

# Commercializing technology: from inventor to entrepreneur

Joris Heus, PhD

Director & Business Developer at IXA Office AMC

MiRoR webinar Entrepreneurship

26 November 2018

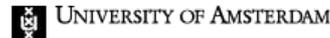
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# CV JH

## ▶ Scientific background:

- ▶ chemistry (Vrije Universiteit Amsterdam)
- ▶ PhD genetics (Univ. Leiden, Dept. Biology)
- ▶ postdoc (Univ. Leiden, Dept. Human Genetics)

## ▶ Industry experience

- ▶ Pharming (Leiden, 5 years)
- ▶ Kreatech (Amsterdam, 2 years)
- ▶ FlexGen (Leiden, 1 year)

## ▶ AMC's Technology Transfer Office -> IXA Office AMC

# Aims of this talk

- ▶ Why commercialize your research?
- ▶ What is intellectual property (IP)?
- ▶ How to market it
  - ▶ Licensing
  - ▶ Spin-off
  - ▶ Collaborations
- ▶ How not to screw it up before you even got started

# University/UMC mission

- ▶ 1. Education
- ▶ 2. Scientific research
- ▶ 3. Patient care (UMC)

# University/UMC mission

- ▶ 1. Education
- ▶ 2. Scientific research
- ▶ 3. Patient care (UMC)
  
- ▶ 4. Valorization/utilization
  - ▶ bring inventions to the market for the benefit of society!

# Innovation Exchange A'dam

- ▶ Collaboration of three TTOs (since 2014):
  - ▶ AMC (7 BD, patent attorney; 3 legals in separate team)
  - ▶ VU-VUmc (7 BD, 4 legals)
  - ▶ UvA-HvA (8 BD, 4 legals, 10 grant support)
- ▶ Mission
  - ▶ Utilization of knowledge generated at academic institute
  - ▶ Identify, protect and license knowledge (technology)
  - ▶ Negotiate research collaboration contracts with industry
- ▶ IXA+ will include holdings and entrepreneurship education

# Caelus Pharmaceuticals



# Supreme Dutch





# *“Publish or perish”* or ...

- ▶ Regular goals of researchers:
  - ▶ deciphering basic scientific issues
  - ▶ publications
  - ▶ grants



**famous**



# “Publish or perish” or ...

▶ Regular goals of researchers:

- ▶ deciphering basic scientific issues
- ▶ publications
- ▶ grants



famous



▶ Interesting alternative (and task!):

- ▶ commercialization of results



famous AND rich

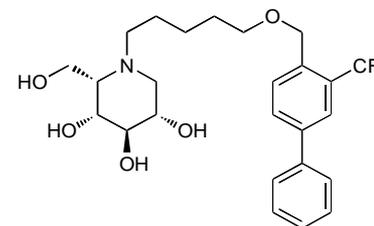


# What can be exploited?

# What can be exploited?

## ► Some examples

- new compounds (catalysts, drugs)
- devices
- software
- research tools (incl. animal models)
- (diagnostic) assays/markers
- specific expertise



# Thou shalt not steal... IP

- ▶ **Intellectual property** relates to an exclusive right to use **creations of the mind** owned by a natural or legal person for at least a limited period of time.

# Overview of Intellectual Property

**Legal right**

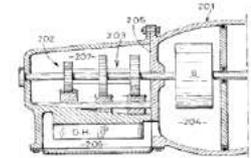
Patent

**What for?**

New inventions

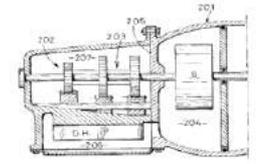
**How?**

Application and  
examination



# Overview of Intellectual Property

Legal right	What for?	How?
Patent	New inventions	Application and examination
Trade secret	Valuable information not known to the public	Reasonable efforts to keep secret



# Het geheim van succes

**Coca-Cola** is overal. Het is lekker. Het schijnt te helpen tegen misselijkheid en roest. Maar bovenal is het een mysterie.

**Der Coca-Cola-Check**  
ARD, 20.15-21.00 UUR

VORIG jaar werd  
Coca-Cola...

