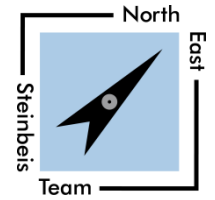


Technology transfer and commercialization strategy

2013-10-30

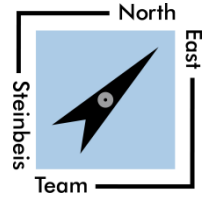
Monika Kavaliauskė

Steinbeis Research Center Technology
Management Northeast



TECHNOLOGY TRANSFER AND COMMERCIALIZATION STRATEGY

Agenda



30th October, 2013

9:00 – 10:30 Lecture 1: **Evaluation of research results: how to find the potential case**

10:30-11:00 Break

11:00-12:30 Lecture 2: **Types of technology transfer, Confidentiality in technology transfer**

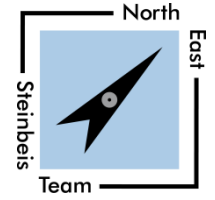
Lunch break

13:30-15:00 Lecture 3: **Licensing**

15:00-15:30 Break

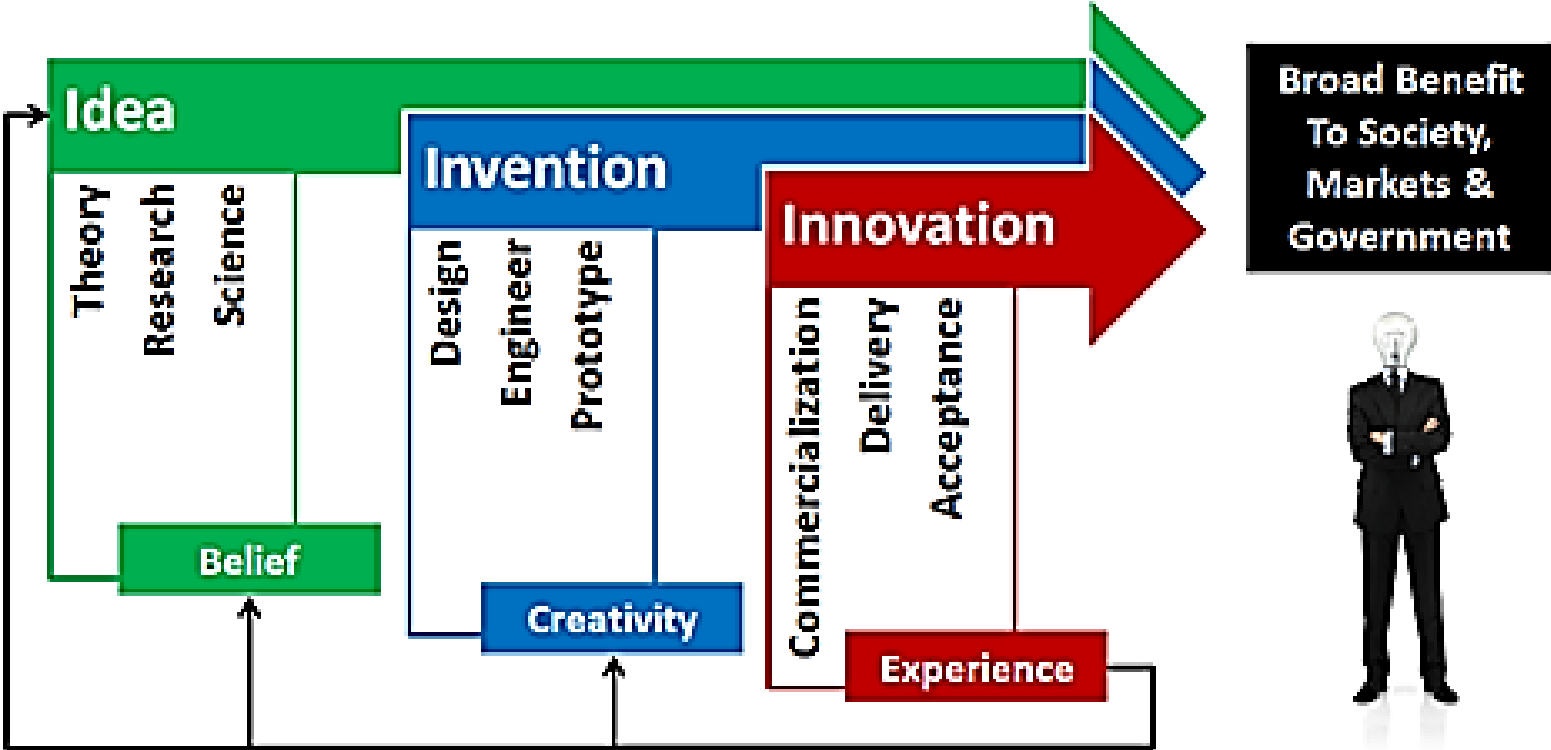
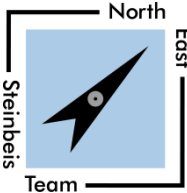
15:30-16:45 Lecture 4: **Contractual agreements**

16:45-17:00 Q&A

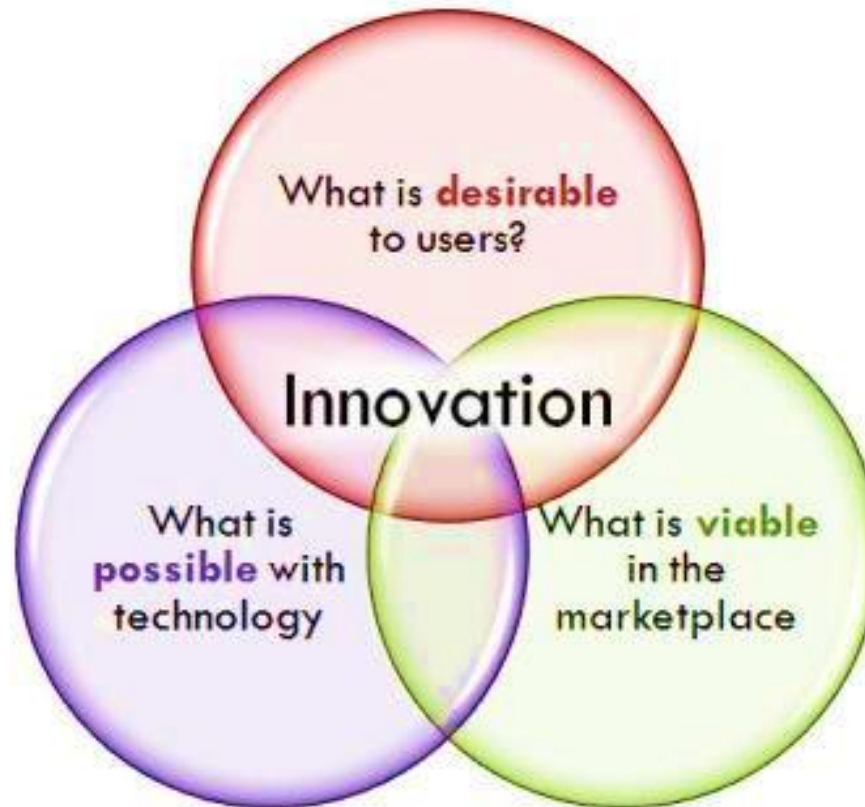
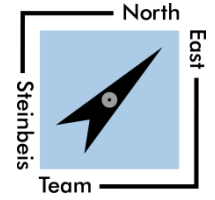


Evaluation of research results: how to find the potential case

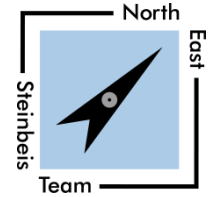
Idea development



What is innovation?

