Strategic alignment of Patent information to the Business Innovation processes

Baker Hughes

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October 28, 2021

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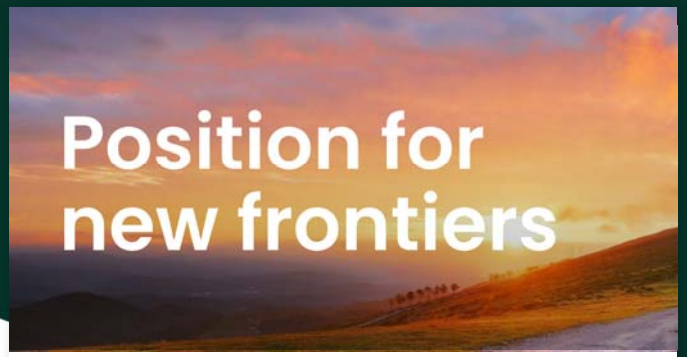
We are evolving. This is our path forward.

Transforming our current businesses to improve margins and cash

- Future-proof technology
- Execution excellence
- Cost competitiveness

Driving organic and inorganic growth in high-potential segments where we have a strong position

- Industrial power and processes
- Industrial asset management
- Non-metallics
- Chemicals



Making strategic bets to drive decarbonization of energy and industry

- Hydrogen
- Geothermal
- Carbon capture and storage
- Energy storage

Sharpening focus to two primary areas

We are reshaping our company around two core business areas

Oilfield Services and Equipment

PERFORMANCE & VALUE FOCUSED OFSE BUSINESSES

- Oilfield Services
- Oilfield Equipment

SHARED STRENGTHS

- Core customer base
- Global scale & reach
- Mission critical technology
- Shared R&D resources
- Digitalization expertise / BHC3.ai

Industrial Energy Technology

GROWTH ORIENTED ENERGY AND INDUSTRIAL COMPANY

- Industrial energy technology
- Industrial asset management
- New energy solutions

Transforming the core, investing for growth & positioning for new frontiers

Diverging growth trajectories … focus enhances future optionality

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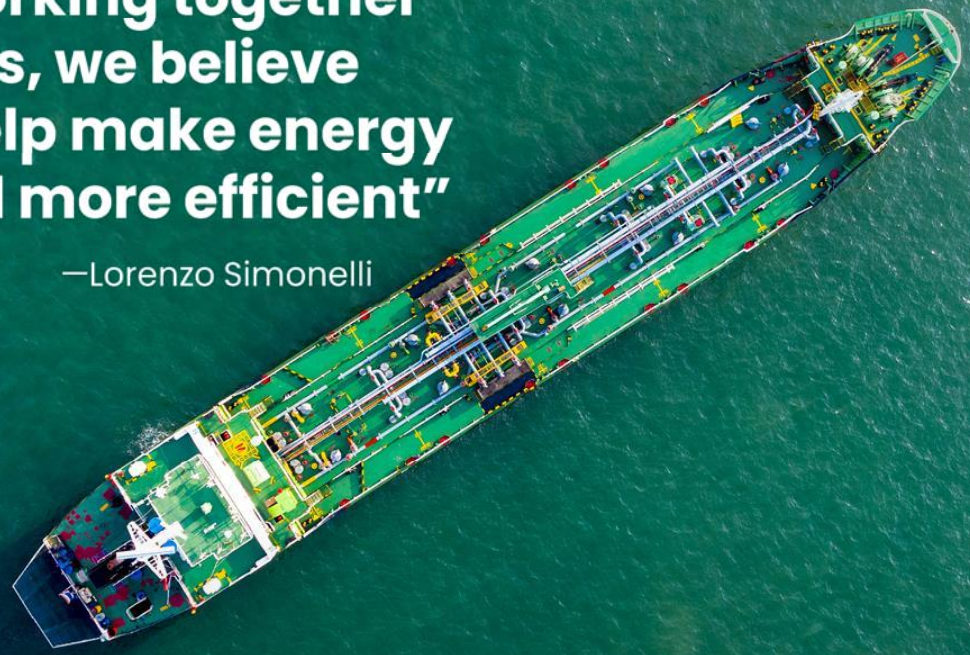
Corporate Strategy

"For us, the role of technology is to drive progress. Working together with our customers, we believe technology can help make energy cleaner, safer, and more efficient"

—Lorenzo Simonelli



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BAKER HUGHES IP POLICY

Every Baker Hughes employee has a responsibility to safeguard Baker Hughes's intellectual property (IP) — it is the key to our competitive advantage.