## Merchandise

Daar staat dan weer tegenover dat maar liefst 94 procent van de wereldbevolking het roodwitte logo

...briek in 1894 opende, een deel van het succes aan te danken heeft: het oude mysterie rondom het unieke ingrediënt dat schuilt gaat onder de naam **Merchandise**

herkent, en Coca-Cola na 'oké' wereldwijd het bekendste woord is. Bovendien is het niet alleen lekker om te drinken, maar schijnt het ook nog eens te helpen tegen misselijkheid en roest. Helaas zijn lang niet alle ingrediënten even goed voor je. Door de suikers is het een echte dikmaker en door fosforzuur vreet cola niet alleen roest weg, maar wordt ook je skelet aangetast en daardoor loop je meer risico op botbreuken.



Wat zit er in de populaire frisdrank?

7x. Waar dit concentraat precies uit bestaat weet slechts een enkele

ling, ho analyse komen. een dru enthous het kler drankje merken

7x

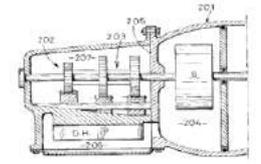
Oreokoekjes, de McRib en een Snickersreep, probeerde hij ook Coca-Cola te evenaren en het schijnt dat dit aardig lukte. Zijn brouwsel smaakte in ieder geval

goed en het leek ook nog eens op Coca-Cola. Tot zover het mysterie rondom de geheimzinnige formule, met wat fantasie en kritische zintuigen komt de enthousiaste amateur een heel eind. In *Der Coca-Cola-Check* wordt vooral het merk goed onder de loep genomen. Het geheim van het succes gaat namelijk veel verder dan slechts de formule. En dat is eigenlijk geen geheim, maar gewoon heel goede marketing.

CHARLOTTE HORTENSIUS

# Overview of Intellectual Property

Legal right	What for?	How?
Patent	New inventions	Application and examination
Trade secret	Valuable information not known to the public	Reasonable efforts to keep secret
Trade mark	Distinctive identification of products or services	Use and/or registration
Registered design	External appearance	Registration
Copyright	Original creative or artistic forms	Exists automatically



# Some IP found in an iPhone

## Trade marks:

- ▶ Made by “Apple”
- ▶ Product “iPhone”
- ▶ Software “iOS”

## Copyrights:

- ▶ Software code
- ▶ Instruction manual
- ▶ Ringtone



© Apple

## Patents (over 1300):

- ▶ Camera
- ▶ User Interface
- ▶ Image Display/Screen
- ▶ Battery/Power Control

## Trade secrets:

- ▶ ?

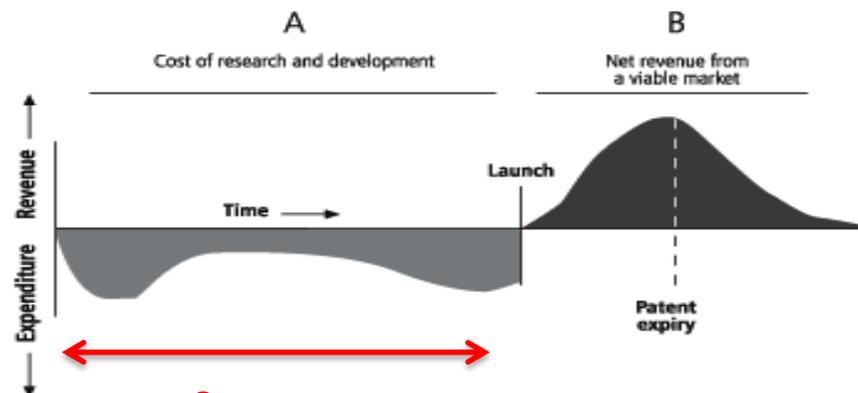
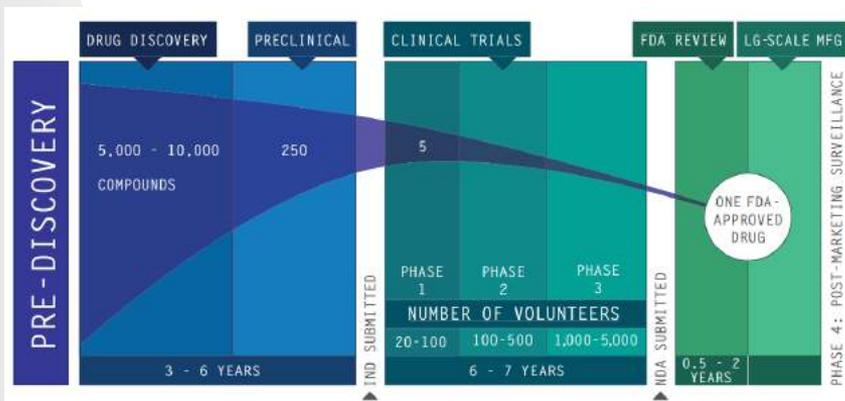
## Designs (some of them registered):

