



Implementing Open Innovation in pharmaceutical R&D

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for Kromann Reumert, 9th of March, 2018

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TOPICS

1. WHY ARE WE DOING THIS?
2. THE CHANGING WORLD
3. ADAPTING WITH OPEN INNOVATION
4. CHANGE IN BUSINESS (MODEL)
5. SUMMARY

Introducing LEO Pharma



- Owned in full by the LEO Foundation and independent of external capital
- Fully integrated global pharmaceutical company with approximately 5400 employees and HQ in Denmark
- Healthcare business with focus on dermatology, in particular psoriasis and eczema – skin inflammation
- Expansion phase - goal to treat 100.000.000 people in 2020 (73.000.000 in 2016)
- Revenue +1300 million euros (2016)

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1.

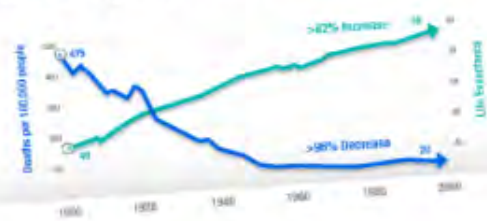
WHY ARE WE DOING THIS?



— we help people achieve healthy skin

Medical Innovation - is it worth it? Does it make a difference? Why change?

We live longer by reducing the threat of disease

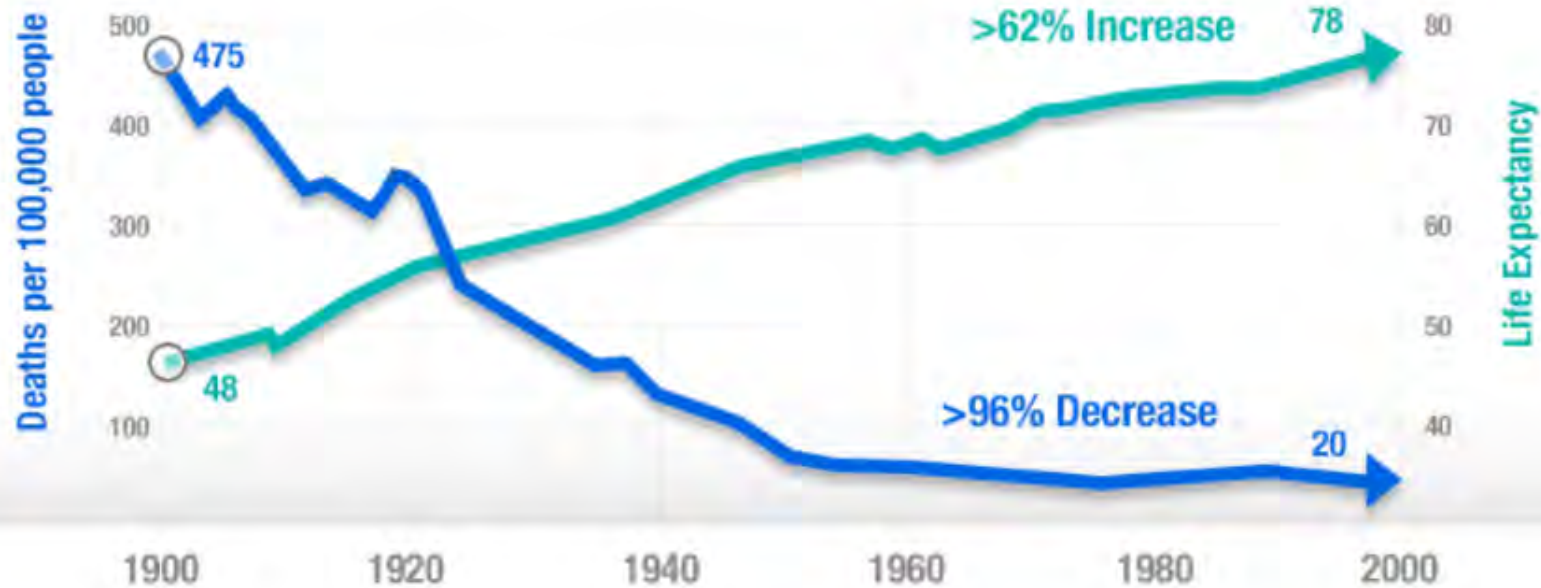


Medical Innovation increase life expectancy



Future medical needs

We live longer by reducing the threat of disease



http://www.hamiltonproject.org/charts/deaths_from_major_infectious_disease/

Future medical needs

NTD

affecting 1.4 billion of people every year

Cancer

towards 22 million cancer cases per year in 2030

Dementia

towards 75 million affected per year in 2030

Antibiotics

increasing resistance and no last line of defence

Viral epidemics

global outbreaks affecting millions

<http://www.who.int/cancer/media/news/cancer-prevention-resolution/en/>

<http://www.who.int/mediacentre/infographic/en/>

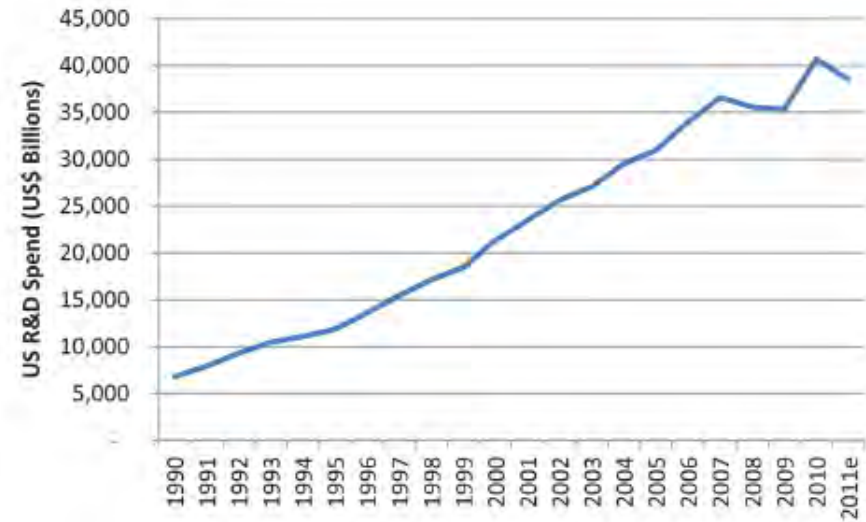
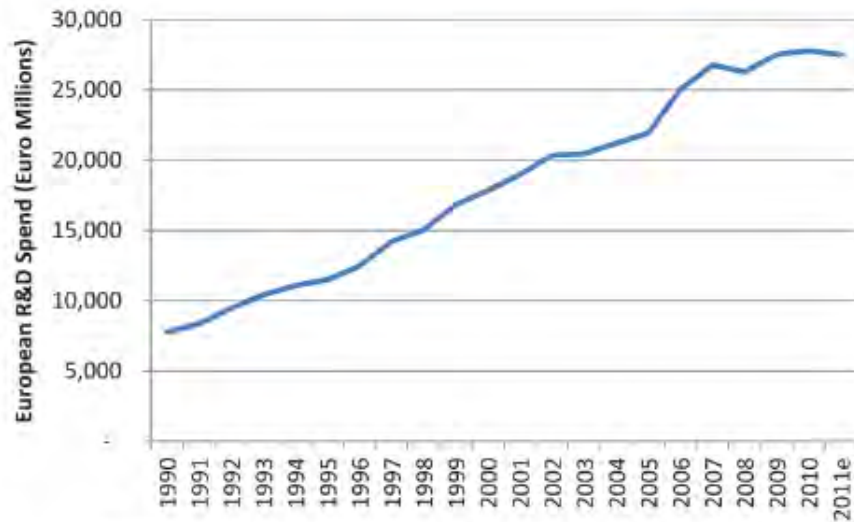
<http://reports.weforum.org/global-risks-2013/risk-case-1/the-dangers-of-hubris-on-human-health/>

