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BiOrgaMST
Биоактивни органични и неорганични
авангардни материали и чисти технологии



МИНИСТЕРСТВО
НА ОБРАЗОВАНИЕТО
И НАУКАТА

THE EDGE

Технологичен трансфер и комерсиализация на технологии

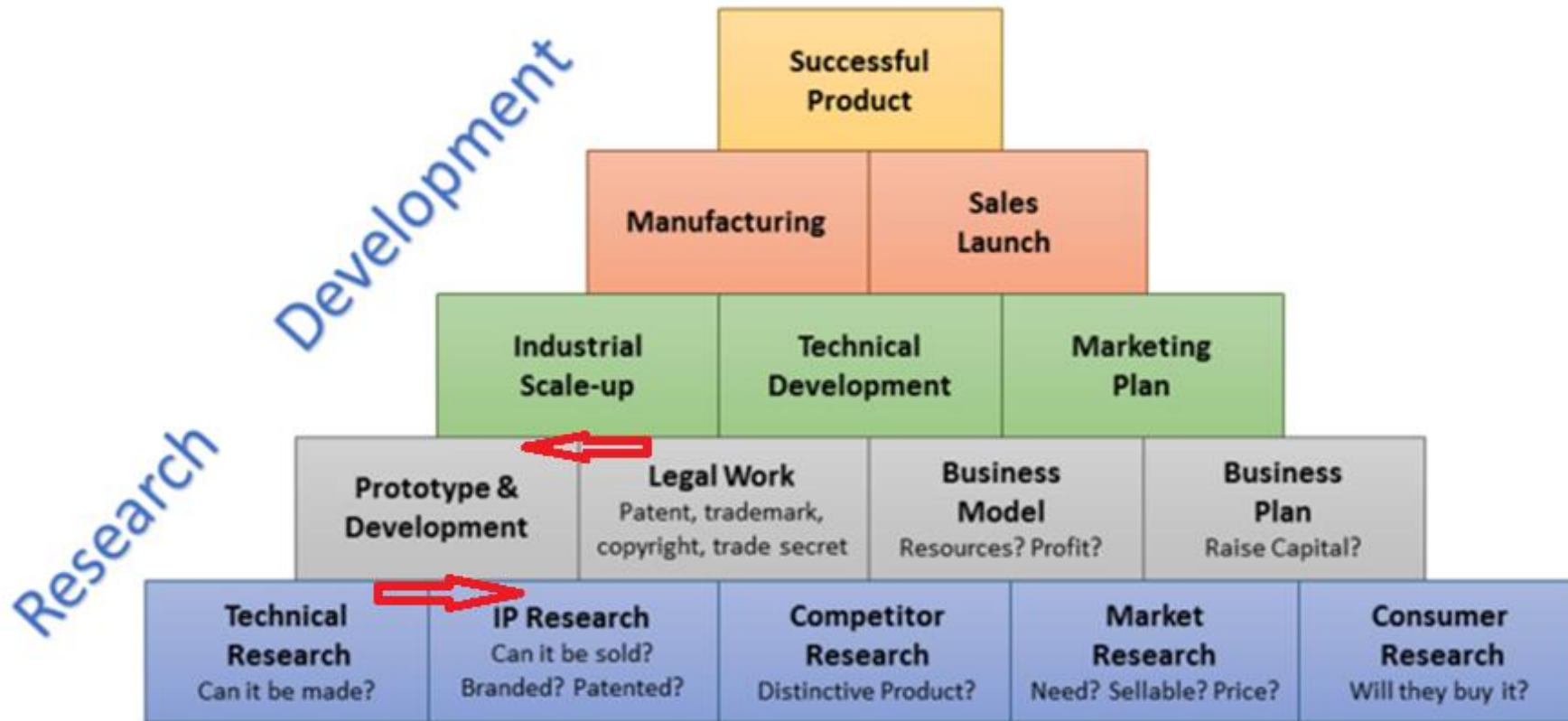
Петко Русков, 26 октомври 2023 г.

10/27/2023

PR TT&TC 20231012



Success = R & D



Key Question: Can you make money from this product?

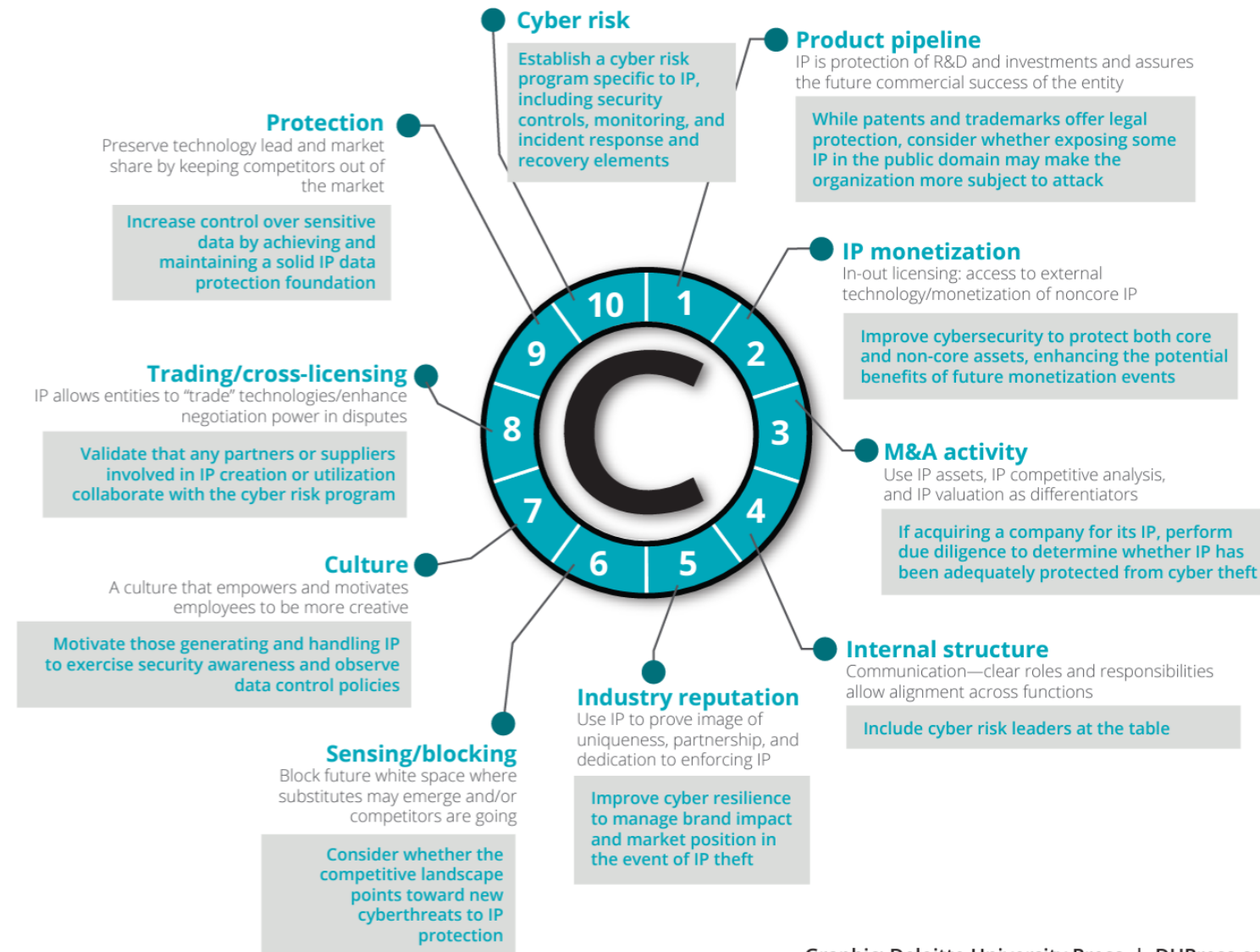
2024

23



Figure 3. Dimensions of an effective IP strategy

The corporate IP management program should be expanded to include a well-defined cyber risk management dimension, and the issues concerning cyber risk should be incorporated as needed within the other nine elements.



Graphic: Deloitte University Press | DUPress.com

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И НАУКАТА



A thumbnail guide to IP rights for fintech businesses in Bulgaria

Boyanov & Co



BOYANOV

Bulgaria | July 28 2023

Bulgaria

Europe

Banking

A thumbnail guide to IP rights for fintech businesses in Bulgaria

Boyanov & Co

A concise Q&A guide to IP rights for fintech businesses in Bulgaria, including software protection, joint ownership, trade secrets and more.

European Union

Europe

Banking

ECB announces digital Euro design

PRO

Analysis

Lexology PRO

The European Central Bank is set to begin work on preparing a digital euro, after announcing a

https://www.lexology.com/library/detail.aspx?g=0c76407f-05a2-42fe-901e-1a2f070fc367&utm_source=lexology+daily+newsfeed&utm_medium=html+email+-+body+-+general+section&utm_campaign=lexology+subscribe+daily+feed&utm_content=lexology+daily+newsfeed+2023-10-25&utm_term=



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Applied text:

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Marks & Clerk | USA | 12 Oct 2023

Article

Ask Lexy

String Theory Meets Chemistry: Princeton's New Twist on Lithium Enrichment

No, not that string theory. This is one which relates to actual strings and could assist in the world's transition to greener energy. Researchers at...

Bergeson & Campbell PC | USA | 28 Aug 2023

Article

Ask Lexy

Regulatory Developments: NSTC's Sustainable Chemistry Strategy Team Releases Sustainable Chemistry Report

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Spatially separated crystallization for selective lithium extraction from saline water

[Xi Chen](#), [Meiqi Yang](#), [Sunxiang Zheng](#), [Fernando Temprano-Coletto](#), [Qi Dong](#), [Guangming Cheng](#), [Nan Yao](#), [Howard A. Stone](#), [Liangbing Hu](#) & [Zhiyong Jason Ren](#) 

[Nature Water](#) **1**, 808–817 (2023) | [Cite this article](#)

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Abstract

Limited lithium supply is hindering the global transformation towards electrification and decarbonization. Current lithium mining can be energy, chemical and land intensive. Here we present an efficient and self-concentrating crystallization method for the selective extraction of lithium from both brine and seawater. The sequential and separable crystallization of cation species with different concentrations and solubilities was enabled by a twisted and slender 3D porous natural cellulose fibre structure via capillary and evaporative flows. The process exhibited an evaporation rate as high as $9.8 \text{ kg m}^{-2} \text{ h}^{-1}$, and it selectively concentrated lithium by orders of magnitude. The composition and spatial distribution of crystals were characterized, and a transport model deciphered the ion re-distribution process in situ. We also demonstrated system scalability via a 100-crystallizer array.

EPA Adds Ten Chemicals to Safer Chemical Ingredients List

Bergeson & Campbell PC



USA | October 3 2023

The U.S. Environmental Protection Agency (EPA) announced on September 29, 2023, that it is adding ten chemicals to the Safer Chemical Ingredients List (SCIL). EPA describes the SCIL as “a living list of chemicals that EPA’s Safer Choice program has evaluated and determined meet Safer Choice criteria.” With this update, the SCIL

<https://www.lexology.com/library/detail.aspx?g=a26e5f68-f512-4020-a4a8-fa9c606e0978>



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23

USA | October 3 2023

The U.S. Environmental Protection Agency (EPA) announced on September 29, 2023, that it is adding ten chemicals to the Safer Chemical Ingredients List (SCIL). EPA describes the SCIL as “a living list of chemicals that EPA’s Safer Choice program has evaluated and determined meet Safer Choice criteria.” With this update, the SCIL includes a total of 1,071 chemicals that are “among the safest for their functional use.” According to EPA, the SCIL provides increased transparency in safer chemistry, helps companies find safer chemical alternatives, and increases innovation and growth of safer products. EPA states that in support of the Biden Administration’s goals, “the addition of chemicals to the SCIL incentivizes further innovation in safer chemistry, which can promote environmental justice, bolster resilience to the impacts of climate change, and improve water quality.”

According to EPA, the SCIL is a resource that can help a variety of different stakeholders, including:

- Product manufacturers that use the SCIL to help them identify safer ingredients to make high-functioning products that contain safer ingredients;
- Chemical manufacturers that use the list to promote the safer chemicals they manufacture;
- Retailers that use the list to help shape their sustainability programs; and
- Environmental and health advocates who use the list to support their work with industry to encourage the use of the safest possible chemistry.

The Safer Choice program certifies products containing ingredients that meet the program’s human health and environmental safety criteria and allows companies to use its label on products that meet the Safer Choice Standard. EPA encourages manufacturers to submit their safer chemicals to EPA for review and listing on the SCIL, which EPA updates at least once a year to reflect innovations in safer chemistry.



Cambridge: City of Innovation - The 'beer summit' that generated a genomic revolution

Marks & Clerk



United Kingdom | March 22 2023

When you hear Next Generation Sequencing (NGS), you think Illumina Inc. Illumina is widely regarded as the giant of NGS, with an estimated 80% share of the global gene sequencing market. At the heart of Illumina's nucleic acid sequencing technologies is sequencing-by-synthesis (SBS), a **chemistry** technology with a humble and fascinating backstory.

The concept of SBS **chemistry** can be traced to a summer's evening in 1997, when four chemists of the University of Cambridge frequented the pub for a regular laboratory team discussion, a "beer summit". The quaint city of Cambridge has been at the centre of some of the greatest developments in nucleic acid science, and no telling of this tale is complete without consideration of them. In 1953, James Watson and Francis Crick of Cambridge's Cavendish Lab burst through The Eagle's pub doors and proclaimed to have discovered "the secret of life". Of course, they were referring to their resolution of the three-dimensional structure of DNA. A very British eureka, we hear you say. Another Cambridge alumnus, Frederick Sanger, is accredited with the major breakthrough in DNA sequencing, thus addressing the pressing question of how to "read" the sequence of nucleotide bases. Fred's 'Sanger sequencing method' of 1977 would become the principle DNA sequencing

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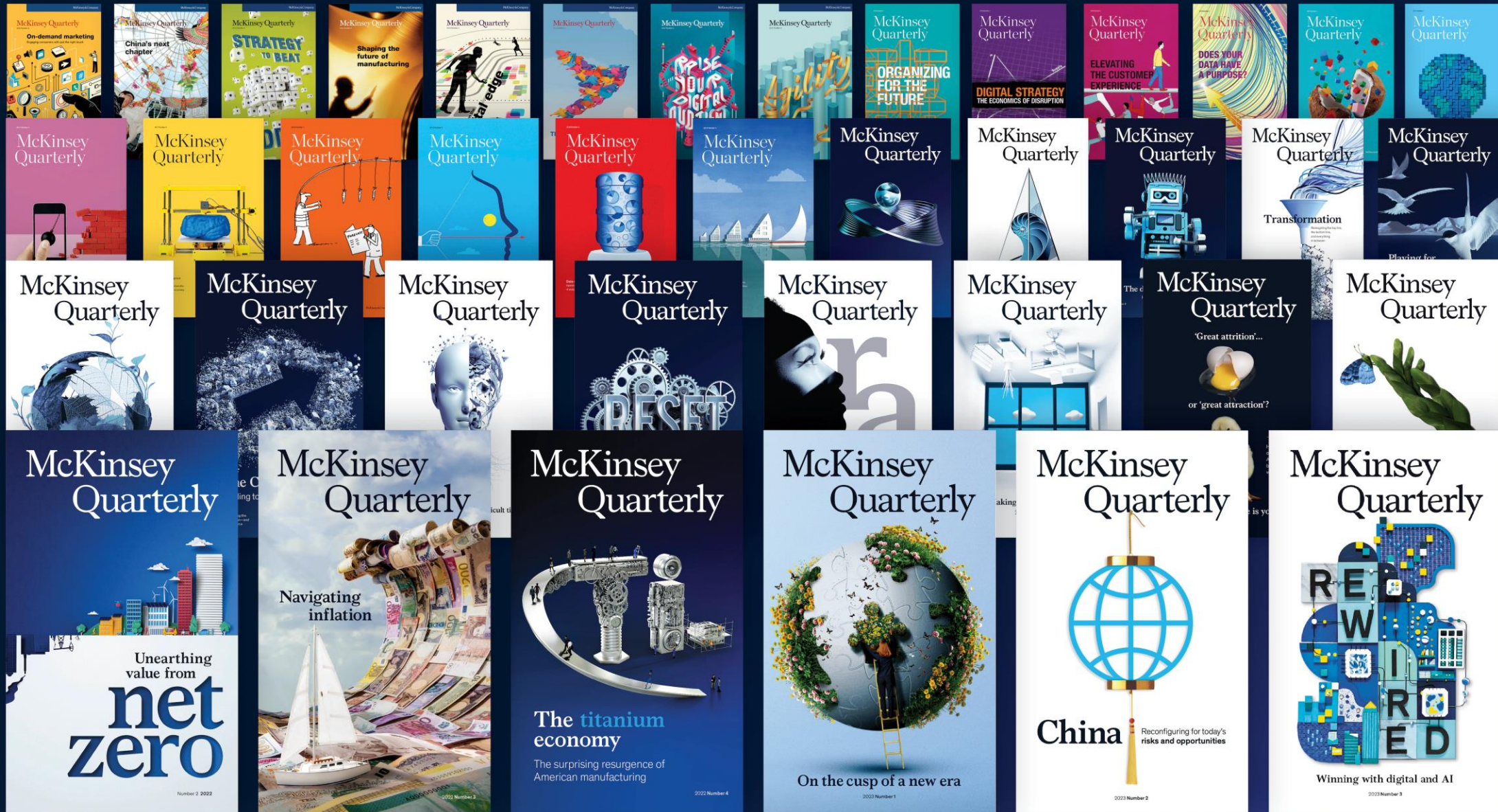




Machine Learning and Patents – A Guide for Patent Attorneys in Chemistry and Life Sciences

THE EDGE





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Building better batteries: Insights on chemistry and design from China

A detailed benchmark analysis of the batteries of Chinese battery electric vehicles (BEV) reveals how differences in electric batteries and battery pack design affect performance.

