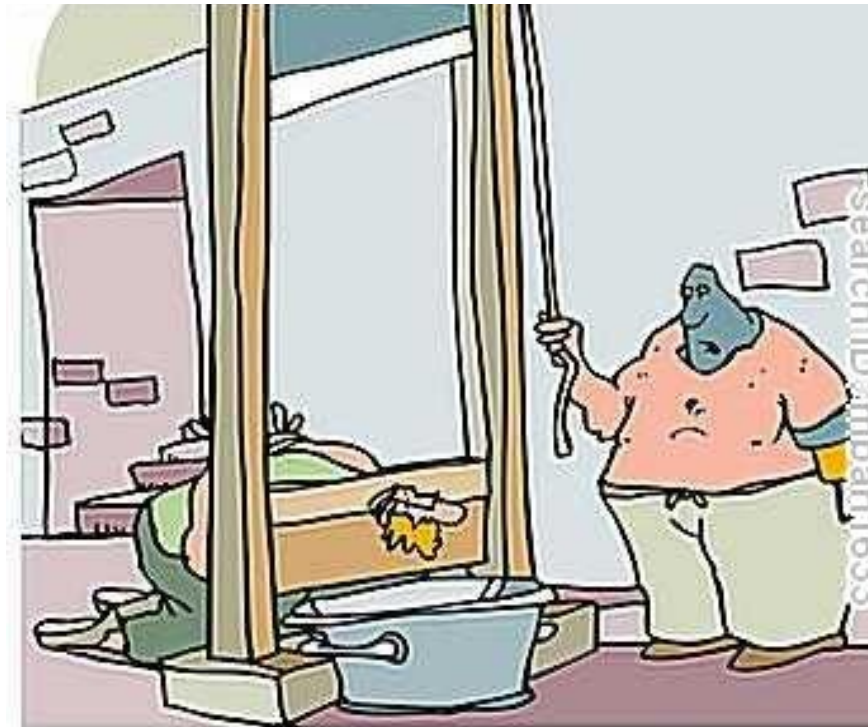


- Legal rights granted for new inventions employing scientific & technical knowledge
- Grant of privilege, property & authority by a country for a limited period of time –20 years
- Patents can be bought and sold and used to attract investment
- Valid in the country in which it is granted.

Protect your ideas - Patent them

The “**exclusive right**” hinders everybody who has not contributed to the development of the invention from copying and marketing it.

Forbid the use, sale or manufacture of a product or process by a **third party not authorized** to do so.



“It’s not the same. I was caught stealing office supplies. You, on the other hand, got caught stealing ideas.”

Reproduced from Cartoonstock.com

“He who did not contribute should not profit”

Role of IP in the entrepreneurial context

- when to spend the money to acquire Intellectual Property?
- what kind of IP to protect ?
- Are you stepping on someone else's territory/IP?
- what is your competitive strategy and how does IP fit into that competitive strategy?

The birth of “Anywayup” cup

- Mrs Mandy Haberman –basic degree in graphic design
- worked in the field of adult literacy
- In 1982, had a baby who suffered from severe feeding problems and could not suck from a bottle
- Dissatisfied with the products available in the market to deal with the problem
- developed a special feeding bottle called the Haberman Feeder



Refining the idea

Discussed problem with friends who had small kids visited the home of other parent and watched child drinking from a trainer cup.

Problem that persisted: parent's attempt to get the milk into the baby and stop getting onto the floor.

Motivation to design a better trainer cup that would not leak even if

- *turned upside-down and shaken vigorously for ten seconds, or*
- *left upside down overnight.*

The first step – Prior art search

By the early 1990's - the idea of making a leak-proof trainer cup was known to manufacturers, yet no design that was completely satisfactory

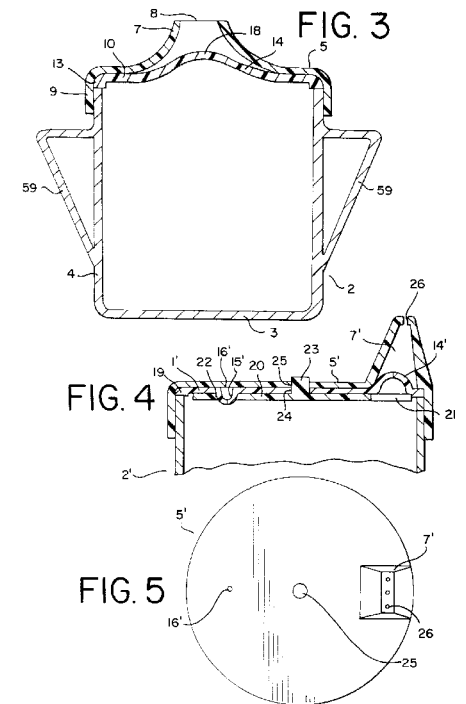
Prior art

- Cups that simply leaked.
- Cups with lids that could be rotated between ON and OFF states by the parent, but which could leak when ON and required parental intervention to turn them OFF.
- Cups with snap-on leak-resistant covers, again demanding parental intervention.
- Cups with complicated multi-part mechanical valves that were expensive to make and difficult to clean.

Idea to trainer cup

- The suction by the child would open the valve, and at other times the valve would close.
- prototype with a slit valve - could be left upside down for weeks without spilling any of its contents.
- 1992 – patent filed - rubber slit valve to control the flow of milk through the spout of a trainer cup, and it was granted as patent GB-B-2266045.
- TM on “Anywayupcup”

U.S. Patent Aug. 15, 2000 Sheet 2 of 5 6,102,245



The main claim of the patent

Claim 1 : A drinking vessel suitable for use as a trainer cup or the like, comprising:

- an open-mouthed generally cup-shaped container; and
- a lid for the open mouth of said cup-shaped container,
- the lid having a mouthpiece associated therewith;
- the vessel being **provided with valve means** comprising a **self-closing slit valve** adapted to prevent flow of liquid from the interior of the container through the mouthpiece unless a predetermined level of suction is applied to the mouthpiece, and to enable a user to draw liquid through the mouthpiece by the sole application of suction thereto;
- the configuration of the valve means being such that said slit valve is adapted to open upon no more than a predetermined difference of pressure, greater within the vessel than outside, being present across the said valve.

Why Prior Art and Patentability Searches?

- Identify areas of the invention that are new, useful and non-obvious – patent eligible
- May turn up a patent or publication that already discloses the proposed invention
- Unveils that the proposed invention is obvious to those of ordinary skill in the art – design around
 modify your invention to stay away from the fatal reference.
- references identified likely to be cited by a patent examiner during patent prosecution –
 draft patent application view of these references

Search for patent applications

- Interaction with inventors/scientists/IP cell
- Patentability searches

Free:

<http://www.uspto.gov/patents-application-process/search-patents> - USPTO

<http://worldwide.espacenet.com> – European Patent Office

<https://patentscope.wipo.int> - WIPO

<http://ipindiaonline.gov.in/patentsearch> - Indian Patents

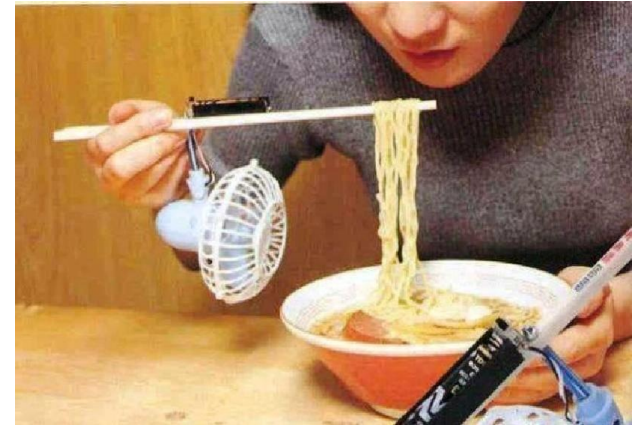
Subscription based

<http://www.delphion.com> – Delphion

<http://www.thomsoninnovation.com> - Thomson Innovation

Novelty - New Invention

“new invention” means any invention or technology which has not been anticipated by publication in any document or used in the country or elsewhere in the world before the date of filing of patent application with complete specification, i.e. the subject matter has not fallen in public domain or that it does not form the state of the art.