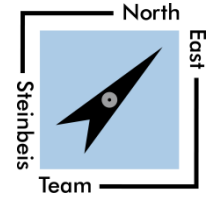


Characteristics of innovation



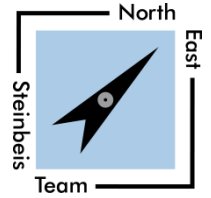
- **Process:** Innovation is a process (implying, among other things, that it can be learned and managed)
- **Intentional:** That process is carried out on purpose
- **Change:** It results in some kind of change
- **Value:** The whole point of the change is to create value in our economy, society and/or individual lives
- **Opportunity:** Entrepreneurial individuals enable tomorrow's value creation by exploring for it today: having ideas, turning ideas into marketable insights and seeking ways to meet opportunities
- **Advantage:** At the same time, they also create value by exploiting the opportunities they have at hand

How to transform invention to innovation?



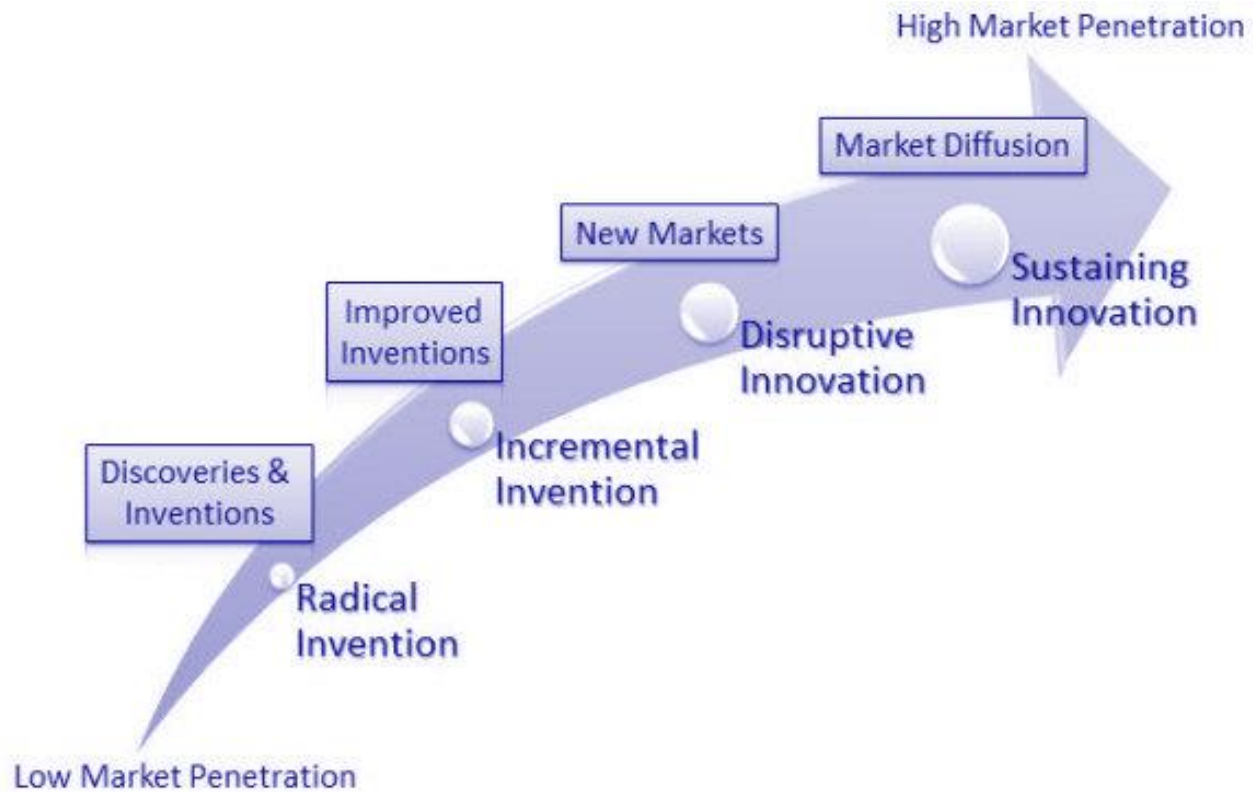
- 1) **Disruption** – A product, process or service needs to radically disrupt the status quo of the nature. If the invention is not interesting, nor does it have unique value and cost differentiation, it's just an incremental innovation, at best.
- 2) **Business Model Structure** – The invention stands a greater chance for success if it has obvious and immediate value to the buyer (B2B or B2C), and that is often a function of a business model disruption.
- 3) **Business Model Infrastructure** – Slightly different than the prior element, this involves leveraging the business model infrastructure available.

How to transform invention to innovation?

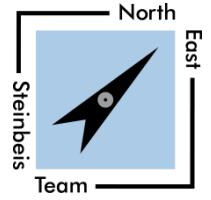


- 4) **Adoption** – The invention must have been lead with customer-centric design thinking. Leading with marketing, especially in the social era, is to surround the invention with marketing as strategy – broad committed effort to gain customer interest, drive market adoption and build industry velocity.

- 5) **Timing** – all of these elements are subject to timing. As products, services, customers and markets create an ecosystem of opportunity; it requires that these elements come together at a common time.



Aspects of “new”