Automotive & Assembly | Article | April 22, 2021

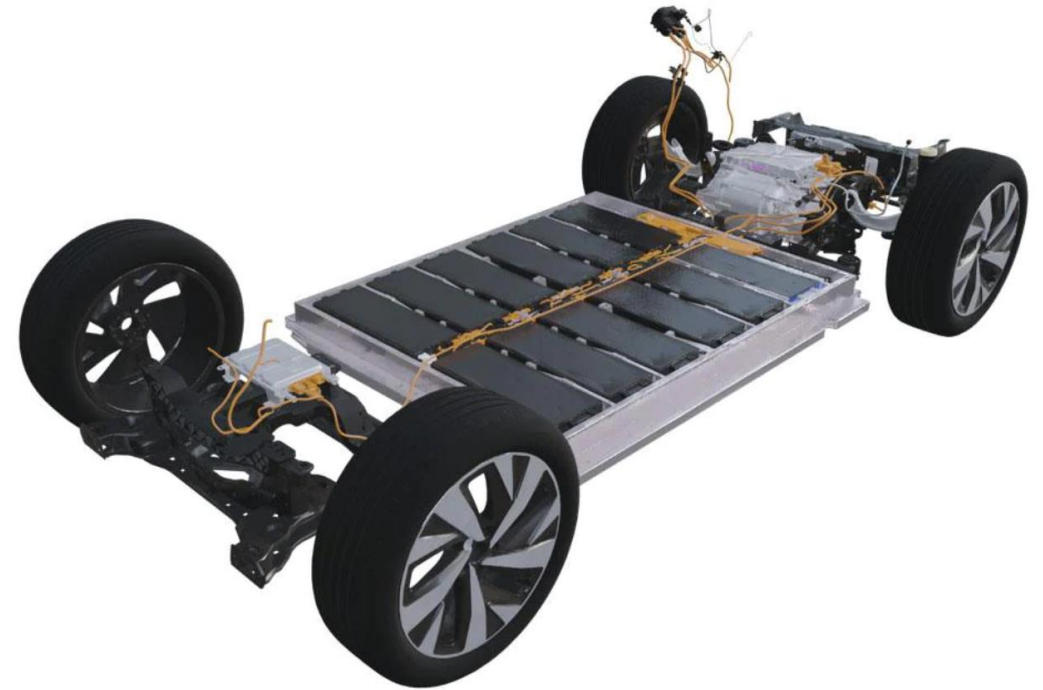
Meet the partners behind our most popular recent insights

Our most popular **insights** over the past month touch on how organizations and individuals can overcome current challenges and prepare for the months and years ahead. Meet the McKinsey leaders behind these **insights**, which address employee disengagement and attrition, the effects of generative AI, how individuals can contribute to higher living standards and a greener world, effectively communicating the value of companies' sustainability initiatives, and more.



Building better batteries: Insights on chemistry and design from China

April 22, 2021 | Article

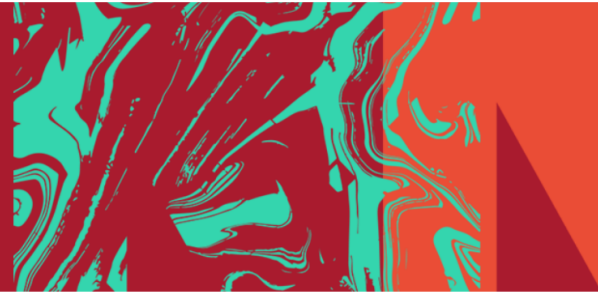


Enabling renewable energy with battery energy storage systems

August 2, 2023 | Article

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The market for battery energy storage systems is growing rapidly. Here are the key questions for those who want to lead the way.



Search results for 'chemistry'

Displaying results 1 to 10 of 275

[James Webb Space Telescope reveals secrets of space ice chemistry](#)

Search results appear by relevance.

All funding opportunities are available

Is this page useful?

HydRegen Ltd uses a new sustainable and environmentally friendly chemistry technology to produce products for the pharmaceutical, cosmetics and food industries.

[Home](#) > [News and events](#) > [Responding to climate change](#) > [Developing new behaviours and solutions](#) > [Chemistry research leads to cleaner, greener business](#)

Chemistry research leads to cleaner, greener business

The spin-out company, HydRegen Ltd, has been founded by Professor Kylie Vincent and Dr Holly Reeve, at the University of Oxford.

Long-term support from UK Research and Innovation led to the development of the novel technology that offers cleaner, safer, faster chemical production. Key funding included:

- early career development for Professor Vincent through the Engineering and Physical Sciences Research Council (EPSRC) Physical Sciences Inspire Programme
- a five-year translation grant funded by EPSRC, Biotechnology and Biological Sciences Research Council and Innovate UK through the Industrial Biotechnology Catalyst fund
- EPSRC funding for doctoral students that included working with multinational companies
- Innovate UK support via Innovation to Commercialisation of University Research to validate the market for the technology and business grant funding to enable the

THE EDΔE

Is this page useful?



2024



Enzymes as catalysts

The new technology allows producers of chemicals to get rid of toxic heavy metals, currently used as catalysts in the production of a range of products, which can be extremely environmentally damaging. Instead of heavy metal catalysts, the technology uses enzymes as catalysts.

Although the use of enzymes is already established in areas of chemical manufacturing, the new technology is unique in using hydrogen as an energy source to regenerate 'co-factors'. These are the biological molecules needed to drive the action of enzymes.

Replacing metal catalysts with enzymes, powered by hydrogen, will lower the amount of energy used in traditional methods of manufacture and minimise waste production. An added benefit is that the whole system is reusable as well.

Professor Vincent says:

“ We are focusing on tackling challenges in the fine chemicals sectors for synthesis of pharmaceuticals, flavour and fragrance molecules, where our technologies lower energy demands, increase product purity and enable



MEPs Intend That Startups Be Treated Differently From SMEs



https://intellectual-property-helpdesk.ec.europa.eu/news-events/news/meps-intend-startups-be-treated-differently-smes-2023-10-20_en

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MEPs call for start-ups to be treated differently from SMEs

17 Oct 2023 | News


Current EU legislation does not distinguish innovative start-ups from the massed ranks of SMEs. A specific definition - and a specific strategy - is needed to back start-ups and help them to grow

By [Martin Greenacre](#)



Chem-Match: Corporates Meet Startups 2023 "Green & Digital"

The "Chem-Match: Corporates meet Startups" event brings impetus to the chemical open innovation. As during the previous 4 successful editions, the event will match corporates with startups from the fields of chemistry, biotechnology, bio-electronics, environmental technologies and sustainability, digital process management and digital innovation. The European IP Helpdesk team will attend the event virtually to meet European small and medium-sized enterprises (SMEs) and startups and introduce our first line free-of-charge intellectual property (IP) support services.

	date	26/10/2023 - 27/10/2023
	venue	NH Collection Frankfurt City, Frankfurt am Main, Germany
	Organiser	Hessen Trade & Invest and Enterprise Europe Network
	Registration	Register here







2023



Basic-Level Webinar: IP in Biotechnology

The term biotechnology summarises all technologies related to living systems and organisms as a basis for developing and manufacturing technological applications using biological systems. Regarding the development of future applications, the biotech industry is one of the most innovative fields, so effective intellectual property (IP) protection is essential. In this training session, we will take a closer look at the field of biotechnology and the protection of biotech inventions.

	date	25/10/2023
	venue	Online
	Organiser	European IP Helpdesk
	Registration	Register here

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Case studies for use with Intellectual Property Teaching Kit

Reprint from the California Management Review special issue on intellectual property management, produced in collaboration with the EPO

Contributors

André Clerix, William W. Fisher III, Johan Van Helleputte, Bart Leten, Felix Oberholzer-Gee, Nadine Roijakkers and Wim Vanhaverbeke



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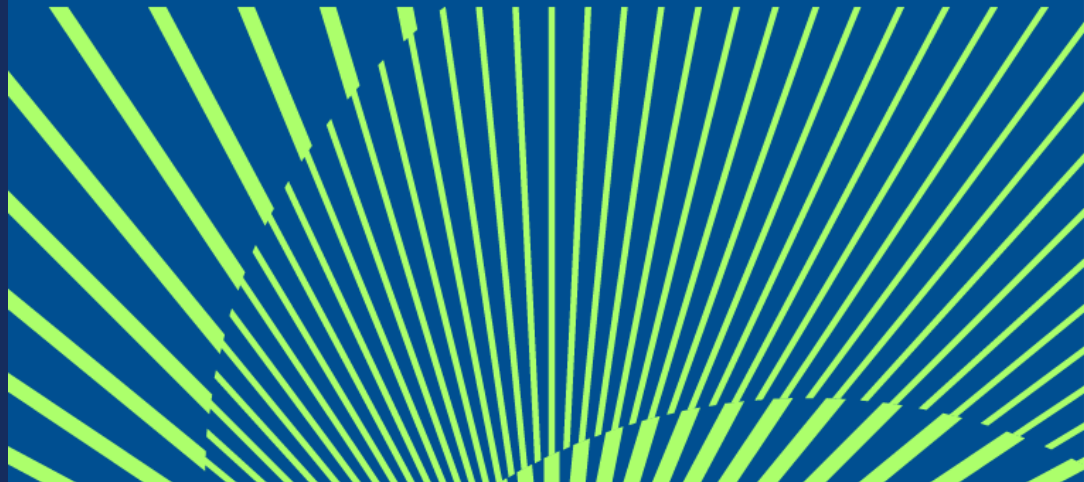




U.S. Chamber of Commerce
Global Innovation
Policy Center

International IP Index

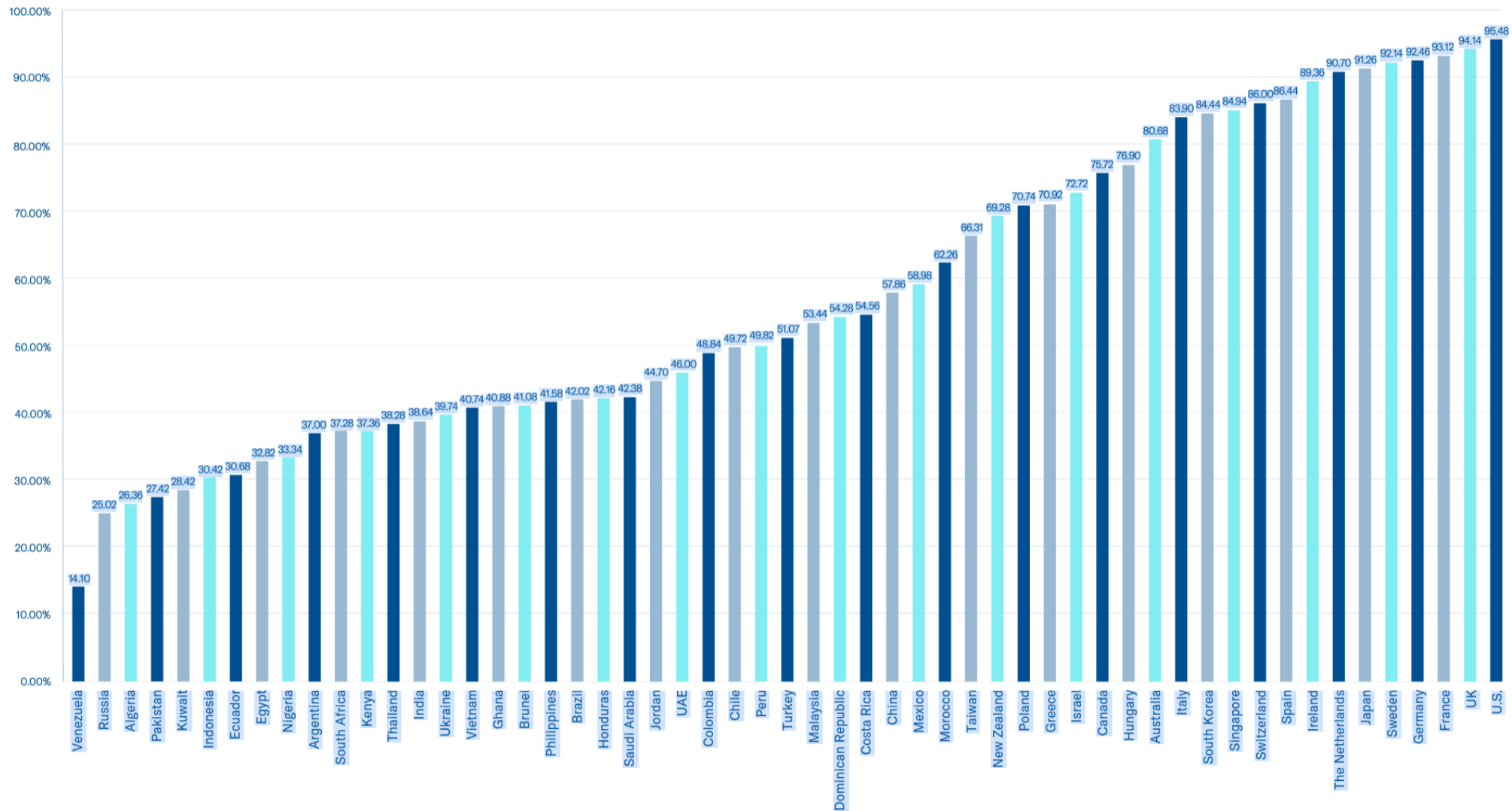
2023 Eleventh Edition



THE EDGE



U.S. Chamber International IP Index 2023, Overall Scores, % Available Score





EIC TECH REPORT

2023

BACKING VISIONARY ENTREPRENEURS

eic.ec.europa.eu
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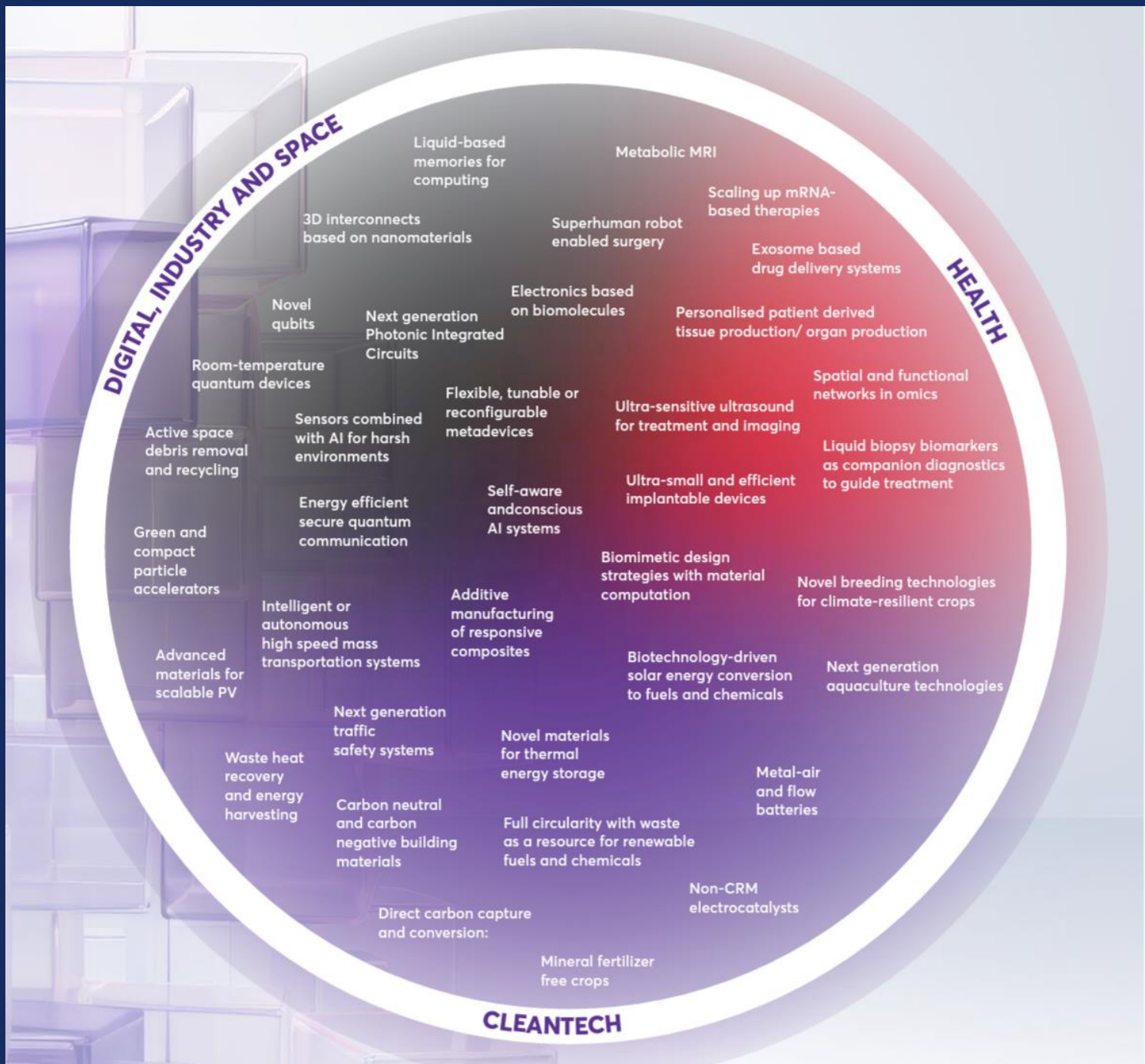
European
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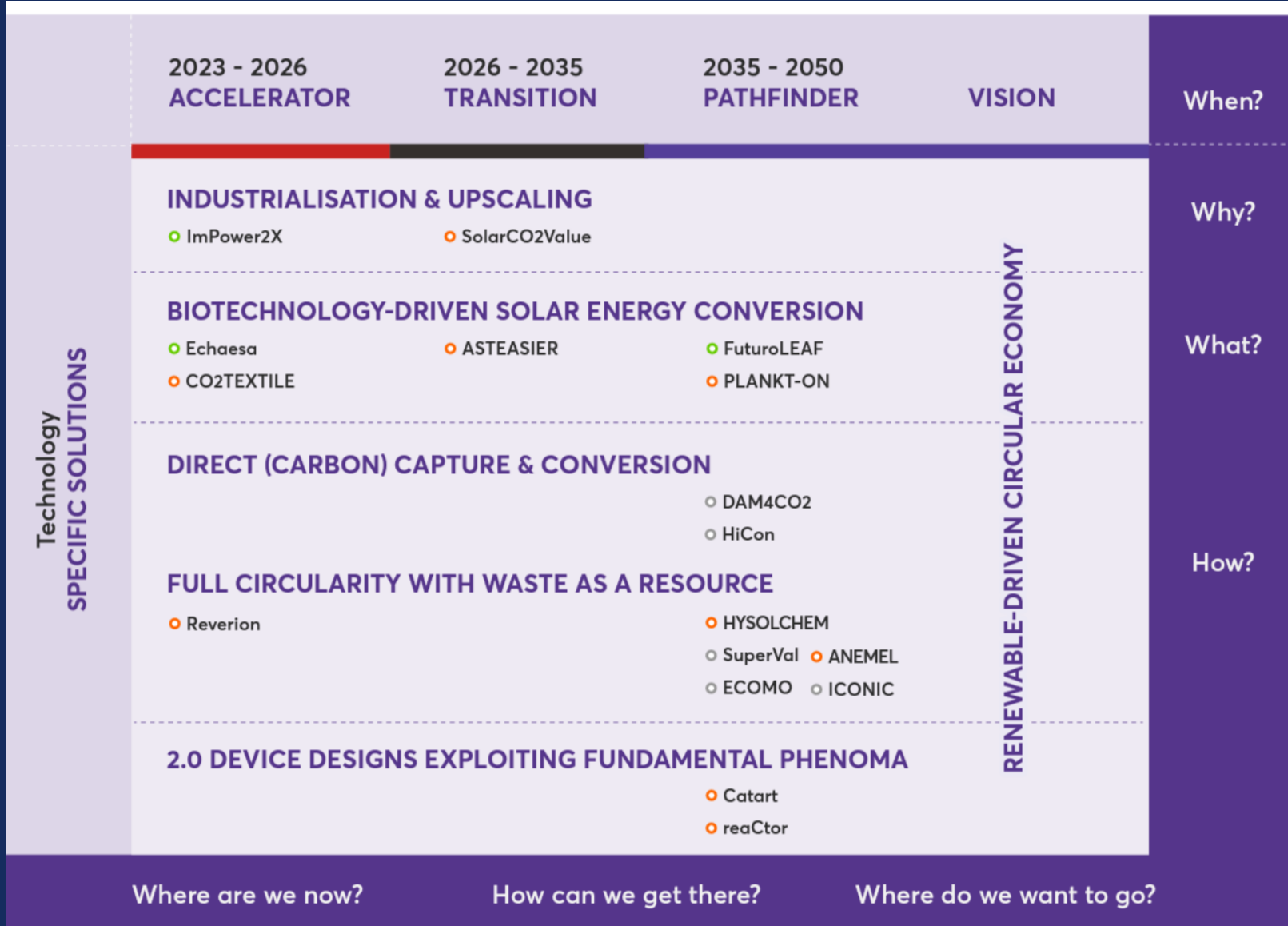
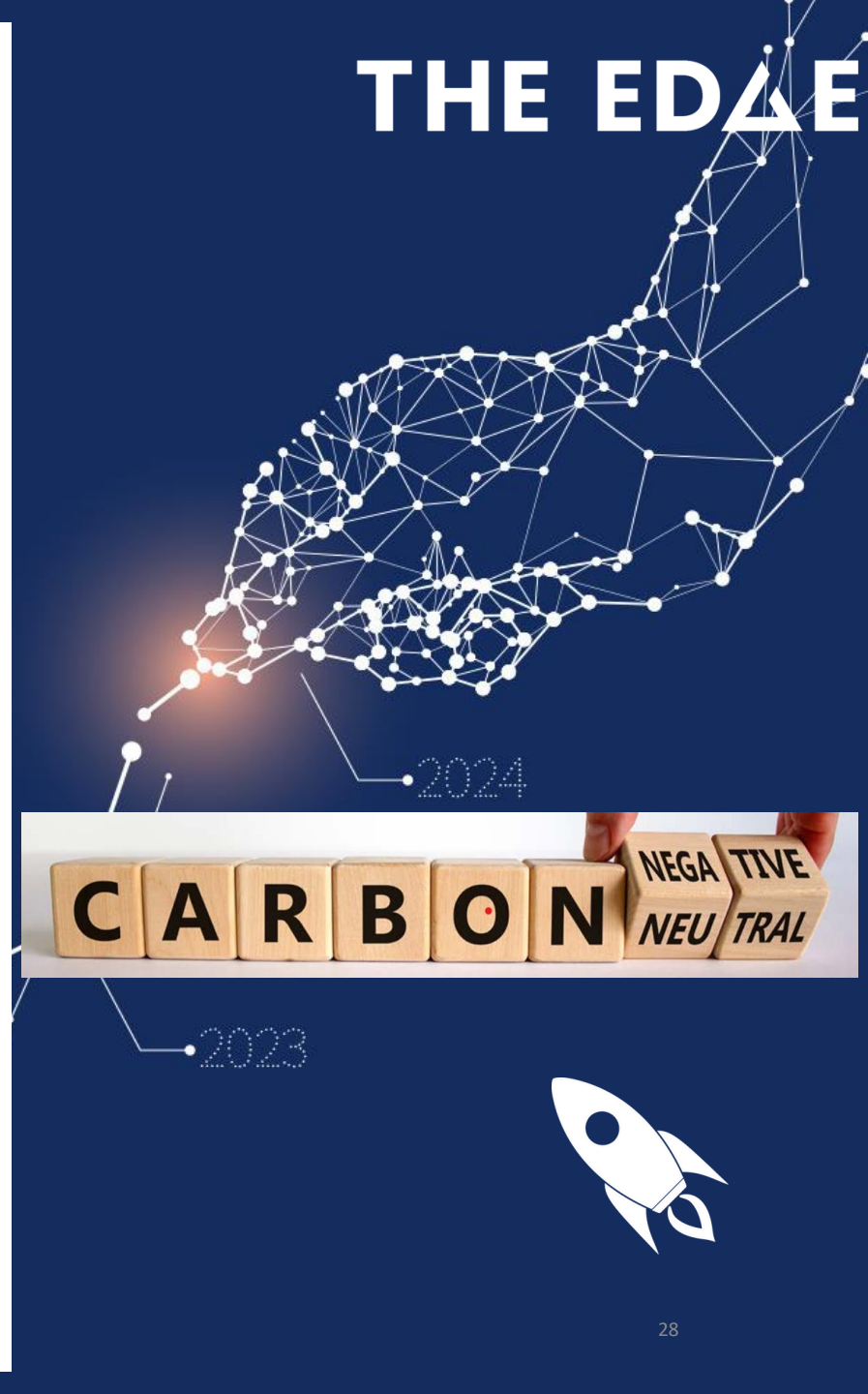