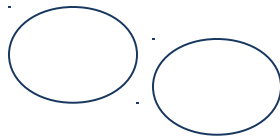


Inventive Step



*"Inventive step" means a feature of an invention that **involves technical advance** as compared to the existing knowledge or having economic significance or both and that makes the **invention not obvious to a person skilled in the art.***

Non obvious
extension:
patentable



Obvious extension
to prior art

Inventive step

Patent on Gas hobs by Sabaf Spa

Combination of 2 features (present in prior art)

1. Drawing Primary air from above the hob unit
2. Use of air flow path under flame spreader to create “venturi effect”

*No evidence the two features interacted with each other
– mere combination – patent invalid*

Mandy’s trainer cup inventive?

Simply combining a rubber slit valve (well known for feeding bottle teats) with the spout of a trainer cup.

Licensing

Prototype offered for licence to 18 big companies that manufactured products for infants - declined to take a licence

Prototype trainer cup less than “glamorous”, ‘dull’ and having ‘unconsidered aesthetics.’

support from a small company in Wales called V & A Marketing limited.

launched the product at a trade exhibition in 1995 for organisers of nursery schools and creches - Overwhelming response

Other manufacturers exhibited in exhibition for baby products.

The big success

- UK sales began in March 1996 and by 1998 had reached 2 million cups
- advertising expenditure - £2,100 ,
- expenditure at exhibitions - £15,000,
- Most sales achieved entirely by word of mouth - recommendation from mother to mother
- Accepted by big supermarket chains like Safeway and Tesco
- 1996 - US company “The First Years Incorporated” approached Mandy for a licence – currently only exclusive US licensee



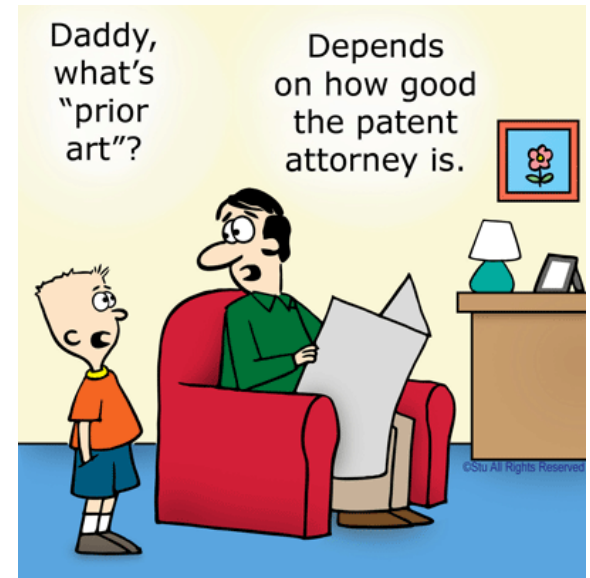
Victim of success - infringement

- Jackel marketed a similar product just 18 m after “anyway” cup hit the market
- Challenged the validity of Mandy’s patent as invalid for lack of inventive step.
- Jackel’s case – range of normal workshop variation; solved a known problem; putting together of simple and readily-available expedients - a well-known slit valve applied to a well-known form of drinking cup.



Reliance on prior art to prove invalidity

- U.S. patent 1845: Feeding bottle with teats having self-closing slit valves
- US patent 1940 - a trainer cup having a spout ending in a slot and relying on capillary action and surface tension to prevent liquid from leaking out,
- US patent 1992 shortly before the priority date - a trainer cup in which liquid flow through the drinking spout was controlled by a spring-loaded valve.



Invention - Obvious or not

- (a) What was the problem that the patented development addressed?
- (b) How long had that problem existed?
- (c) How significant was the problem seen to be?
- (d) How widely known was the problem and how many were likely to be seeking a solution?
- (e) What prior art would have been likely to be known to all or most of those who would have been expected to be involved in finding a solution?
- (f) What other solutions were put forward in the period leading up to the patentee's development?
- (g) Were there factors that would have held back the exploitation of the solution, even if it was technically obvious?
- (h) How well has the patentee's development been received? Once the product or process was commercialised was it a commercial success?
- (i) Was all or much of the commercial success due to the technical merit of the development – i.e. because it solves the problem?

The Judgment

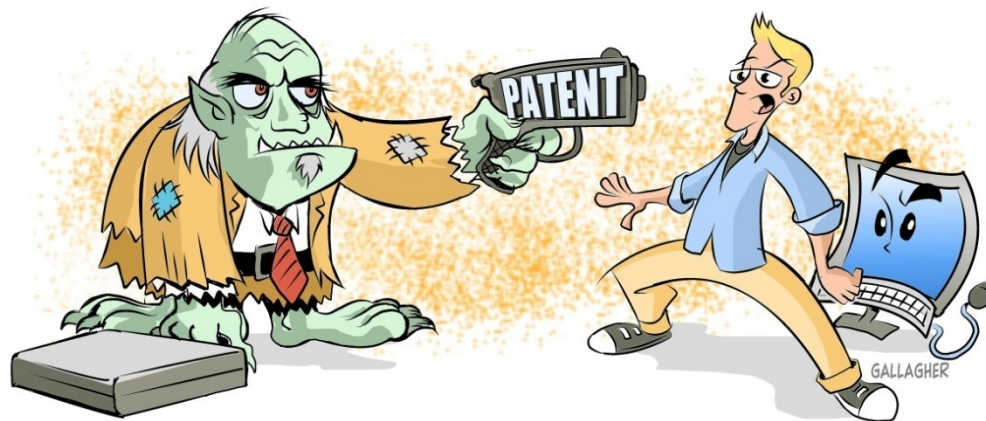


Mrs Haberman has taken a very small and simple step, but it appears to be a step which any one of the many people in the trade could have taken at any time over at least the preceding ten years or more. In view of the obvious benefits which would flow from it, I have come to the conclusion that had it really been obvious to those in the art it would have been found by others earlier, and possibly much earlier. It was there under their very noses. As it was, it fell to a comparative outsider to see it. It is not obvious.

The Power of patents

“Because I had patents, I was able to go to court, defend my idea, enforce my patent rights and that meant that I kept my monopoly in the market. This made me a lot of money; if I had not had the patents, I would not have made anything”,

Mandy Habermann



Role of IP in Global business

Inventions (Un)Protected

Electronic quartz watch movement
Swiss Invention
Texas Inst. & Japanese exploited

GUI & mouse
Xerox Invention
Logitech, Apple & Microsoft benefited

Noteworthy Flaws

Data Compression software
Stac Electronics owned the patent
Microsoft infringed: \$120 m against Microsoft

Instant Camera
Polaroid Invention
Kodak's infringement resulted in >\$925 m award in damages, had to shut down \$1.5 billion manufacturing plant, had to spend \$500 m to buy back the sold cameras

The take away message

- An inventor likely to make a worthwhile invention in his/her technical field - special experience/expertise.
- Having a good idea is not enough – determination and commitment to see the idea through to development
- decision concerning licensing is vital - make contact, at the appropriate level, those who can take a strategic view of new product and appreciate what the invention can do for the potential licensee.
- If the product has been launched and proves successful, the cost of a patent or trade mark infringement action should simply be written into the budget.

