

Innovation im Zentrum across the company

Michael Rayner, Science & Technology Office
DLR 12. Transferwerkstatt
Berlin DE, 18.11.2022

MERCK



is at the

Science heart

of everything we do

From advancing genome editing technologies and discovering unique ways to treat the most challenging diseases to enabling the intelligence of devices – Merck is everywhere.

MERCK

We are **MERCK**

A vibrant science and technology company



We are known as **Merck** internationally except for the United States and Canada, where we operate as **EMD Serono** in the biopharmaceutical business, **MilliporeSigma** in the life science business and **EMD Electronics** in the high-tech materials business.

Healthcare

- Pioneer in cancer treatment
- Advancing care in immunology
- Global market leader in fertility treatments
- Robust R&D pipeline

Life Science

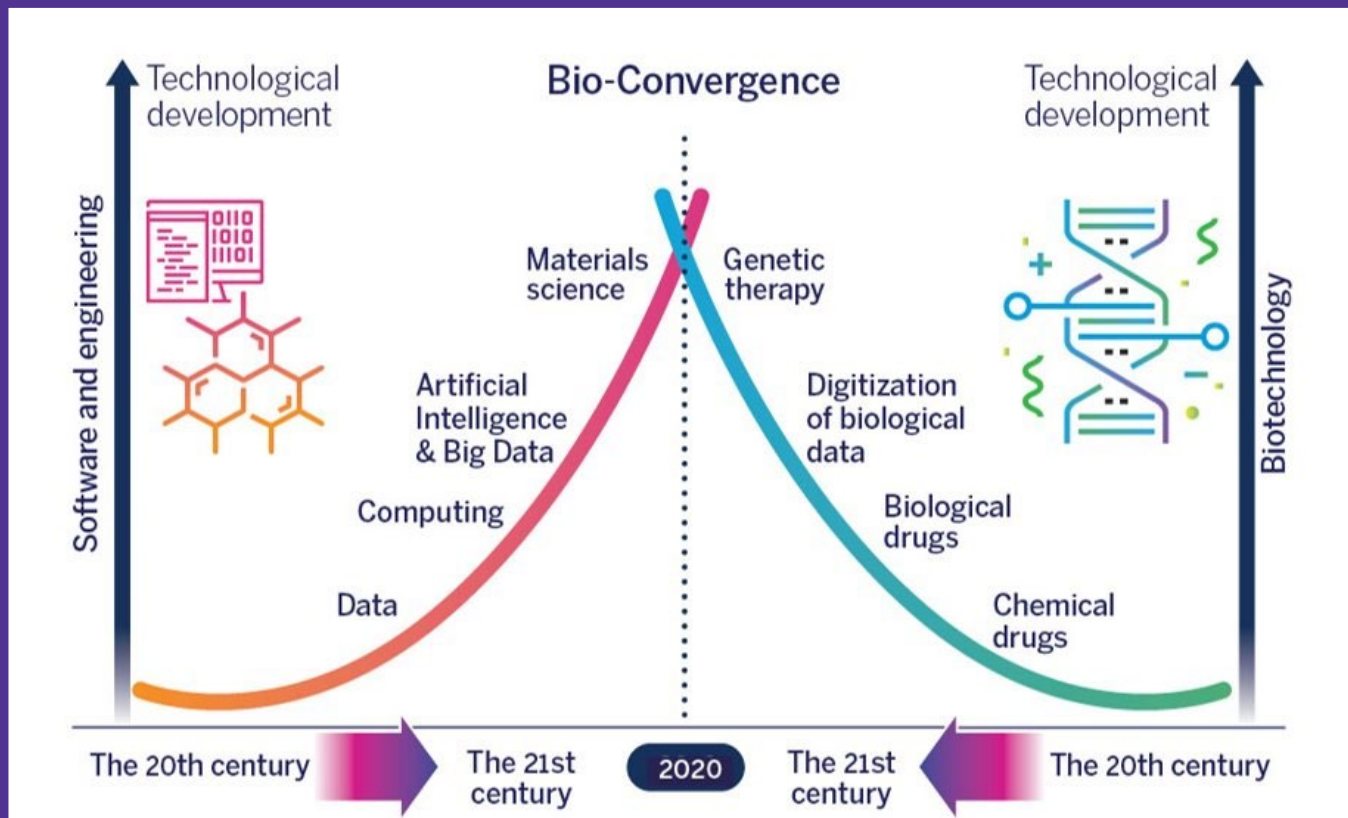
- Trusted supplier and partner for the scientific community
- From research to large scale production with >300,000 products
- Novel technologies and world-class solutions driving discoveries

