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# The Founding Angels Concept for the Targeted Foundation of Start-ups

Background, Approach, Examples and Conclusions

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8th Swiss Snow Symposium  
for Young Chemists

Untervaz, February 20, 2010

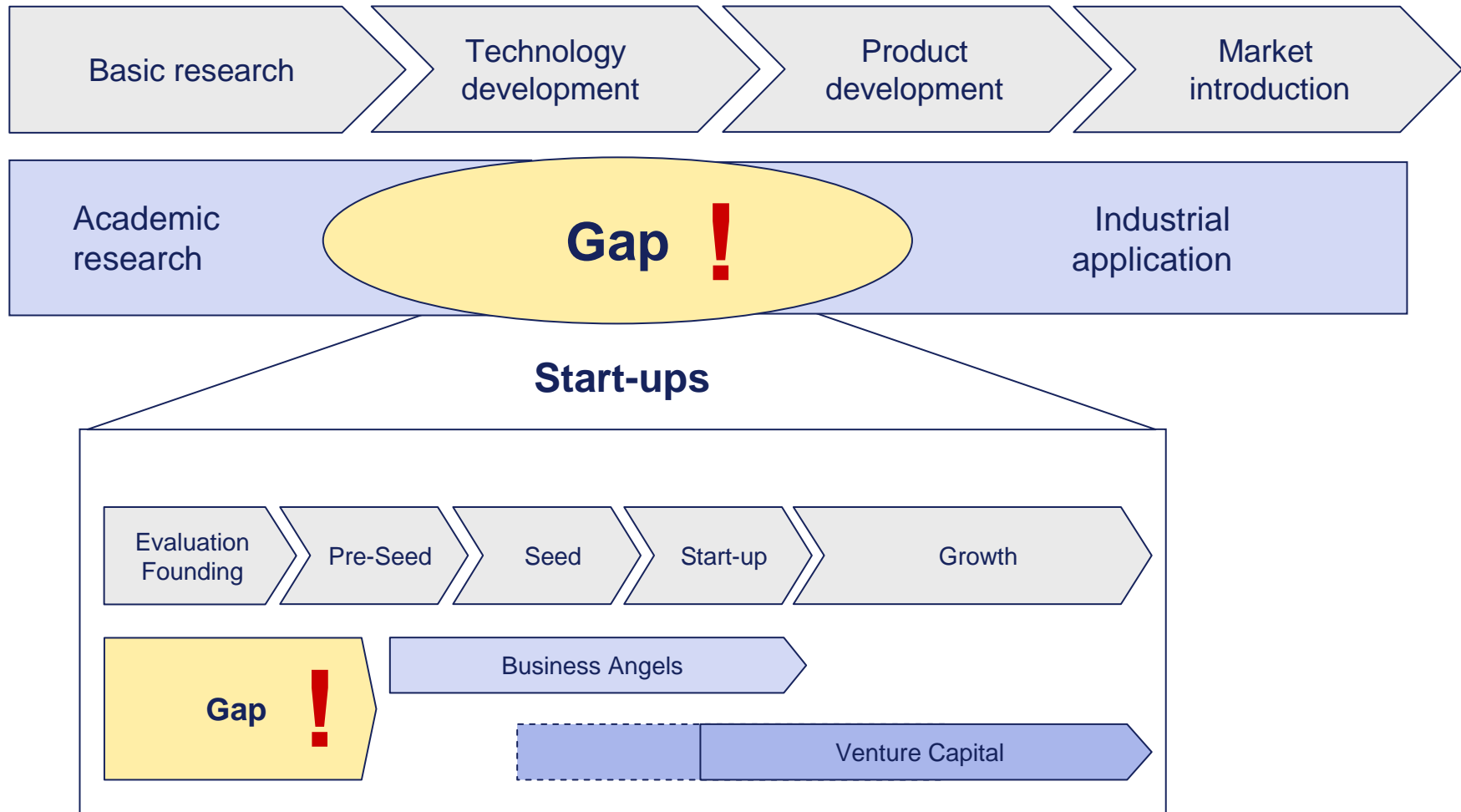
**ETH**

Eidgenössische Technische Hochschule Zürich  
Swiss Federal Institute of Technology Zurich

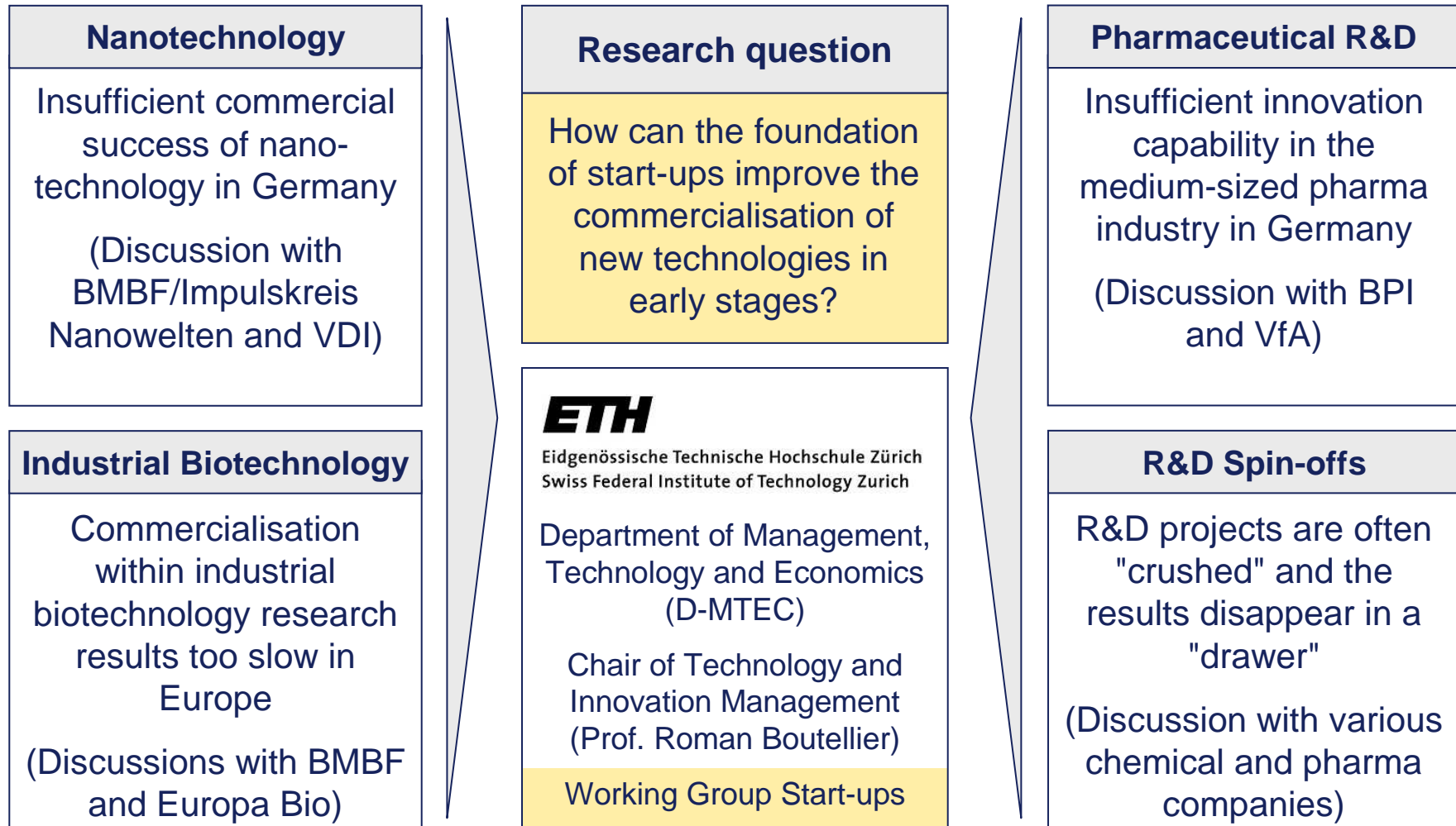
**FESTEL**  
**CAPITAL**  
Creating a Better  
Future