PHASE OF THE INVENTION

CONCEPTION -

Talk to the key people and
IP experts

RESEARCH & DEVELOPMENT, FORMULATE BUSINESS PLAN

market potential, competition,
funding needs, develop prototype/
Product.

PILOT TESTING & TRIALS

LAUNCH / LICENSING

STAGE OF IPR

Platform Technology/State-of the-art Searches

Novelty / Patentability Searches

Pre-filing - Drafting & filing strategy

Filing – National & International

Prosecution – FER responses / Amendments / Divisional

Regulatory approval counseling

FTO / Patent Clearance Searches

Patent Landscaping

The Filing strategy

Product can be marketed immediately

Invention is only at the *conception* stage

File Provisional application
(Priority date = date of filing of provisional)

12 months

File complete specification

complete specification not filed

Application abandoned

Patent applications

Ordinary application- No claim of priority

Provisional

Complete

- Convention application - claiming priority based on a similar application filed in a convention country
(countries signatories to Paris convention)
- International applications - PCT/ National application abroad
- PCT applications designating India

Where to file first

India Patent Office

Lowest cost

Good for priority claiming – provisional

Overcomes the need to get clearance

Non-standard specification

PCT application

High fees, but good if planning to file in many countries

Better quality search

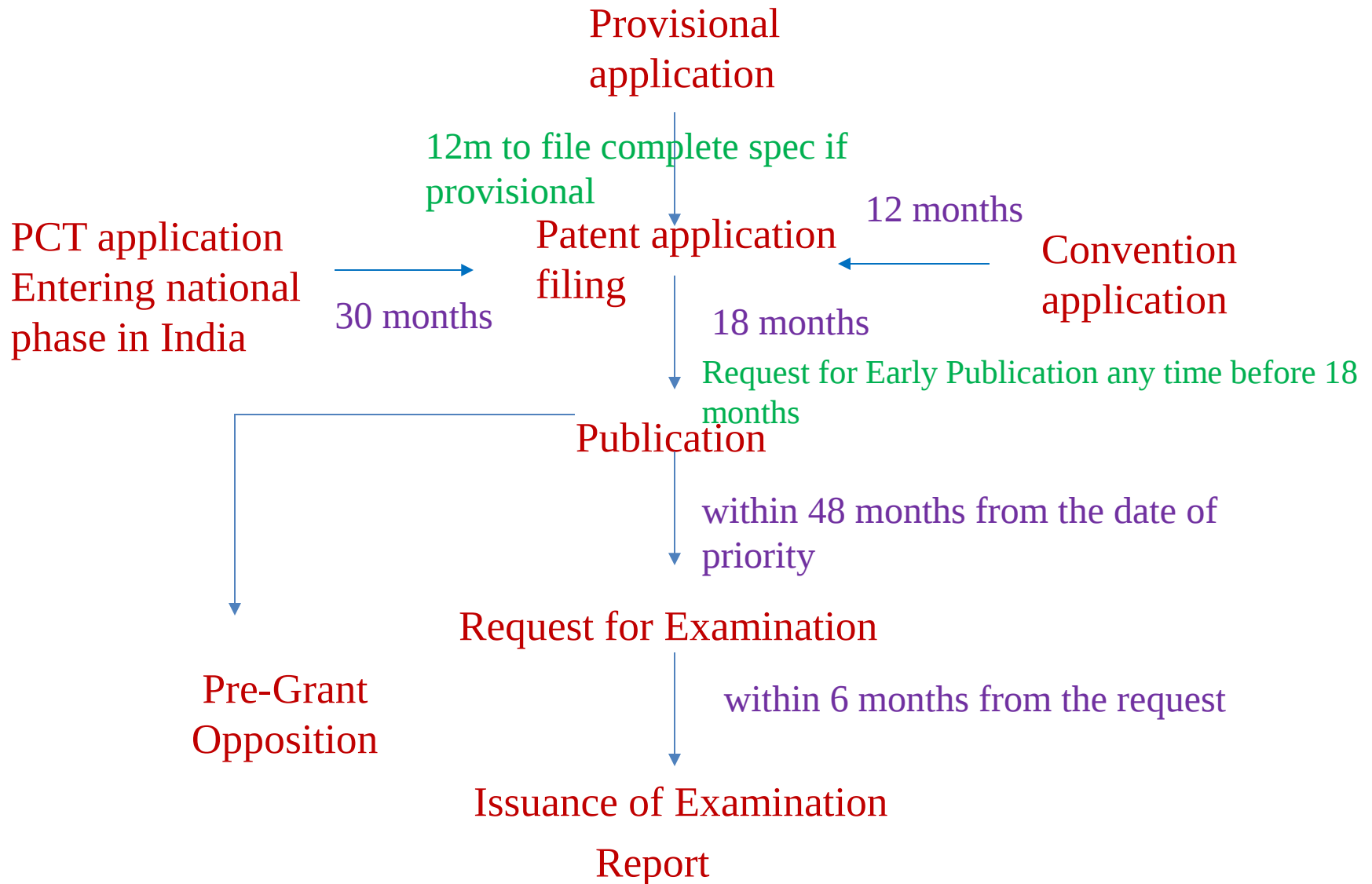
Risk of slow searching

Impress investors or licensees

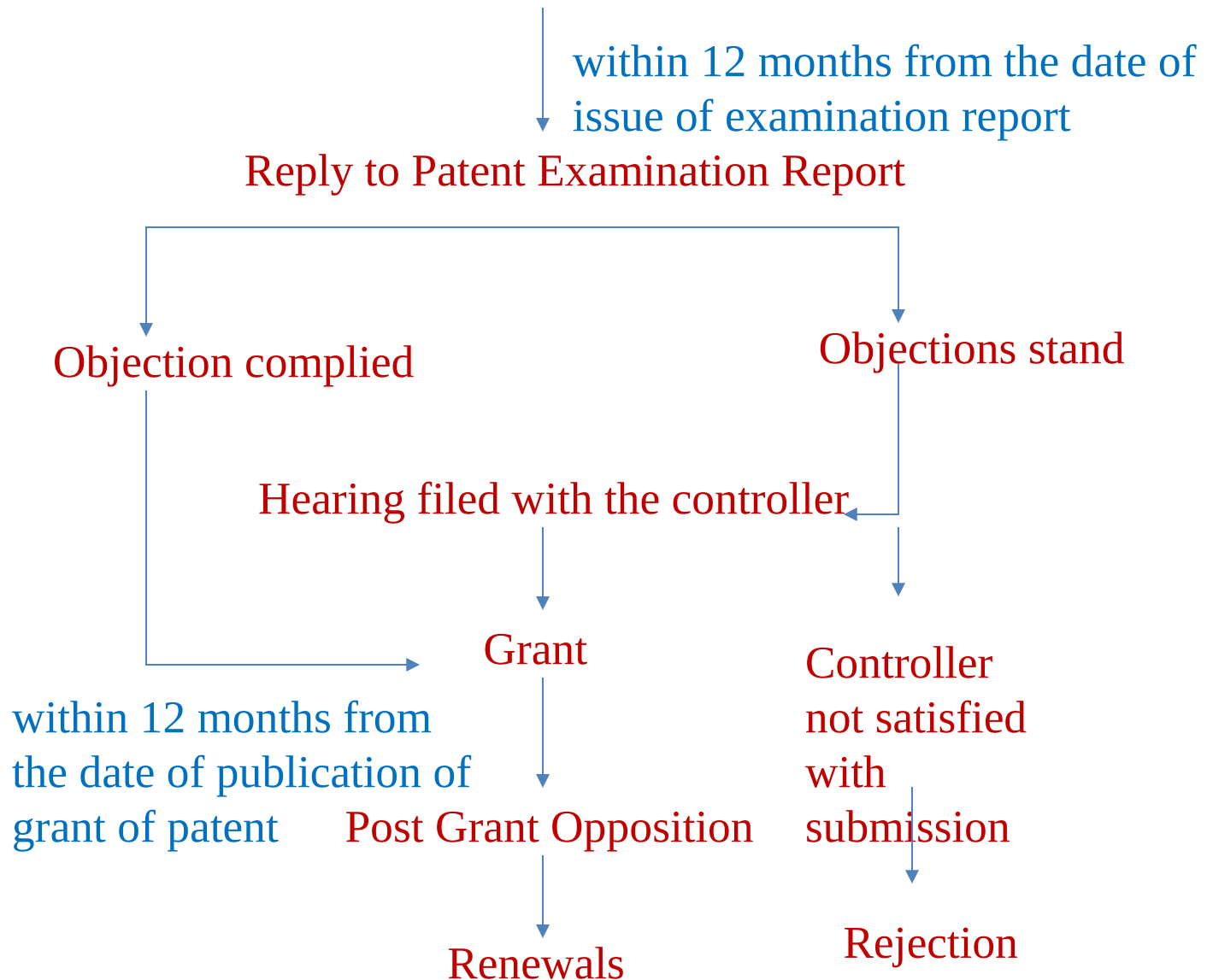
Choosing countries

- National phase increases costs of applications
- Need to review commercial position before committing
- Location of competitors/licensees
- Major markets
- Keep focussed – scope to waste a lot of money

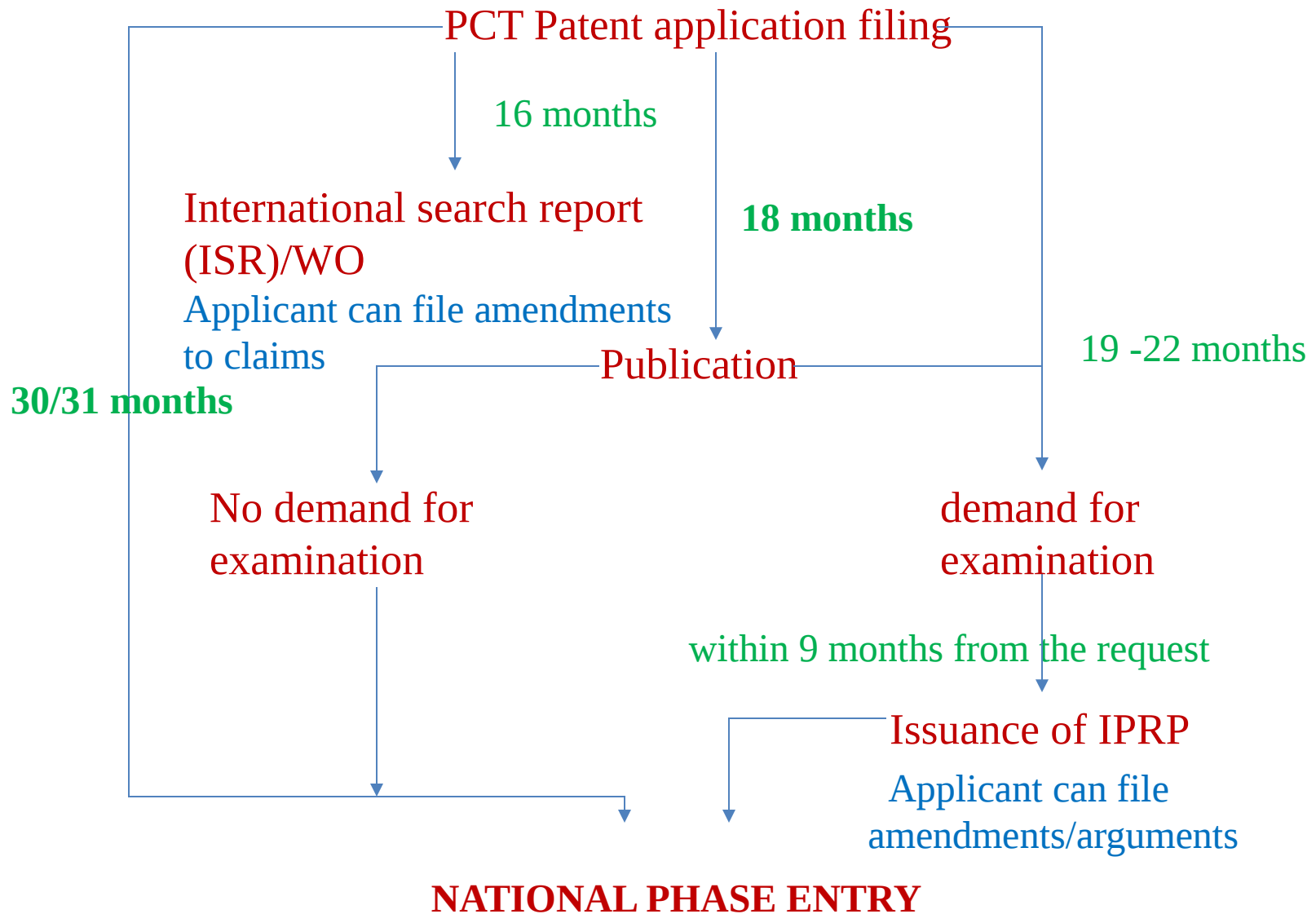
Patent Prosecution - National application



Patent Prosecution



Patent Prosecution - PCT



The pathway to Market

1. TALK TO KEY PEOPLE AND IP EXPERTS early in the process (do not overlook confidentiality issues that may arise) on IP options and your thoughts about a start-up company.



2. PROTECT INTELLECTUAL PROPERTY: Engage with Patent experts for Prior Art searches and way forward.



3. SEEK INPUT AND NETWORK: Regular presentations to experts and mentors; Seek help to formulate and write a business plan; Meet with like-minded entrepreneurs and investors, start looking to secure funding demonstrate an invention's commercial viability.



4. PLAN THE BUSINESS: understanding of market potential, competition, funding needs, and how you plan to develop the product and attain the revenues sufficient to sustain and grow the company.