<https://www.weforum.org/agenda/2016/04/top-8-emerging-diseases-likely-to-cause-major-epidemics/>

The medical innovation machinery
might not be up for the task

Continuous increase in R&D spending

Figure 1.1. European and US R&D Spending



Source: EFPIA (2012)

But it is not matched by an increase of new medical entities (NMEs)

Serious challenges for R&D-heavy organisations

Sensemaking

- *QUICK AND LOW COST EVALUATION*
- *ENGAGING WITH RELEVANT EXTERNAL PARTNERS*
- *DISCLOSING NEEDS AND WAYS TO CREATE VALUE*

Scalability

- *EVALUATE MORE OPPORTUNITIES*
- *FOCUS RESOURCES ON THE RELEVANT*
- *DOING MORE FOR LESS*

Exploration

- *TAP INTO UNKNOWN OPPORTUNITIES*
- *UTILIZE EXTERNAL COMPETENCE*
- *REMOVING BARRIERS*



— we help people achieve healthy skin

Change pressure

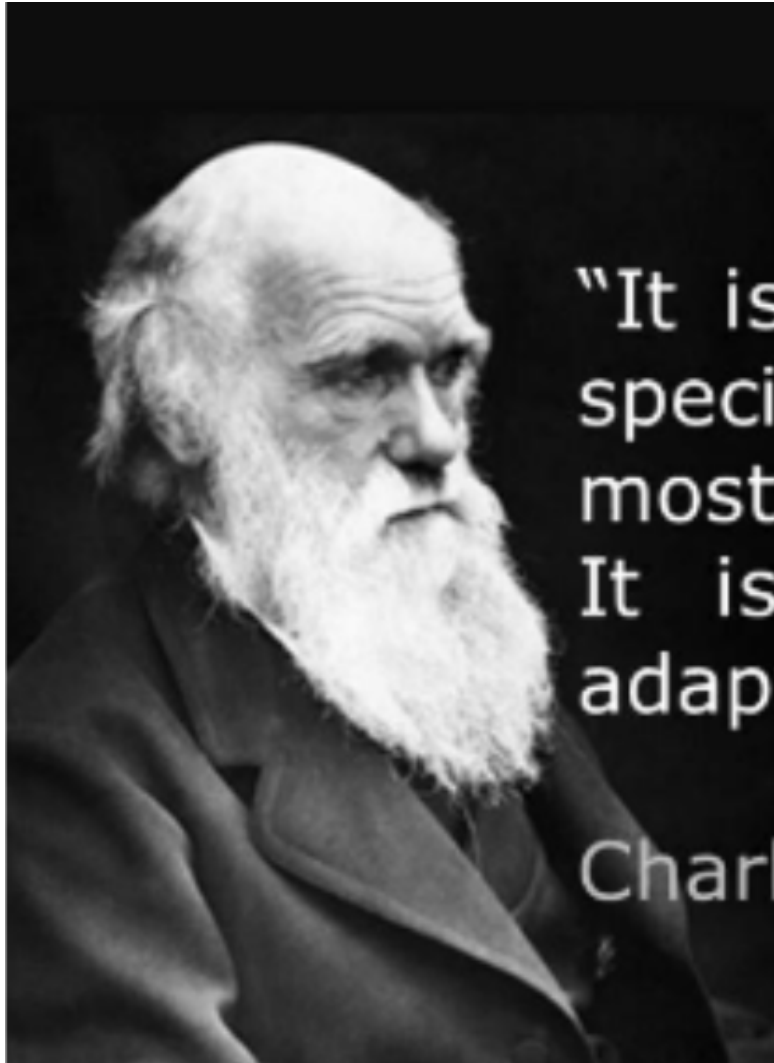


- Digitalisation
- Online collaborations
- Democratization
- Sharing economy
- Big Data
- Blockchain

Connecting the dots



2. THE CHANGING WORLD



"It is not the strongest of the species that survives, nor the most intelligent that survives. It is the one that is most adaptable to change."

Charles Darwin (1809 – 1882)



INCREASING AMOUNT OF DATA

Industry dilemma

Exponentially growing amount of data and opportunities

90% of all data in the world has been created in the last two years alone

2.5 million new scientific papers each year

Artificial Intelligence

The Google logo is displayed in its characteristic multi-colored font (blue, red, yellow, green, blue) on a white background.

Google Search

I'm Feeling Lucky

Digital Information





ONLINE COLLABORATION



GitHub

Business model innovation
is the most powerful kind of
innovation

LOCKBUST
CLOSING
LOCATION ONLY

NE

The smartest person doesn't work for you.



— we help people achieve healthy skin

Open Innovation

Open This and Open That

Open Source

Underlying protocols, methods and processes are publicly known and often jointly developed

Open Science

Often related to open publication of results with no intellectual ownership

Outsourcing

External company provides cost saving services, or specific competence

Open Data

Public availability to data sets allowing others to (re)evaluate

Open Innovation

Strategic decision to actively pursue external innovation as an integrated part of operations

Crowdsourcing

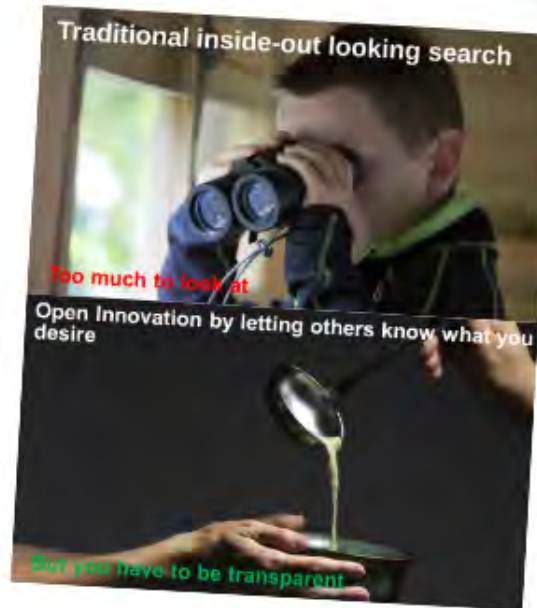
Using internet resources to identify solutions to a specific problem, the 'challenge'

Open Access

Free and unrestricted access to published materials or e.g. tools/resources/expertise

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ADAPTATION
WITH OPEN
INNOVATION