<b>1</b>	<b>Background and Challenge</b>
2	Founding Angels Concept
3	Selected Biotech Examples
4	Experience and Learnings
5	Founding Angels Platform

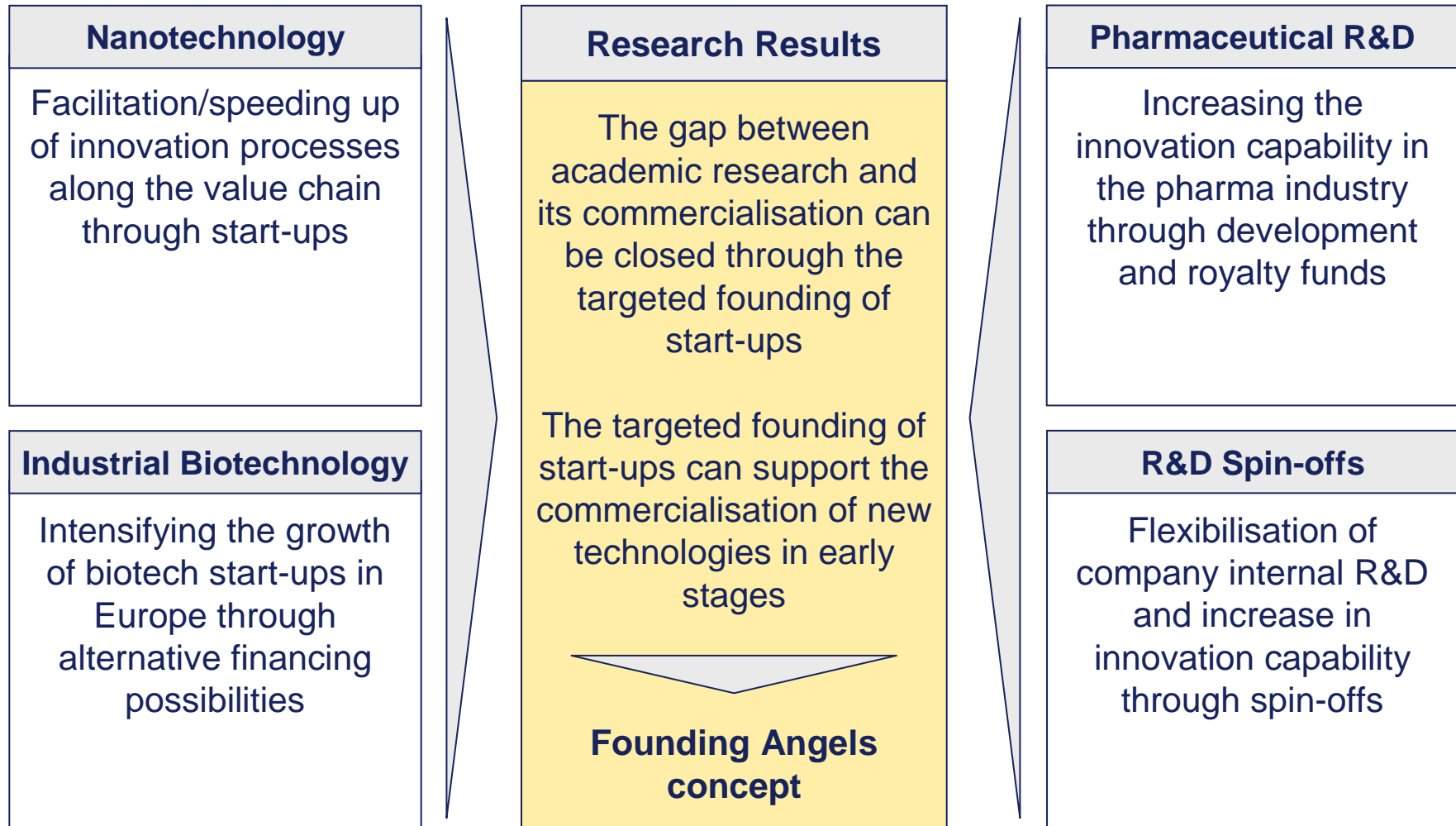
There are two gaps between academic research and the commercialisation of the research results which have to be closed