The pathway to Market

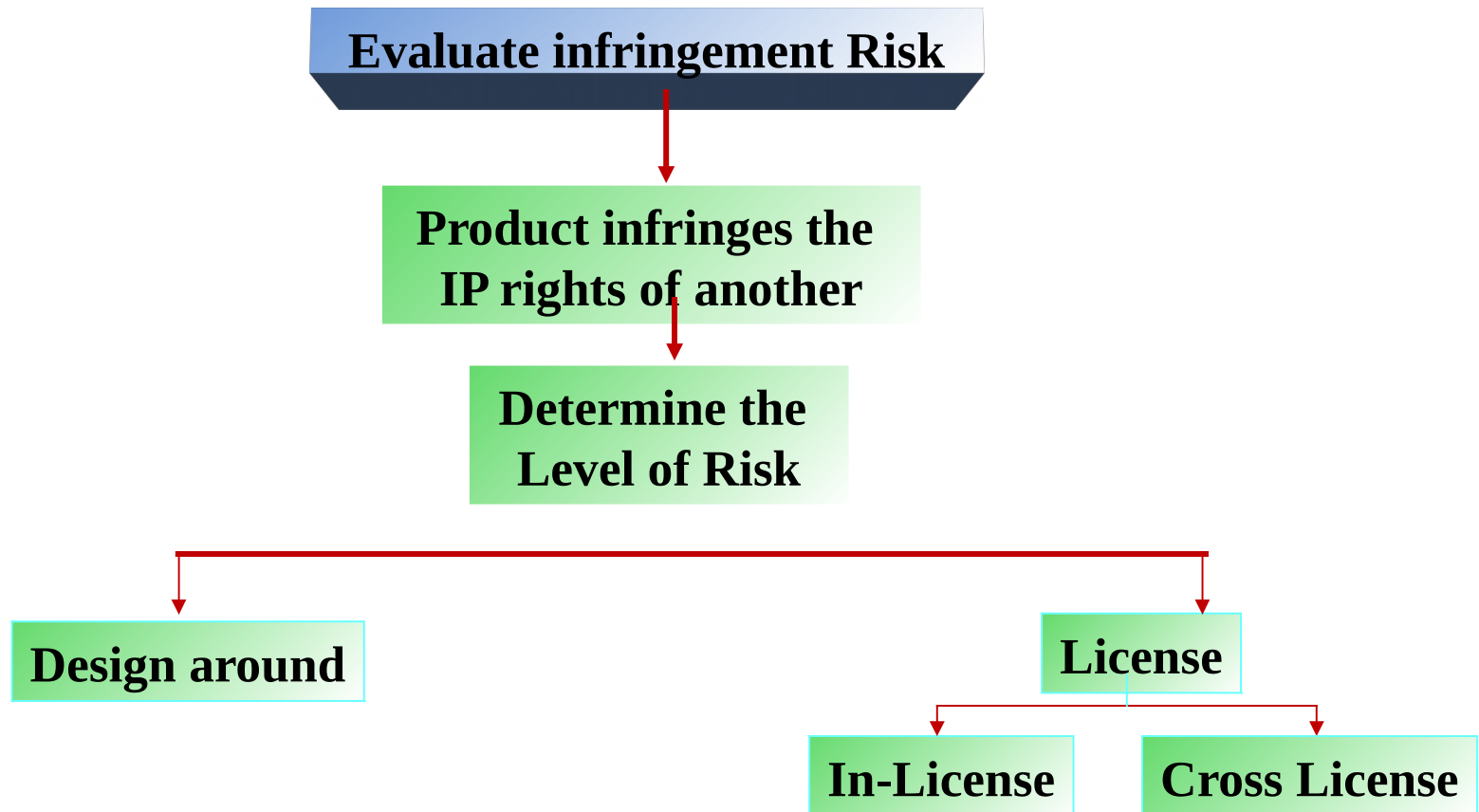


5. NEGOTIATE THE LICENSE OR OPTION AGREEMENT IP CELL- negotiation for grant a license to the startup or a short-term option agreement for potential funders to ensure that you have secured the rights to negotiate for a license to the technology.



6. PURSUE FUNDING: Present your opportunity to people with the funds to help you make it happen: venture capitalists, angel investors and perhaps in the initial stages, friends and family!.

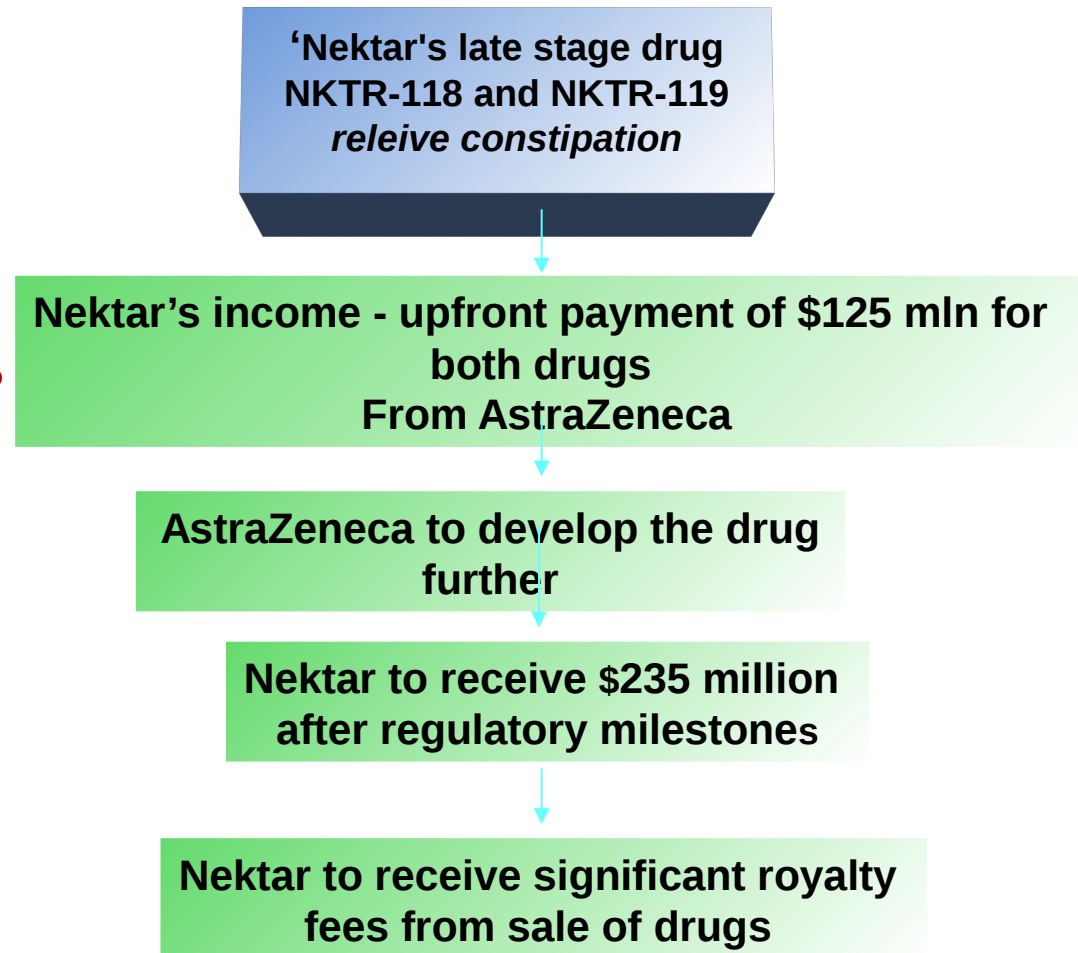
Are you stepping into someone's territory?