Open This and Open That

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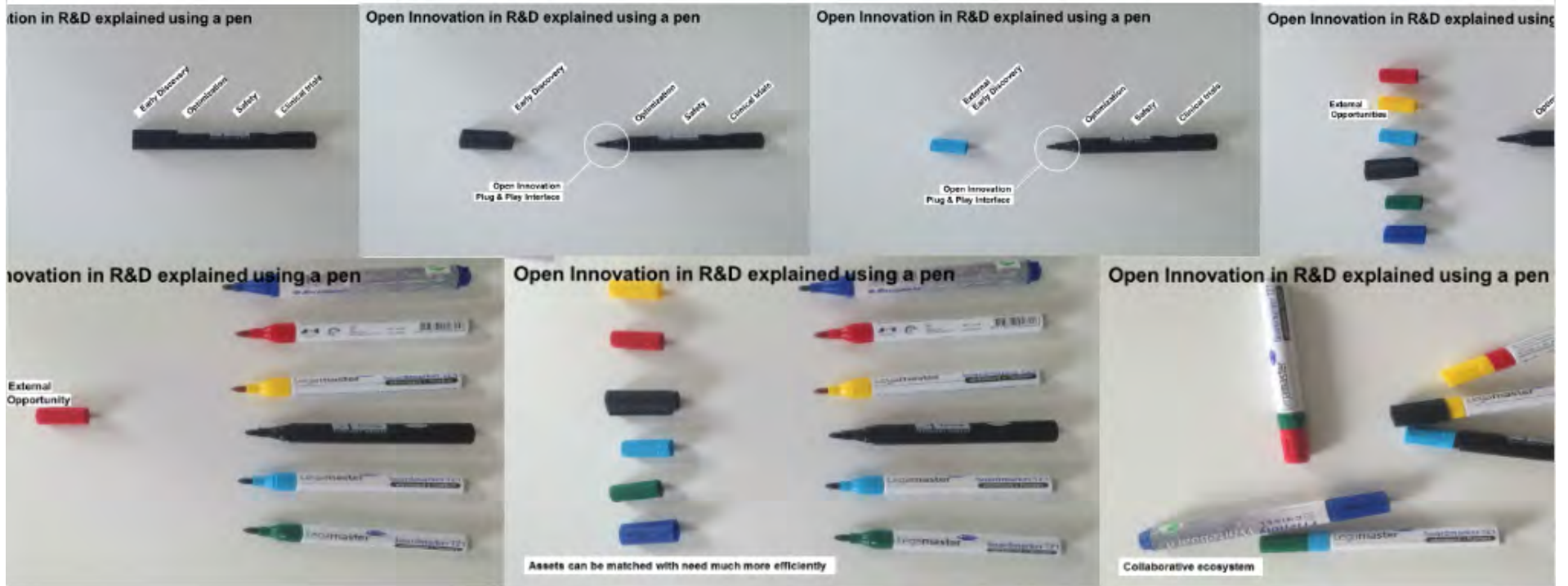
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ILLUSTRATING THE CONCEPT OF OPEN INNOVATION IN DRUG RESEARCH USING A MARKER PEN



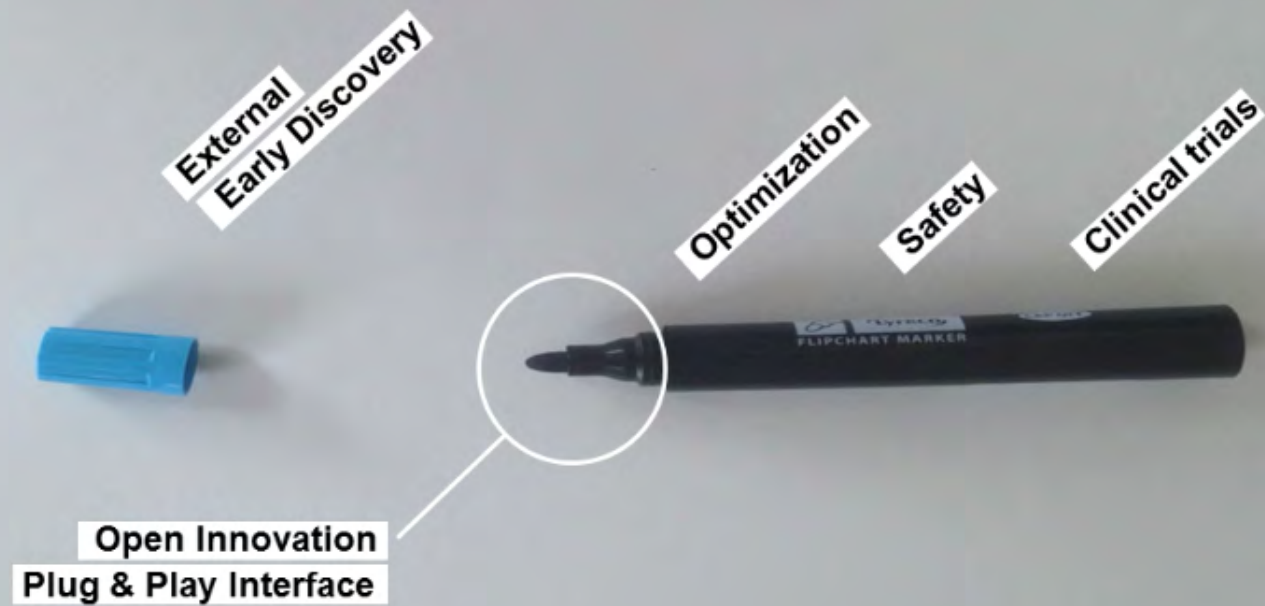
Open Innovation in R&D explained using a pen



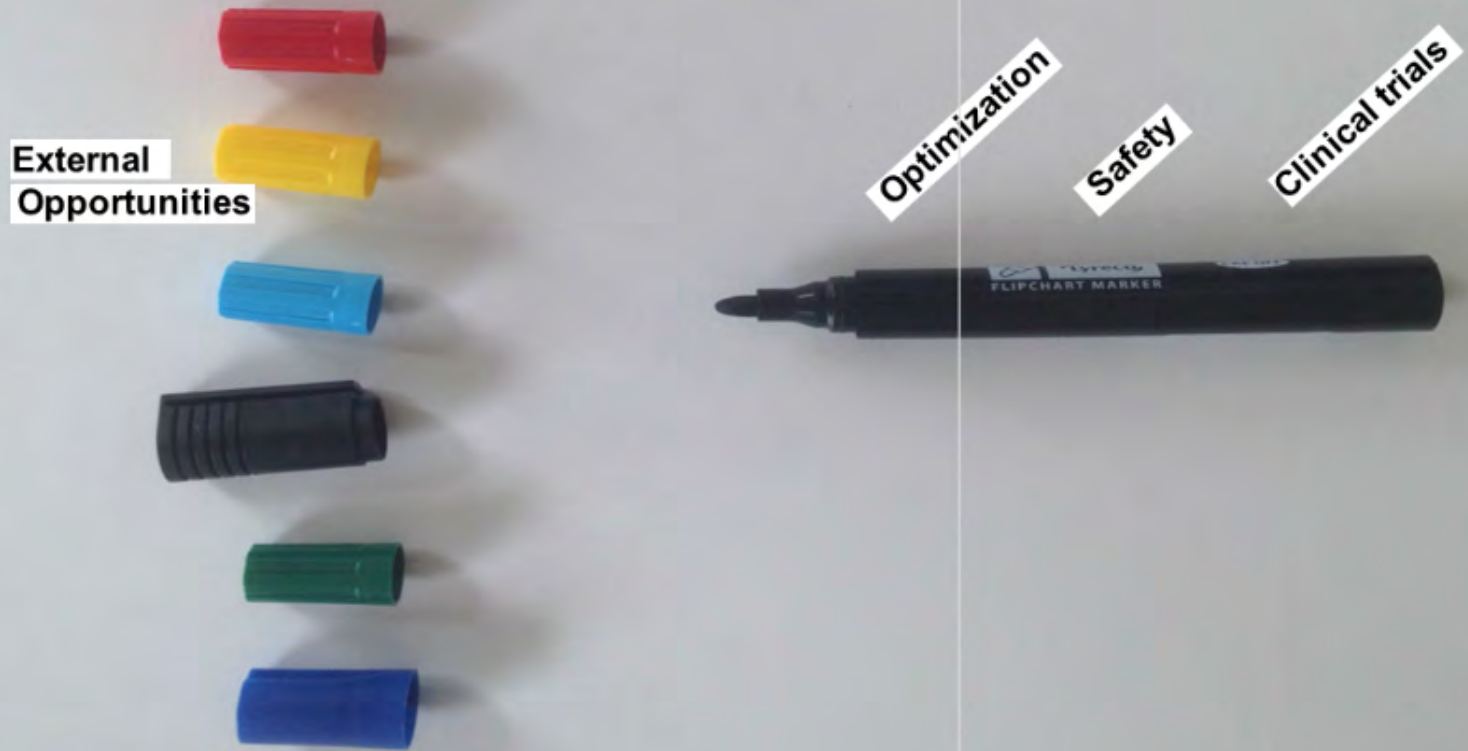
Open Innovation in R&D explained using a pen