Figure 1: Clustering of selected EIC projects to showcase current and emerging trends in the field of renewable fuels and chemicals (Orange: running projects; Green: completed projects; Gray: projects under preparation)



World Corporate Top R&D Investors: *Innovation and IP bundles*

ANALYSIS TRADE APPROVAL
VALU MARK DEVELOP
COR:
TECH INTEL PO
NOL NOL
OGY OGY LECTUAL
TENT INVEST INNOBRATE
CUST INVESTMENT VATION
OMER



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Global Innovation Index 2023

Innovation in the face of uncertainty

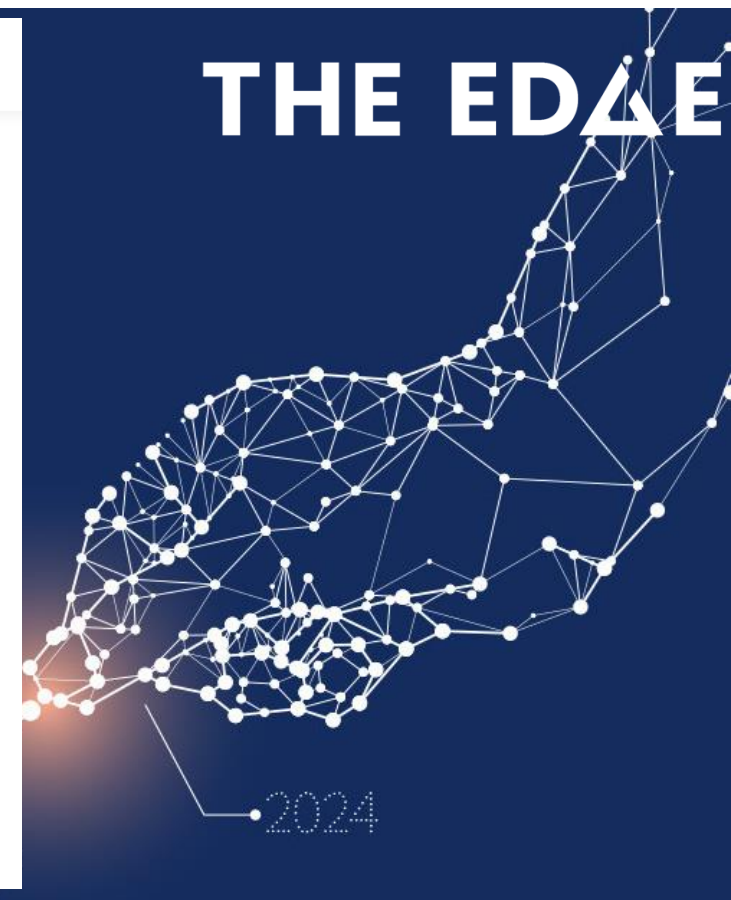


WIPO

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24	Australia	49.7	23	6	90	Sri Lanka			
25	Malta	49.1	24	16	91	Cabo Verde			
26	Italy	46.6	25	17	92	Lebanon			
27	New Zealand	46.6	26	7	93	Senegal	22.5	16	5
28	Cyprus	46.3	27	2	94	Dominican Republic	22.4	29	11
29	Spain	45.9	28	18	95	El Salvador	21.8	17	12
30	Portugal	44.9	29	19	96	Namibia	21.8	30	6
31	Czech Republic	44.8	30	20	97	Bolivia (Plurinational State of)	21.4	18	13
32	United Arab Emirates	43.2	31	3	98	Paraguay	21.4	31	14
33	Slovenia	42.2	32	21	99	Ghana	21.3	19	7
34	Lithuania	42.0	33	22	100	Kenya	21.2	20	8
35	Hungary	41.3	34	23	101	Cambodia	20.8	21	15
36	Malaysia	40.9	2	8	102	Trinidad and Tobago	20.7	50	15
37	Latvia	39.7	35	24	103	Rwanda	20.6	1	9
38	Bulgaria	39.0	3	25	104	Ecuador	20.5	32	16
39	Türkiye	38.6	4	4	105	Bangladesh	20.2	22	7
40	India	38.1	1	1	106	Kyrgyzstan	20.2	23	8
41	Poland	37.7	36	26	107	Madagascar	19.1	2	10
42	Greece	37.5	37	27	108	Nepal	18.8	24	9
43	Thailand	37.1	5	9	109	Nigeria	18.4	25	11
44	Croatia	37.1	38	28	110	Lao People's Democratic Republic	18.3	26	16
45	Slovakia	36.2	39	29	111	Tajikistan	18.3	27	10
46	Viet Nam	36.0	2	10	112	Côte d'Ivoire	18.2	28	12
47	Romania	34.7	40	30	113	United Republic of Tanzania	17.4	29	13
48	Saudi Arabia	34.5	41	5	114	Togo	16.9	3	14
49	Brazil	33.6	6	1	115	Nicaragua	16.9	30	17
50	Qatar	33.4	42	6	116	Honduras	16.7	31	18
51	Russian Federation	32.2	7	21	117	Zimbabwe	16.5	32	15



Top three innovation economies by income group

High-income

1. Switzerland
2. Sweden ↑
3. United States ↓

Upper middle-income

1. China
2. Malaysia ↑
3. Bulgaria ↓

Lower middle-income

1. India
2. Viet Nam
3. Ukraine ☆

Low-income

1. Rwanda
2. Madagascar
3. Togo ☆

International Patent Classification

Core Level (2010.01)

Volume 2

Section C

Chemistry; Metallurgy



World Intellectual Property Organization

THE EDGE

https://www.wipo.int/ipc/itos4ipc/ITSupport_and_download_area/20100101/pdf/scheme/core/en/ipcr_en_c_core_2010.pdf



SECTION C – CHEMISTRY; METALLURGY

CHEMISTRY

C01	INORGANIC CHEMISTRY	8
C01B	Non-metallic elements; Compounds thereof	8
C01C	Ammonia; Cyanogen; Compounds thereof	9
C01D	Compounds of alkali metals, i.e. lithium, sodium, potassium, rubidium, caesium, or francium	10
C01F	Compounds of the metals beryllium, magnesium, aluminium, calcium, strontium, barium, radium, thorium, or of the rare-earth metals	10
C01G	Compounds containing metals not covered by subclasses C01D Or C01F	11
C02	TREATMENT OF WATER, WASTE WATER, SEWAGE, OR SLUDGE	13

C05G	Mixtures of fertilisers covered individually by different subclasses of class C05; Mixtures of one or more fertilisers with materials not having a specific fertilising activity, e.g. pesticides, soil-conditioners, wetting agents; Fertilisers characterised by their form	22
C06	EXPLOSIVES; MATCHES	23
C06B	Explosive or thermic compositions; Manufacture thereof; Use of single substances as explosives	23
C06C	Detonating or priming devices; Fuses; Chemical lighters; Pyrophoric compositions	24
C06D	Means for generating smoke or mist; Gas-attack compositions; Generation of gas for blasting or propulsion (chemical part)	24
C06F	Matches; Manufacture of matches	24

2024



Chemical Structure Search

October 13, 2016

Launched on October 3, 2016, the new chemical structure search feature allows users to search for chemical information in patent documents in [PATENTSCOPE](#).

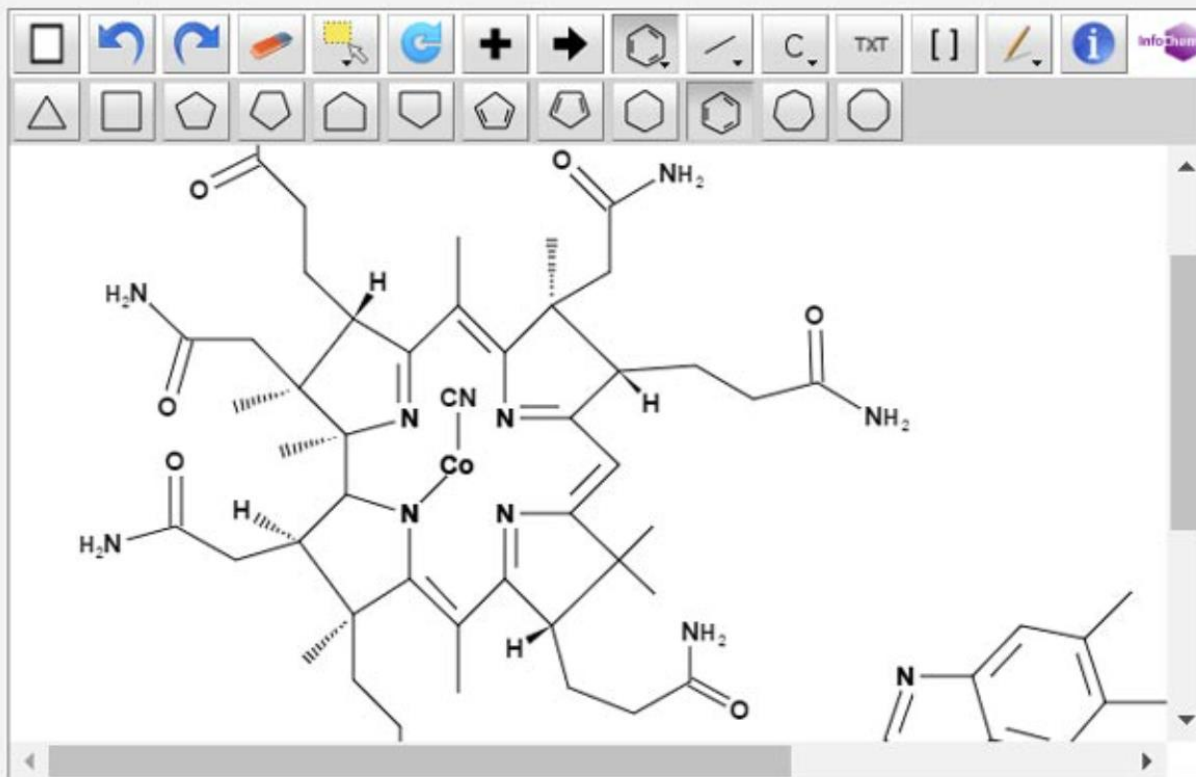
The idea of the chemical structure search is to offer a search feature that:

- recognizes the names of chemical compounds in patent texts;
- recognizes their structure from embedded drawings in patent texts.

The chemical search applies to the title, abstract, claim and description fields. It only works on developed formulas.

It is currently available for published PCT applications in English and German (from 1978), and the national collection of the U.S. (from 1979). It will become available for other languages and collections in the future.

Structure editor Convert structure Upload structure



InChI: InChI=1S/C62H90N13O14P.CN.Co/c1-29-20-39-40(21-30(29)2)75(28-70-39)57-52(84)53(41(27-76)87-57)89-90(85,86)88-31(3)26-69-49(83)18-19-59(8)37(22-46(66)80)56-62(11)61(10,25-48(68)82)36(14-17-45(65)79)51(74-62)33(5)55-60(9,24-47(67)81)34(12-15-43(63)77)38(71-55)23-42-58(6,7)35(13-16-44(64)78)50(72-42)32(4)54(59)73-56;1-2;/h20-21,23,28,31,34-37,41,52-53,56-57,76,84H,12-19,22,24-27H2,1-11H3,(H15,63,64,65,66,67,68,69,71,72,73,74,77,78,79,80,81,82,83,85,86);/q;+1/p-1/t31-,34-,35-,36-,37+,41-,52-,53-,56?,57+,59+,60+,61+,62+;/m1./s1

InChIKey: SEKGMJVH SBBHRD-JRUAQJQISA-M

Molecular C63H89CoN14O14P

Formula:

Molecular 1356.3927 g/mol

Weight:

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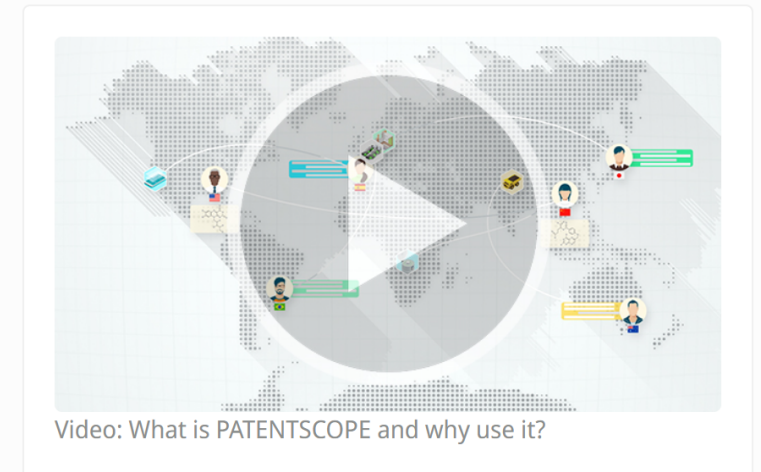
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Field Front Page Search terms...

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Chemical compounds (login required)

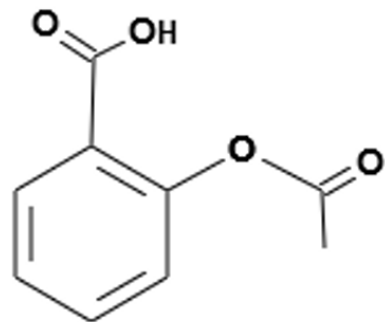
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Structure search - the concept

- Recognize names and structures of chemical compounds in patent texts and embedded drawings
- Standardize all the different representations of chemical structures into InChIkeys
- InChIkeys can be used by non chemists

Example: InChI – InChIKey for aspirin



InChI: InChI=1S/C9H8O4/c1-6(10)13-8-5-3-2-4-7(8)9(11)12/h2-5H,1H3,(H,11,12)
 InChIKey: BSYNRYMUTXBXSQ-UHFFFAOYSA-N

InChIKey = a fixed-length (27-character) condensed digital representation of an **InChI**

InChI = is a textual identifier developed to make it easy to perform web searches for chemical structures



Why is it useful?