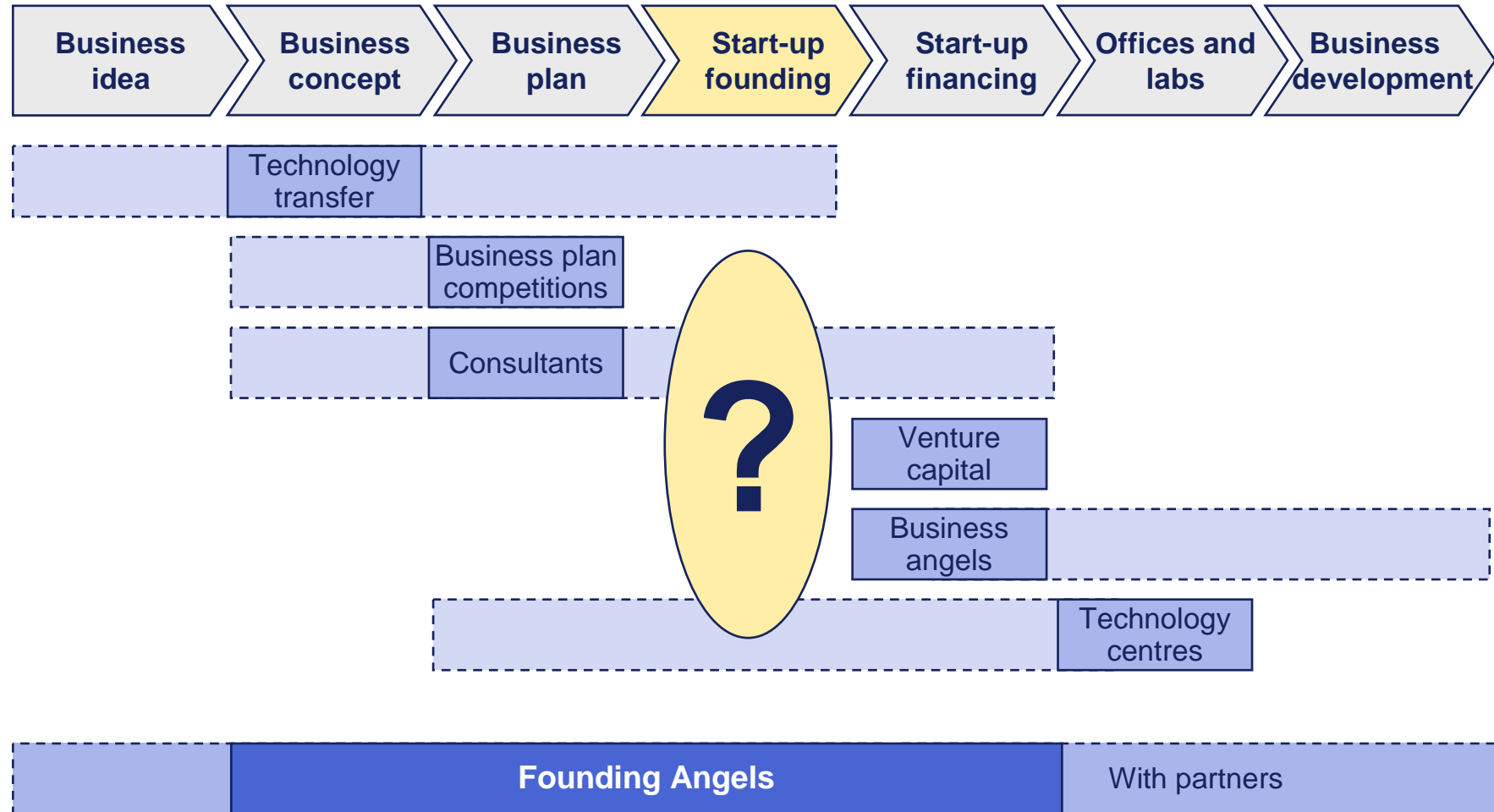
**Current research at ETH Zurich investigated the possibility to close these gaps with new business models**



## Real life examples show that the gaps can be closed by the targeted foundation of start-ups



**Founding Angels are engaged in very early phases and fill the gap between established business models within the start-up area**




There are some examples of the Founding Angels concept in the US, the UK and Israel especially in the area of nanotechnology

<b>Financial sources</b>	<b>Public (stock market)</b>	Advance Nanotech Arrowhead Research Corporation	Angle Technology XL TechGroup
	<b>Private (investment fund, privately-held)</b>	Molecular Manufacturing Enterprises	Arch Venture Partners Precede Technologies Proseed Capital Sanderling Ventures
		<b>Focus on nanotechnology</b>	<b>Broader technological scope</b>
<b>Technological areas</b>			

Very early stage engagement of Founding Angels is based on the right combination of

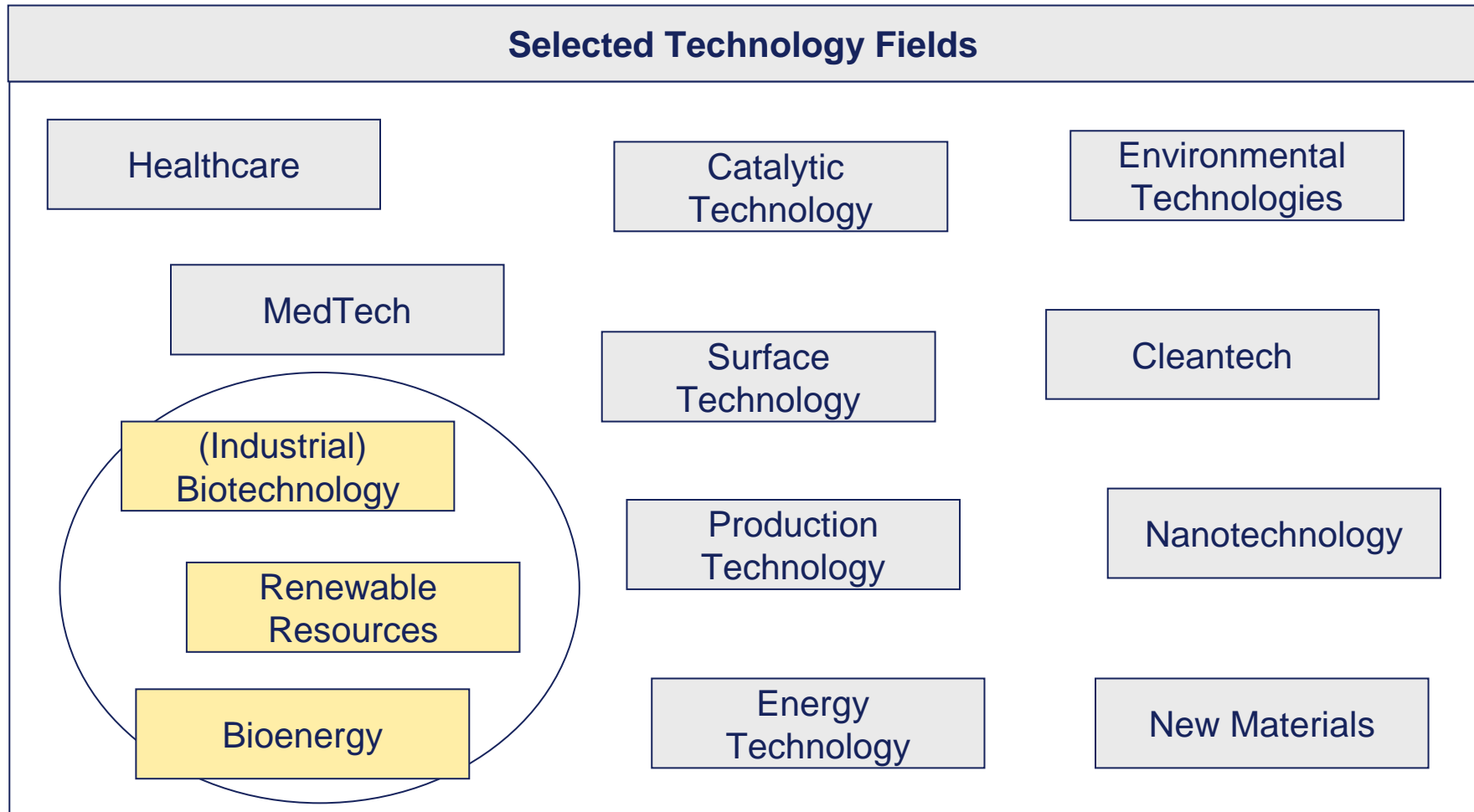
- Scientific understanding
- Business expertise
- Financial independence
- Team building competence
- Willing to take risks