Licensing

In-licensing

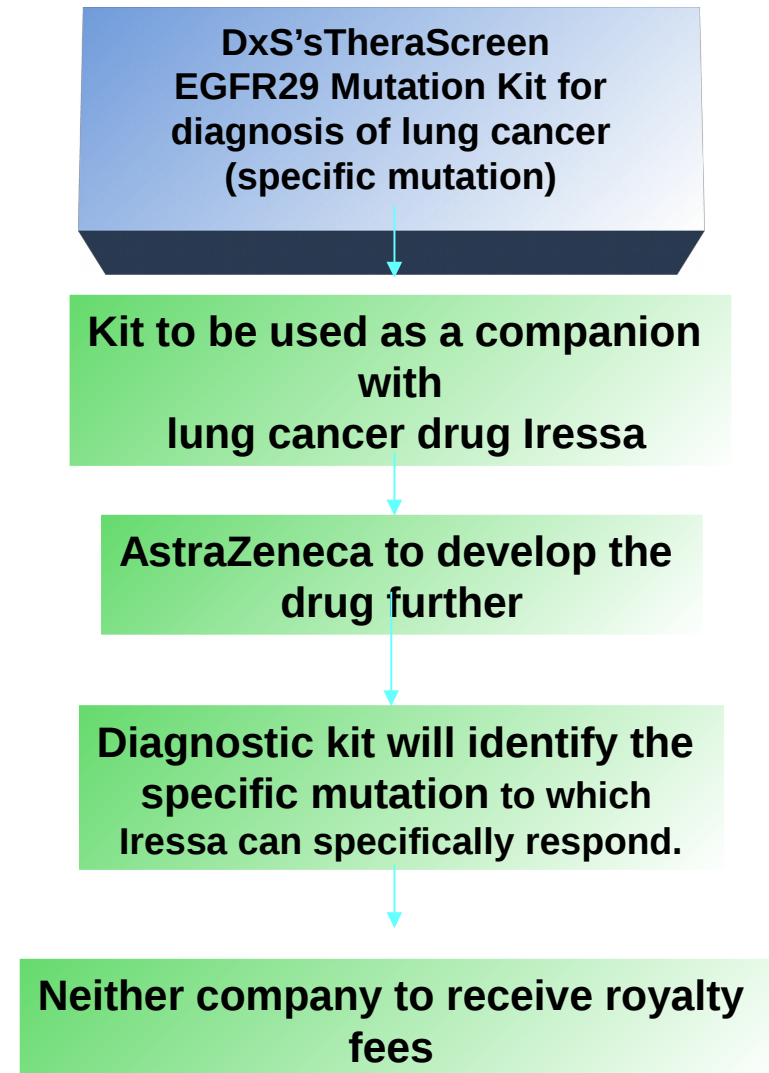
- Conceptually easiest
- Financial, equity & potential control costs
- Potential for loss of autonomy
- Potential for altered priority setting
- Loss of inventive capability



Licensing

Cross-licensing

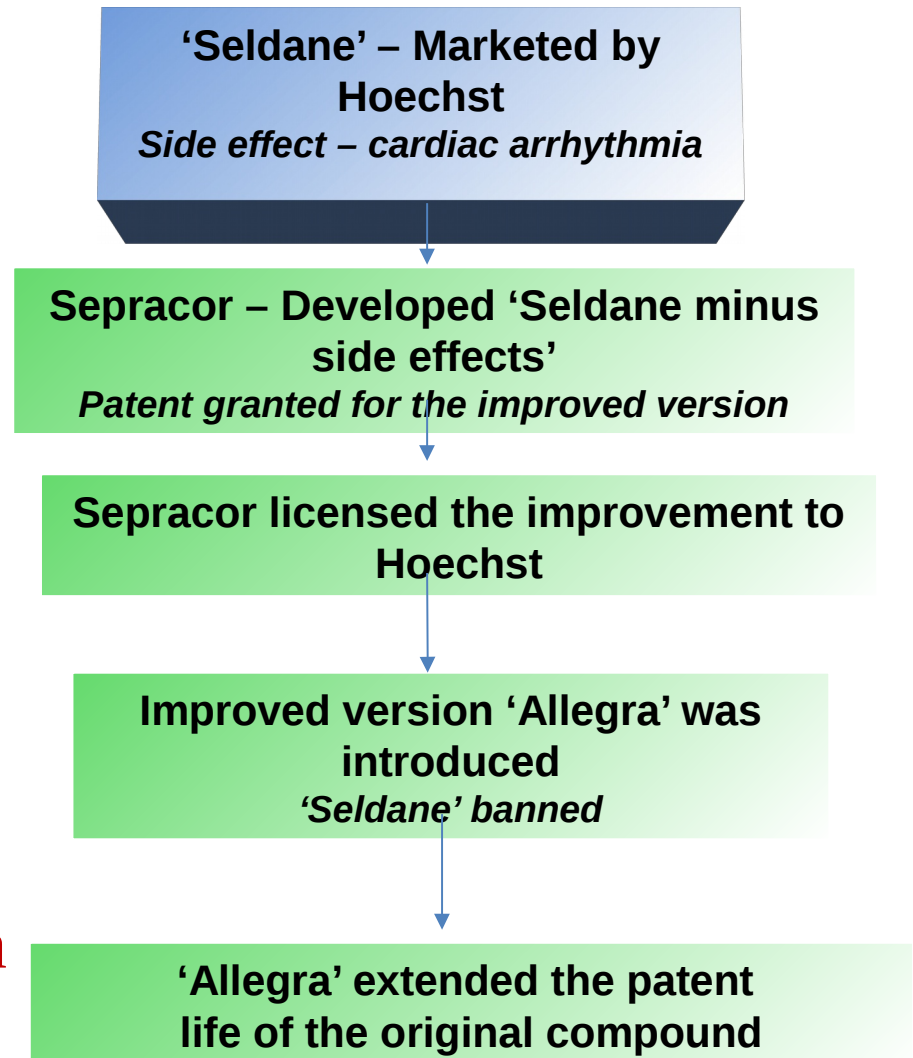
- Requires cohesive user group
- Requires advanced business and negotiating skills
- Requires well-protected IP of value to potential licensing partner
- Developing such valuable IP requires strategic invention and innovation



Licensing

Design Around

- comprehensive knowledge of existing IP positions and implications
- insight into potential competitors' business development strategies
- coordinated and focused research community
- cutting-edge research capacity
- ability to protect or maintain access to technology



Avoid IP traps

1. Public disclosure

File a provisional patent first

be wary of what you disclose in meetings

ensure appropriate agreements are in place

Machine invalidated in the UK – 40 test machines
sent to exclusive customers.

No confidentiality agreements.

Constituted disclosure/anticipation.



Anticipation

- Papers
- Abstracts
- Theses
- Poster displays
- Exhibition and open days
- Oral and casual disclosures



**Do not publish or disclose the invention
before filing Patent application.**

Avoid IP traps

2. **Policeability**

Process/method patents

Turn the process into a product – diagnostic kits

License the process patent - 3-D imaging technology to view vascular obstructions licensed to GE healthcare

Robert Kearns windshield wiper manufacture process copied by Ford and Chrysler – Kearns sued and received \$30 million from Chrysler and \$10 million from Ford in damages

Avoid IP traps

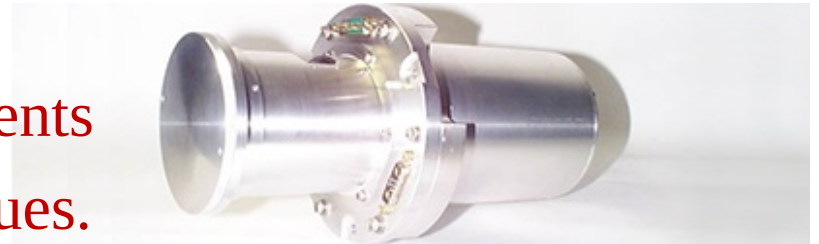
3. Lack in originality

Building on available tools – lack of novelty and inventive step

Design around to build additional proprietary features

Star Tracker 5000, a device affixed on the nose of a space rocket that adjusts the rocket's altitude during flight by keeping a star in the field of view.

Made with off-the-shelf components and standard production techniques.