Electronics

- Innovations to change the way we access, store, process and display data
- Enabler of new generations of electronic products for our everyday lives
- Supplier of innovative, functional and decorative pigments

Across sector advancements in engineering, biology and medicine create a new industry – fueled by data & digital

“ **Rapid genome sequencing** is one of the reasons that multiple **COVID-19 vaccines** were developed so quickly. ”

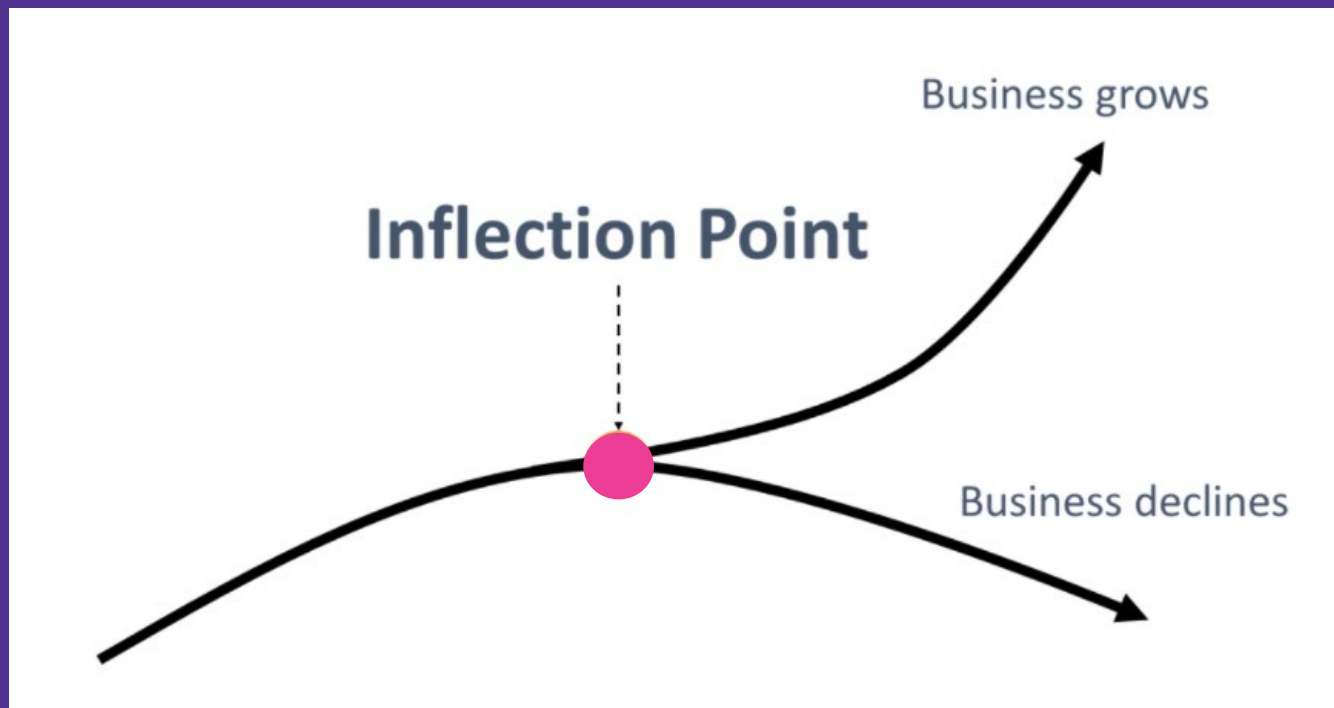


“ **Bio-convergence** is the future of healthcare, a future that promises targeted, **personalized treatment**, cures for illnesses, and hope for better, more accessible care worldwide. ”

Source: <https://innovationisrael.org.il/en/reportchapter/bio-convergence>, quotes from BICO (<https://bico.com/bio-convergence/>)

The Core of Tech Scouting

Is all about early identification & exploitation of Inflection Points



Source: Andy Grove, Only the Paranoid Survive

In 1965, the average tenure of companies on the S&P 500 was 33 years. By 1990, it was 20 years. It's forecast to shrink to 14 years by 2026.