Important: Understanding of all relevant scientific/technical and commercial aspects 

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## Our Founding Angels activities are focused on chemical / lifescience and physics related technology fields

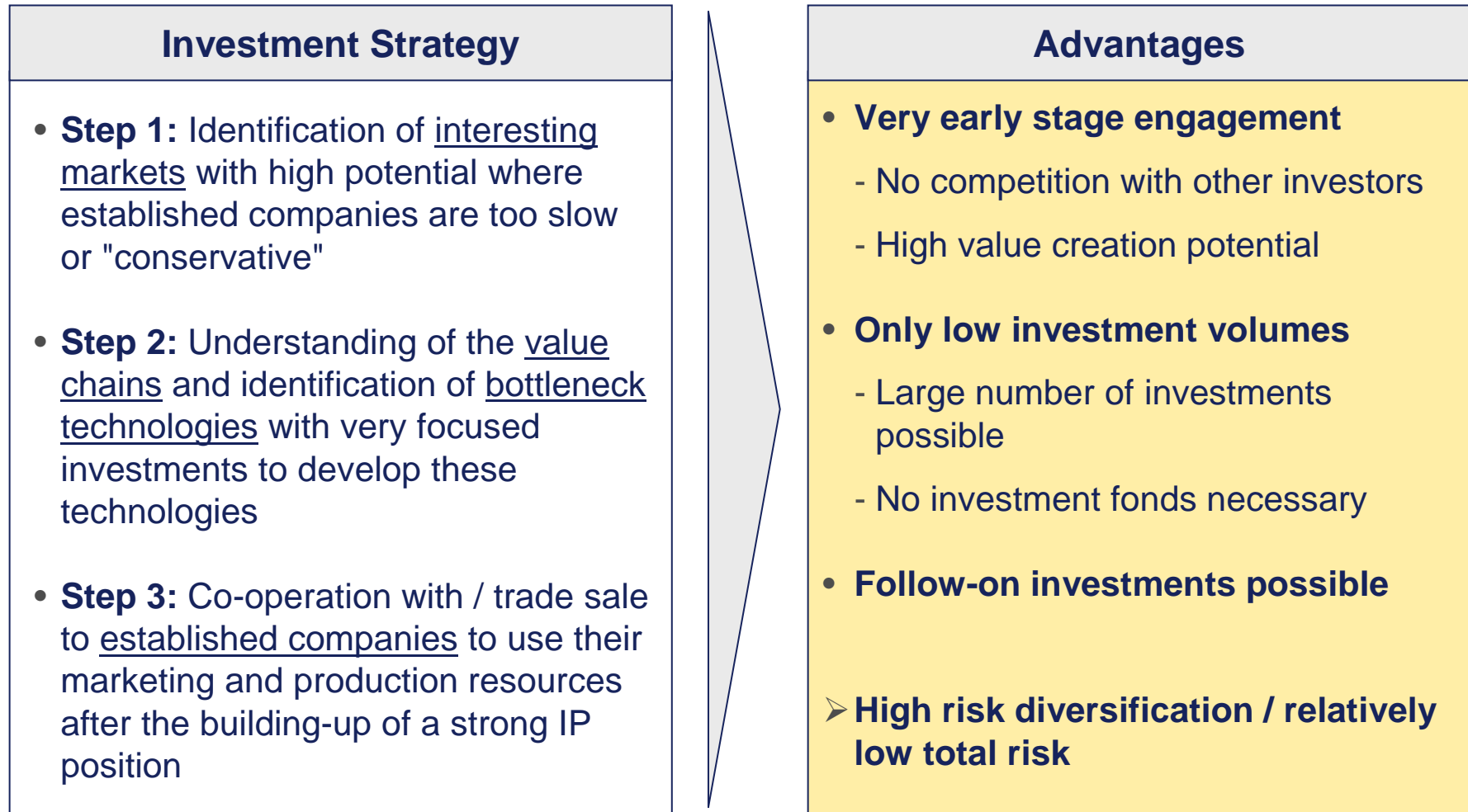


### The definition of clear process phases provides a framework to manage the Founding Angel investments

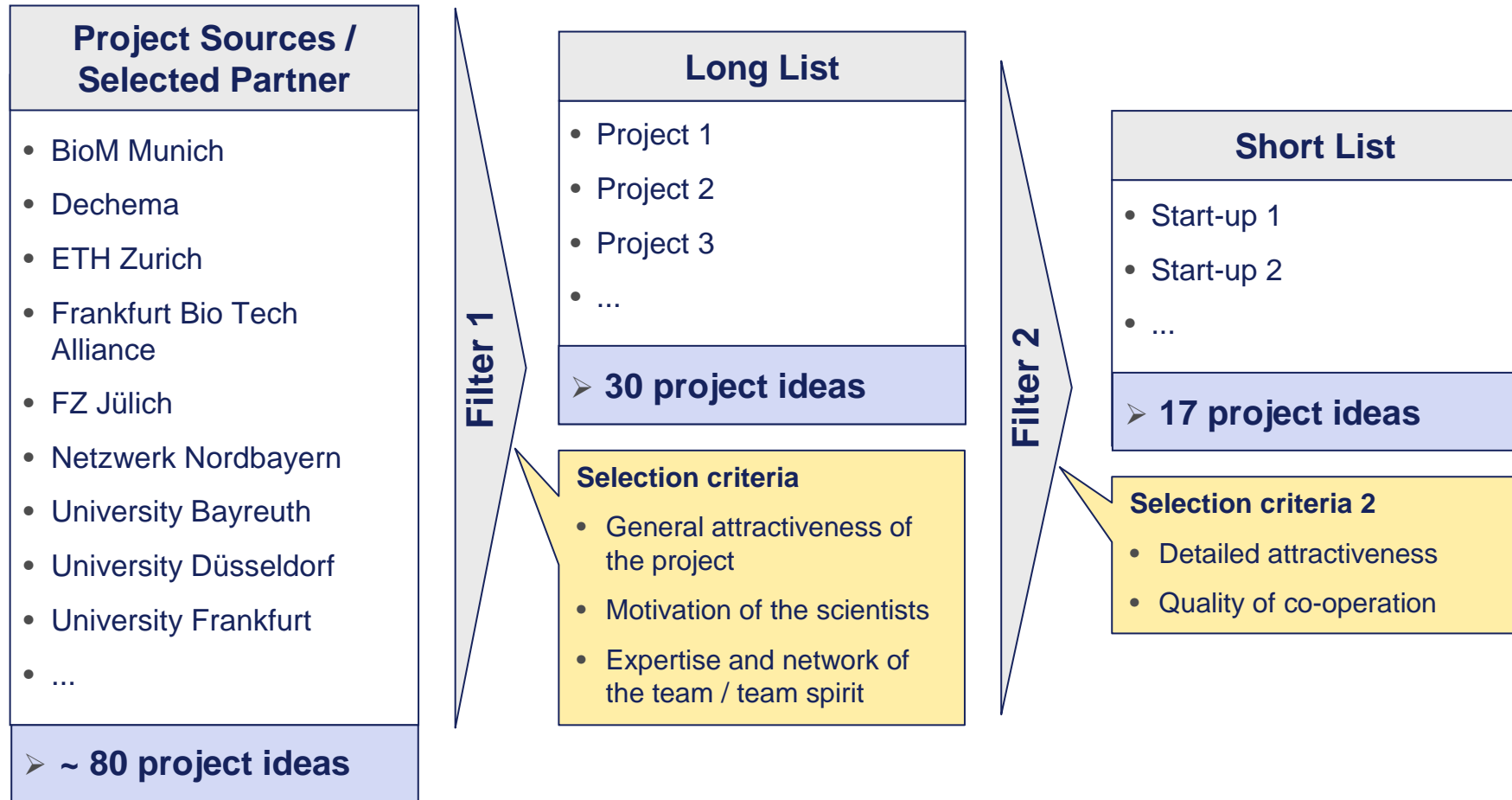
#### Process Phases

- **Phase 1 = Project sourcing:** Project opportunities are sourced and evaluated to identify those which have the highest potential and the best fit
- **Phase 2 = Foundation:** A new company is formed and an agreement is signed with the technology partner (e.g. universities) providing rights regarding the relevant IP and other resources