Baker Hughes protects its IP

Baker Hughes respects valid IP rights

Baker Hughes owns the IP created by its employees

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Strategic alignment of to IP

To Business processes

7 D Patent Management, graphics adapted from ref 1.

IP Generation

- Invention Harvesting
- Invention Evaluation Boards
- Application Draft
- Application Strategy: International, product alignment
- Design around
- Thru' R & D Org's / external Collaborations

Intelligence

- Competitive Analysis: Landscaping, Patentwatch, Tech Scouting
- Evaluation and valuation e.g. Mergers & Acquisitions, Due Diligence
- Tech Info e.g new directions, expired IP
- Prior-art analysis

Culture

- Awareness
- Incentive and motivation
- Information and knowledge transfer
- Training

Portfolio

- Life cycle management: Prosecution, maintenance
- Portfolio Management
- Strategy Fit
- Protect core products, services solutions
- Patent to product mapping

Exploitation

- Attract inventors
- Commercialization and partnering e.g. Licensing out
- Marketing and reputation
- Tax incentive

Company Value enhancement

Organization

- Process Integration / improvement
- Roles & Responsibility
- Technology Leadership
- Budgeting
- Transfer Pricing
- Stakeholder management

Enforcement

- Third party infringement proceedings
- Own Infringement Avoidance (FTO)
- Third party Opposition
- Scope limitation due to 3rd party Pat

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Where is patent information value realised?

Defense & Protection

Products and services: Entry Barrier

Protect development through 3rd party vendors & Customers

Avoidance against third party claims

Business Value

Facilitate relationships & deals with third party's

Leverage IP of discontinued products Solutions & technologies

Technology Leadership

Promote and support

Reward to inventors

Retention of staff

Drive adoption of value from standards

Revenue

Technology IPR sales & Licensing

Tax incentives

Product Management - Marketing - Engineering – Finance – Sales - Business development

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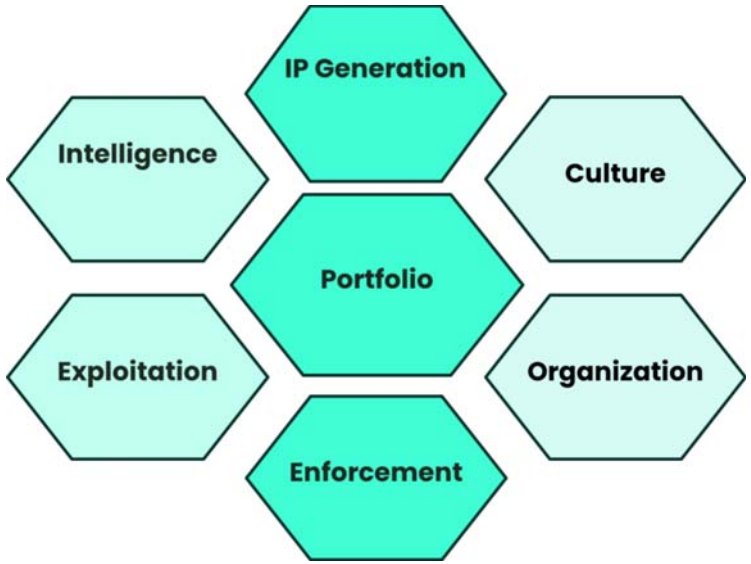
Strategic Alignment

IP processes…



IP value creation…

Defense & Protection
- Products and services: Entry Barrier
- Right to third party IPR
- Development through 3rd party vendors / Customers

Business Value
- Leverage discontinued products Solutions & technologies
- Facilitate relationships / deals with third party's

Technology Leadership
- Promote and support
- Drive adoption of & value from standards
- Reward to inventors
- Retention of staff

Revenue
- Technology IPR sales / Licensing
- Facilitate relationships / deals with third party's

Product Management - Marketing - Engineering – Finance – Sales - Business development