- Terms such as “aspirin”, “paracetamol” not always used in patent documents
- Many ways of representing formulas
- Expansion of searches



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МИНИСТЕРСТВО
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И НАУКАТА



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IP Portal

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Home > PATENTSCOPE > Search

Feedback Search Browse Tools Settings

FP:(chemistry)

234,752 results Offices all Languages en Stemming true Single Family Member false Include NPL false

Sort: Relevance Per page: 10 View: All 1 / 23,476 Download Machine translation

1. **2061816** HYALURONIC ACID DERIVATIVES OBTAINED VIA "CLICK CHEMISTRY" CROSSLINKING EP - 27.05.2009

Int.Class C08B 37/08 ? Appl.No 07802163 Applicant FIDIA FARM SPA Inventor CRESCENZI VITTORIO

Crosslinked derivatives of polycarboxylated polysaccharides are described, wherein at least one of the polysaccharide chains consists of hyaluronic acid or a derivative thereof, crosslinked by means of reactions of the 'click chemistry' type and their use in the field of viscosupplementation, plastic surgery, oncologic and reconstructive surgery and also as matrices for controlled release systems of biologically and/or pharmacologically active molecules and/or macromolecules.

WIPO MAGAZINE

Beewise: out-of-the-box thinking to save the world's bees

December 2021



By **Catherine Jewell**, Information and Digital Outreach Division, WIPO

Bees are the most important pollinators in the insect world and play a central role in ensuring the global food supply. Without pollination, many plants cannot reproduce. Saar Safra, CEO of Israeli start-up Beewise, is on a mission to save bees – and at scale – using [artificial intelligence](#) (AI), computer vision and robotics. Mr. Safra explains how Beewise's high-tech solution is helping to save the world's bees. He also discusses the role that [intellectual property](#) (IP) plays in supporting small companies like Beewise, which are working to tackle some of the world's most pressing challenges.



A Smarter, Simpler, Better Patent Solution

A smarter, simpler, better patent solution



Expertise

Derwent World Patents Index

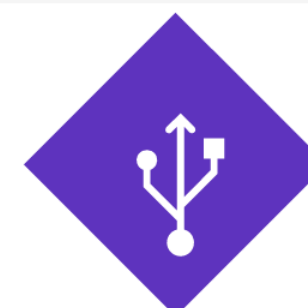
Which patents are most relevant? What makes them unique or novel in nature?



Content

Smart Search Patented Search Technology

How to reduce the time spent building patent search queries yet still have the most relevant results sent to the top your list?



Technology

Themescape, Charting, & Visualizations

How can you quickly identify your main collaborators and observe their innovation activities?

Derwent Patents Citation Index

Who is most influential in a given technology and are there others doing similar work for you?

AI Enhanced Predictive Analytics





Brian Costello

Research Smarter and Maximize your IP creation



Subhasree Nag, PhD

March 22, 2022

2024



Traditional View of Research



BASIC RESEARCH

SCIENTIFIC APPLICATION

IMPROVE SCIENCE

OPEN (PEER REVIEW)

PUBLISHING



APPLIED RESEARCH

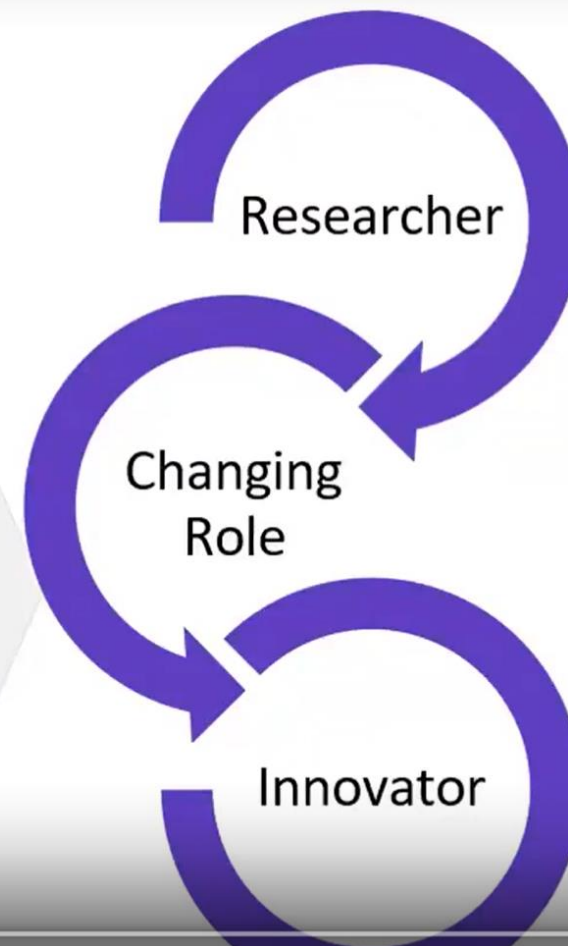
COMMERCIAL APPLICATION

IMPROVE COMMERCIAL VALUE

PROTECTED

PATENTING

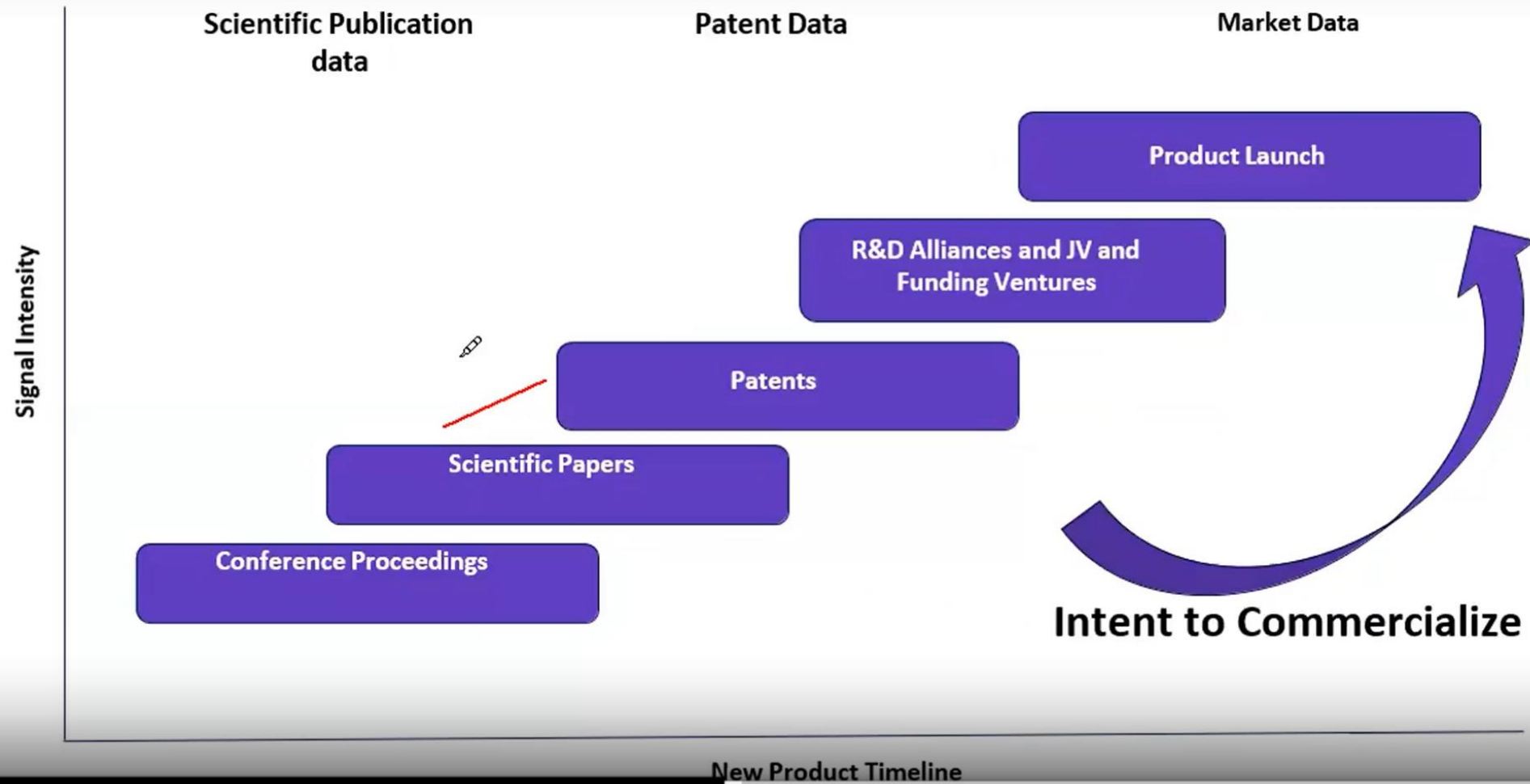
Brian Costello





Brian Costello

From Lab to Market



Patents as an Important Indicator of Innovation

BC

Brian Costello

30**%**

OF ALL EXPENDITURE IN R&D IS WASTED ON REDEVELOPING
EXISTING INVENTIONS

80**%**

OF CURRENT TECHNICAL KNOWLEDGE CAN BE FOUND IN PATENT
DOCUMENTS

70**%**

OF NEW (CHEMICAL) SUBSTANCES ADDED TO THE REGISTRY
FROM THE LITERATURE COME FROM PATENTS

PATENTS ARE A VALUABLE SOURCE OF INFORMATION

Search Results

Showing results for: **chemistry**

A Brief Patent Landscape of Chemical Companies

<https://www.lexisnexisip.com/resources/a-brief-patent-landscape-of-chemical-companies/>

by Dr. Dirk Caspary Ask a chemist what is so fascinating about their science, most of them will answer, “Because chemistry makes the world go round!” or “It’s everywhere!”. In case you disagree, please try to find an important technology development in the last decades which does not include Chemistry. In order to get an overview [...]

Protected: European User Meeting 2023 “The Future of IP Analytics”

<https://www.lexisnexisip.com/european-user-meeting-2023-the-future-of-ip-analytics/>

There is no excerpt because this is a protected post.



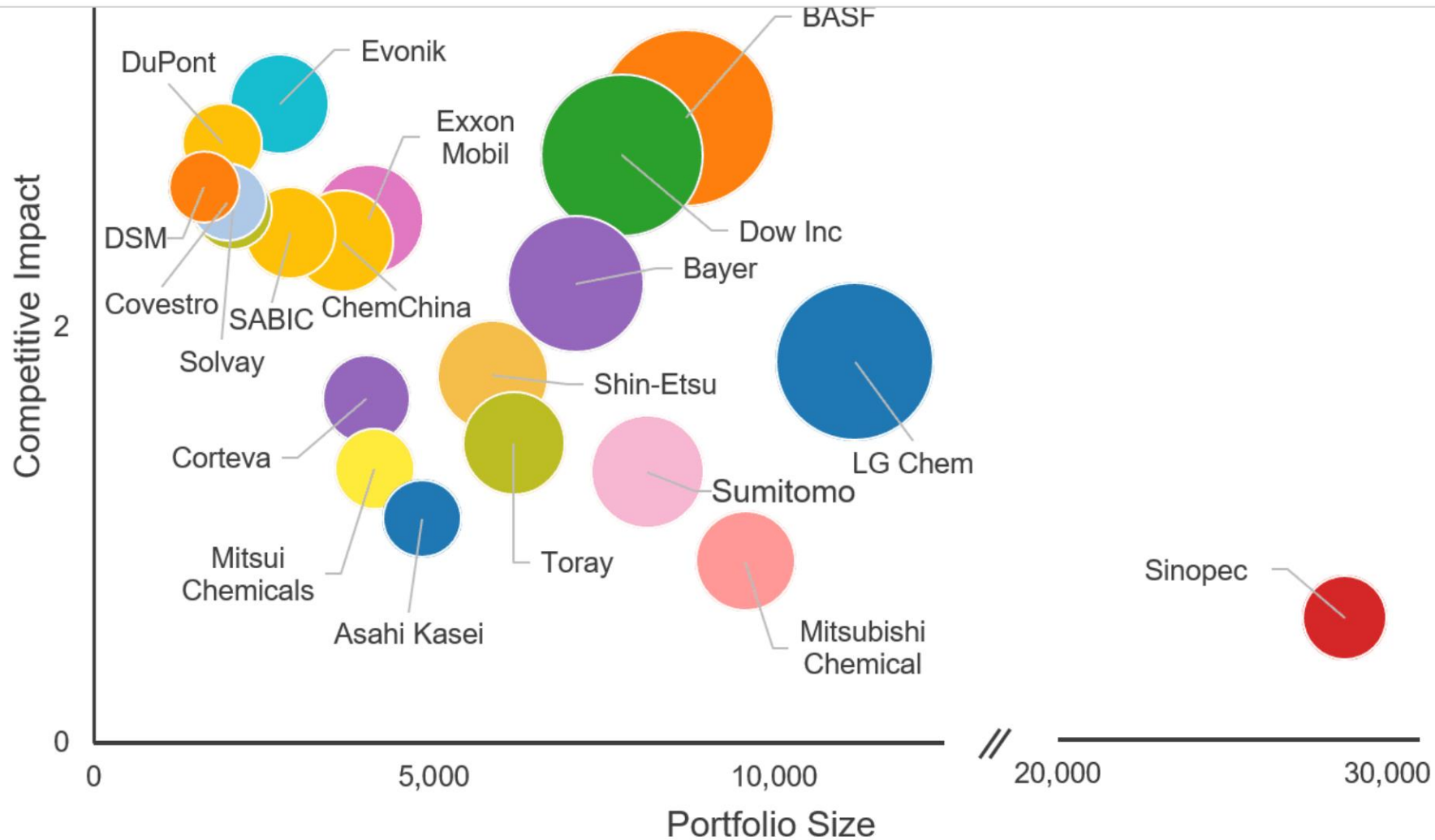
LexisNexis®

SOLUTIONS

WHO WE SERVE

RESOURCES

ABOUT US



The active portfolios of the of the top 20 chemical companies as of 17th June 2021.

2024



The LexisNexis logo, consisting of a red circular icon with white lines and the text 'LexisNexis' to its right.

LexisNexis

Exploring the Global Sustainable Innovation Landscape: The Top 100 Companies and Beyond

An aerial photograph of a large, circular water reservoir with a concrete dam and walkways around its perimeter. The water is a deep teal color.

■ The Framework of Sumitomo Chemical's Corporate Philosophy



THE EDGE

Bringing together the power of chemistry to contribute to solving society's challenges

Sumitomo Chemical's strengths

Diversity of businesses, technologies, geographies and people at Sumitomo Chemical

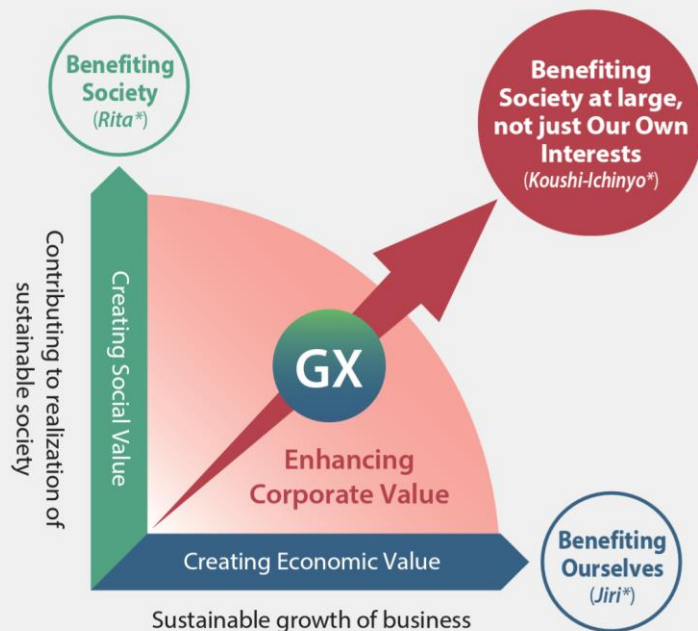


Further growth opportunities

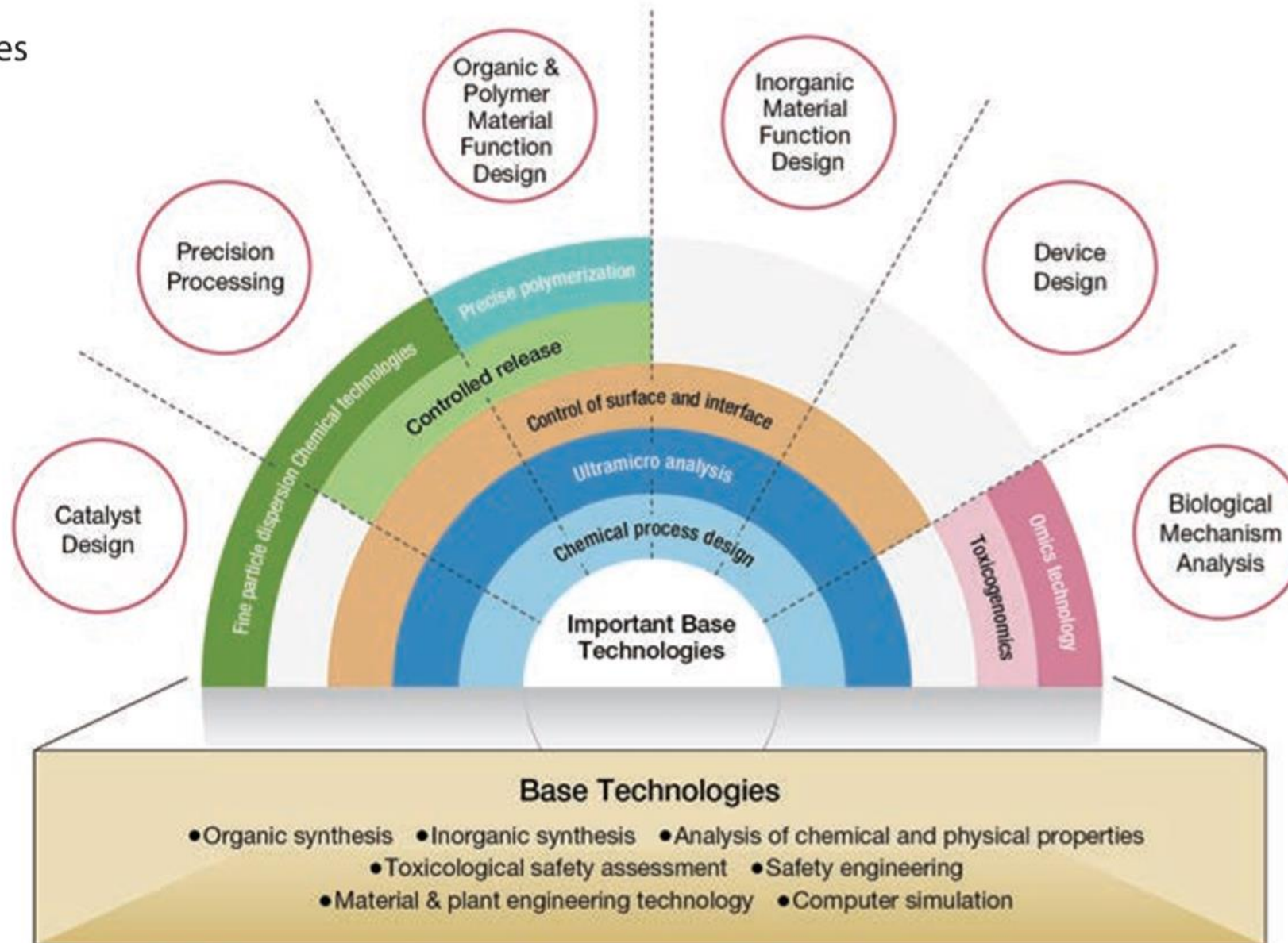
Advancing **Green Transformation (GX)** in a broad sense responded to changes in society