- **Phase 3 = Company structures:** Effective and efficient company structures are built-up including further R&D work (as a rule done together with the technology partner in the starting phase)
- **Phase 4 = Business development:** Business development is established to find co-operation partners and to generate first revenues
- **Phase 5 = Exit strategy:** An exit strategy is developed and executed to sell the company or its assets within around 5 years to established partners

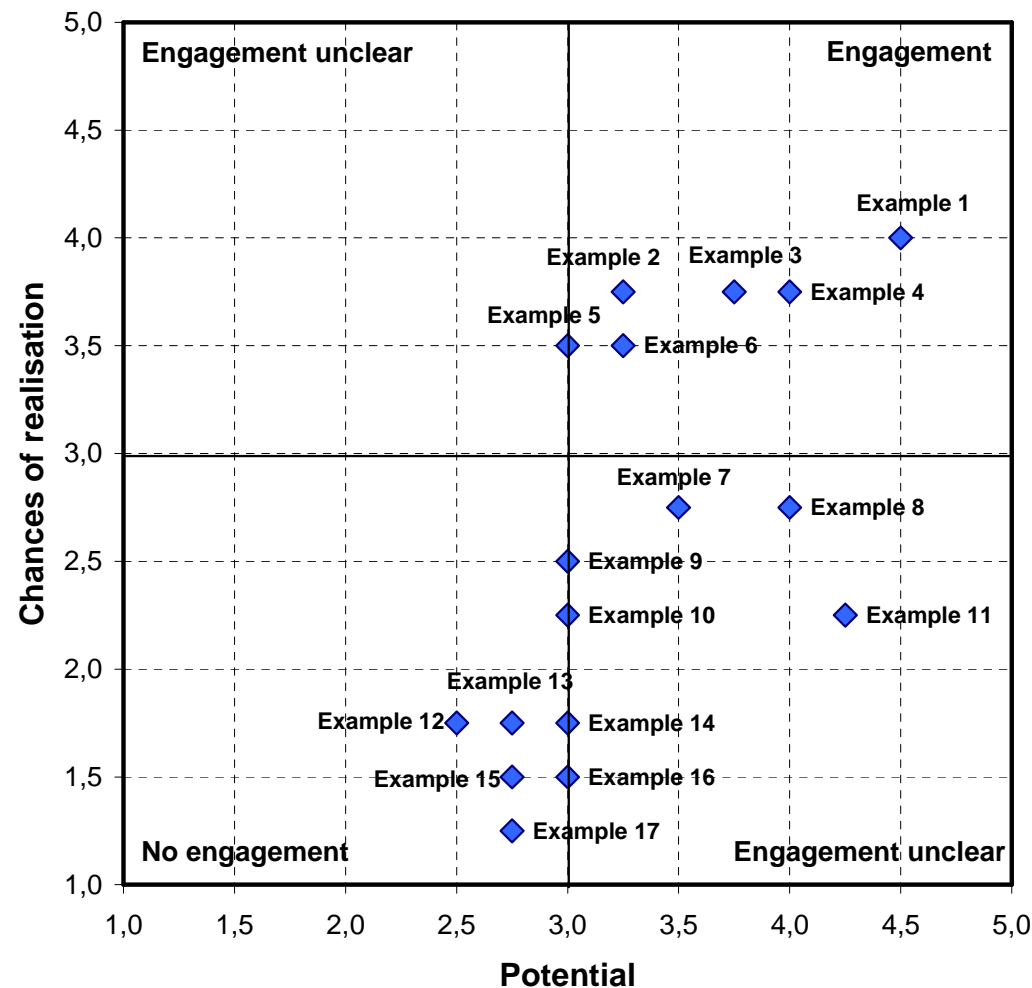
## The Founding Angels investment strategy offers clear advantages due to its uniqueness