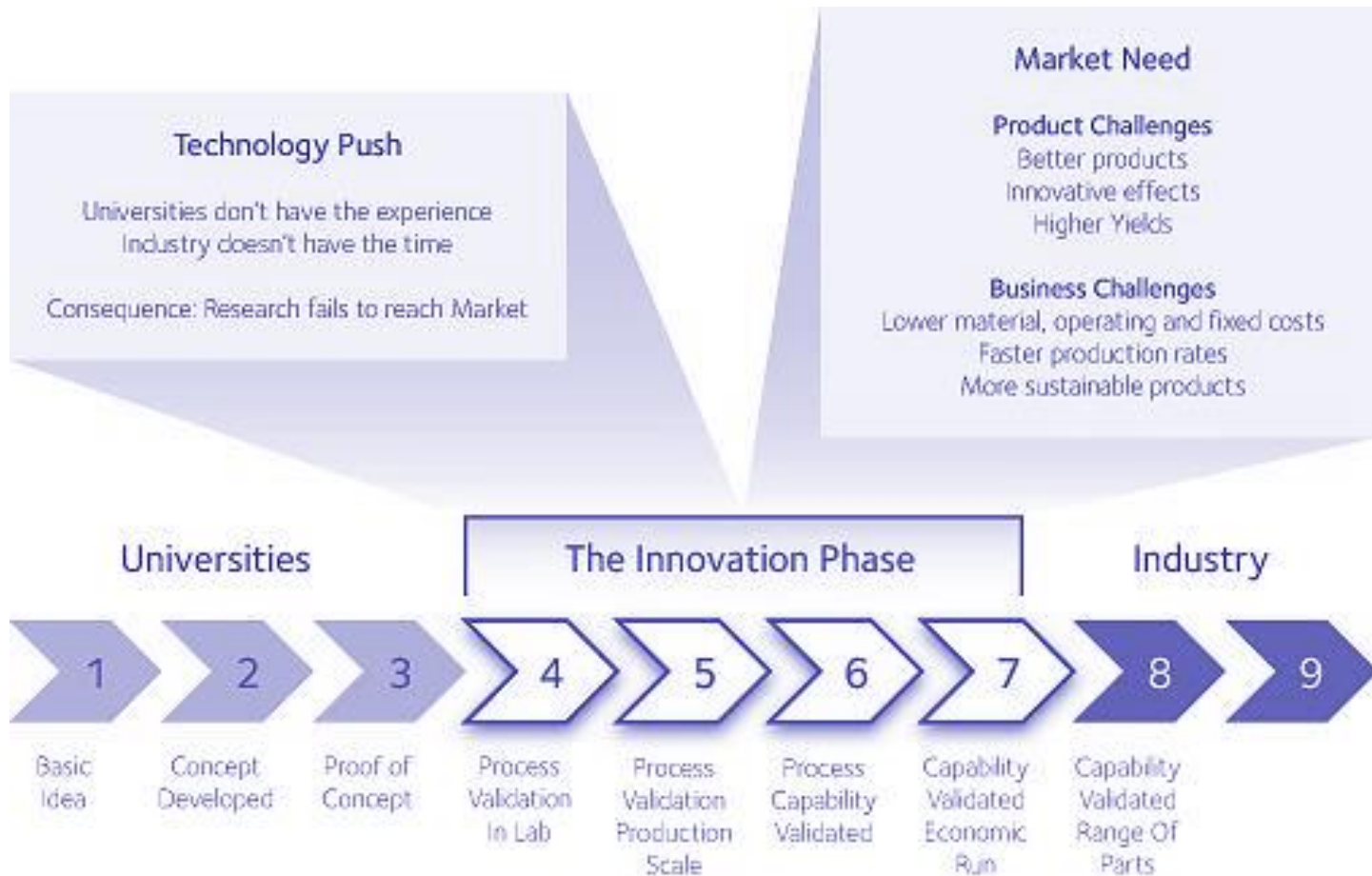
- New worldwide
- New product group
- Supplements to existing product
- Modification of existing product
- Existing product to new market



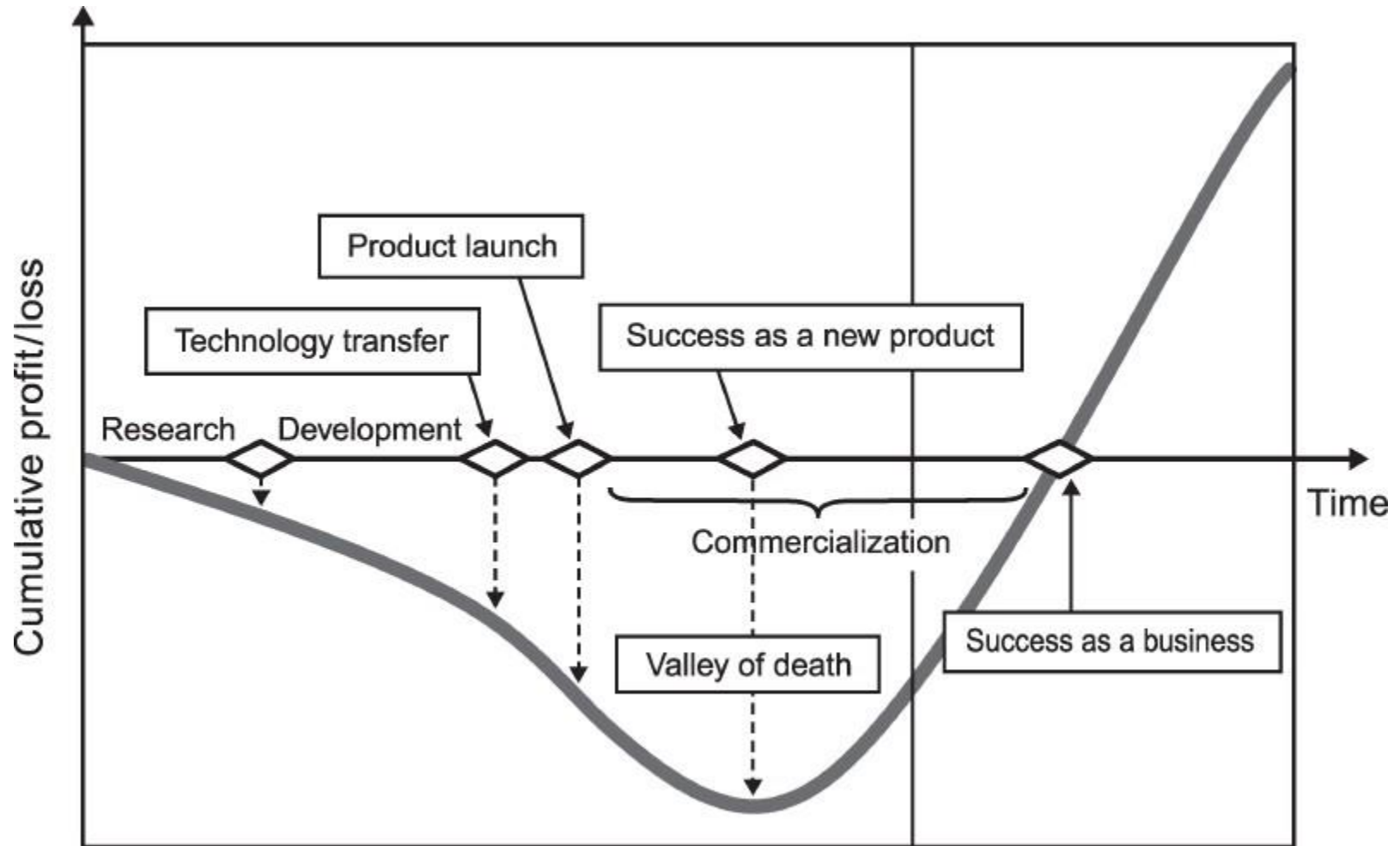
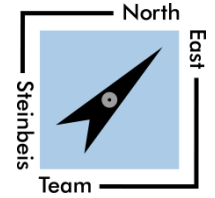
Perpetuum mobile...?