Cheaper alternative but originality compromised

Getting around: a proprietary algorithm for rapid transmission of the digitized images it captured, embedded in the device – imparted originality

Avoid IP traps

4. **Mere combinations/rearrangements**

Collaborate to look beyond your area of expertise

conjugated linoleic acid (CLA) invention – variety of favourable nutritional properties - Coming together of poultry scientist and microbiologist

Give the extra edge to the invention

General principles of desalination using membrane processes and nanofiltration technology known – combining known processes with a unique material—an iron-modified silica membrane – patentable

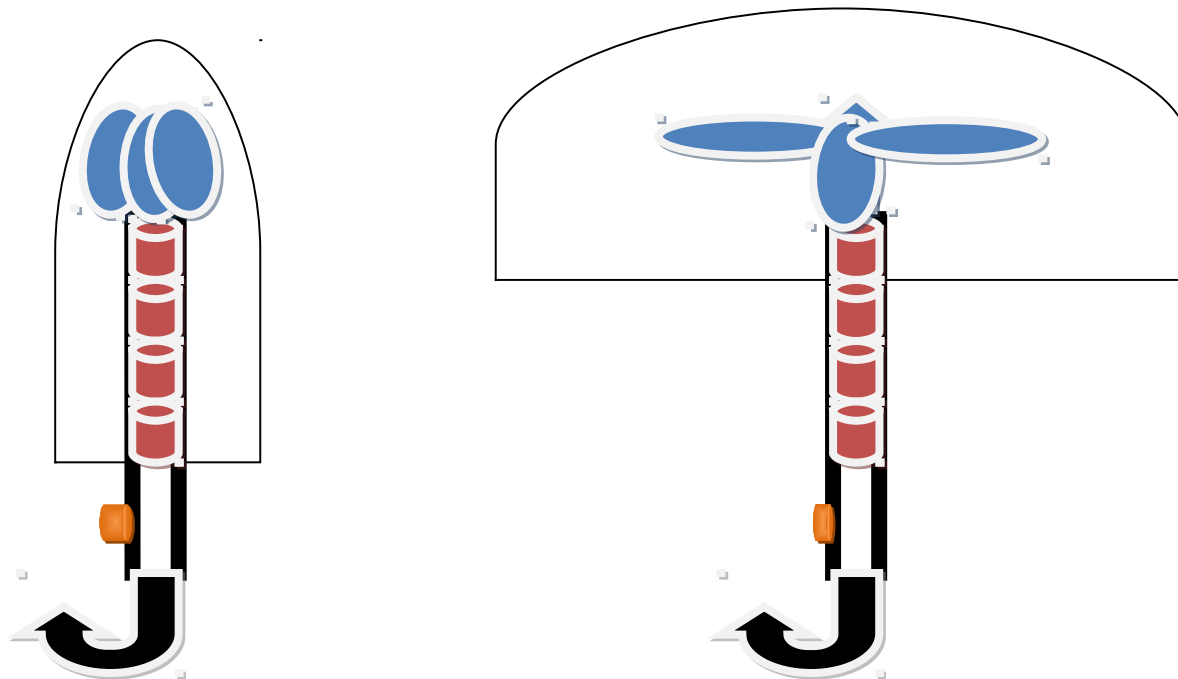
Isolation of single cells using microfluidic devices - uses a microvalve switch to regulate the flow of fluid,

The valve switch novel? What about the idea of putting one into a microfluidic device

Non patentable invention – India law

a substance obtained by a mere admixture resulting only in the aggregation of the properties of the components thereof or a process for producing such substance.

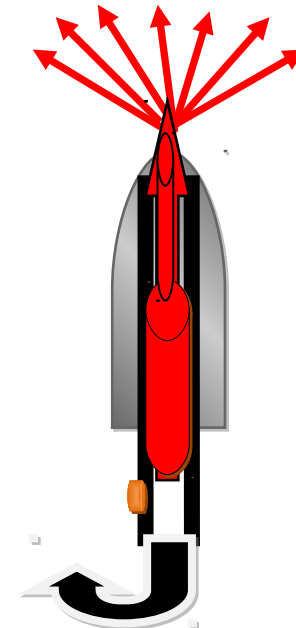
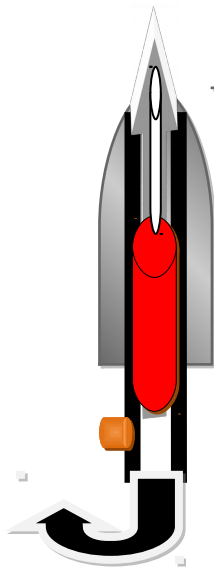
A Battery operated fan enclosed within an Umbrella ?



Non patentable invention – India law

the mere arrangement or re-arrangement or duplication of known devices each functioning independently of one another in a known way;

A private defense Mechanism: A Pepper spray enclosed with an Umbrella ?



Avoid IP traps

5. Attribution

Give credit where it is due

safety trocar invention - a device to reduce injuries to internal organs during endoscopic procedures.

Made by InBae Yoon in collaboration with Young Jae Choi, an electronic technician

1985 - Yoon granted patent as sole inventor and licensed the technology exclusively to Ethicon.

1989 - Ethicon's competitor, U.S. Surgical, infringed on the patent and Ethicon sued.

1992 - USS contacted Choi, got inventorship error corrected in the patent and entered into license with Choi

1998 - Court ruled that USS had, used the patent legally; Ethicon lost the case.

Avoid IP traps

Avoiding attribution problems

- Formalizing IP ownership agreements prior to commencing commercial development – laws country specific
- document how the invention was created and who took part in it—for example, with lab records, diaries, or log files.
- In the Ethicon case, Choi's handwriting was found on the documents Yoon had submitted when applying for the patent, supporting the claim that Choi was a co inventor.