## The most attractive projects are identified with a well-structured selection process



We evaluated around 20 projects between 2006 and 2007 and 6 of the most promising projects have been realised

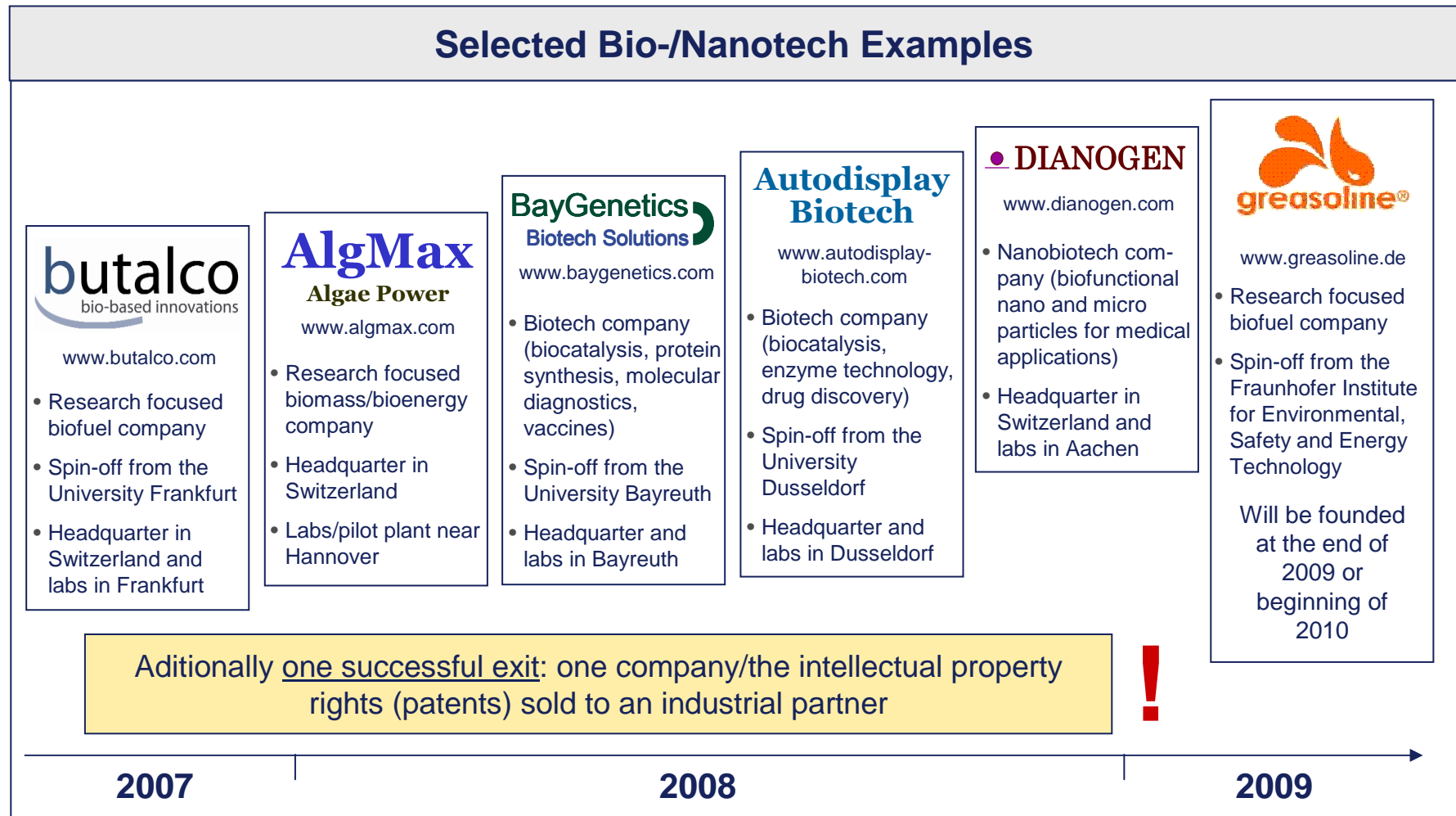


**Examples**

1. Biofuel technology
2. Biotechnology
3. Biomass/bioenergy technology
4. Biotechnology
5. Biofuel technology
6. Nanobiotechnology
7. Drug discovery
8. Molecular diagnostics, biochips
9. Bioactives, functional food
10. Nanomaterials
11. Wellness
12. Chemical compounds
13. Waste water treatment
14. Drug discovery
15. Wound healing
16. Energy technology
17. Hydrogen technology

See next  
chart

### Five companies in the field of biotechnology have been founded over the last two years and an additional company is to be founded by the end of 2009



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## Butalco is focused on the development of second generation biofuels and other bio-based products



Overview
<ul style="list-style-type: none"> <li>• Development and commercialisation of yeast technology to produce second generation biofuels and other bio-based products</li> <li>• Development of technologies in the field of lignocellulose hydrolysis, fermentation technology and downstream processing together with partners</li> <li>• Co-operation with producing companies but no own production facilities planned</li> <li>• Wind energy company Volkswind GmbH as investor</li> </ul>
<p><b>Butalco GmbH, Huenenberg/Switzerland</b> <b>www.butalco.com</b></p>