Basic Direction

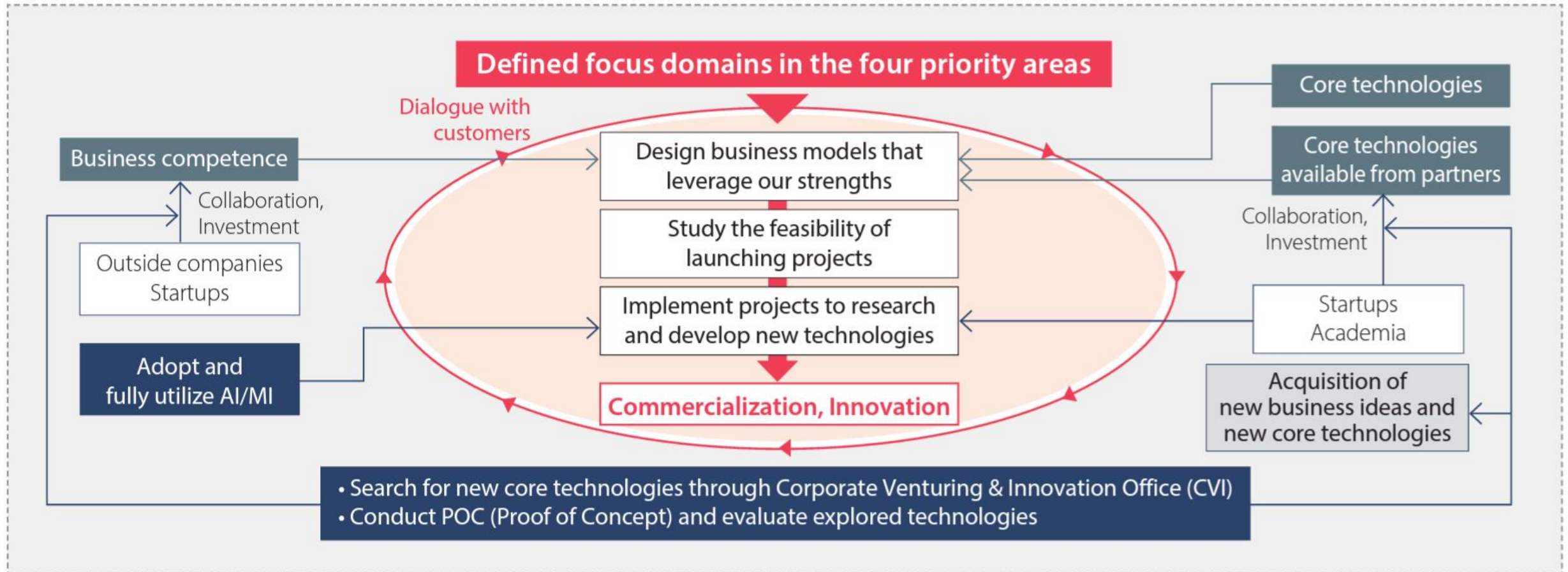
- Further improve business portfolio (strengthen and reform businesses)
- Improve financial standing
- Accelerate the Development of Next-Generation Businesses
- Obligations and contributions toward becoming Carbon Neutrality
- Improve productivity and strengthen businesses through digital innovation
- Employ, develop and leverage human resources for sustainable growth
- Ensure full and strict compliance and maintain safe and stable operations



■ Six Core Technologies



Innovation Ecosystem



Research and Development Expenses

(Billions of yen)
200

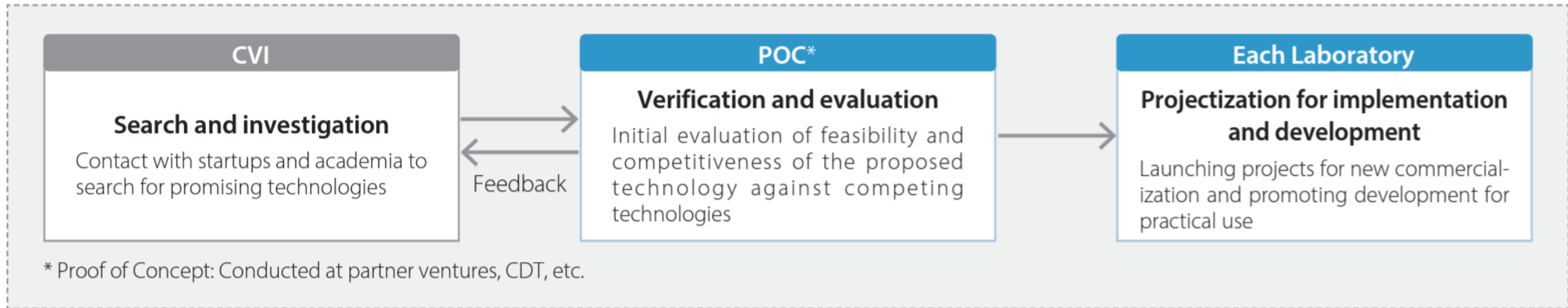
Patent Asset Size*1

(%)
12.0

(Patent Asset Index™)*2
20,000

Corporate Venturing & Innovation Office (CVI)

■ Flow of Introduction of External Technology Using CVI





NEW ERA OF
HYDROLOGY
USING INNOVATIVE
SOLUTIONS
AND KINÉIS
CONNECTIVITY



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МИНИСТЕРСТВО
НА ОБРАЗОВАНИЕТО
И НАУКАТА





Рамка на занятията

С какво ще си тръгна след дискусията?

Теория

- Тема 1
- Тема 2
- ...
- Въпроси и отговори



Практика

- Дискусия
- Упражнения
 - Работа в екипи
 - use cases
- Рефлексия





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И НАУКАТА

THE EDGE

7. Дълбоки технологии. Разработване на високи технологии в академични институции и в партньорство с голяма компания.
8. Стратегии за технологичен трансфер и комерсиализация на технологии. Конкурентна стратегия. Световни и национални политики.
9. Разработване на модел за ефективен трансфер на високи технологии. Оценка на стартиращата компания. Примери.





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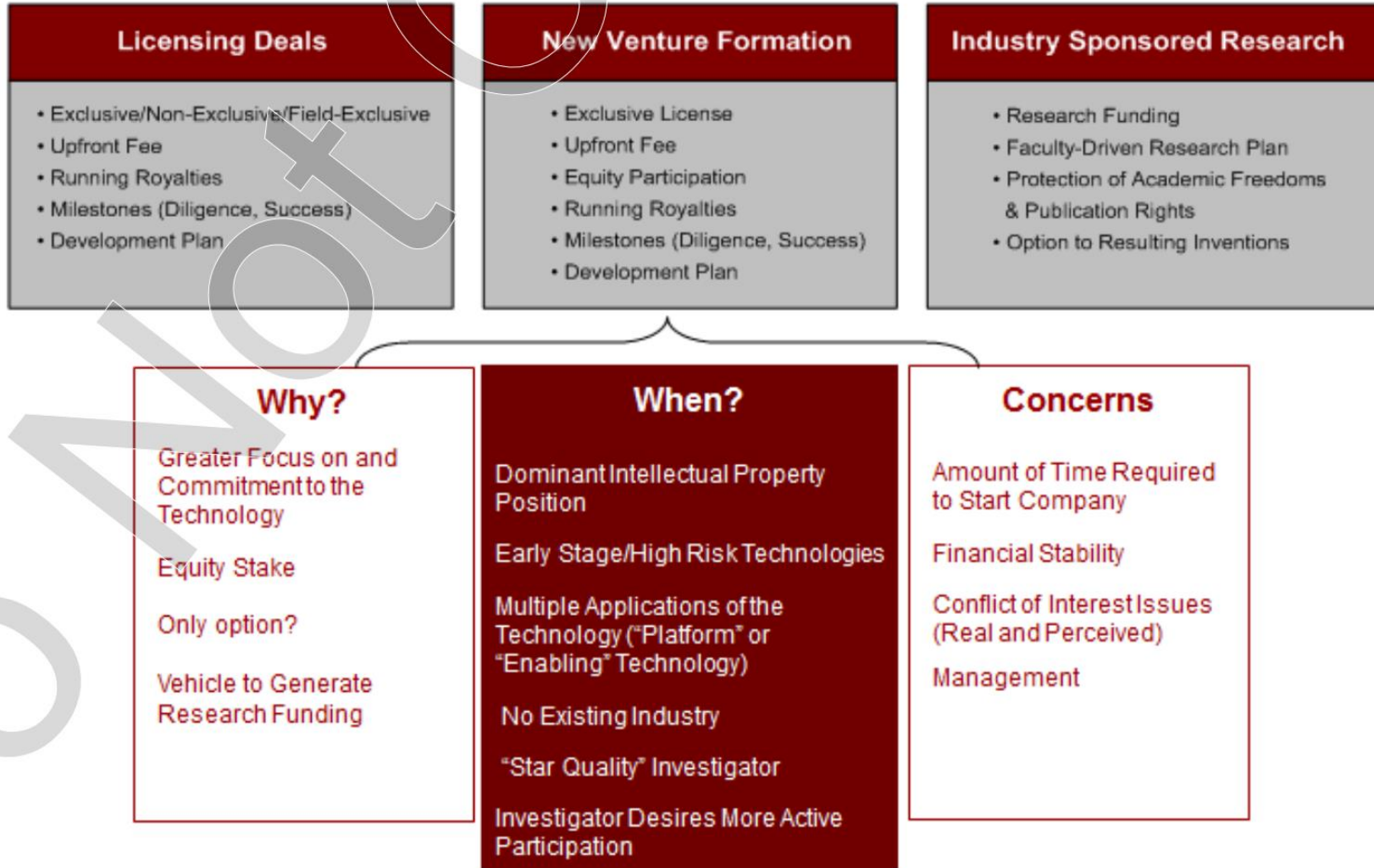
МИНИСТЕРСТВО
НА ОБРАЗОВАНИЕТО
И НАУКАТА



**7. Дълбоки технологии.
Разработване на високи
технологии в академични
институции и в
партньорство с голяма
компания.**

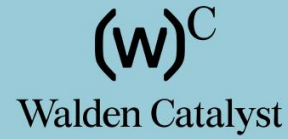


Exhibit 7b "Building Value into the Commercialization Process: Designing Optimal Agreement Structures."



Source: Harvard University Office of Technology Development, 2011.





The European Deep Tech Report

2023 Edition

January 2023

Deep Tech startups have very different characteristics and risk-profiles from traditional startups.

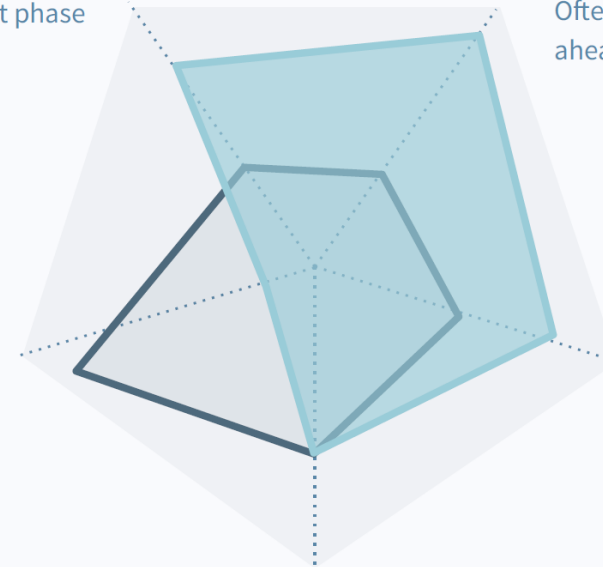
■ Deep Tech ■ Regular Tech

Development times
Often go to market within months of starting
Long initial development phase

Capex intensity
Quick go-to-market with basic MVP
Often times heavy capex ahead of revenues and PMF

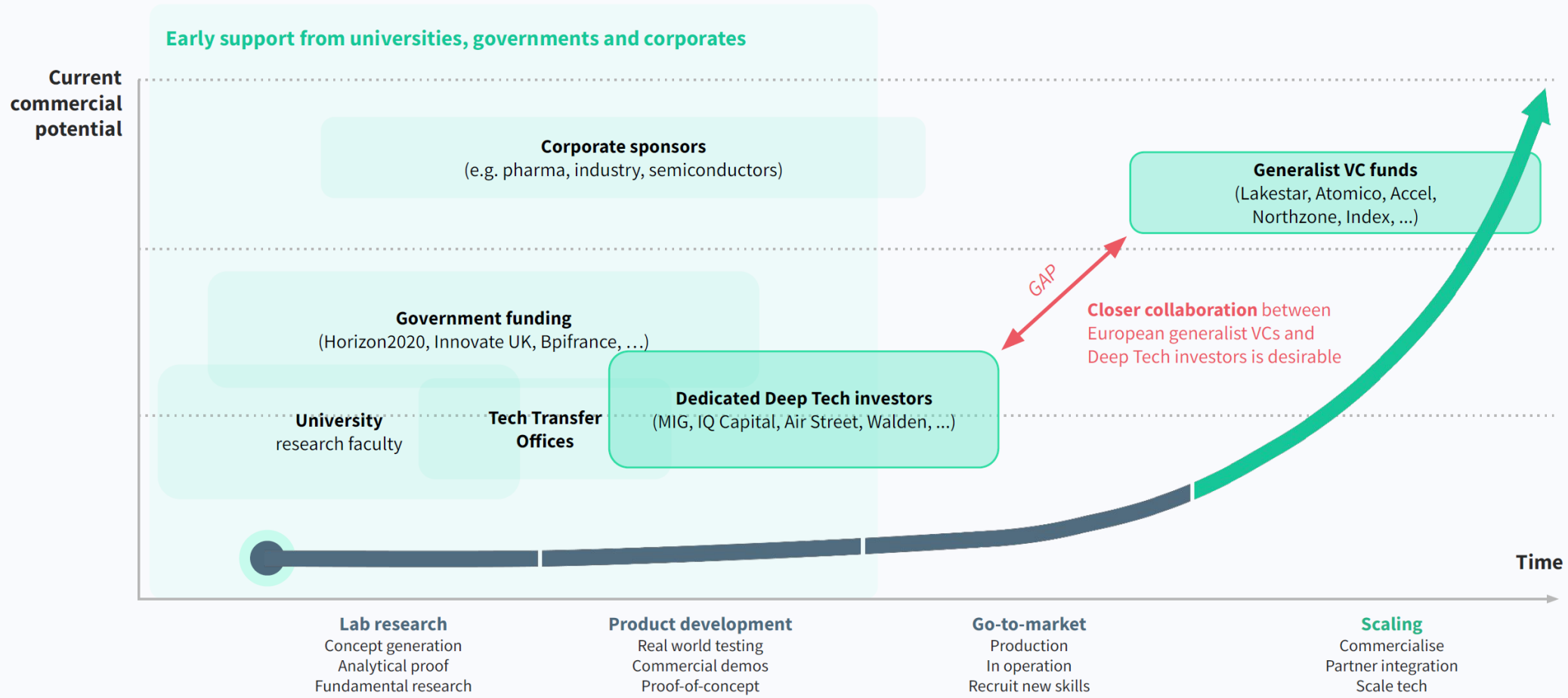
Competition risk
Network effect and market dominance as main edge
Strong tech edge

Technology risk
Existing proven technologies
Breakthrough/novel tech



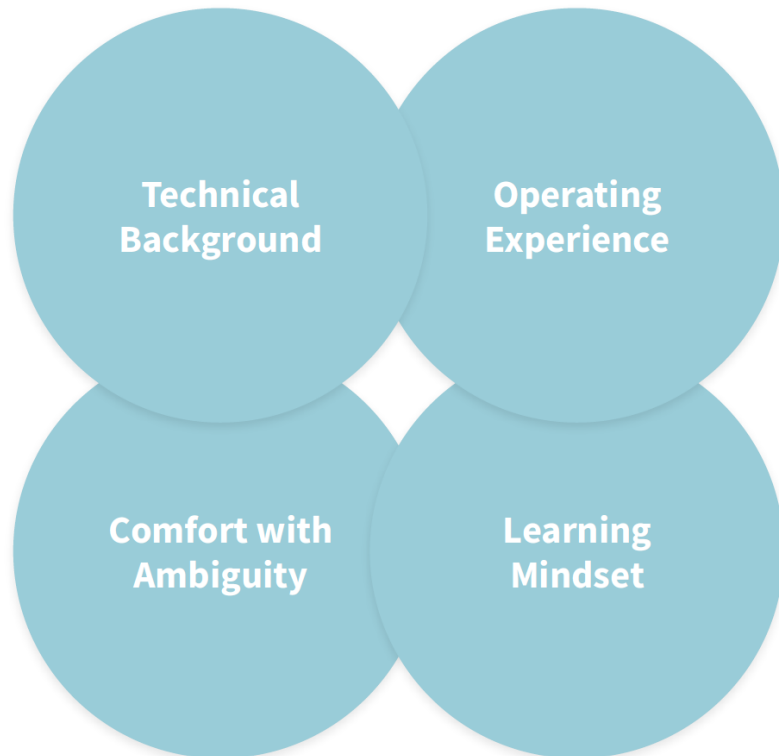
Market risk
Existing market demand, but also existing alternatives
Often no comparable product in market

Deep Tech startups are supported by multiple stakeholders involved in de-risking at each stage, but some gaps still exist.