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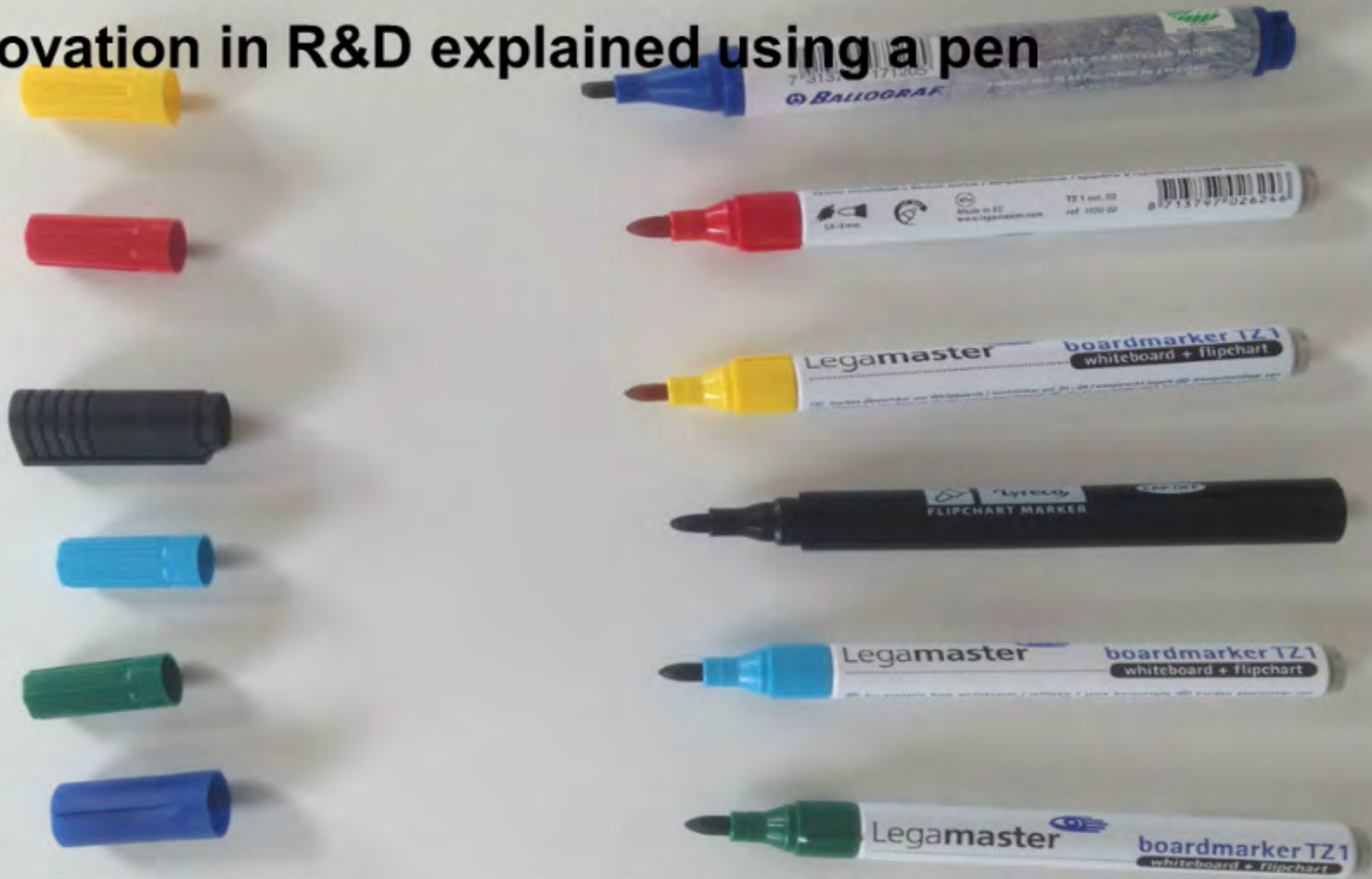