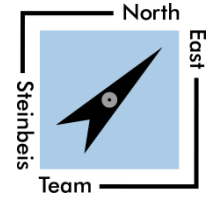


University and Industry



Valley of death

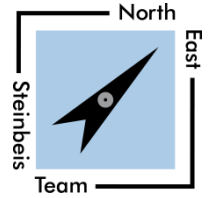




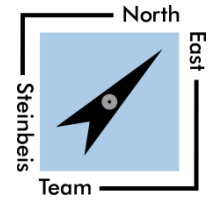
Case analysis:

- “Finding and Grooming Breakthrough Innovators”, by Jeffrey Cohn, Jon Katzenbach, and Gus Vlask, HBR

Discussion in groups

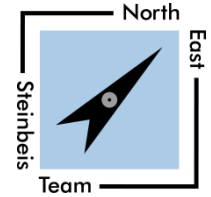


- What of your already published results could have been commercialized?
- What you would have needed to **commercialize instead of publish?**



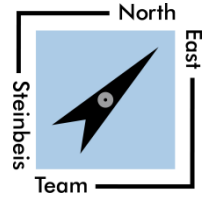
Types of technology transfer

Technology transfer



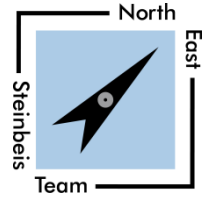
- **Technology transfer** – process of applying research results in practical use.
- Inventions are commercialised through a process of “technology transfer”.
- **Patenting is not Technology Transfer!**
- It is a way to finance University R&D activities.

Challenges



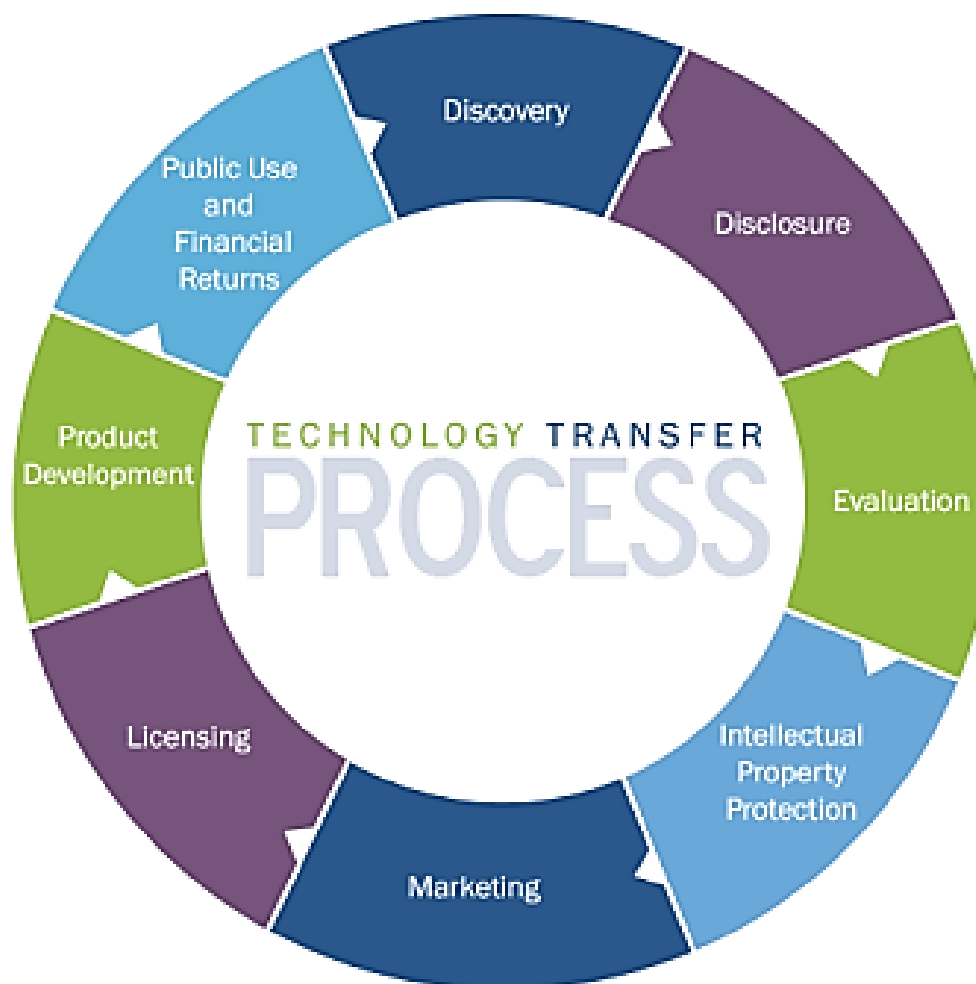
- How to manage the process of integrating an external company efficiently and effectively? This involves aspects of strategy selection, organizational design, and interaction management
- How to consider and solve IP-related questions in those types of R&D cooperations?

Technology transfer methods

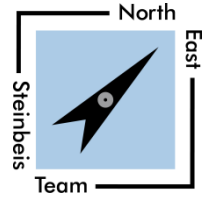


Technology can be transferred and knowledge can be exchanged through one of the following methods:

- licensed IPRs based on staff innovations and inventions
- university owned spinout/ startup companies and joint ventures
- consultancy services
- research contracts
- sponsored research