- ▶ Form of overall phone
- ▶ Arrangement of button and screen

# What is a patent?

- ▶ a property right for an invention granted by a government
- ▶ right to exclude others from using or selling the invention in certain territories for a limited time
- ▶ does not grant freedom to sell products containing the invention!

# Why do you need a patent?



9+ years  
800 M€

# Patent system = social contract

**Reveal  
invention**

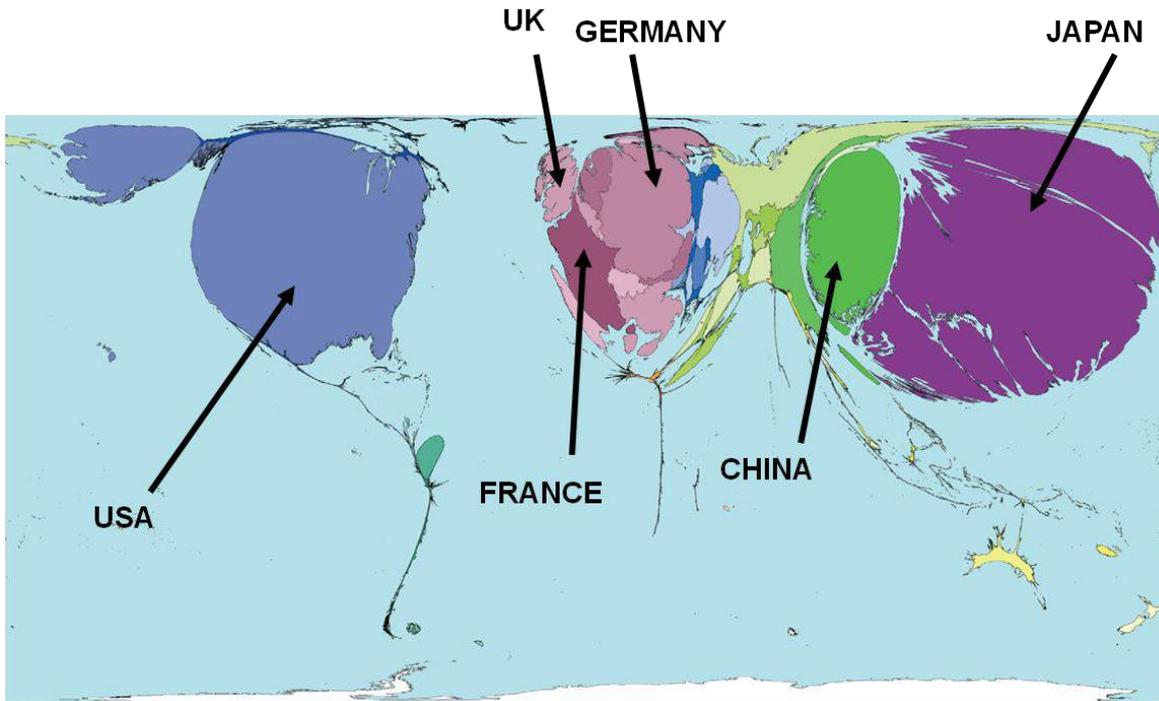


**Get  
exclusivity**



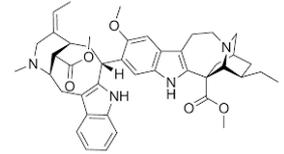
... so that others can learn from it  
and improve upon it!