Open Innovation in R&D explained using a pen

External
Opportunity

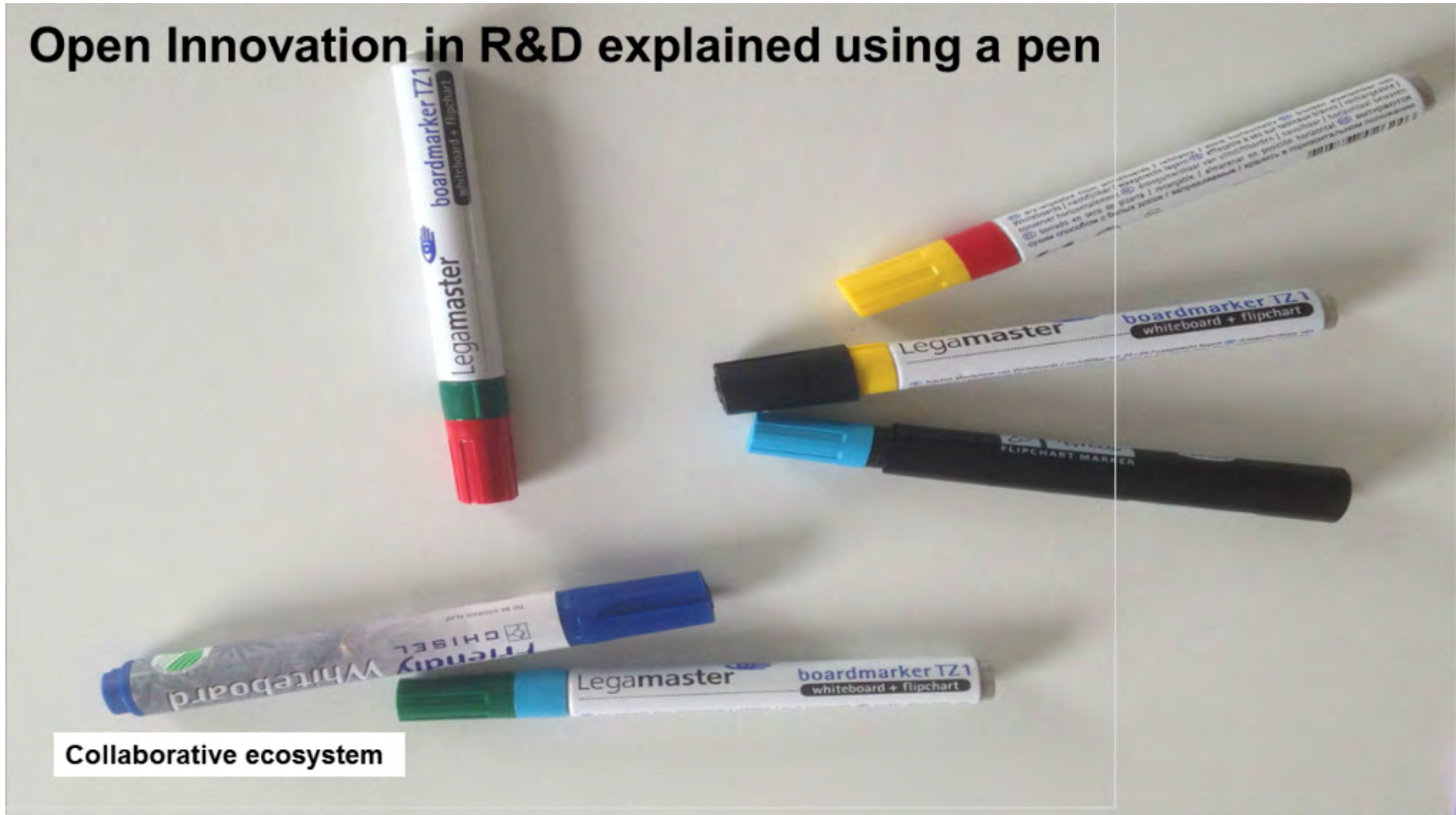


Open Innovation in R&D explained using a pen



Assets can be matched with need much more efficiently

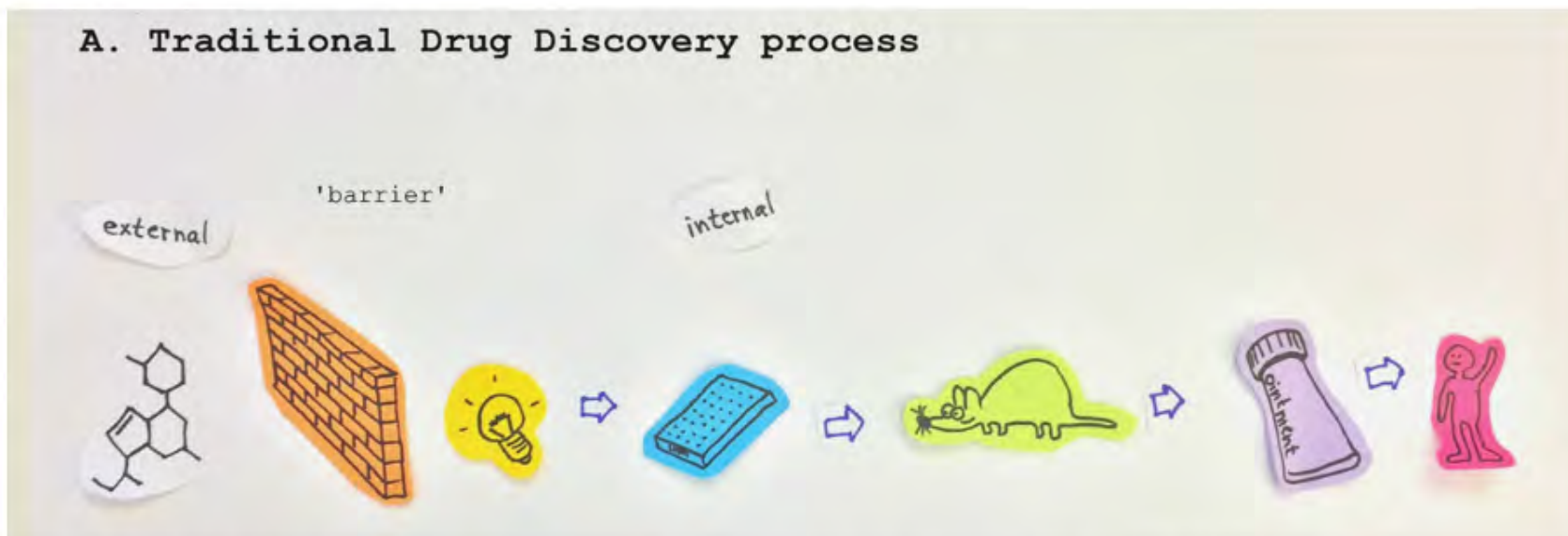
Open Innovation in R&D explained using a pen



Collaborative ecosystem

How to make it happen

Barriers in the traditional R&D process

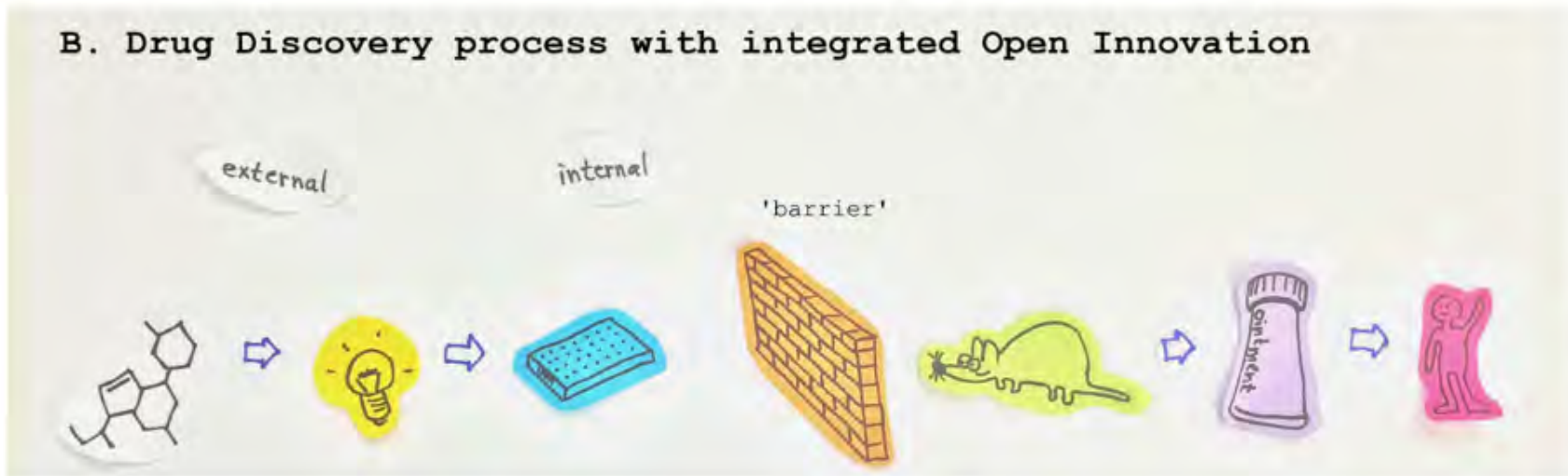


The traditional 'barrier' between external science and the R&D process.