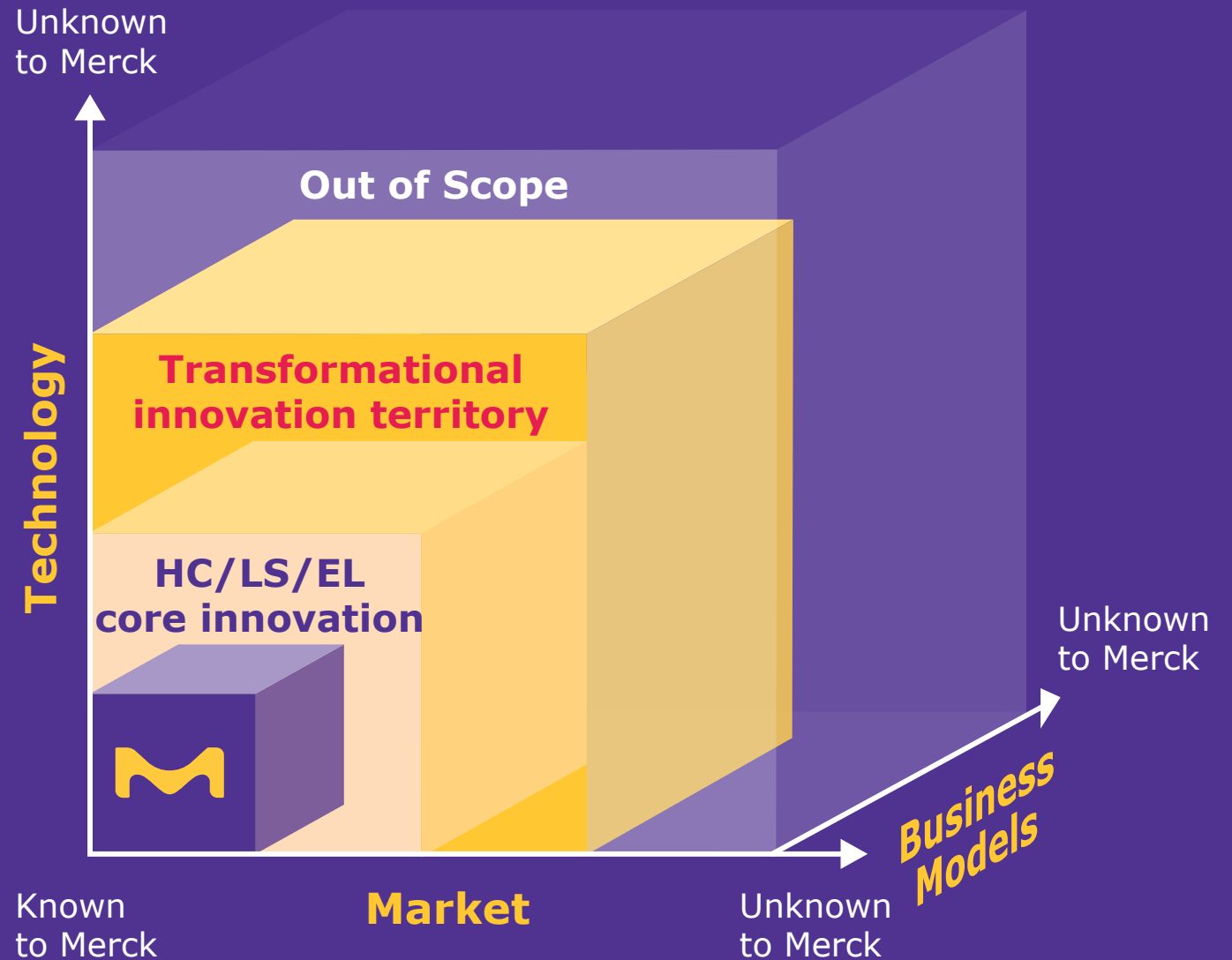
About 50 percent of the S&P 500 will be replaced over the next 10 years!

Source: <https://www.innosight.com/insight/creative-destruction/>

Inflection Point Examples

- Disruptive technology introduction
- Technology convergence
- Technology capability tipping point
- New product usage models
- New market entrants
- Value chain shifts
- Substitute products
- Geopolitical changes
- Pandemics
- ...

Expanding
our innovation
territory
to push our limits
and unlock value



Science & Technology Platforms (STP): the digital 'Knowledge Express'

Internal tech. database accelerates collaboration!

STP powered by Merck Innovation Center

Home Cluster List Explore + Add technology

Q "SCIENCE & TECHNOLOGY PLATFORM" X ?