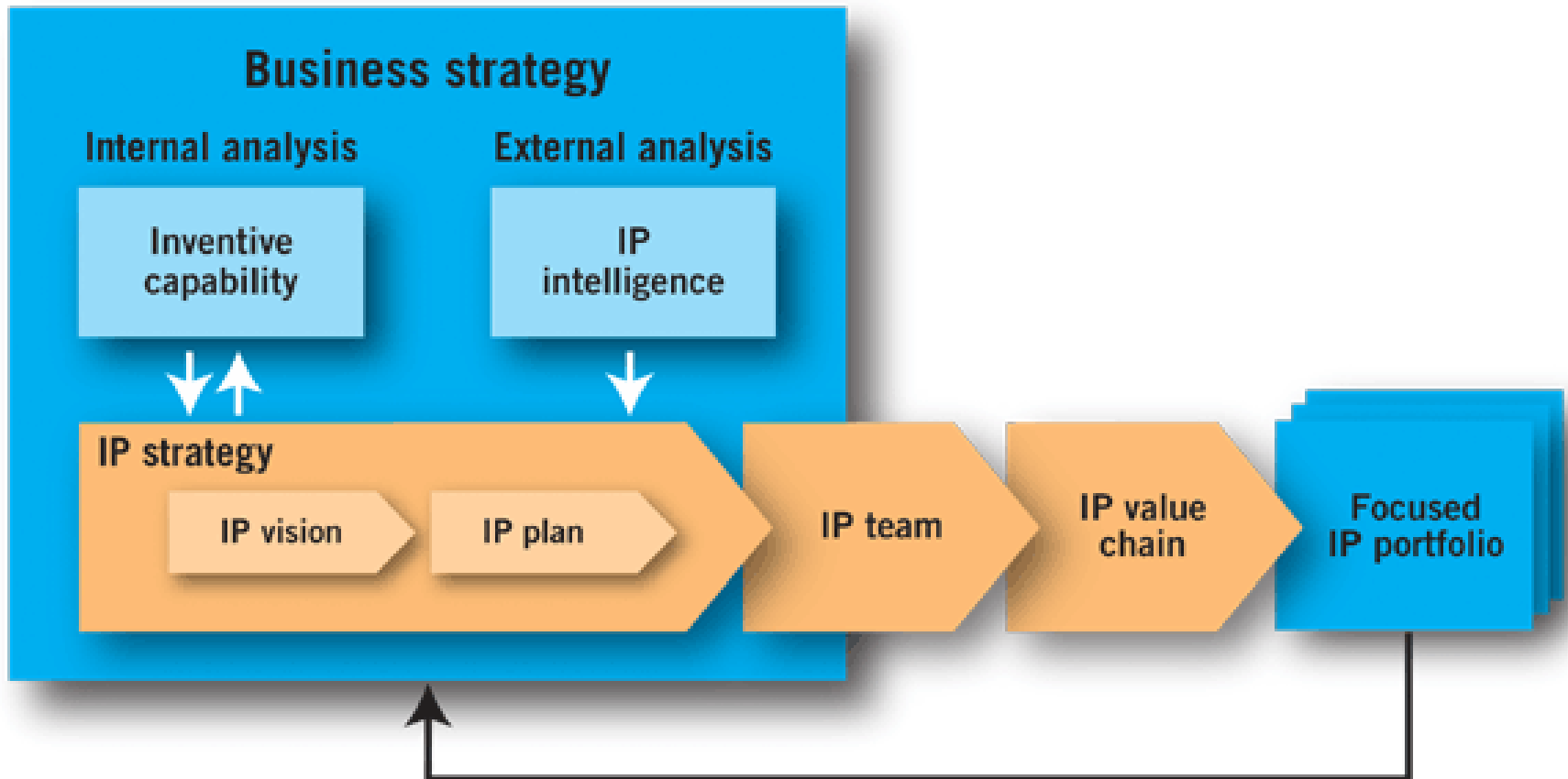
Avoid IP traps

6. Rely on IP to get out of Funders' Clutches

Ensure filing provisional patent application

- Patents establishes claims to the invention
- Clarifies that funding is sought for generating data, results, and prototypes -outlined in the provisional application.
- strengthens the inventor's position in subsequent commercialization decisions.
- Power to negotiate terms although funders may benefit from royalty-free access to the technology.

Success factors for implementing a successful IP strategy.



Gaining competitive edge with IP

1. Building a patent wall

- Choosing the right technical design to patent - “a leading factor”

Gillette: a closer and more comfortable shave -twin, independently moving blades - floated-angle geometry seven different designs developed - chose the design that competitors would have the most difficulty getting around.

Patents filed for cartridge, springs, the angle of the blades, the handle, container - Created patent wall of 22 patents, all interlocking so no one could duplicate that product.

- Develop only those products for which patents can help establish market-dominant share – Hitachi’s automotive airflow sensor

Gaining competitive edge with IP

2. Prepare for shifts in technology or market demand

Late 90s –demand for higher-speed Internet communications

Digital Subscriber Line (DSL) technology patents owned by small company - Amati Communications

TI acquired Amati \$395 million – became owners of seminal DSL patents.

Amati's patents helped them develop very favourable partnership with TI

3. License some of your technologies

Don't use patents only to protect your products

TI launched a licensing of its patents to overcome bankruptcy – since then earned \$4 billion in royalty

IBM - licensing income \$ 1 billion/year

Xerox – Licencing income in a 2 year period - \$ 500 million

Gaining competitive edge with IP

4. Reduce costs – Patent Management

Audit of IP assets – Dow chemicals divided 29000 patents into 15 business units – each unit responsible for the commercialization

Licensing revenues increased from \$25 million to \$125 million in one year

\$64 million tax write-off when it donated 23 patents to universities

5. Outflank competitors

Big company blocks access to technology by its patents

Look to buy out a patent that predates that of the big company

S3, a small design company acquired the patents of bankrupt chip maker Exponential Technologies to penetrate Intel's patent to save its high-performance graphic chip business.

Gaining competitive edge with IP

5. Exploit new market opportunities.

Johnson & Johnson, Boston Scientific, and Arterial Vascular Engineering—divided the spoils in this \$1.3 billion-per-year market.

Small start up Guidant Corporation received FDA approval for its new Multi-Link stent; J & J sued Guidant.

Guidant bought EndoVascular Technologies that had a key patent issued two years before J & J's

6. Reduce risks

Do a patent landscape and FTO before entering market

Check for validity of patents

Expiry date, maintenance fees paid, improper claims, prior art errors

Some FAQs

- ***Will IISc assign the patent to my startup?***

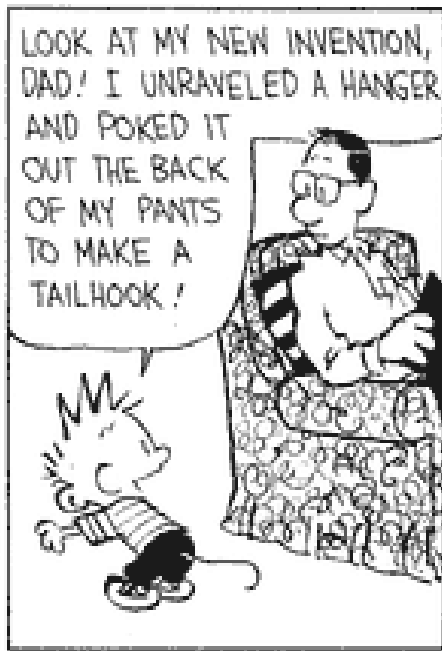
No, but an exclusive license, gives most of the rights to the patent that an assignment would give, can satisfy the needs of the company.

- ***Can I get a license if I haven't incorporated the company yet?***

No, but an option agreement may be possible. Such an agreement will, for a limited time, preserve the opportunity for your company to negotiate a license.

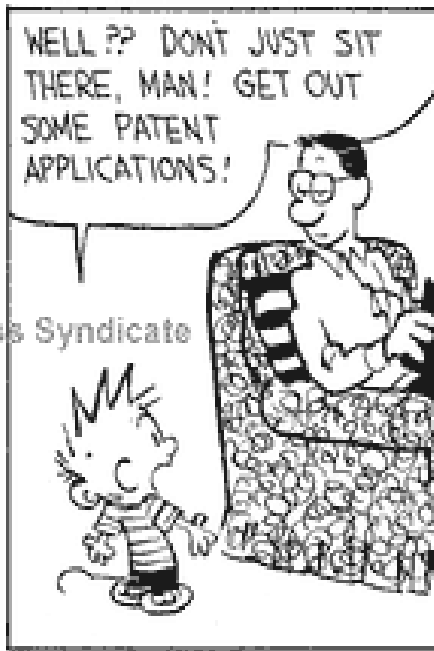
- ***If my startup is based on an invention jointly owned by Iisc and another institution, how do I get started?***

The IP cell of the institute will work out an Inter-Institutional Agreement whereby one of the institutions will “take the lead” and do the license negotiations with your company.



NOW, WITH A ROPE STRETCHED ACROSS THE DOORWAY, I CAN BLAST INTO A ROOM AT TOP SPEED, AND THE HOOK WILL GRAB THE ROPE AND STOP ME BEFORE I CRASH OUT THE WINDOW ON THE OPPOSITE WALL!

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Every invention has potential, do not let it slip through your fingers!!!

THANK YOU

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The man who invented the wheel.



The man who Patented the wheel.



"He owns an anti-stress patent!"

search ID: jra0022