# Map of the patent world



# Patentable inventions

- ▶ A new chemical entity
- ▶ A synthesis method
- ▶ An apparatus/device
- ▶ Software-device combinations
- ▶ A new medical use for an existing drug
- ▶ An in vitro diagnostic method

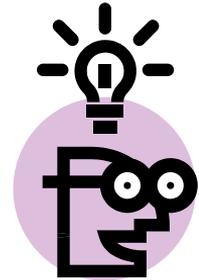


# Who may apply for a patent?

- ▶ Invention will generally be owned by employer
- ▶ Employee may receive financial reward – depending on University policy
- ▶ Inventor has the right to be mentioned as such on the patent application

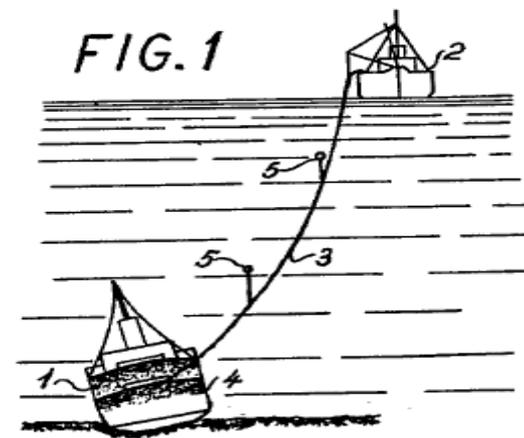
# Criteria for Patentability

- ▶ Novel
  - ▶ If the invention is not disclosed anywhere yet
- ▶ Inventive
  - ▶ If the invention is not considered obvious to a person “skilled in the art”
- ▶ Industrially applicable
  - ▶ If the invention can be made or used in any kind of industry





1964 Kuwait harbour accident



1964 Kroyer patent



# Which information can destroy novelty of a patent?

- ▶ Publications in any language (including by the inventor)
- ▶ Public oral disclosures (lectures, poster presentations etc.)
- ▶ Internet disclosures
- ▶ Reports available in a public library (even if never accessed)
- ▶ Previous patent applications

# Non-public disclosures

- ▶ Discussions with colleagues from your institute
- ▶ Confidential disclosures (preferably under confidentiality agreement)
- ▶ Review procedures for subsidy grants or scientific publications

# CDA (Confidential Disclosure Agr.)

- ▶ to protect sensitive information from one or more parties
- ▶ usually two-way
- ▶ confidentiality to be maintained 3-10 years
- ▶ can be arranged within a week

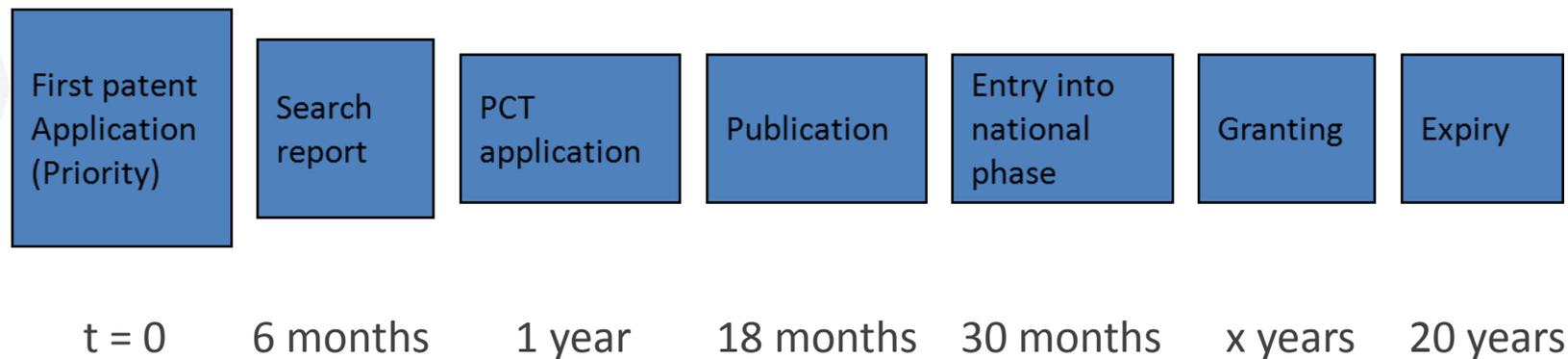
# MTA (Material Transfer Agreement)