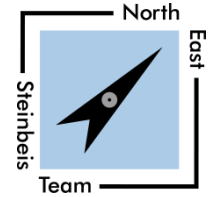


Stages of technology transfer

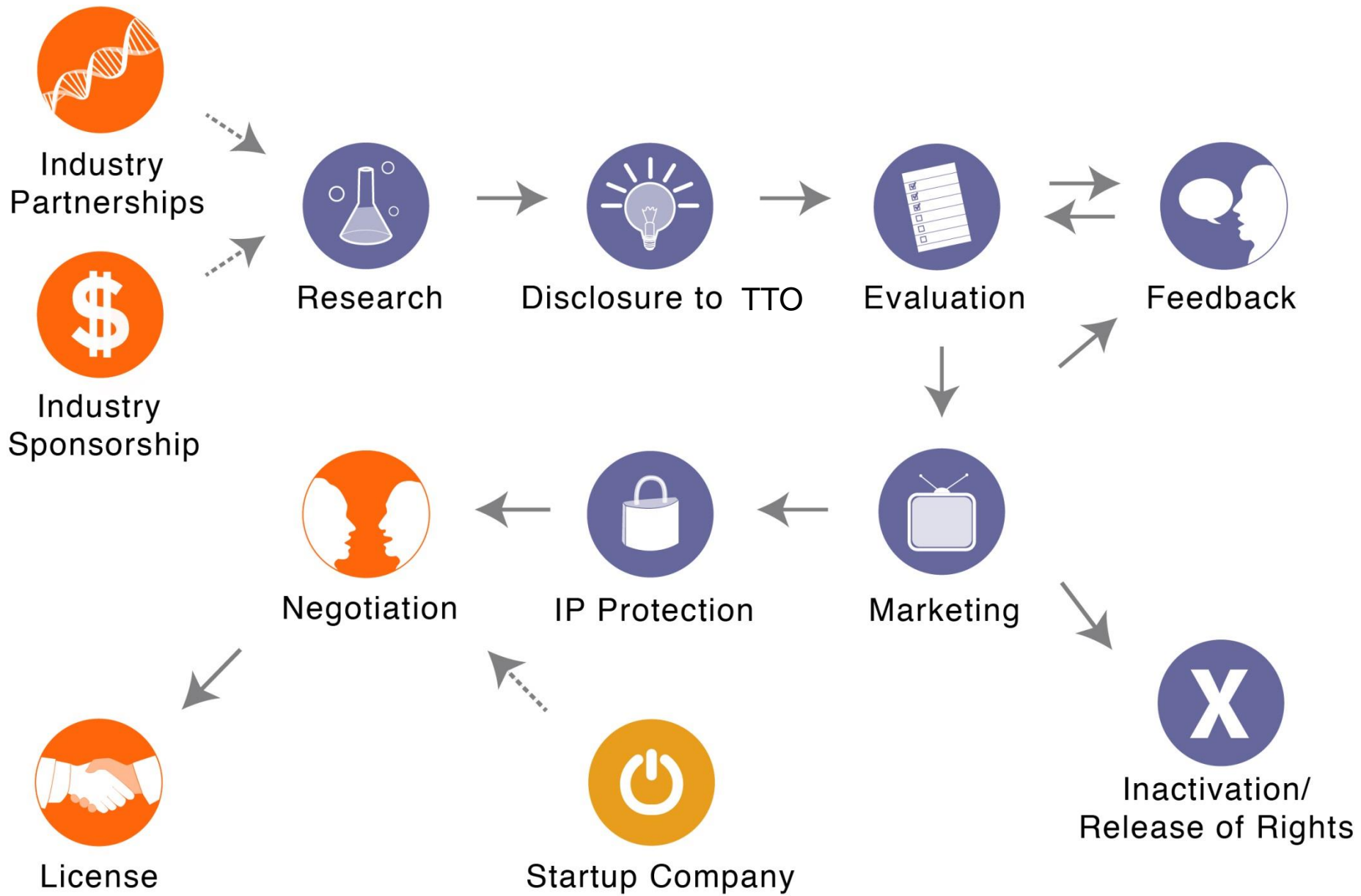


- Identification
- Capture
- Evaluation
- Market

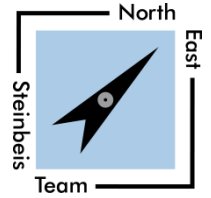
Technology transfer at universities



- The role of the **technology transfer professional** is to help to establish contacts and to clear up misunderstandings.
- The role of university is very important, as **the Entrepreneurial University is** engaging in licensing and spinout activities to achieve economic development from its own right.



Technology transfer models



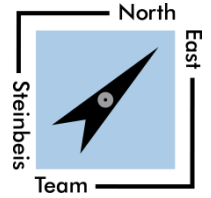
Deal Based Model (Just in Time)

- Market first, only patent if deal is found.
- Rate of production of IP = expected rate of transfer/ licensing

Result:

- Inventory kept low, minimising un-reimbursed patent costs
- Institution may lose potential innovations because they have to be abandoned

Technology transfer models



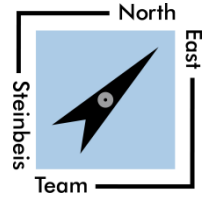
Inventory Model

- Patent those discoveries that look promising, market and license later.

Result:

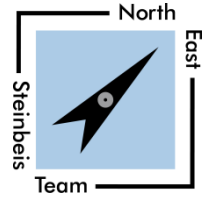
- Institution may build a substantial inventory of unlicensed patent
- Institution may incur substantial un-reimbursed expenses

Do not be too optimistic...



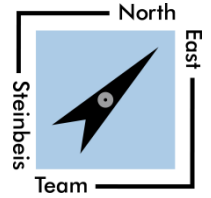
- It is very unrealistic for universities to seek large financial returns from technology transfer...
- *How many years do you need?*
 - 1, 2, 5, 10, 18, 25?

Advantages of technology transfer - external

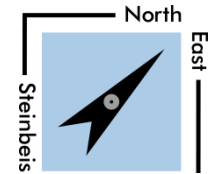


- Enable universities to maximise the wider impact of their research.
- Create the greatest possible economic and social benefits, whether or not they accrue to the university.

Advantages of technology transfer - internal



- Participating in interesting and well resourced collaborative projects.
- Generating publishing opportunities.
- Enhancing the reputation of the university and research group.
- Attracting high calibre students.
- Improving the chances of long term survival of the research group.



Which Model Works for You?

Integrator

Description

Manage all the steps necessary to generate profits from an idea.

Investment requirements

High. Capital may be needed to set up new manufacturing facilities, for instance.

Capability requirements

- Strong cross-functional links within organization
- Product design
- Manufacturing-process design skills
- Technical talent sourcing

Best used when

- speed-to-market is not critical.
- technology is proven.
- customer tastes are stable.
- innovation is incremental.

Orchestrator

Description

Focus on some steps and link with partners to carry out the rest.

Investment requirements

Medium. Capital may be needed only to market the product, for example.

Capability requirements

- Ability to collaborate with several partners simultaneously, while not having direct control
- Complex project-management skills
- Customer insight
- Brand management
- Culture that can let go of certain areas, while focusing on core competencies
- Ability to move quickly; nimbleness

Best used when

- there is a mature supplier/partner base.
- there is intense competition—a need for constant innovation.
- strong substitutes exist.
- technology is in early stages.

Licensors

Description

License the innovation to another company to take it to market.

Investment requirements

Low. Manufacturing and marketing expenses are borne by other companies.

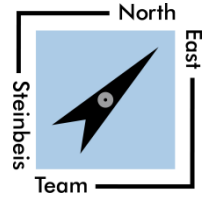
Capability requirements

- Intellectual-property management skills
- Basic research capabilities
- Contracting skills
- Ability to influence standards

Best used when

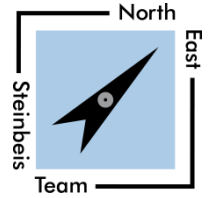
- there is strong intellectual property protection.
- importance of innovator's brand is low.
- market is new to the innovator.
- significant infrastructure is needed but not yet developed.

Discussion



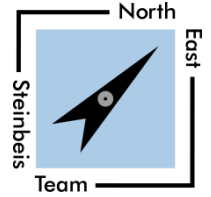
- What is the role of:
 - ✓ University
 - ✓ Technology transfer office
 - ✓ Government
 - ✓ Business
 - ✓ Researcher
- In technology transfer?