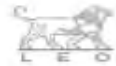


How to make it happen

Barriers in the traditional R&D process



The 'barrier' is moved a step to the right, exposing part of the research platform for external parties who are invited to use these R&D capabilities.



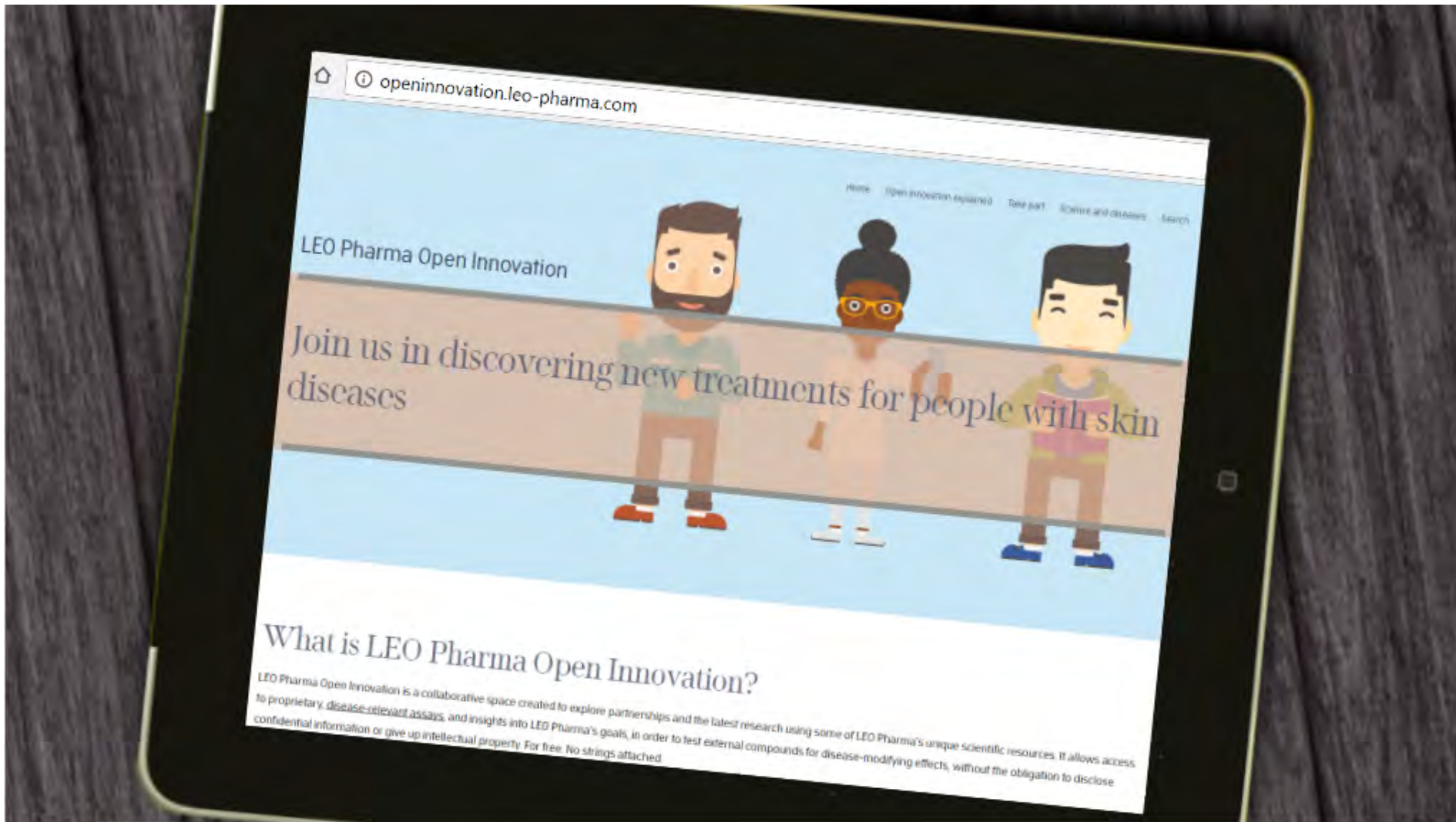


Business as **un**usual

Critical (contractual) points to LEO open innovation

- **Free of charge** testing of molecules
- Molecules are **safe** and confidential (even from us)
- **Methods are public**
- **No prescreening** of rationale
- **Partner owns** the generated data
- **No business terms**
- Promising results can lead to further collaboration





Do we believe in Open Innovation?



Do we have difficulties implementing?



Some issues and difficulties

- Loss of control
- Uncertainty around IPR
- Corporate culture
- Not invented here syndrome
- Finding the 'right' problem
- Embracing full openness
- Disclosure (competitors)
- Mutual understanding
- Promotion
- Measure success and KPIs



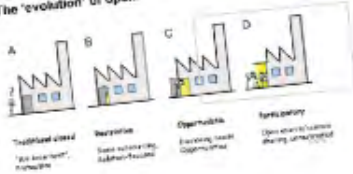
Alexander cuts the Gordian Knot. Artist: Jean-Simon Berthélemy.



— we help people achieve healthy skin

Specialization and Collaboration

The 'evolution' of openness



Ecosystem making

- Resilient ecosystems are able to absorb disturbance
- They are self-organizing
- They are open to change

Ecosystem formation using openness



Ecosystem formation using openness



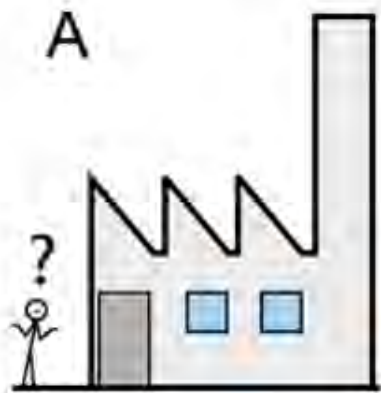
4. CHANGE IN BUSINESS (MODEL/ THINKING)

Ecosystem thinking

- *Innovation is too complex to be mastered on your own*
- *We are all interdependent*
- *Your success depends on the success of others*