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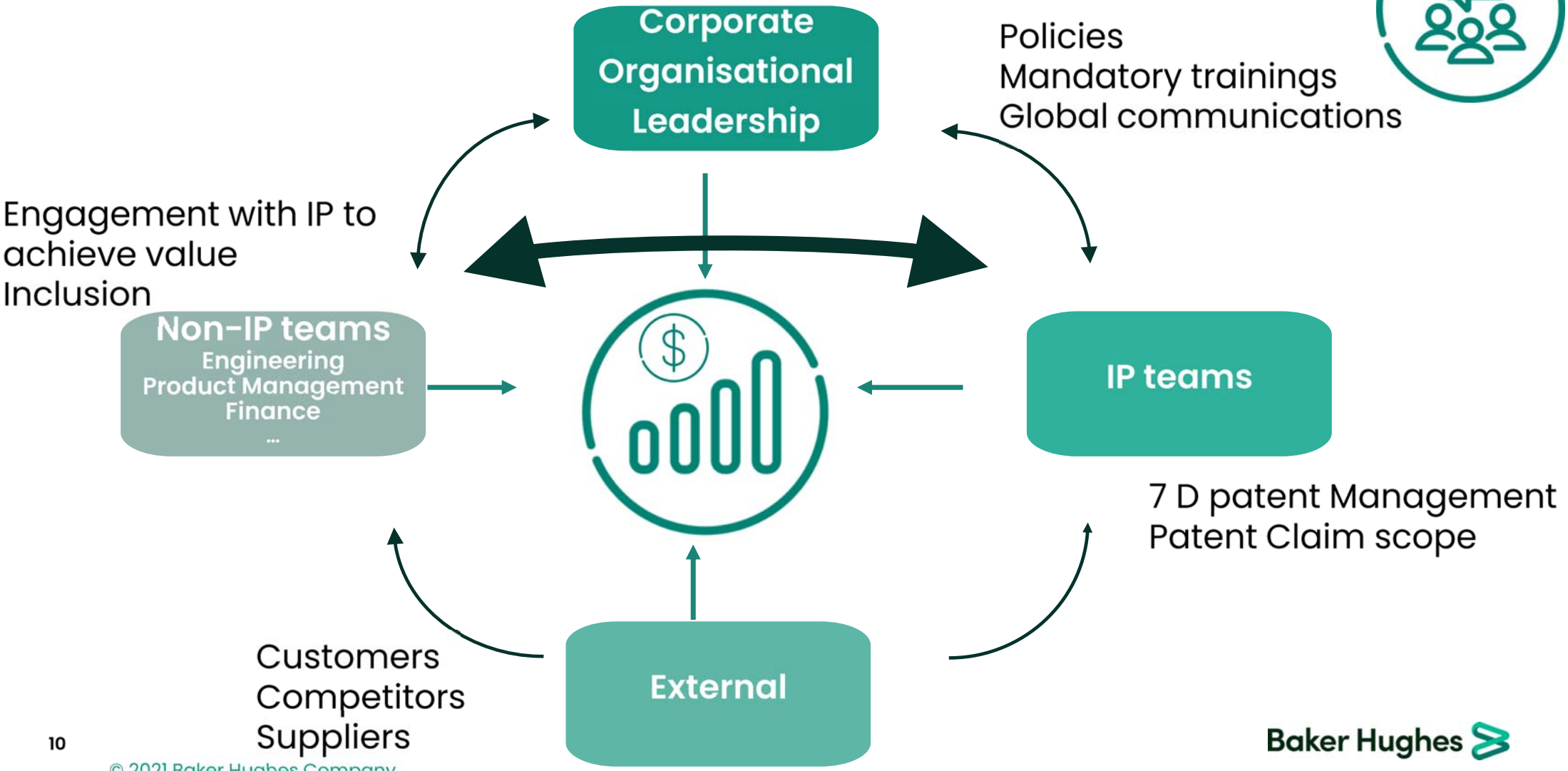
Communication of IP strategy… Ecosystem



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Communicating complexity to executive board…

This can be more complex…
Know your audience
Do we need to talk about claim scope?
Talk language of non-IP colleagues
Build credibility
Training and awareness
Collaborating seamlessly in multifunctional teams
Transparent budgeting

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Commercial value – protect product core

Independent Claim.....A xmas tree comprising;

- Element # 1 ..... a vertical bore
- Element # 2 ..... at least one valve
- Element # 3 ..... means of connection to etc..