Optimal assesment



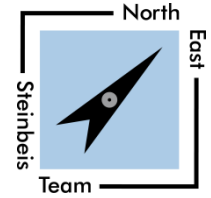
- 1) Claims to Ownership (due diligence)
- 2) Feasibility and Scope of Protection
- 3) Strength of the technology
- 4) Commercial Potential and Value
- 5) Stage of Development
- 6) **Commitment of inventor(s)**

Claims to Ownership



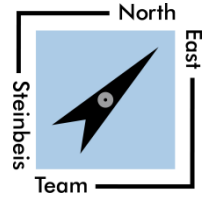
- **Assignment**
 - Have rights to this technology been pre-assigned to a third party?
- **Joint Inventorship**
 - Number of co-owner institutions
- **Funding (Source of funding)**
 - e.g., corporate, state, etc.
- **Other Agreements**
 - Material Transfer Agreements, Memorandums of Understanding, etc.
- **Inventorship**
 - Number of inventors/authors

Feasibility and Scope of Protection



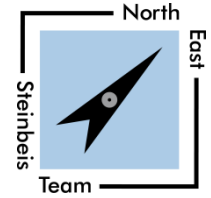
- **Timing**
 - Publications exist or are planned
- **Strength**
 - Ability to work around patent
- **Enforcement**
 - Infringement detection
- **Security**
 - Ability to exclude others from practicing
- **Challenge**
 - Aggressive area of Worldwide Patent/Copyright activity
- **Reach**
 - Worldwide protection

Strength of the technology



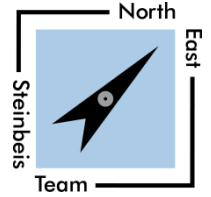
- Uniqueness of the invention
- Emerging alternatives
- Novelty of the invention
- Breadth/ Edge of technology
- Applicability of technology (integration)
- Legislative issues
- Standards
- Environmental Impact

Commercial Potential and Value



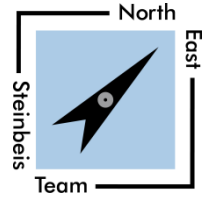
- Ability to identify market need
- Potential market size
- Availability of market contacts
- Feedback from industry contacts
- Market Location
- Market Place Competition
- Ability to compete in the market place
- Time to Market
- Regulations
- Significance
- Licensing Barriers

Stage of Development



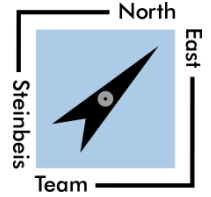
- **Understanding**
 - Ability to understand the IP
- **Reduction**
 - Simulation/Experimentation has been done
- **Trial History** (Medical/ Health Sciences)
 - Certain information required by the regulatory processes has been compiled.
- **Prototypes**
 - The technology demonstration has occurred
- **Production**
 - Amount of scale up needed
- **Financial**
 - Investment needed for development
 - Investment needed for use

Commitment of inventor(s)



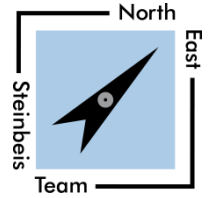
- Lead Inventor Profile
- Scientific reputation of Group
- Existence of a project “Champion”
- Level of support available
- Existing commercial links

What companies are interested in?



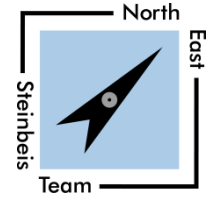
- **Technical details**, specification
- **Novelty**, uniqueness explained
- **Stage of development** (lab tested, available for demonstration, already on the market etc.)
- **Patent Rights** (applied, patent(s) granted etc.)
- **Expectation towards cooperation type** (technical consultancy, joint further development, license agreement etc.)
- **Expectations** for the partner:
 - Type of partner sought
 - Specific area of activity of the partner
 - Task to be performed by the partner sought

Discussion in groups



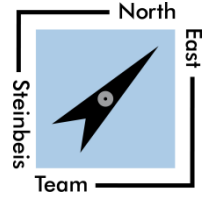
- Name a company you would like to work with.
- Describe what you could offer for this company in your field of research.

Role of IP in technology transfer



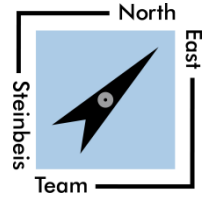
- A key feature of such collaboration is the development of and control over knowledge as intellectual property
- Disagreement over IP ownership is a major barrier to research collaborations all over the world
- The real issue is not IP ownership but the exploitation rights for any IP generated and the commercial benefits derived from it
- Model contracts which cover the main approaches to IP ownership, management and exploitation are very important in speeding up negotiations

Agreements in technology transfer



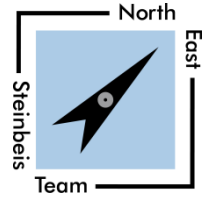
- Licensing Agreements
- Collaboration Agreements
- Contract Research (Services) Agreements
- Sponsored Research Agreements
- Materials Transfer Agreements
- Consultancy Agreements
- Confidentiality Agreements

Model agreements – content



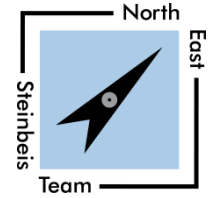
- Timescales and other project details
- Reporting arrangements
- Finance and payment
- Confidentiality
- Limitation of Liabilities
- Termination
- Etc.

Model agreements – content



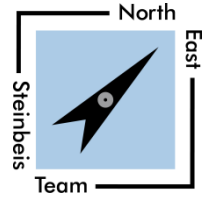
- **Background (IP)** – any IPR controlled or owned by any Party prior to the date of commencement of the collaboration or IPR generated by any of the Parties independently of the Project
- **Foreground (IP)** – IPR generated in the framework of the project
- **Academic Publication** - University's objective to disseminate the knowledge for public benefit vs industry's wish to protect its information and materials

Model agreements – content



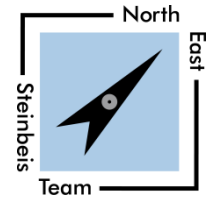
- **The Field** - defined field of permissible use of IP by the contractual party
- **Access rights** - rights granted by the parties to each other, as opposed to licenses to third parties
- **The Territory** - defined geography of permissible use of IP by the contractual party
- **Confidential Information**
- **Intellectual Property**
- **Know-how**

Model agreements



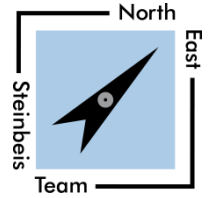
Lambert (UK):

- One-to one research collaboration (5 model agreements 1-5)
- Multi-party Consortium agreements (4 model agreements A-D)
- <http://www.ipo.gov.uk/lambert>



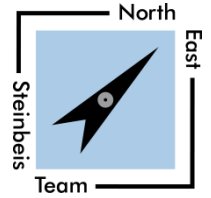
Confidentiality in Technology Transfer

Disclosure form



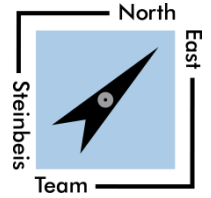
- Analysis of Disclosure form:
University of Oxford

Who makes the decision?



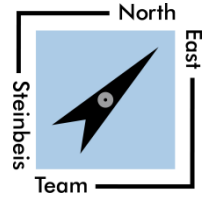
- The has the authority?
Rector? Dean? Head of Institute?
- Who recommends?
IP Advisory Group?
Technology transfer office?
- Who helps?
Consultants, Experts

If decision is negative?



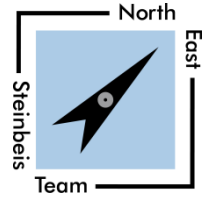
- If the university decides to waive its rights to the invention, then the **invention may be re-assigned to the inventor** who is free to commercialise it at his own risk and cost.

Non-disclosure (confidentiality)



- Exchanging valuable information with other partners is generally a necessity that regularly occurs in any collaborative initiatives.