My technologies

- Algae Macroalgae Single Celled Algae
- Caenorhabditis elegans
- Functional Lipids in Culture Media
- Merck Innovation Center

Expand

Followed technologies & users

- DC Decentralized
- Graph Database
- SC Single Crystal
- I Imaging

Expand

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Newscast found an article for **The Future is Green** and **...** 2 hours ago

Green chemistry and sustainable chemistry... slightly different or two peas in the same pod?

submitted by /u/Some-Investigator112 [link] [comments]

https://www.reddit.com/r/chemistry/comments/phx9nn/green_chemist...

0 likes 0 comments

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Newscast found an article for **The Future is Green** 2 hours ago

The relationship among corporate social responsibility, sustainability and organizational performance in pharmaceutical sector: a literature review

Purpose

This study aims to review the extant literature in pharmaceutical sector on corporate social responsibility (CSR), sustainability and organizational performance to understand the relationship

New users last 30 days: 146

Most recent Technology Platform: **Microbiological Culture Media**

You might like to follow

- 3D printing
- 3D
- Microfluidics
- Machine Learning
- smart contract

More recommendations





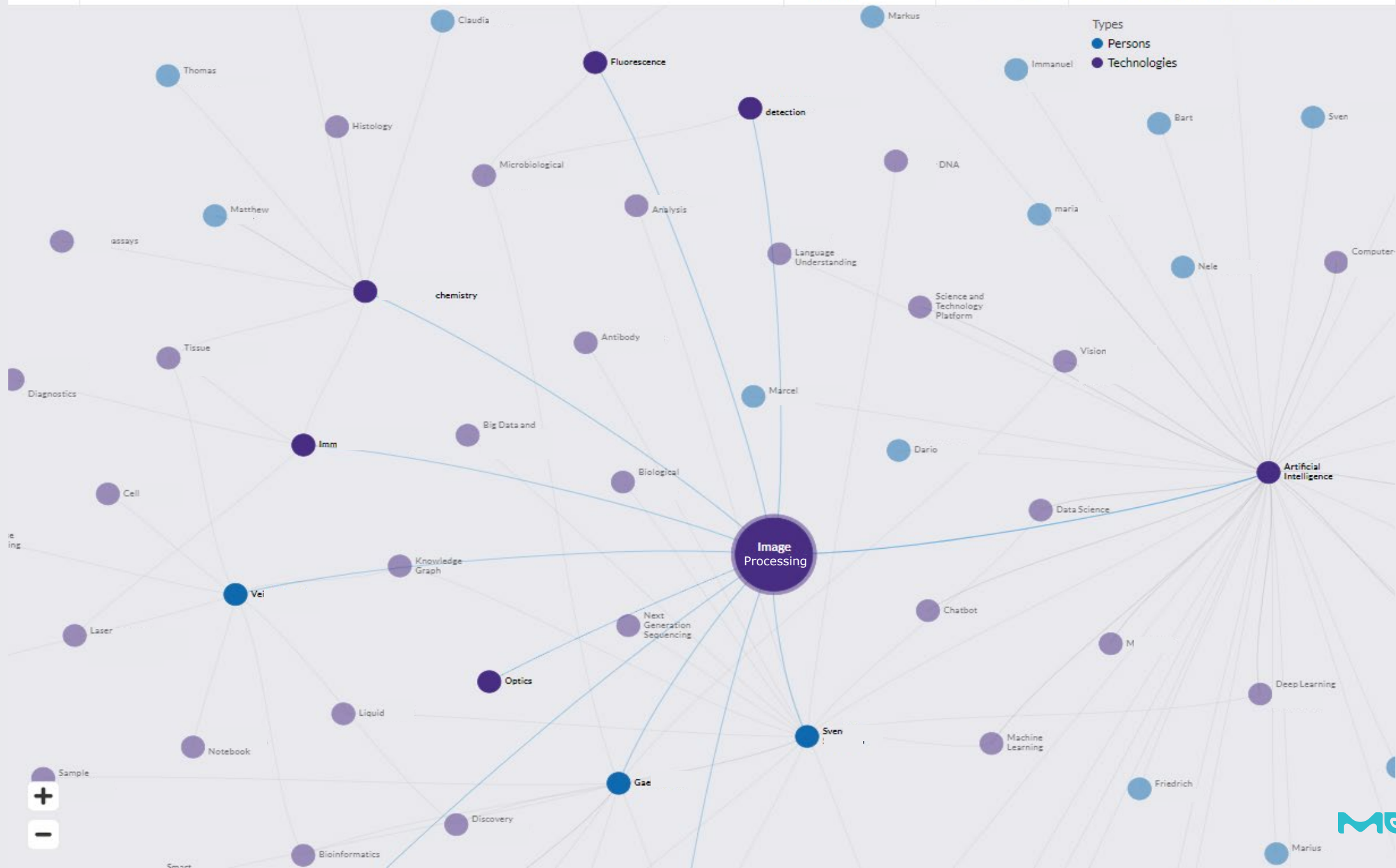
Image Processing X

View Graph -

Connection Depth
- 2 +

Connection type
Persons and Related Technologies -

Types
● Persons
● Technologies



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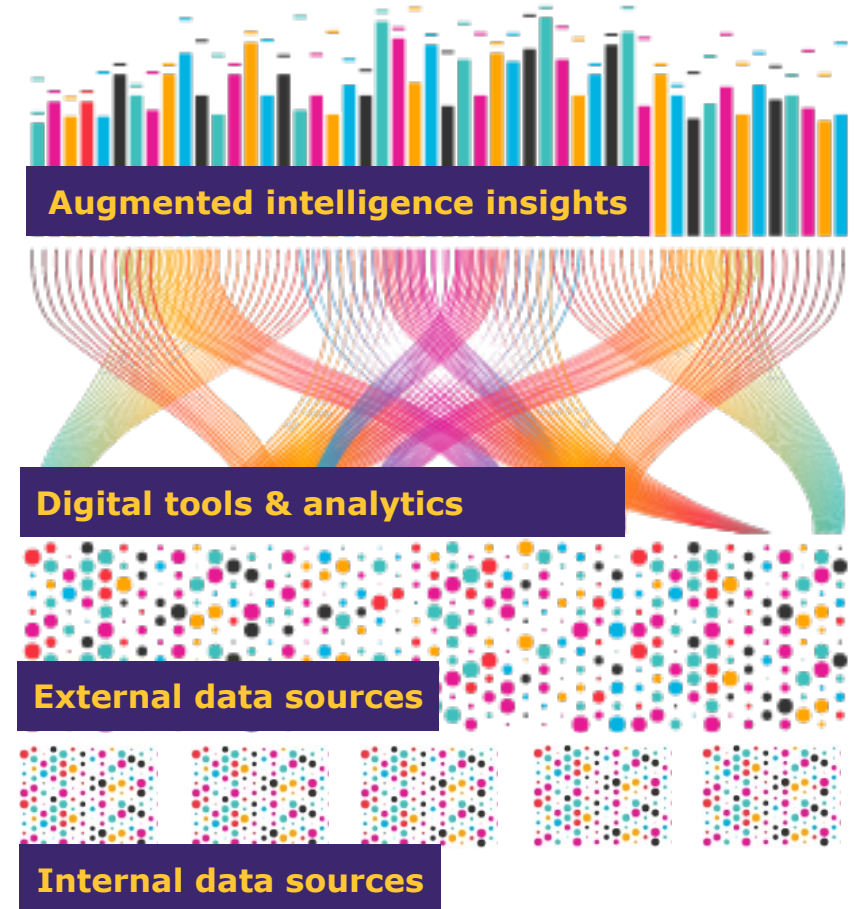
Realize data-driven business models.



How Merck Sectors will benefit from Unified Radar

Enhancing innovation per €uro spent with a cost-effective approach

- Identifying the opportunities available **within & beyond our sectors**: Leverage our unique diversity of talent
- With a **central hub** that stores all **up-to-date information**, sectors can **analyze the data** with minimal effort, decision-makers can swiftly access accurate data with ease.
- Centralized data access from **variety of open-source & commercial databases & digital tools**
- **Cooperation across sectors** by breaking the data silos & integrating Merck internal databases