Dependent Claim #1

- Element # 1 .....where the valve(s) are gate valves
- Element # 2 ..... where the valve(s) are remote actuated by ultrasonic means from surface

Dependent Claim #n.. by means of thermal energy

If you are willing to accept patent claims that are so nuanced and/or narrow you can convince even the most unwilling patent examiner to issue a patent.
Gene Quinn, IP Watchdog

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Product development processes

Technology Development

- Introduce IP strategy

Product development

- Update and pivot IP strategy

Commercialisation

- Update and pivot IP strategy

Breadth

Depth

Continuous Thread throughout the Product Development process... Not a one off activity !!!

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Product development processes alignment

- IP Generation / Maintenance
- Prior Art novelty searches

Technology Development

- Introduce IP strategy

Product development

- Update and pivot IP strategy

Commercialisation

- Update and pivot IP strategy

- Business Case analysis
- Patent Landscaping
- Early risk identification

- Risk Mitigation
- IP Clearance / FTO
- Partnership Licensing / JV
- Patent Box

Continuous Thread throughout the Product Development process... Not a one off activity !!!

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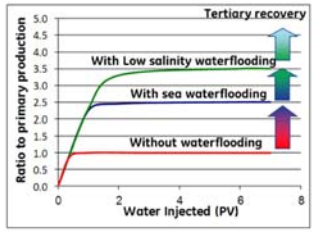
Technology Trends…

EOR
Low Salinity Flooding

1967: Bernard
EOR by LSF with cores containing clay

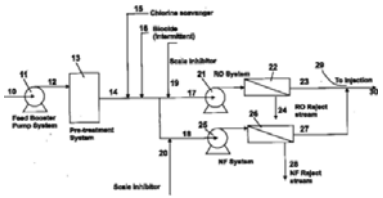
1995: Morrow
First Published expt coreflood results indicating LSF increases oil recovery

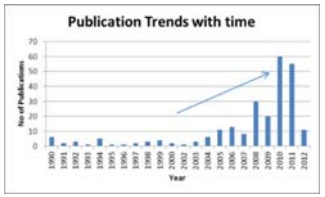
1999: Tang and Morrow
Necessary conditions for LSE identified



2003: BP
Frst SWCTT
Single Well tracer
Chemical Tracer Test

2005: BP
LoSal™ trademark filed





2008: BP
Field trial

2009 Veolia/VWS Westgarth
US20070090039: Ultra / micro /nano filtration; sulfate removal

2010 SHELL
Designer Water™ Technology (DWT)
low salinity and polymer flooding

2011 BP
Endicott (Alaska), Claire Ridge
Claim Excellent agreement between core results and field results

2006 Onwards… BP, Shell, VVS, academia
System related patent publications, Enhanced academic Interest

1967 1995 2000 2005 2010 2014

Exptl demonstration | Commercial Interest | Commercial scale

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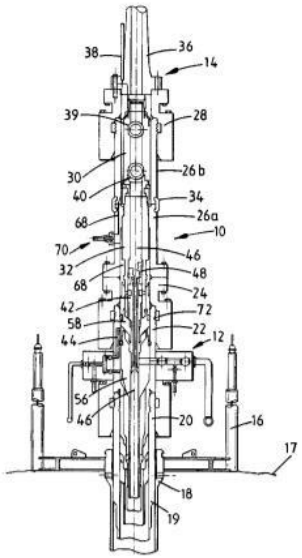
Expired patents to address Technology needs

US6053252A

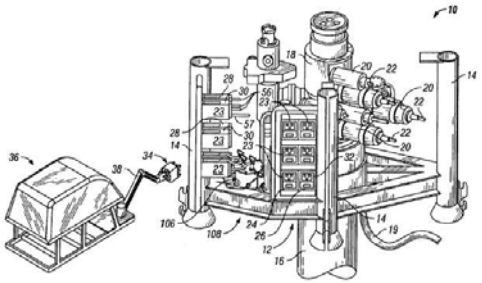
Title: Lightweight intervention system
EXPRO NORTH SEA
Priority Year: 1995
Citations: 160