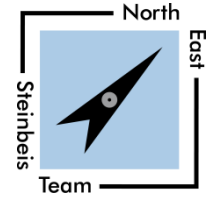
Non-disclosure (confidentiality) agreements



Confidentiality is an extremely important issue for participants in any R&D or commercialization projects:

- from the setting-up (even during earliest discussions on the assessment of participation),
- to the implementation and exploitation phases.

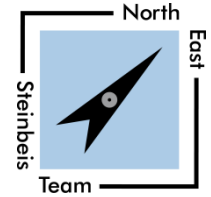
Non-disclosure (confidentiality) agreements



Confidentiality issues and measures should be taken into consideration in order to:

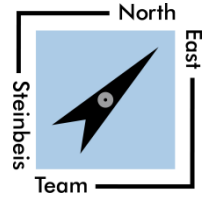
- safely exchange information,
- facilitating the project development,
- ensuring the non-disclosure of sensitive technology, business or commercial confidential information.

Non-disclosure (confidentiality) agreements



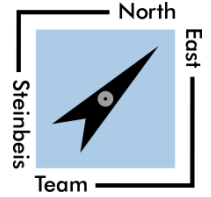
- The **signature of a confidentiality agreement or non-disclosure agreement (NDA)** at the earliest stage of collaboration,
- the inclusion of confidentiality clauses in the collaboration agreement, and
- compliance with confidentiality obligations during the whole project and after,
- are very important steps to keep confidential information secret in order to maintain a competitive edge.

Non-disclosure (confidentiality) agreements



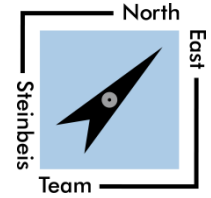
- Deciding to become involved in a project, business or commercial relationship **requires discussions and the exchange of information** between people from different organisations, companies or institutions with different background knowledge and interests.

Non-disclosure (confidentiality) agreements



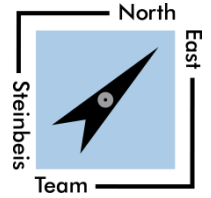
- **CA or NDAs provide protection** and more security to organisation that is about to share or make available information to another organisation by ensuring that confidential information will be used only for the permitted purposes agreed between the signatories of the agreement and will not be used or revealed to third parties without consent.

Contents of non-disclosure (confidentiality) agreements



- any scientific or technical information, invention, design, process, procedure, formula, improvement, technology or method;
- any concepts, samples, reports, data, know-how, works-in-progress, designs, drawings, photographs, development tools, specifications, software programs, source code, object code, flow charts, and databases;
- any marketing strategies, plans, financial information, or projections, operations, sales estimates, business plans and performance results relating to the Party's past, present or future business activities, or those of its affiliates;
- trade secrets; plans for products or services, and customer or supplier lists;
- any other information that should reasonably be recognised as Confidential Information by the parties.

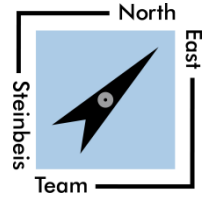
What is not confidential?



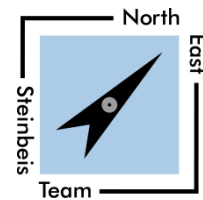
That is:

- is already in the public domain at the time of disclosure;
- was already known by the Receiving Party before the moment of disclosure (under evidence of reasonable proof or written record of such disclosure);
- becomes publicly available by other means than a breach of the confidentiality obligations by the Receiving Party.

Non-disclosure (confidentiality) agreements

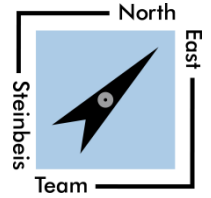


- If **confidential information is revealed** or made public, breaching the terms provided under the agreement, then liability, damages or preventive measures can be claimed.

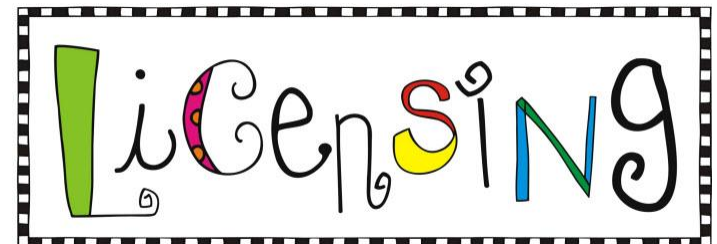


Licensing

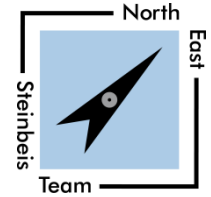
Licensing



- **Licensing** – is a legal transfer of rights for:
 - Making
 - Using
 - Offering for sale
 - Selling
 - Sublicensing
- To generate **revenue**...

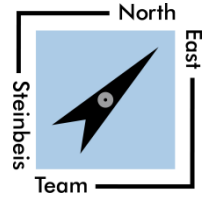


Revenues at Oxford University



<i>Total net revenue</i>	<i>Researchers personally</i>	<i>University General Fund</i>	<i>Department Funds</i>	<i>Isis Innovation</i>
<i>to £72k</i>	<i>61%</i>	<i>9%</i>	<i>0%</i>	<i>30%</i>
<i>to £720k</i>	<i>31.5%</i>	<i>21%</i>	<i>17.5%</i>	<i>30%</i>
<i>over £720k</i>	<i>15.75%</i>	<i>28%</i>	<i>26.25%</i>	<i>30%</i>

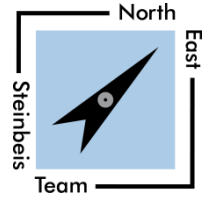
When to use licensing?



Licensing is the most appropriate if:

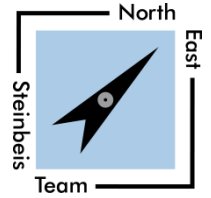
- ✓ it is a niche technology
- ✓ there is a single patent
- ✓ the technology fits an existing company's IP/product portfolio
- ✓ licensing is a common strategy within the industry sector

Types of licenses



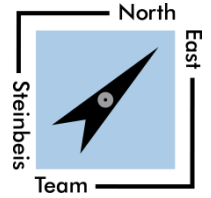
- Exclusive
- Non –exclusive

What can be licensed



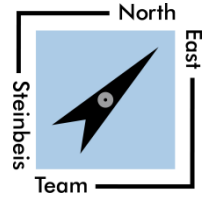
- A patent (invention)
- A technology/ product
- Trademark (logo, names, sounds, smells)
- Knowledge/ know-how/ trade secret” (expertise, protected formulae)
- Copyright (technical manuals, software, specifications, formula, schematics, documentation...)
- A mixture of some or all the above.

License categories



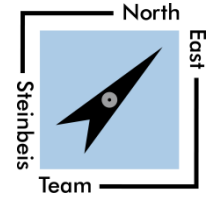
- **Pure IP licence** - right to copy a work.
- **Product or technology licence** – all rights needed to reproduce, make market and sell products

Sub-license



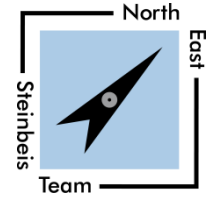
- Sub-licence rights are not automatic and must be included in the agreement, otherwise infringement has occurred.
- Sub-licence terms should flow from main licence.