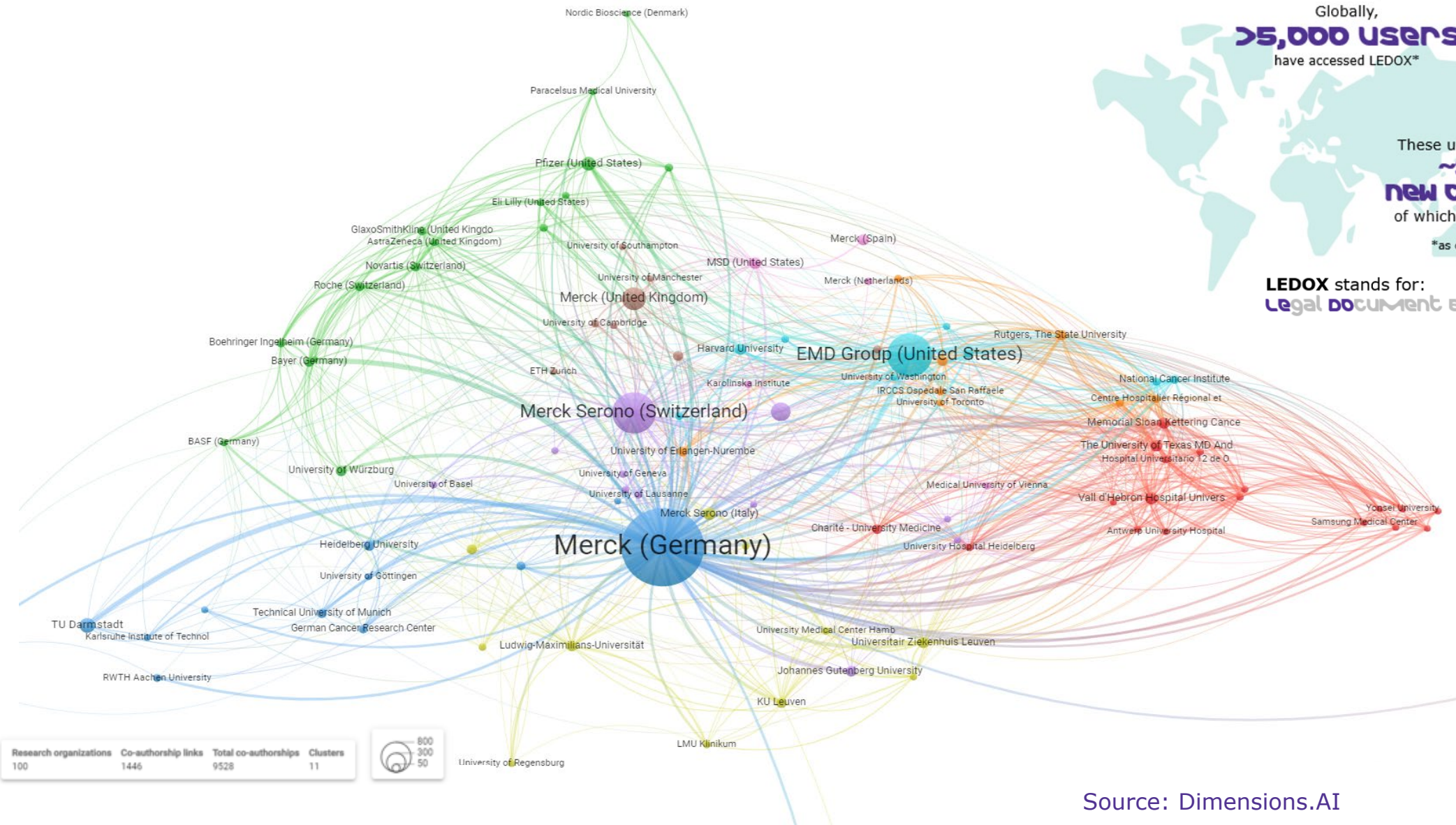
Sector-specific/Personalized searches

Input of statistical methods into conducting evaluations

ML-based prioritization of trending topics

Visual rendering of patterns and correlations from complex data

Transfer in Action: Academics, Companies, Institutions, Gov's... Visible in Merck Co-Authored Publications



Globally,
>5,000 USERS
have accessed LEDOX*

These users have created
~22,700
new contracts,
of which ~70% are CDAs*
*as of Go-live in 2020

LEDOX stands for:
Legal Document BOX

Source: Dimensions.AI



Megatrends that change the game and offer opportunities within and beyond our core business

Connection between chip development and novel therapeutics

Future of Computing



Mimicking the brain to increase computing power

Neuromorphic Computing



Hardware & applications for quantum architecture

Quantum Computing

Production and development of new treatments and applications



Bioelectronics

Digital Health



Cell-specific delivery

mRNA



Cell-line and culture media development

Cultured Meat



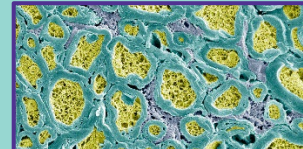
In silico optimization of leads or processes

AI Drug Discovery & Development



E.g. Digital Twins

Smart Manufacturing



Bedside-to-bench for personalized medicine

Translational Medicine

R&D enabling technologies

Potential applications include R&D and bio-manufacturing applications as well as potential therapeutic treatments

Touchpoint between Artificial Intelligence technology application area and hardware suppliers