Cost reduction

US6644410B1

Title Modular subsea control system
Priority Year: 2000
Citations: 113



Modular

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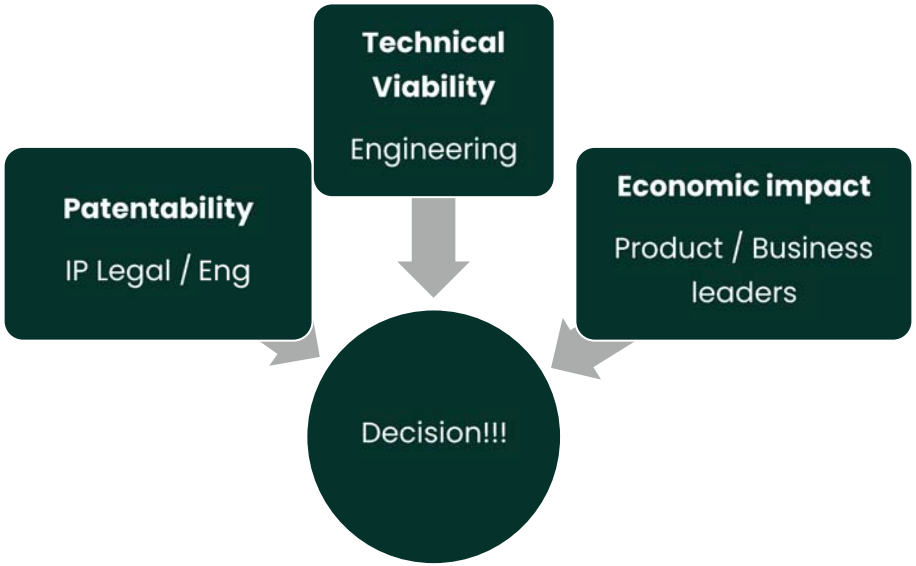
Invention Evaluation activities



Alignment with Business strategy

- What should be patented
- Should we maintain a trade secret
- Should we oppose
- Should we publish
- Should we maintain

Prior Art Novelty searches play a key role

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Inventor reward and recognition

Monetary rewards

Incentive & Motivation

Foster Innovation Culture

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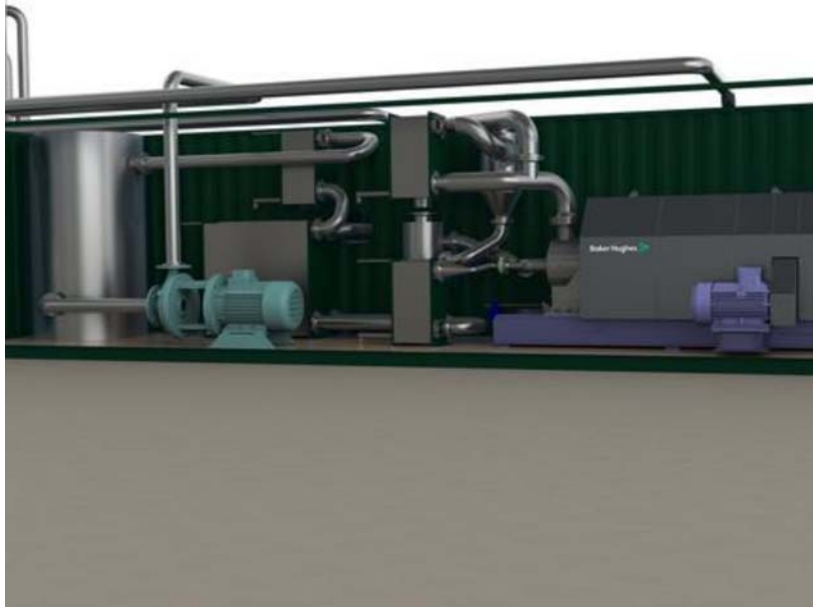
Tax incentives: Patent Box

The Patent Box is designed to encourage companies to keep and commercialise intellectual property in the UK. It allows companies to apply a lower rate of Corporation Tax to profits earned from its patented inventions.



https://www.gov.uk/guidance/corporation-tax-the-patent-box

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Mergers and Acquisitions / Licensing

Patents play pivotal role in M & A deals
Patent evaluation key part of due diligence
Numbers and Quality key attributes
Target identification

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Strategic alignment… patent information

Patent Professional should Know or strive to know …

- Business Priorities & Technologies
- Keeping up to date. What is new in the IP & Business world
- Budgetary constraints
- People Engagement
  - Internal and external
- What has worked and what has not!
- Training
  Learn the language of non-IP colleagues
  Teach the IP language non – IP colleagues

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