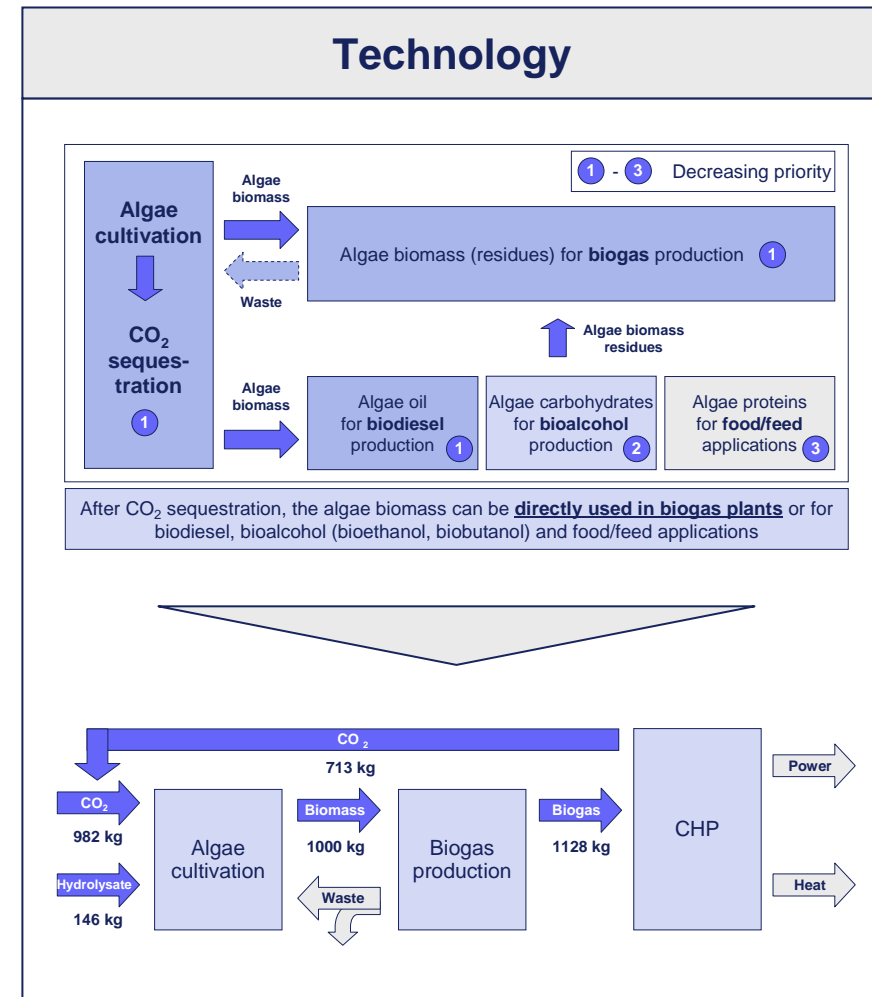
Technology				
<ul style="list-style-type: none"> <li>• Evaluation of other yeast related technologies and development</li> <li>- Bioactives for the pharma and cosmetics industry</li> <li>- Drug screening assays</li> </ul>				
<table border="1" style="width: 100%;"> <thead> <tr> <th style="background-color: #4a7c9c; color: white;">Yeast Technology</th> <th style="background-color: #4a7c9c; color: white;">Biofuel Technology</th> </tr> </thead> <tbody> <tr> <td style="background-color: #ffff00;"> <ul style="list-style-type: none"> <li>• Biofuels                             <ul style="list-style-type: none"> <li>- Bioethanol</li> <li>- Biobutanol</li> <li>- Other Molecules</li> </ul> </li> <li>• Bio-based chemicals</li> <li>• Bioactives</li> <li>• Drug discovery</li> </ul> </td> <td style="background-color: #d3d3d3;"> <ul style="list-style-type: none"> <li>• Production of bioethanol by yeast using C5 sugars</li> <li>• Production of biobutanol by yeast using C5 and C6 sugars</li> <li>• Production of biofuels by other microorganisms</li> <li>• Hydrolysis of lignocellulose</li> <li>• Downstream processing</li> <li>• Fermentation technology</li> </ul> </td> </tr> </tbody> </table>	Yeast Technology	Biofuel Technology	<ul style="list-style-type: none"> <li>• Biofuels                             <ul style="list-style-type: none"> <li>- Bioethanol</li> <li>- Biobutanol</li> <li>- Other Molecules</li> </ul> </li> <li>• Bio-based chemicals</li> <li>• Bioactives</li> <li>• Drug discovery</li> </ul>	<ul style="list-style-type: none"> <li>• Production of bioethanol by yeast using C5 sugars</li> <li>• Production of biobutanol by yeast using C5 and C6 sugars</li> <li>• Production of biofuels by other microorganisms</li> <li>• Hydrolysis of lignocellulose</li> <li>• Downstream processing</li> <li>• Fermentation technology</li> </ul>
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## AlgMax is focused on technologies for the cultivation and usage of algae biomass grown in closed systems

**AlgMax**  
Algae Power

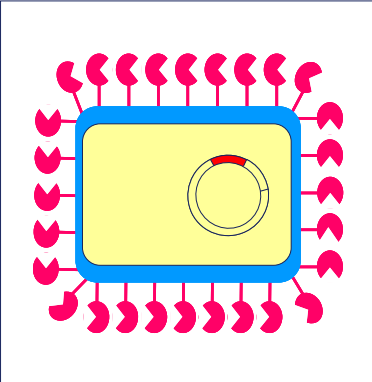
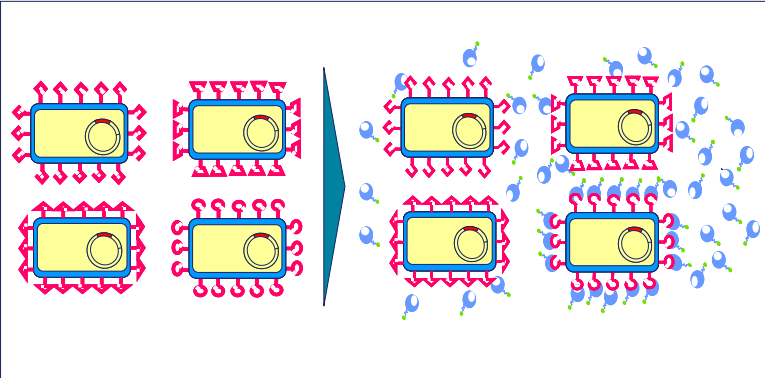
Overview
<ul style="list-style-type: none"> <li>Development, commercialisation and marketing of algae technologies                             <ul style="list-style-type: none"> <li>- CO<sub>2</sub> sequestration through algae cultivation</li> <li>- Utilisation of algae biomass (biogas, biofuel, food/feed applications) together with partners</li> </ul> </li> <li>Build-up of intellectual property (IP) and global licensing business</li> <li>Build-up of a pilot plant in Germany together with a biogas operator</li> </ul>
<p><b>Algmax GmbH, Huenenberg/Switzerland</b> <b>www.algmax.com</b></p>