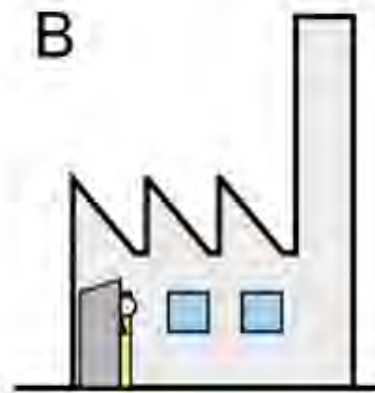


The 'evolution' of openness



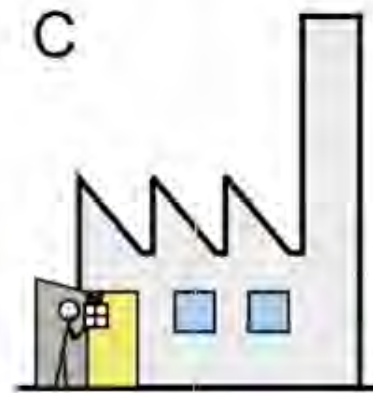
Traditional closed

*"We know best",
Protective*



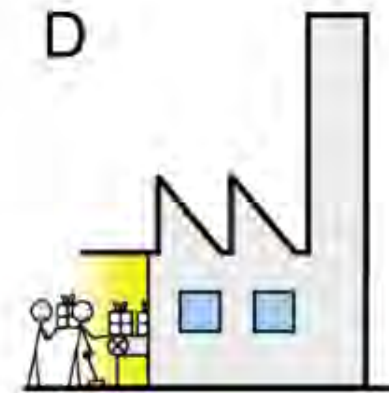
Restrictive

Some outsourcing,
Solution-focused



Opportunistic

Disclosing needs,
Opportunities

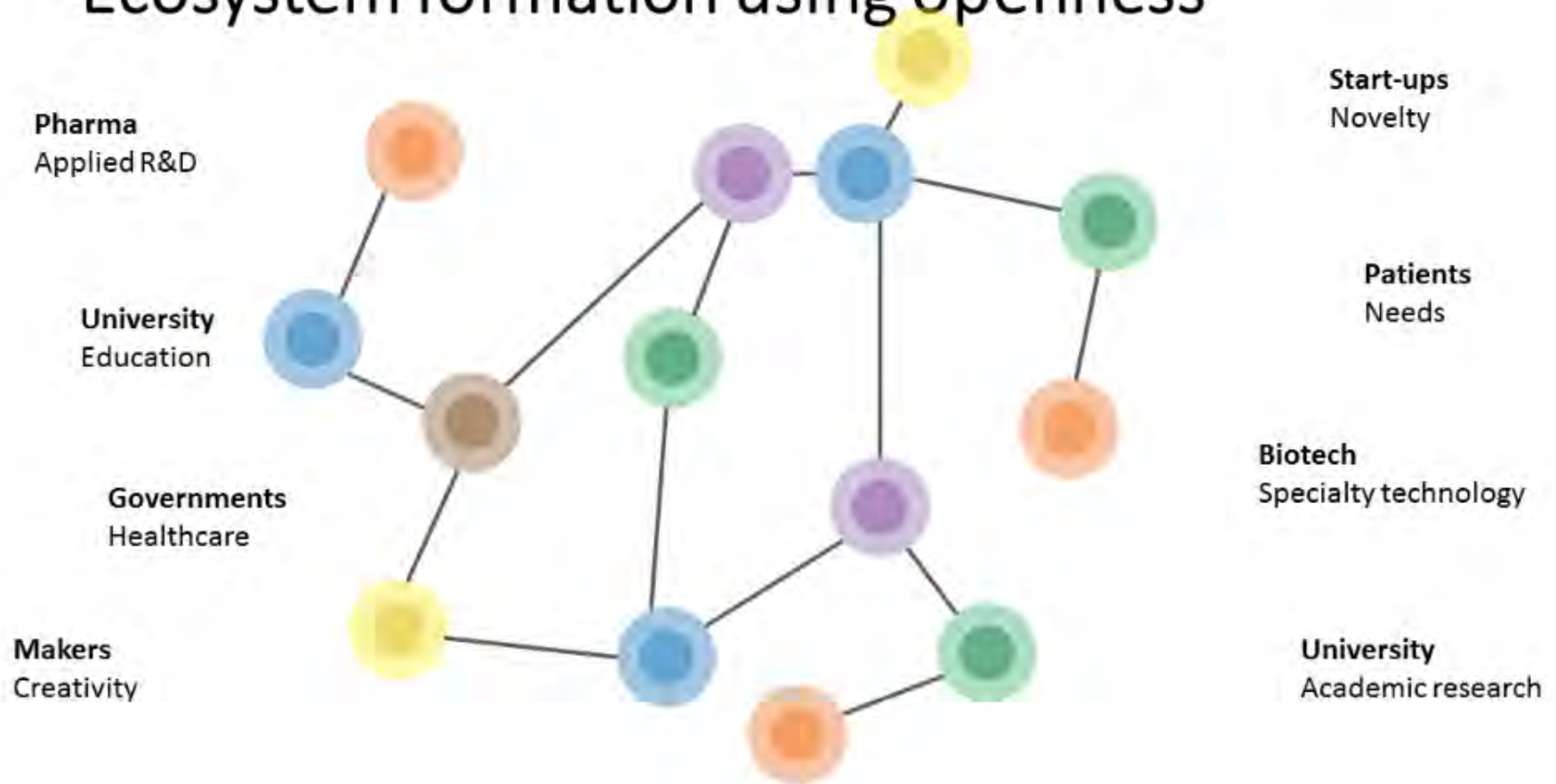


Participatory

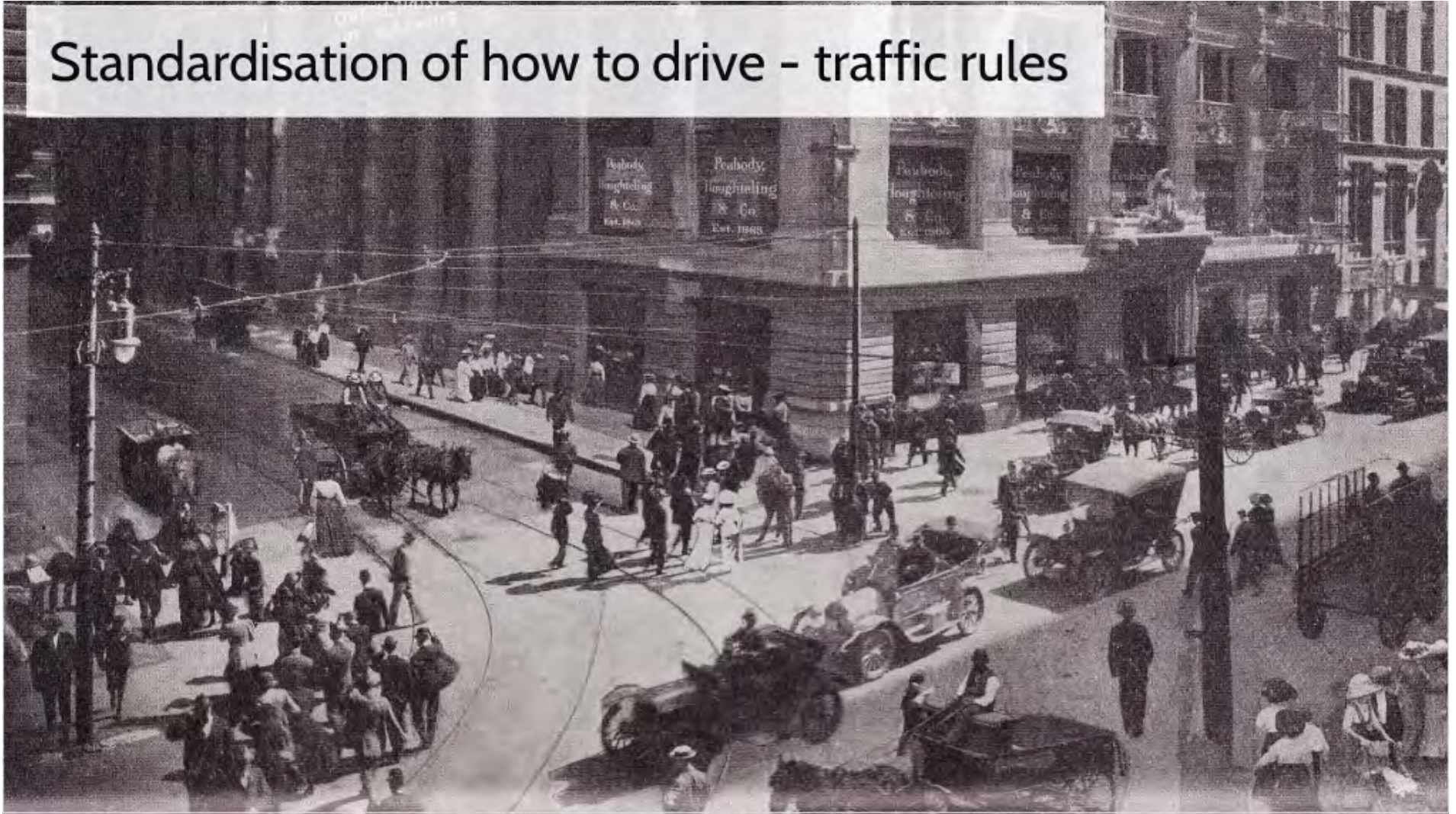
Open source/science
sharing, unrestricted