- ▶ out: IXA will handle MTA to protect your materials and IP and limit the Univ/UMC's liability
- ▶ in: IXA will screen other party's MTA for restricting paragraphs, such as:

***“All rights to inventions, improvements, and intellectual property that are generated as a result of the Project, including rights to any inventions, improvements, and intellectual property arising from Recipient's use of the Material or Confidential Information, will be owned by Company without any special payments or compensations to Recipient.”***

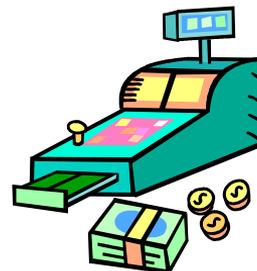
*a.k.a. the “Alles Is Voor Bassie” clause*

# Patenting process



# Patent costs

## Phase



## Costs (€)

yrs

*Initial filing (usually EP)*  
attorney fees, taxes

7.000-15.000

0

*International filing (PCT/WO)*  
attorney fees, taxes

6.000

1

*National filing*  
translations, attorney fees, taxes

15.000-35.000

2.5

**Total**

**28.000-56.000**

*Year taxes (per country & increasing)*

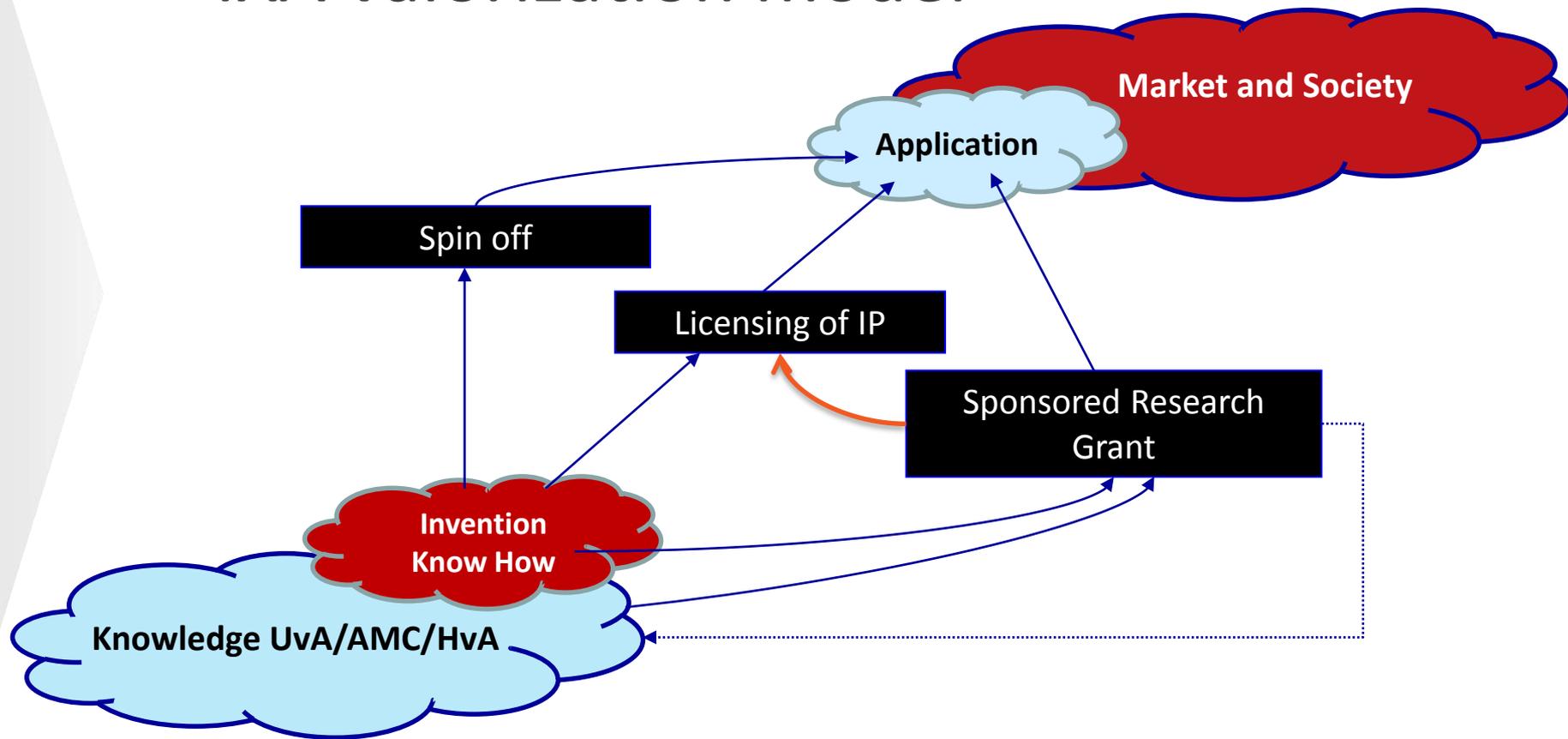
700-3.500

20

*Opposition (admin.)/ Litigation (court)*

tons/millions

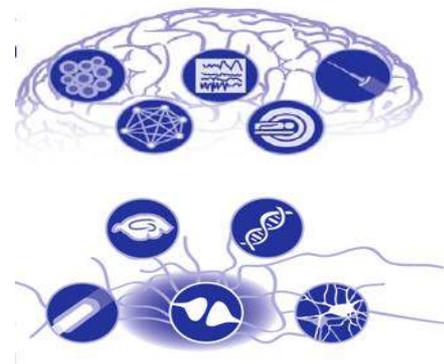
# IXA valorization model



# Corporate collaborations

- ▶ Sponsored clinical trials
- ▶ Investigator-initiated trials
- ▶ (Preclinical) res. collaboration
- ▶ Fee-for-service
- ▶ Consultancy

Amsterdam Neuroscience  
with Pharma