Generalist funds are creating Deep Tech focused teams to bridge the gap in scaling Deep Tech startups.

Key attributes to look for in a Deep Tech investor:



“ To properly invest in Deep Tech you must build a dedicated team.

“The approach and process used to invest in Deep Tech is often quite different from traditional SaaS investing. It requires a unique investor skillset, a specialized bottoms-up investment strategy and the ability to operate independently.”

Steven Jacobs

Venture Partner (Deep Tech) & Chief Product Officer
at **Lakestar**



There is strong public support for Deep Tech in Europe.

EU programs



EIC Fund (European Innovation Council Fund)

EIC provided more than [1.5k grants totalling over \\$1.3B](#) in support of European Deep Tech startups since 2016.



EIF (European Investment Fund)

EIF is the main LP in most European Deep Tech funds, providing nearly 40% of the capital allocation.



EIT InnoEnergy

EIT InnoEnergy is one of the most active investors in Energy in Europe.



JEDI

“The European DARPA” aims to hand €50m and €100m in annual challenge grants.

Domestic programs*



Germany

Germany is planning a €30B fund to support technology-oriented startups and facilitate start-up spin-offs from academia and lab access for start-ups.



SPRIN-D

German Federal Agency for Disruptive Innovation.



France

France committed €2.3B in funding to the “Industrial and Deep Tech Start-Ups” strategy.



Bpifrance

Bpifrance participated in over 160 rounds totalling [\\$3B for Deep Tech](#) since 2016.



Advanced Research and Invention Agency (ARIA)

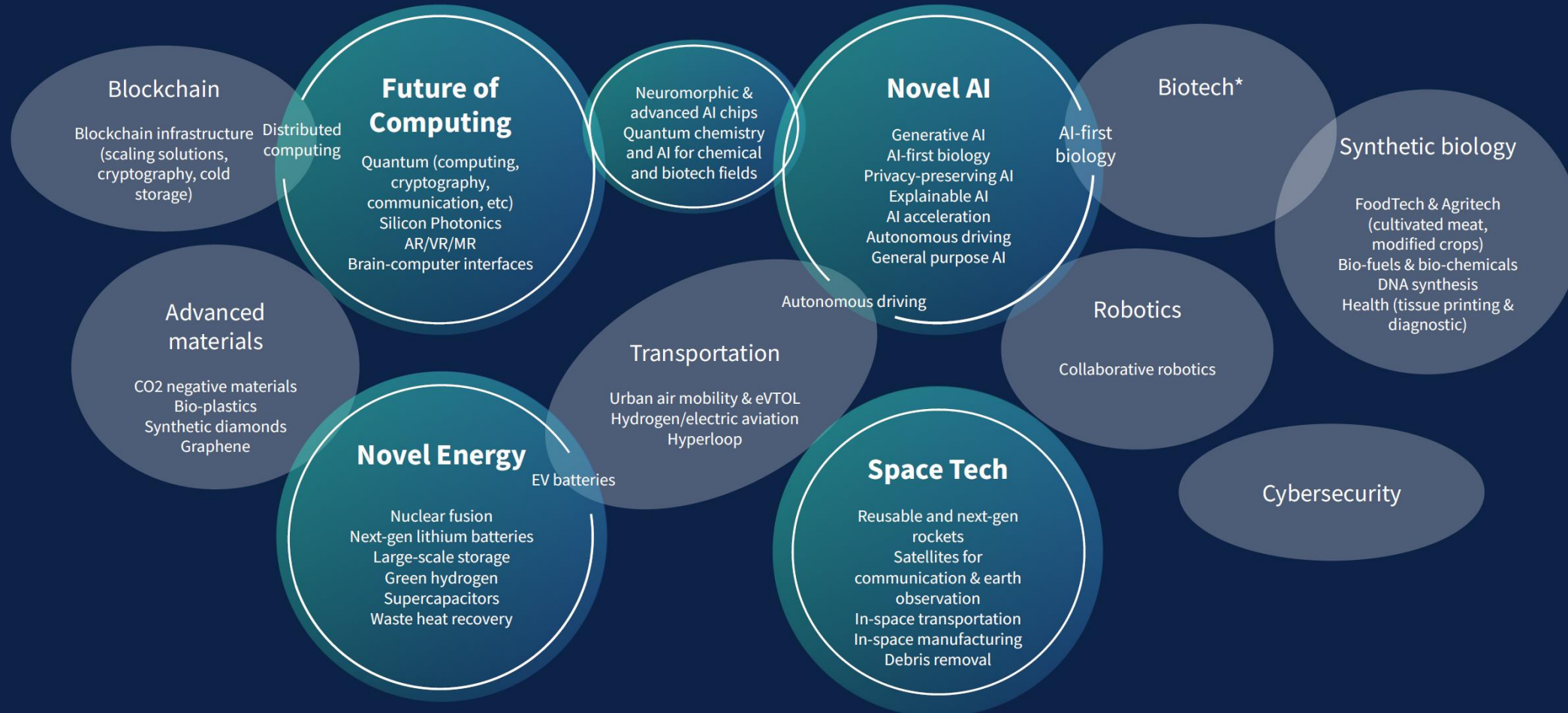
Pending launch of Advanced Research & Invention Agency (ARIA) with £800 million to support new areas of research and technology.

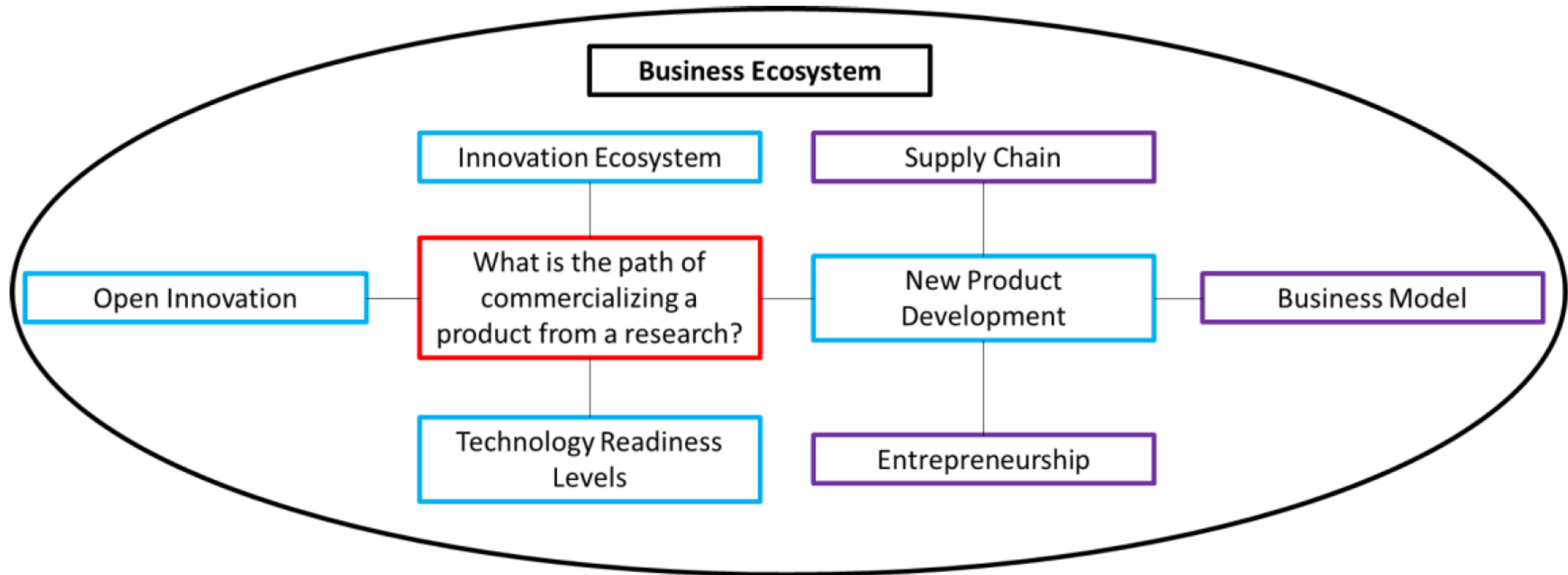


UK Research and Innovation

UK's innovation agency with £1.2B/year budget.

This report focuses on four “new/true frontier” areas of Deep Tech.





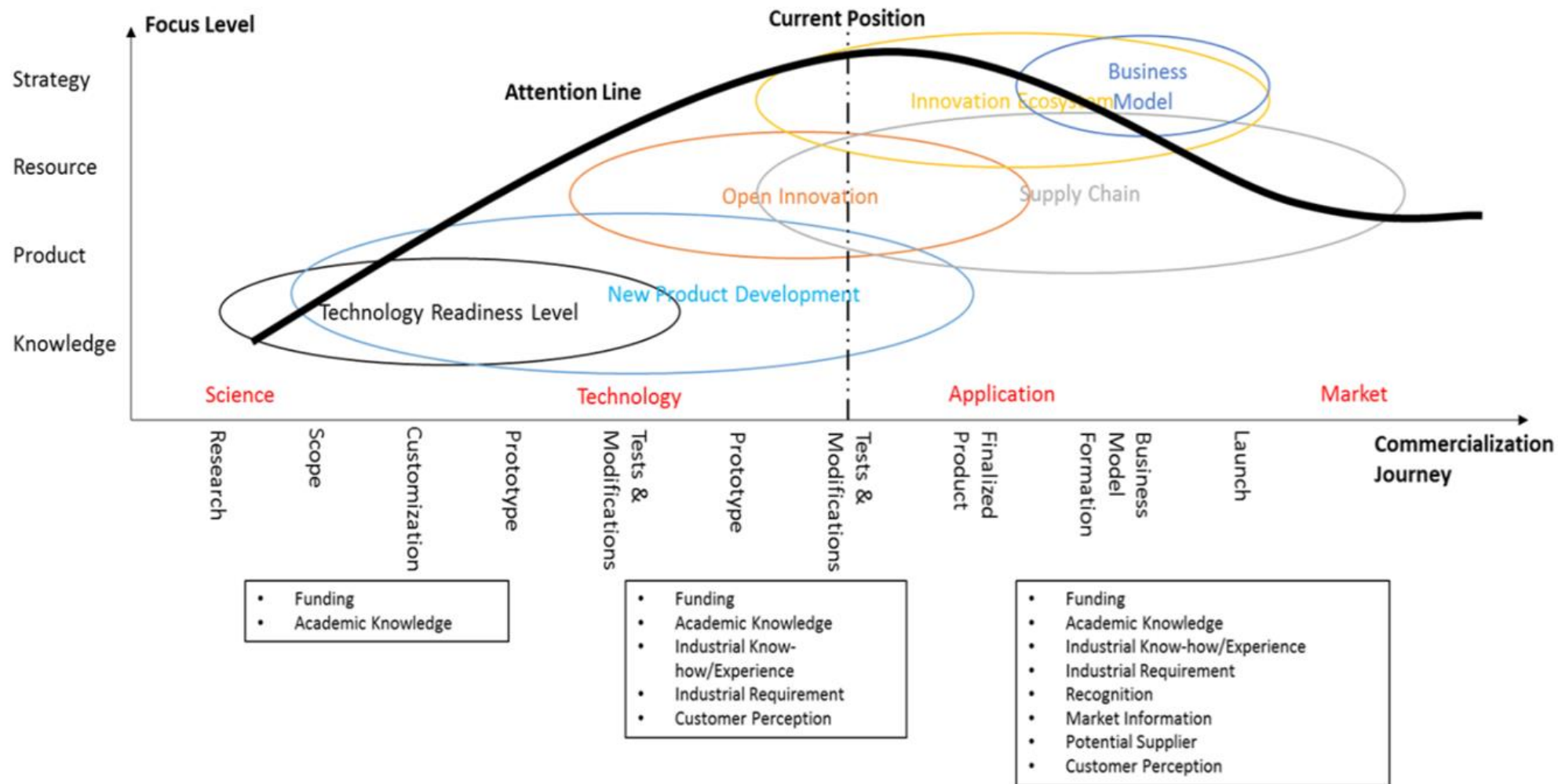


Figure: 2.1 A Theoretical Framework for Commercialization based on Literature Mapping



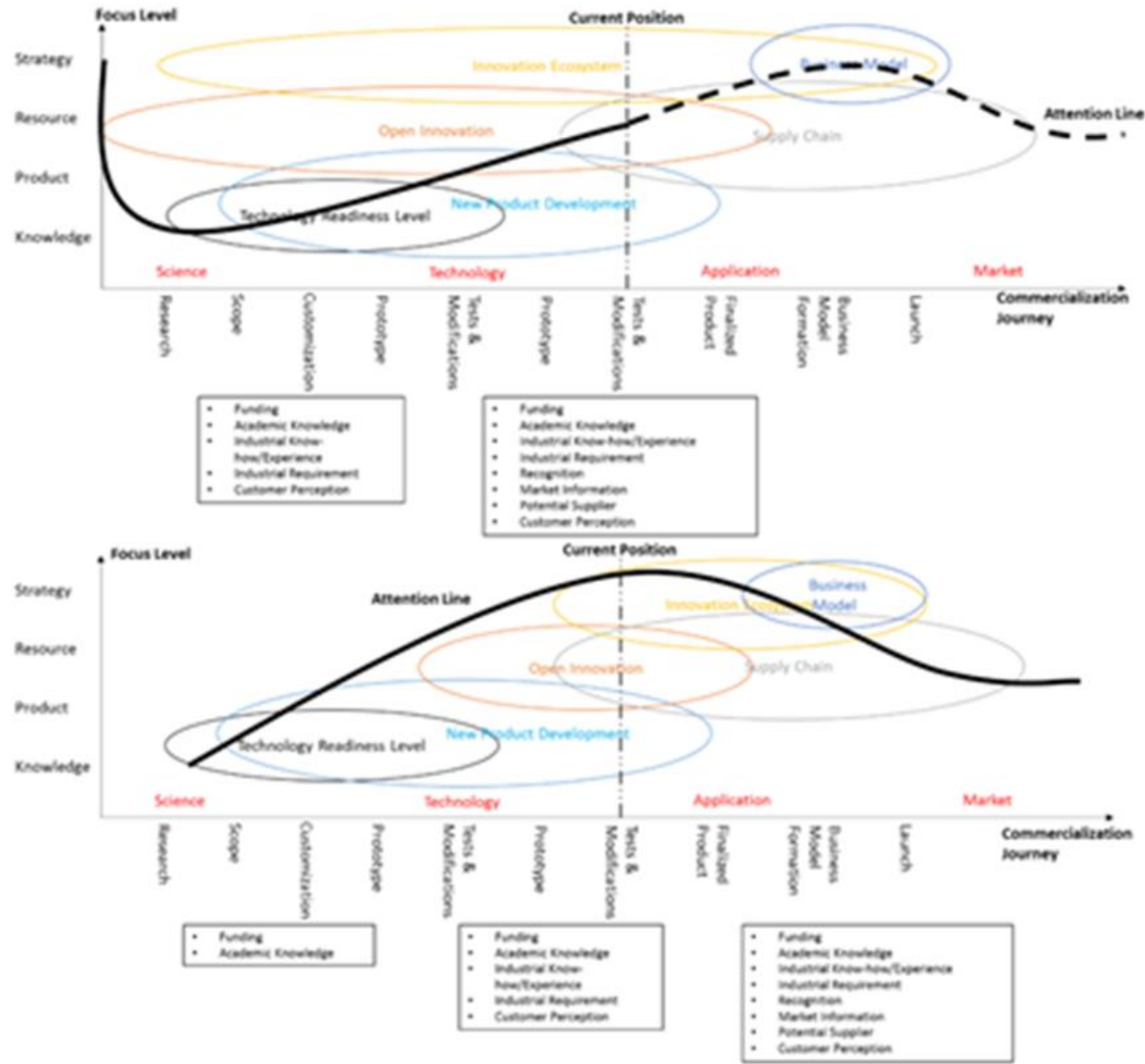


Figure 5.1: Practical (top) and Theoretical (lower) Commercialization Charts

2024
 R&D Management Conference 2016
 "From Science to Society: Innovation and Value Creation" 3-6 July 2016,
 Cambridge, UK
 2023





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И НАУКАТА



8. Стратегии за технологичен трансфер и комерсиализация на технологии. Конкурентна стратегия. Световни и национални политики.