Ecosystem formation using openness



Standardisation of how to drive - traffic rules



Infrastructure for connectivity, exploration and ecosystem innovation

- Common rules of engagement
- Standardization for speed and minimum hurdles
- Laws that protect but still allow transparency and exploration of assets
- Digitalization and automation for flow and globalization



feature

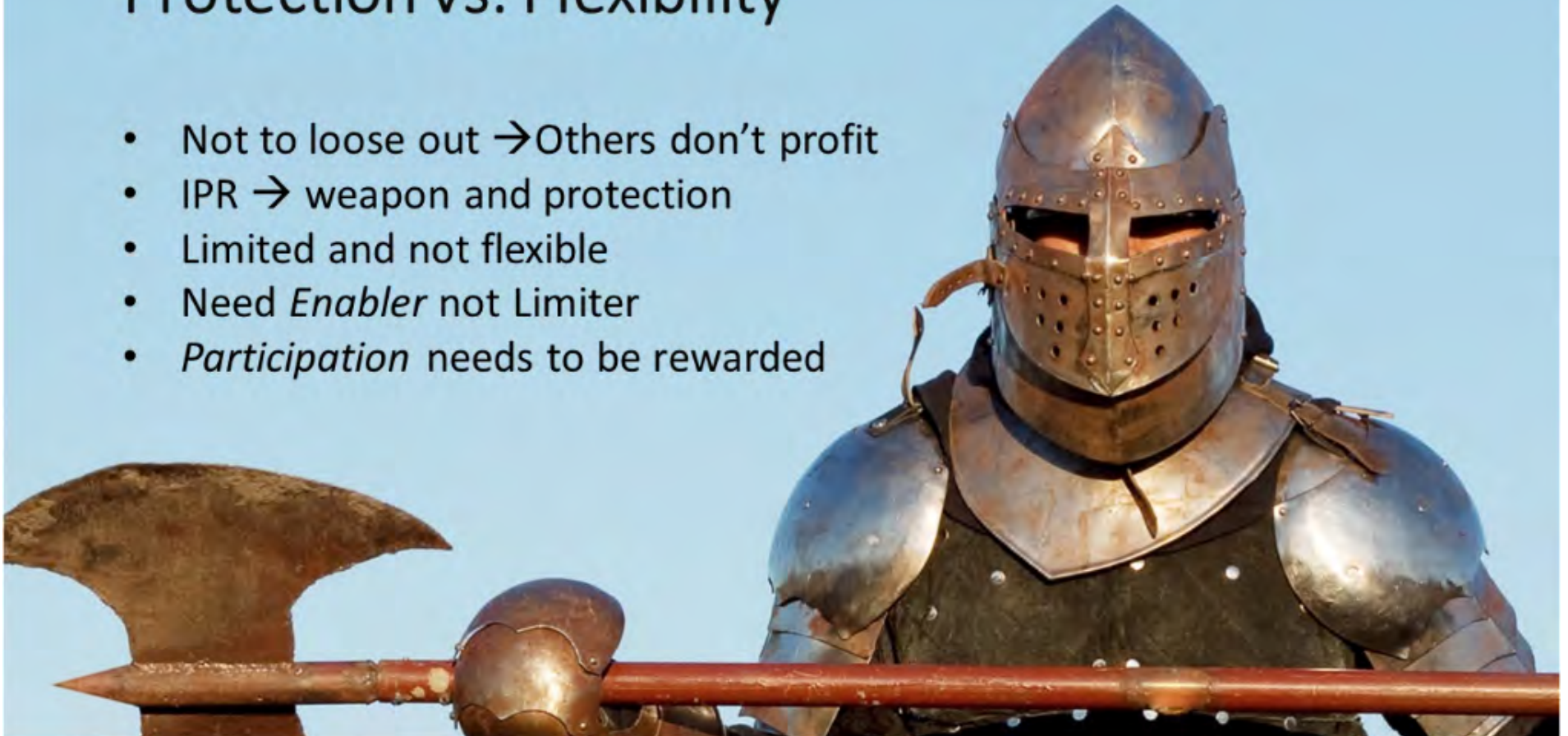
Unlocking the full potential of open innovation in the life sciences through a classification system

Wolke Hesse¹, [w.hesse@pharmazoo.com](#) and Tina Hübner²

A common understanding of expectations and requirements is critical for boosting research-driven business opportunities in open innovation (OI) settings. Transparent communication requires common definitions and standards for OI to align the expectations of both parties. Here, we suggest a five-level classification system for OI models, reflecting the degree of openness. The aim of this classification system is to reduce contract negotiation complexity and times between two parties looking to engage in OI. Systematizing definitions and contractual terms for OI in the life sciences helps to reduce entry barriers and boosts collaborative value generation. By providing a contractual framework with predefined rules, science will be allowed to move more freely, thus maximizing the potential of OI.

Protection vs. Flexibility

- Not to loose out → Others don't profit
- IPR → weapon and protection
- Limited and not flexible
- Need *Enabler* not Limiter
- *Participation* needs to be rewarded



SUMMARY

from an Industry perspective on how to make innovation happen differently

1. Open Innovation comes in many colours
2. True openness can boost external engagement
3. Requires a radical change in the business model
4. Open Innovation doesn't mean anarchy
5. A more traditional view on IPR can be applied subsequently
6. Sensemaking, Exploration and Scalability
7. R&D heavy companies will require external integration with internal research engine to stay globally competitive

HAPPY TO DISCUSS CONCEPT AND IMPLEMENTATION



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