# Licensing

## Nucleic acids binding to glass beads

(1989 patent, dept. Clin. Virology)

- licensed in 1990 to Organon Teknika/Biomerieux
- AMC royalties ~ € 20 million in total

## Cell lines:

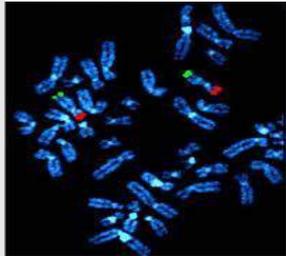
Merck Serono, € 70K

## Mouse Models:

PMP22 (CMT) mouse (>80K)

## SURPASS (digital checklist)

- 20K per hospital + annual fee



# Academic spin-off support

## ▶ How to start your company

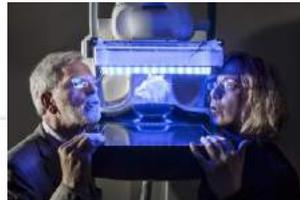
- idea/invention
- team
- courses (ACE Explore/Bootcamp/Accelerator programs/Venture Challenge/ahti HealthInc)
- business plan



**venture  
challenge**

## ▶ Financial assistance (PoC, pre-seed funds, VC)

# LS spin-offs (AMC/VUmc/VU)



CAELUS HEALTH



thromboDx



# Commercializing research

## What's in it for each stakeholder?

	<u>License</u>	<u>Collaboration</u>
▶ Industry	business opp	knowledge + exp
▶ University/Hospital	1/3 + nice publicity	input (sci + €)
▶ You!	1/3 + satisfaction*	nice project/job
▶ Your department	1/3	

\* *Pharming's Ruconest (C1 esterase inhibitor) produced in rabbit milk*

# Wrap up

- ▶ Think about publication and societal impact
- ▶ Protection of invention often needed for company/investor, i.e. reaching the market
- ▶ Collaboration with industry = alternative funding source

# INNOVATION EXCHANGE AMSTERDAM



*Partnering science for impact*

IXA is the valorisation centre of