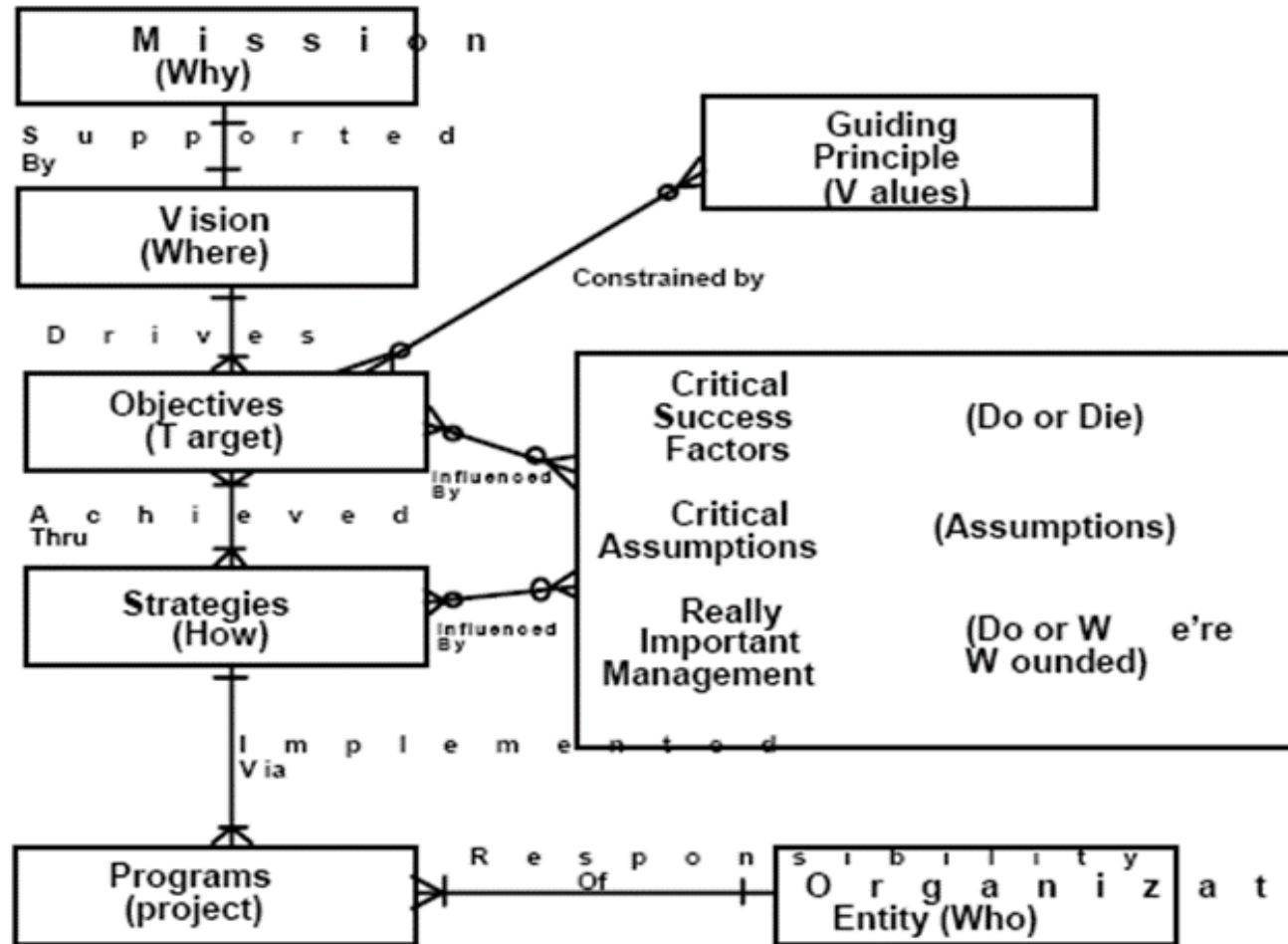


Finding your Way



4





Legend:

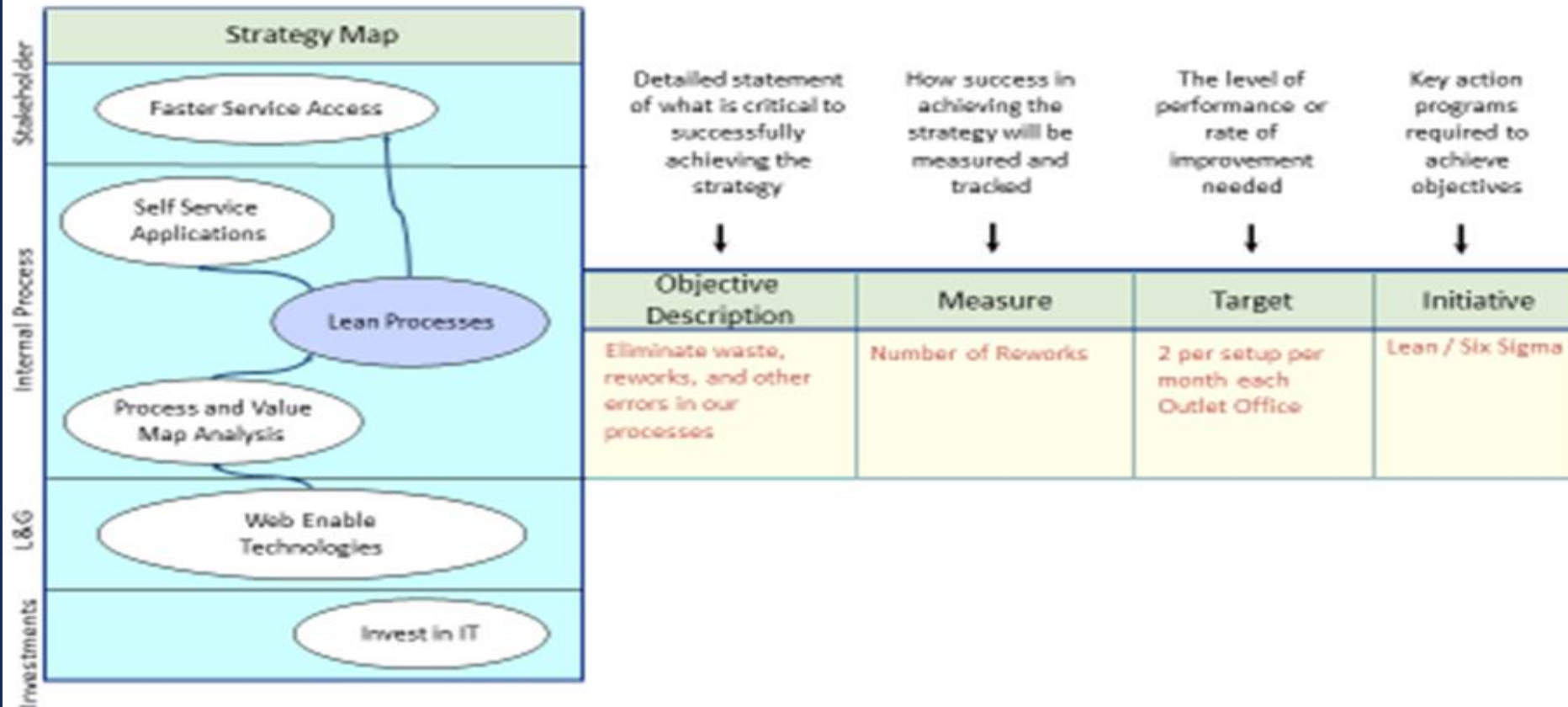
- +— One and only one
- X— One or many
- O— Zero, one, or many

Read the model Top-Down, Left-to-Right

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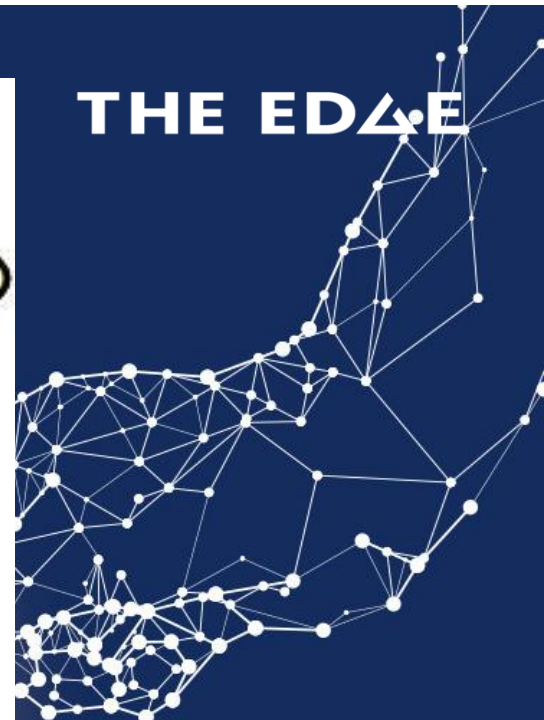
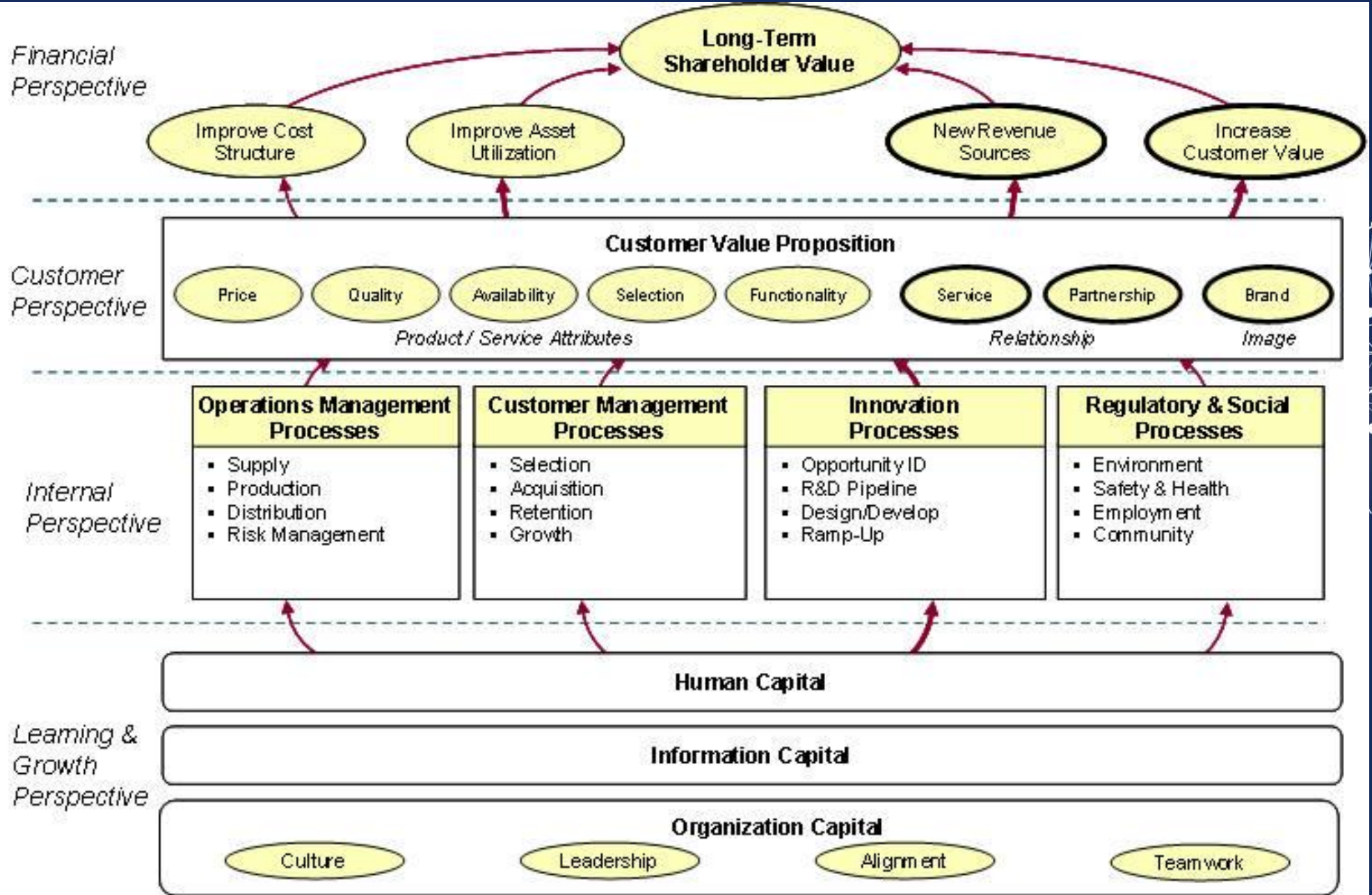


Extend the Map into Measurements, Targets and Initiatives



2024





2024



Exploitation: Strategic Planning



- Identify **Key Exploitable Results**
- Describe where and how the innovations will be deployed. Will new markets be created?
- Define main target groups/markets and “offers” (bundles of IP) for each target group
- If relevant, identify and address “**take-to-market**” partners





Reach out to society and show the impact and benefits of EU-funded R&I activities, e.g. by addressing and providing possible solutions to fundamental societal challenges.

Transfer knowledge & results with the aim to enable others to use and take up results, thus maximising the impact of EU-funded research.

Effectively use project results through scientific, economic, political or societal exploitation routes aiming to turn R&I actions into concrete value and impact for society.

Objective

Inform about and promote the project AND its results/success.

Describe and ensure results available for others to **USE** → focus on results only!

Make concrete use of research results (not restricted to commercial use.)

Focus

Multiple audiences beyond the project's own community incl. media and the broad public.

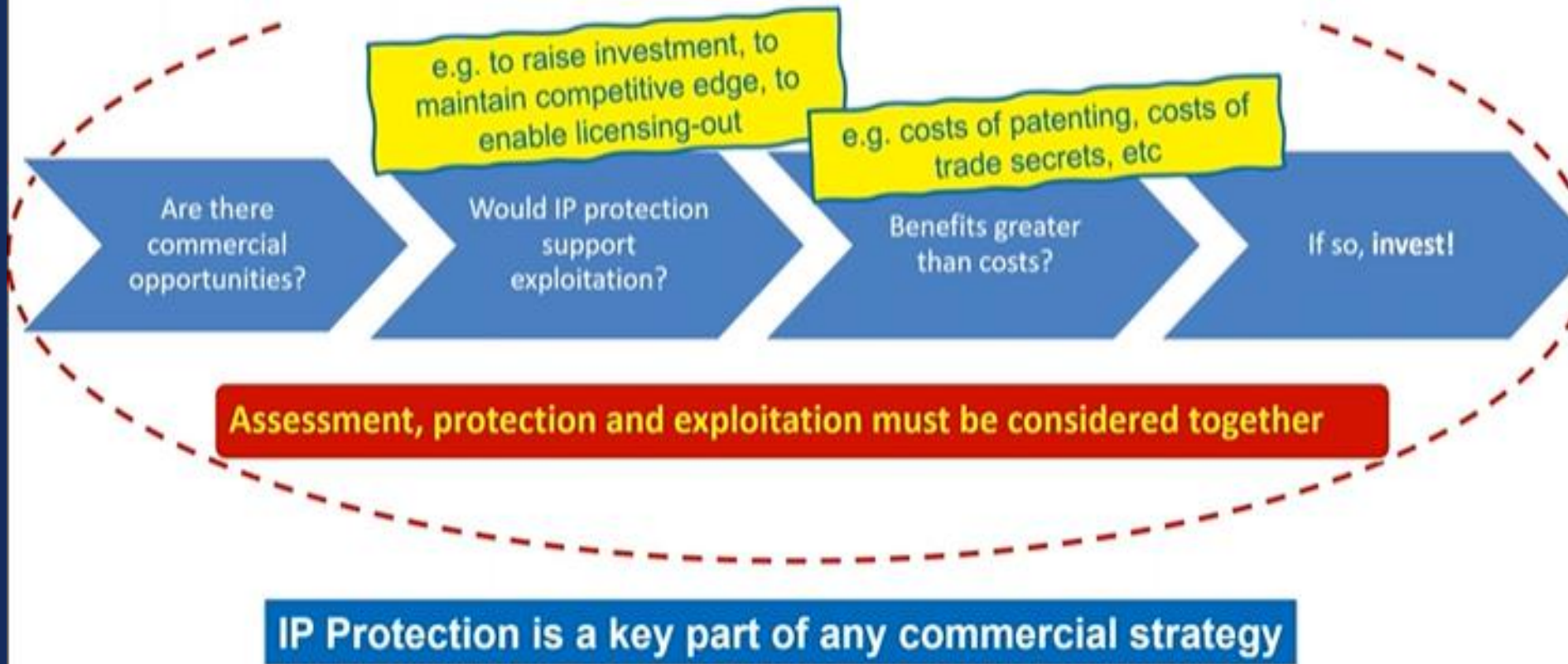
Audiences that may take an interest in the potential **USE** of the results (e.g. scientific community, industrial partner, policymakers).

People/organisations including project partners themselves that make concrete use of the project results, as well as user groups outside the project.

Target Audience



Strategic decisions



2024





Licence

Licensee has expertise and resource

Can address different fields of use and geographical areas

Established markets & suppliers

Evolutionary/incremental technology

The IP fits a gap in someone else's portfolio

Low financial commitment – less risk

Early returns – may grow over time

or

New Venture?

New Company must acquire expertise and resource

Needs a critical mass of expertise and a committed and enthusiastic team

New markets for new suppliers

Revolutionary or platform technology

Delivers a unique business advantage

Needs capital - more risk

Returns take longer – but could be large

2024





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И НАУКАТА



9. Разработване на модел за ефективен трансфер на високи технологии. Оценка на стартиращата компания. Примери.

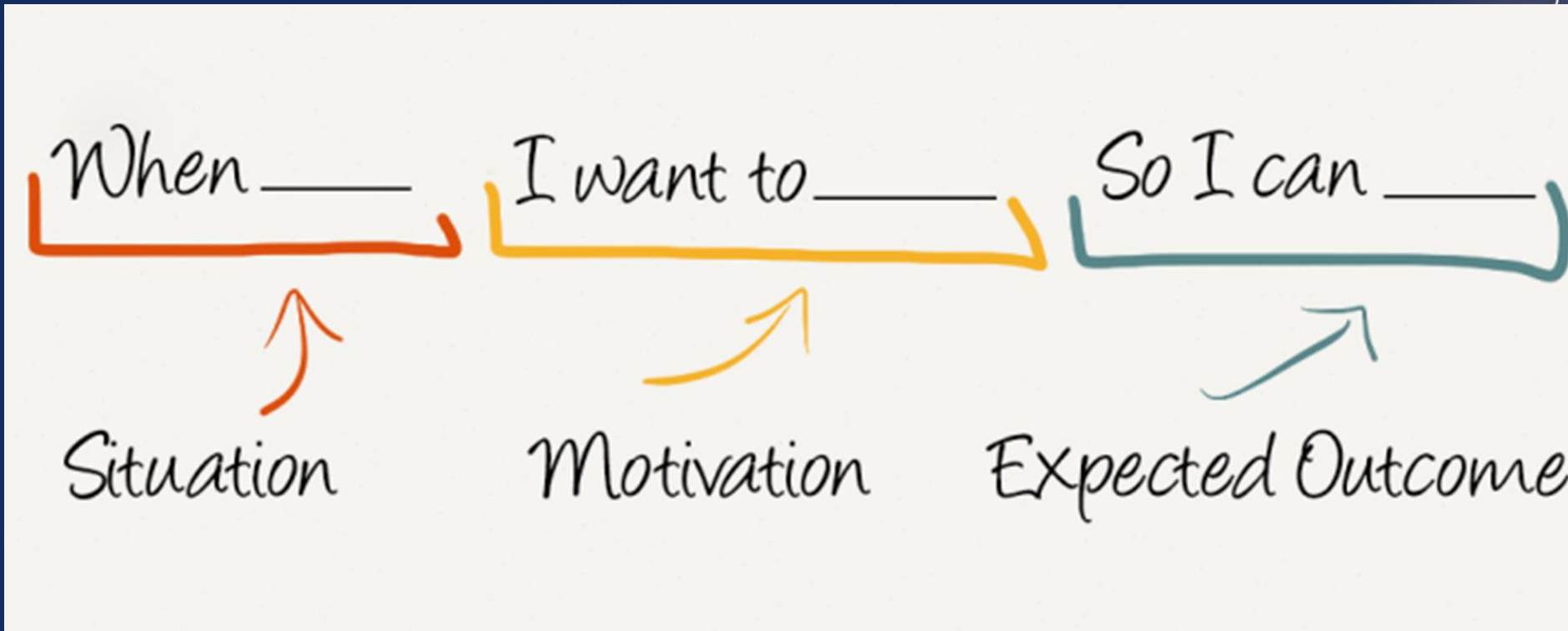


The context of the job is also part of the model. This includes three elements (vertical in the diagram above):

Situation – the circumstances of a job

Motivation – the trigger that led to action, often a problem or challenge to overcome

Desired outcome – the expected result, by which a person will measure success.