Licensing agreements



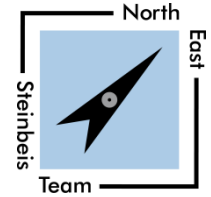
- Definitions
 - what is being licensed?
 - Patent
 - Know how
- Grant of License
 - Extent of your monopoly
 - Exclusive or non-exclusive license.
 - Term
 - Territory
 - Renewal

Licensing agreements



- Payments:
 - Up-front payment
 - % on sale of goods
 - Annual Fixed payments
 - Milestone payment
 - Relating to IP protection costs
 - Schedule

Licensing agreements



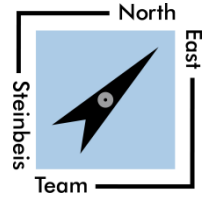
Applicable Law

- Choice of law and language of final agreement affects interpretation of the agreement
- Simple if both parties from same country

Termination

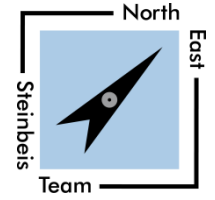
- Fundamental breach of contract
- Publication of confidential information
- Failure to give access to financial records for purposes of calculating royalty returns
- Financial instability
- Need to specify actions in the event of termination

Royalty rates



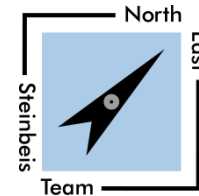
Industry	Average (%)	Median (%)
Automotive	4.7	4.0
Chemicals	4.7	3.6
Computer Hardware	5.2	4.0
Computer Software	10.5	6.8
Consumer Goods	5.5	5.0
Electronics	4.3	4.0
Food	2.9	2.8
Internet	11.7	7.5
Healthcare Products	5.8	4.8
Machines/Tools	5.2	4.5
Pharmaceuticals & Biotech	7.0	5.1
Semiconductors	4.6	3.2
Telecom	5.3	4.7

Discussion

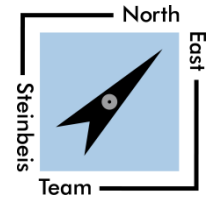


- Analysis of licensing check list

Lambert agreements - licensing

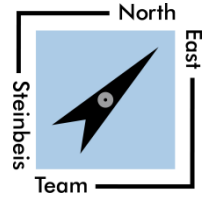


Lambert Model Agreement	Terms	IPR ownership
Agreement 1	Sponsor has non-exclusive rights to use in specified field/territory; no sub-licences	University
Agreement 2	Sponsor may negotiate further licence to some or all University IP	University
Agreement 3	Sponsor may negotiate for an assignment of some University IP	University
Agreement 4	University has right to use for non-commercial purposes	Sponsor
Agreement 5	Contract research: no publication by University without Sponsor's permission	Sponsor



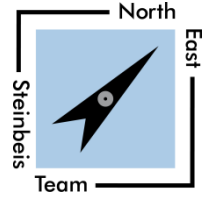
Contractual agreements

The object of COA



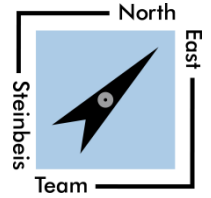
- What is the start date and the end date of the Project?
- If work starts before the agreement is signed, is the agreement to have retrospective effect?
- What resources (human and other) will each party provide? (Is everyone satisfied that there is a complete description of what each party is to do/provide and when? Has this been checked with the researchers?)
- Is the University's contribution to be limited to what the funding provided by the Sponsor and any public funding allows it to do?
- Who are the people who are key to the Project?

Financial Contribution



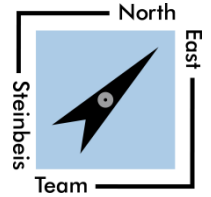
- What financial contribution will the Sponsor make?
- Is this a fixed amount or does it depend on amount spent by University, staff costs etc.?
- What expenditure will the Sponsor reimburse to the University?
- Is the Sponsor paying on a full economic costs or FEC plus profit element basis?
- How frequently will invoices be rendered?
- Is the Project supported by any external funding?
- Are there any terms attaching to that external funding that conflict with what the parties want to do?

Background



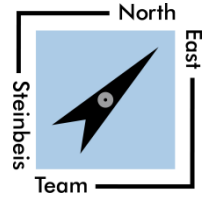
- What Background will each party provide?
- Do other companies in the Sponsor's group need to use the University's Background? If yes, will they agree to keep it confidential?
- Is some or all of the Sponsor's Background confidential?
- May the University's staff and students publish any of the Sponsor's Background?

Results



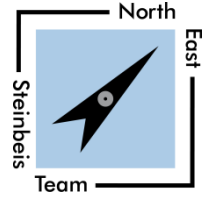
- Which party will initially own the IP in the Results?
- If the University owns the IP will it:
 - allow the Sponsor and its group companies to use that IP
 - in a specific field?
 - In a specific territory?
 - agree to negotiate with the Sponsor to:
 - take an exclusive licence; or
 - take ownership (assignment) of any IP?
- If the University is to grant an exclusive licence to the Sponsor, have the basic terms of that licence been agreed – payment, IP identified, targets, territory, field, duration, reversion?

Results



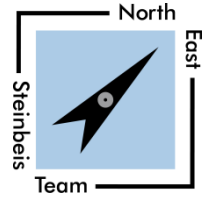
- If the University is to assign any IP to the Sponsor, have the basic terms of that assignment been agreed – payment, IP identified, territory, reversion?
- Have the parties agreed a patenting strategy?
- Will the Sponsor contribute to costs incurred by the University in patenting at the Sponsor's request?
- If the Sponsor owns any IP or has exclusive rights, what rights will the University have:
 - for academic research/teaching/clinical patient care?
 - to use for the Project?
 - other?

Confidentiality and publication



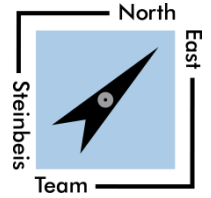
- Is confidential information to be kept confidential indefinitely or for a definite period after the end of the Project? If the latter, what period?
- Is academic use/publication of:
 - Results;
 - Sponsor's Background
- permitted in principle, subject to safeguards?

Liability



- Will either party give any warranty:
 - as to the quality of its contribution or
 - that any IP it contributes or creates will not infringe third party rights?
- Will the Sponsor indemnify the University against any third party claims arising from use of Results/University's Background?
- Is there any financial cap on liability? If yes, what is that cap?
- Is liability for loss of profits, business, contracts etc. to be excluded?

Termination

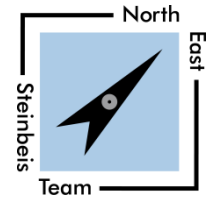


- May either party terminate if a member of the other's key personnel leave/are unable to continue and the replacement is not satisfactory?
- If yes, will the Sponsor still pay reasonable employment costs?

Case analysis:

- „Novartis’s Great Leap of Trust“, a Conversation with Daniel Vasella on How to Attract big companies, HBR





Discussion, Questions?