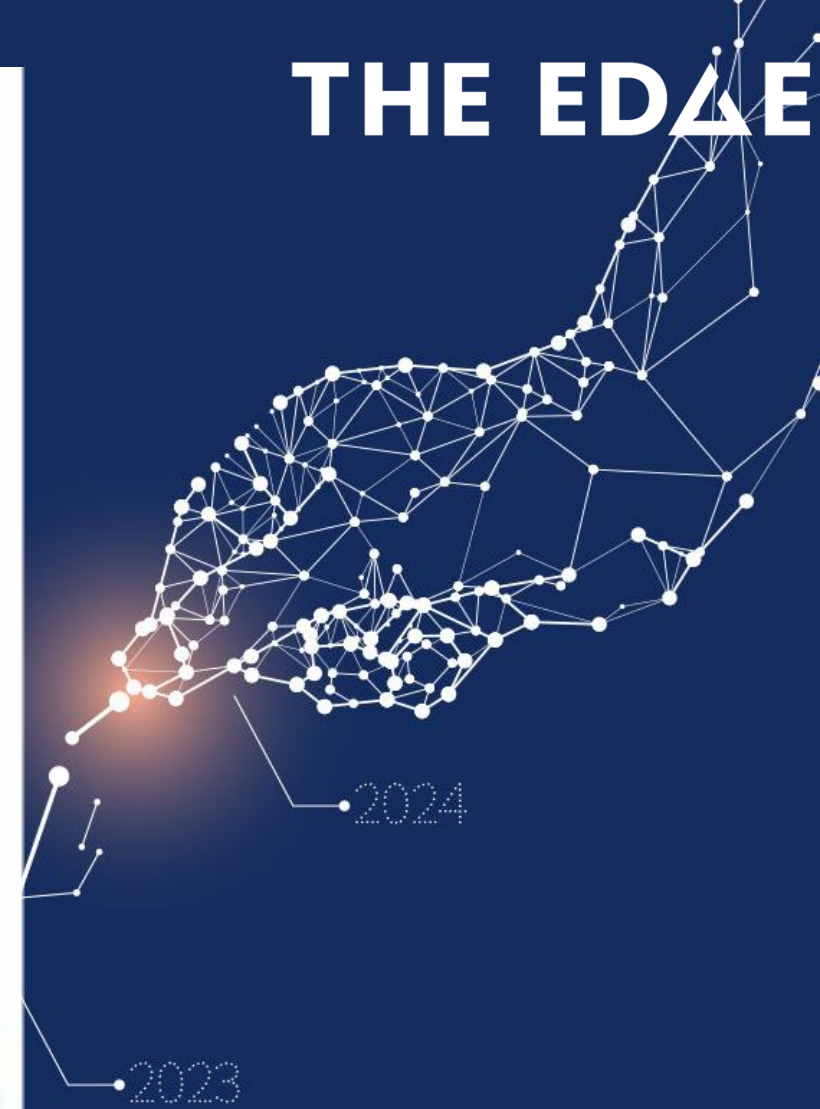


2024

23

Successful Business Models

The real power is when each element works in concert



Document entitled “Commercialization Plan”

no longer than 12 pages, and to provide a description of each of the following areas:

- A. Value of the Project, Expected Outcomes, and Impacts
- B. Company Overview
- C. Market, Customer, and Competition Analysis
- D. Intellectual Property (IP) Protection
- E. Finance Plan
- F. Production and Marketing Plan
- G. Revenue Stream
- H. Exit Strategy



KEY ELEMENTS OF A MINI BUSINESS PLAN (THE LENGTH OF EACH SECTION WILL VARY)

HOLLYWOOD PITCH

Mockup and high-level description of the proposed product or service



PRODUCT/SERVICE OVERVIEW

Overview of how the proposed product or service benefits the customer, organization, and others



JOBS-TO-BE-DONE OVERVIEW

Summary of the important, unsatisfied customer jobs that the product or service targets



CUSTOMER PROFILE

Snapshot of an individual who is representative of the target segment



OFFERING PROFILE

In-depth description of the product or service for the target customer



COMPETITIVE LANDSCAPE

Performance map that compares existing products and services along the dimensions that customers value



PROPOSED BUSINESS MODEL

Overview of the proposed delivery model and profit formula to deliver on the value proposition



GROWTH PATH

High-level view of how the business will expand from the initial foothold to capture a larger share of the market



COMMERCIALIZATION PLAN

List of key activities and processes necessary to reach the foothold market



REVERSE INCOME STATEMENT

Reverse income statement to identify key profit assumptions



CRITICAL ASSUMPTIONS LIST

List of the most critical assumptions that must be addressed, including deal-killers



90 DAY TEST-AND-LEARN PLAN

High level test and learn plan for the next 90 days



2024

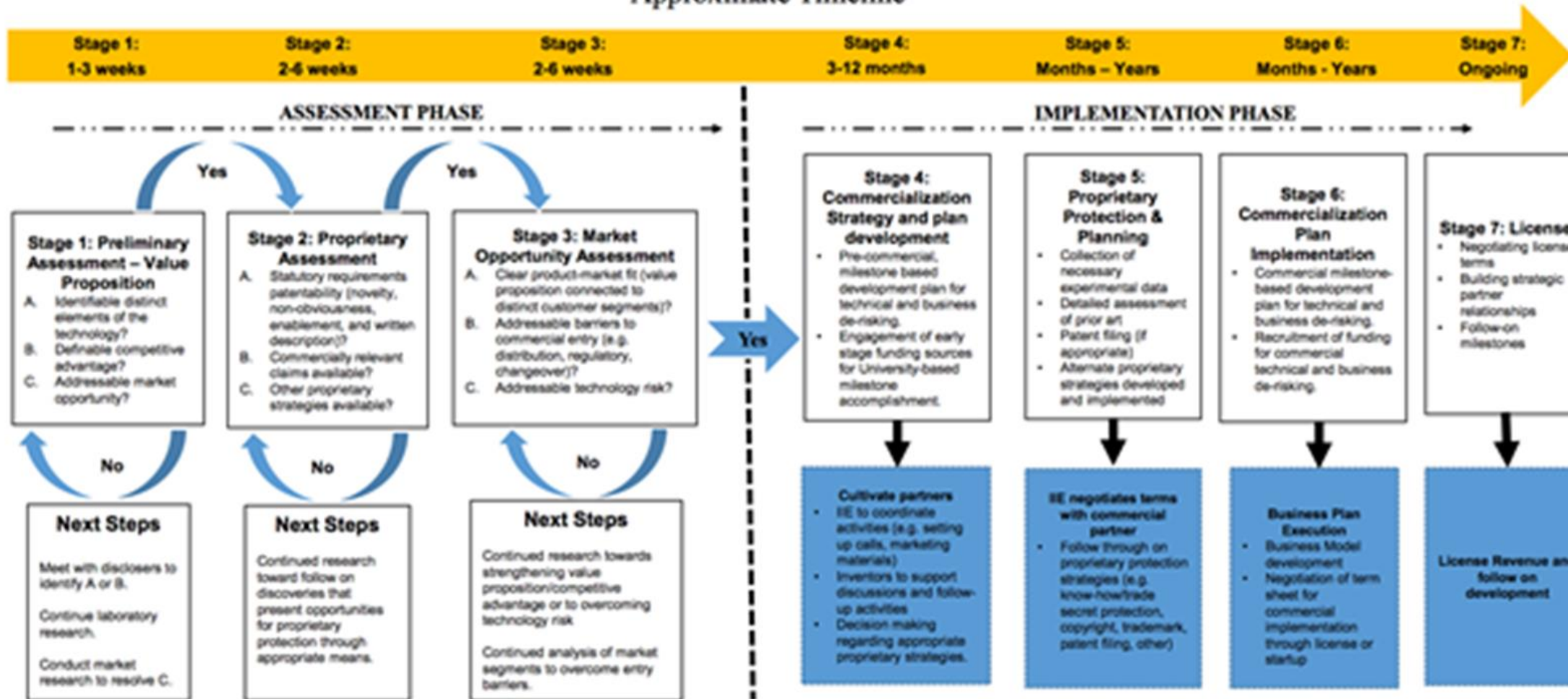




Office of Innovation and Industry Engagement

Technology Commercialization and Implementation Process

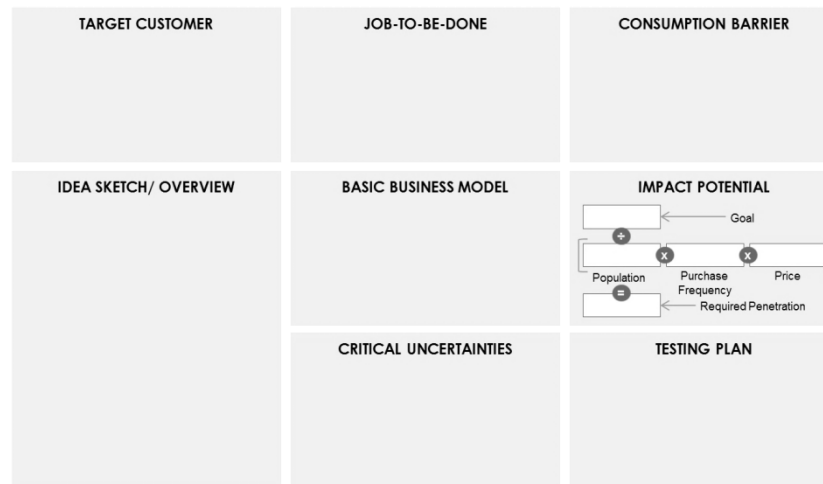
Approximate Timeline



Understanding the Idea Resume

An Idea Resume captures all of the **salient components of an idea on a single page**. Fitting an idea on a page means **making choices about which elements to include**. Ideally, an Idea Resume should also have a **visual depiction of the idea**; this helps solidify the idea and make it feel real.

Idea Resume Template



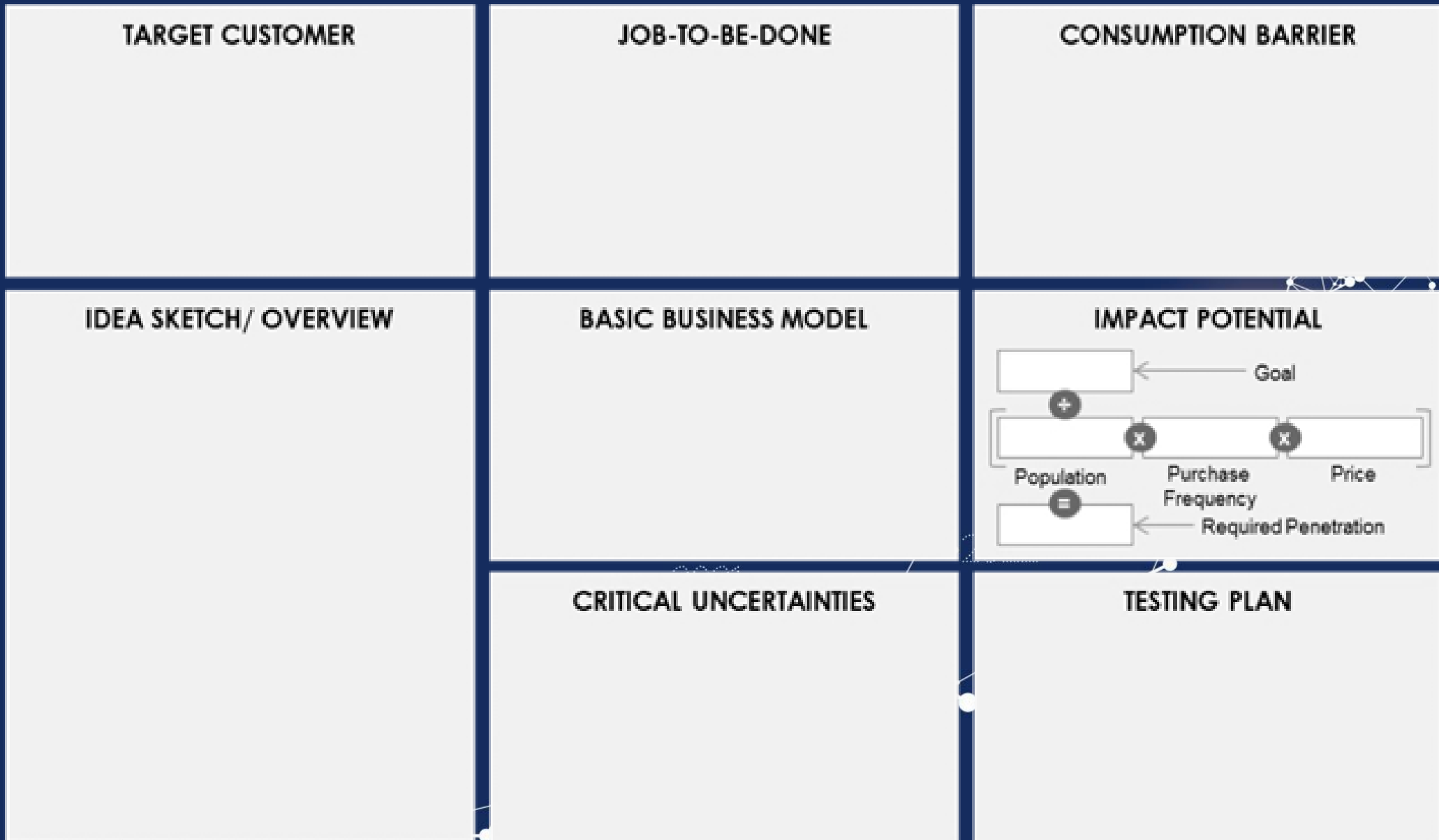
An idea resume forces innovators to capture the key elements of the idea's business model in a precise and succinct manner. It also helps decision-makers quickly understand the idea and how it will work.

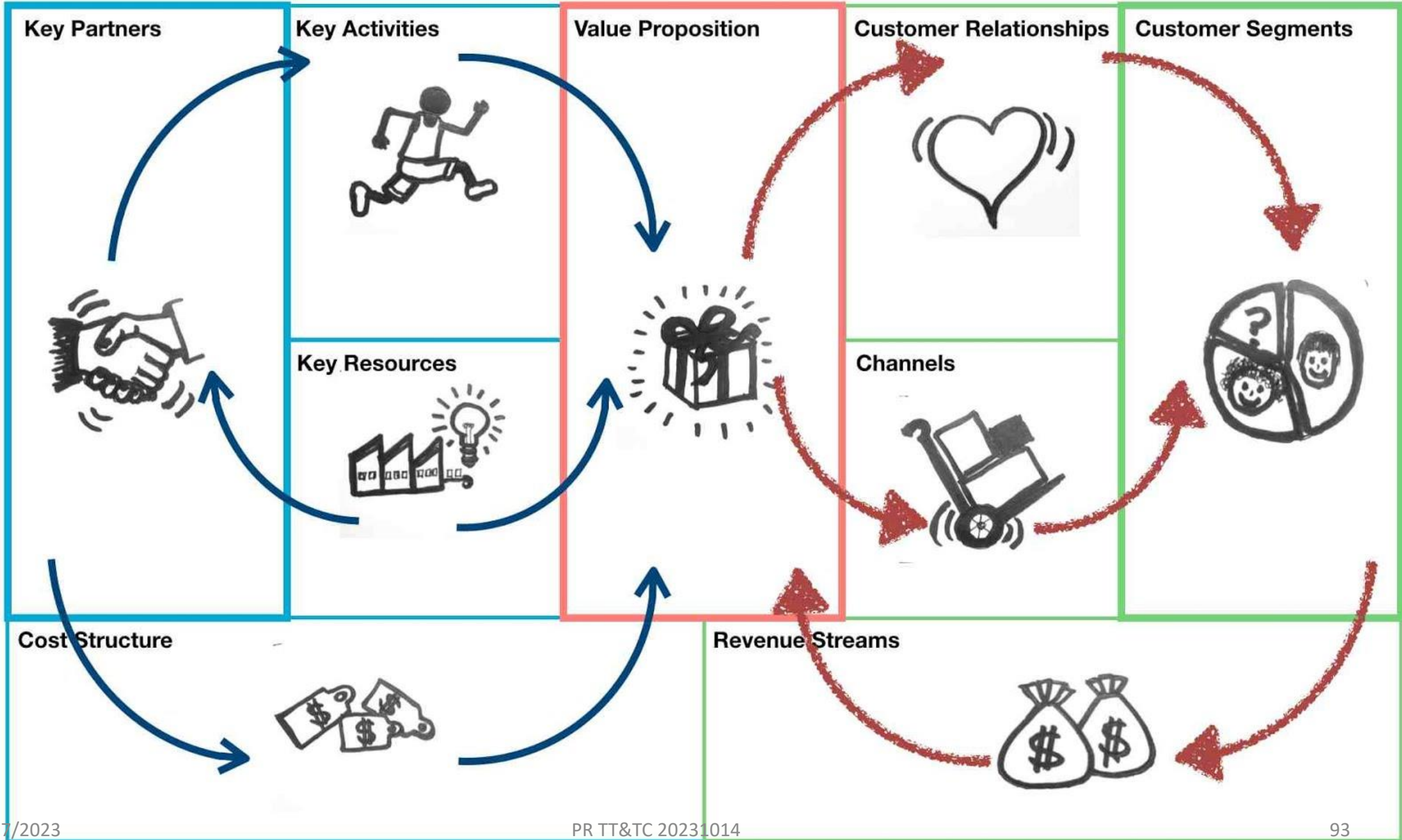
An idea resume should detail:

- **The Target Customer**
Detail the attributes of your foothold customer
- **The Key Job-To-Be-Done**
The job and circumstance you are solving for
- **Consumption Barrier(s)**
What prevents use? Wealth? Skills? Access?
- **The Basic Business Model**
Elements such as channels and access point
- **The Impact Potential**
Determine feasibility of getting desired revenue
- **The Critical Uncertainties**
Risks/assumptions that must be true to succeed
- **Visual Depiction of the Idea**
Sketch, graphic mockup, video, etc. of the idea
- **The Testing Plan**
How you will quickly and cheaply test risks



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+Dunken K Blithe





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НА ОБРАЗОВАНИЕТО
И НАУКАТА

THE EDGE

Рефлексии



С какво ще си тръгна след дискусията?

10/27/2023

PR TT&T

Being an entrepreneur is not a very easy journey. It teaches you a lot of things – more about you than you will ever know....

1. You are more capable than what your boss or employer think of you.
2. You value network better and are more interested in building and nurturing the relationships.
3. You realize there are better and easier ways to get things done.
4. You focus on customers better.
5. You may get to see a bigger picture.
6. You will explore life more meaningfully.

*...But, then – **life is too short to not to be an entrepreneur!***



2024





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НА ОБРАЗОВАНИЕТО
И НАУКАТА

**Thank
YOU**

Petko Ruskov, PhD

***CTO & Co-founder, The Edge: R&BD
Organizer of Beyond pre-accelerator***

mobile: +359 887 338 083

e-mail: petko.ruskov@theedge.solutions

website: theedge.solutions

<http://bg.linkedin.com/in/petkoruskov/>