## Autodisplay Biotech is developing the autodisplay technology for biocatalysis and other applications

## Autodisplay Biotech

Overview
<ul style="list-style-type: none"> <li>• Development and out-licensing of the autodisplay technology                             <ul style="list-style-type: none"> <li>- Biocatalysis</li> <li>- Drug discovery</li> <li>- Bioanalytics (biochips, ELISA)</li> <li>- Antibody development (small protein drugs)</li> </ul> </li> <li>• Production of selected biocatalysts and bioanalytics tools</li> <li>• Service provider for established companies</li> </ul>
<p style="text-align: center;"><b>Autodisplay Biotech, Dusseldorf/Germany</b> <b><a href="http://www.autodisplay-biotech.com">www.autodisplay-biotech.com</a></b></p>

Technology	
Principle	Advantages
	<ul style="list-style-type: none"> <li>• Proteins on the surface                             <ul style="list-style-type: none"> <li>- Immobilised and stabilised</li> <li>- Fully accessible</li> <li>- Dimerisation / aggregation of multi protein complexes possible</li> </ul> </li> <li>• Very easy purification</li> <li>• DNA as internal label</li> <li>• Self replication</li> <li>• Analytics by optical methods (e.g. fluorescence activated cell sorting)</li> </ul>
Screening Technology	
	

## BayGenetics is focused on the development of a *Bacillus subtilis* platform for protein and vaccine production



Overview
<ul style="list-style-type: none"> <li>• Development and out-licensing of own intellectual property (IP)                             <ul style="list-style-type: none"> <li>- Protein production</li> <li>- Biocatalysis</li> <li>- Vaccine development</li> <li>- Molecular diagnostics</li> </ul> </li> <li>• Production of selected biocatalysts and proteins</li> <li>• Service provider for established companies</li> </ul>
<p><b>BayGenetics GmbH, Bayreuth/Germany</b> <b>www.baygenetics.com</b></p>

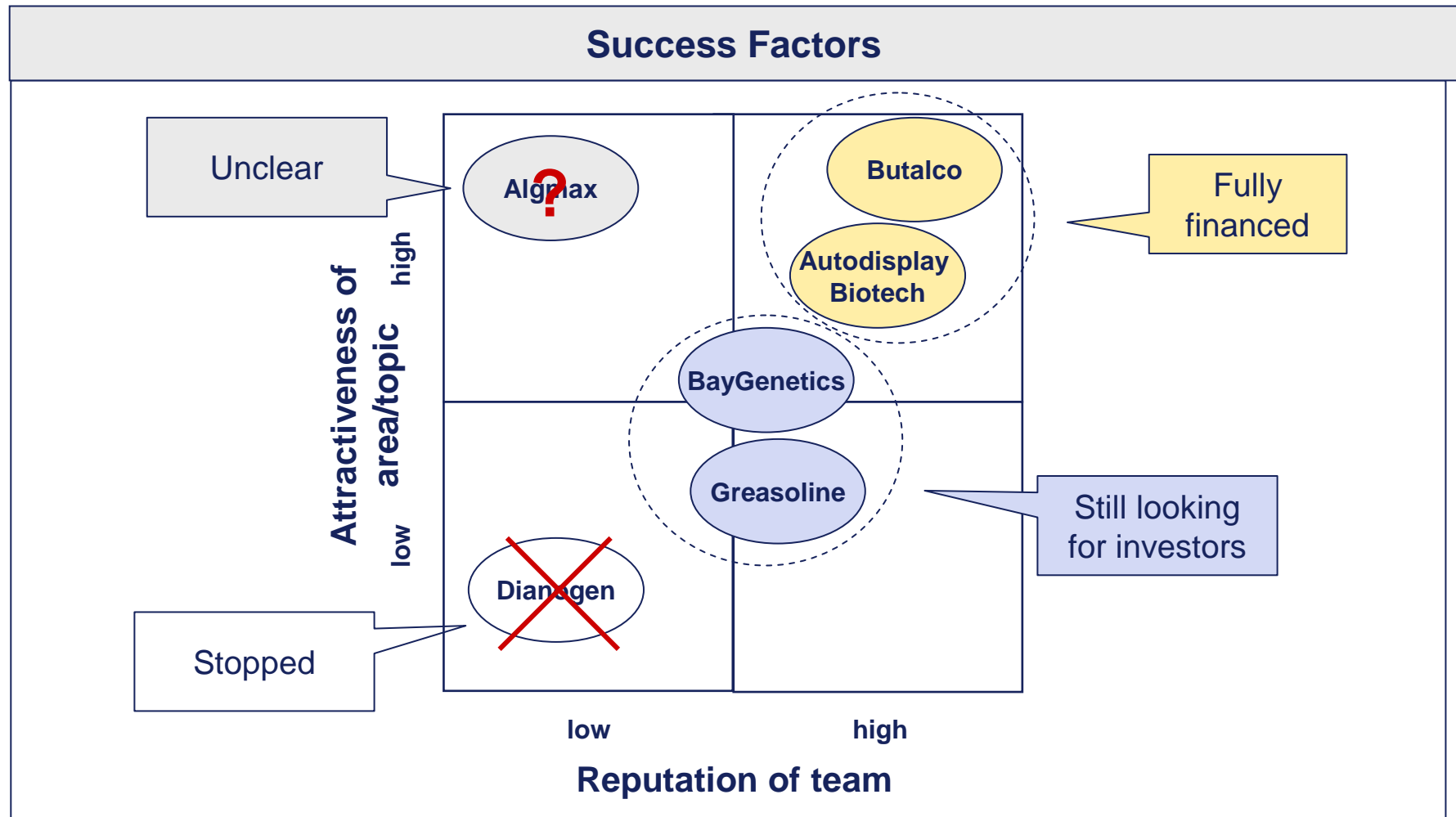
Technology
Technological Synergies
Vaccine Development
<ul style="list-style-type: none"> <li>• Oral uptake of modified endospores containing a model antigen could be shown in mice</li> <li>• Current immunisation efficiency: 50% of tested laboratory animals survived</li> <li>• Uptake of endospores and immunisation efficiency must be optimised</li> <li>• No risk of negative effects due to <i>Bacillus</i> immunisation of animals and humans (<i>Bacillus</i> used as food in Asia)</li> <li>• <b>Potential products:</b> animal vaccines (prevention of diseases caused by viruses, bacteria and protozoa) and human vaccines at a later stage</li> </ul>

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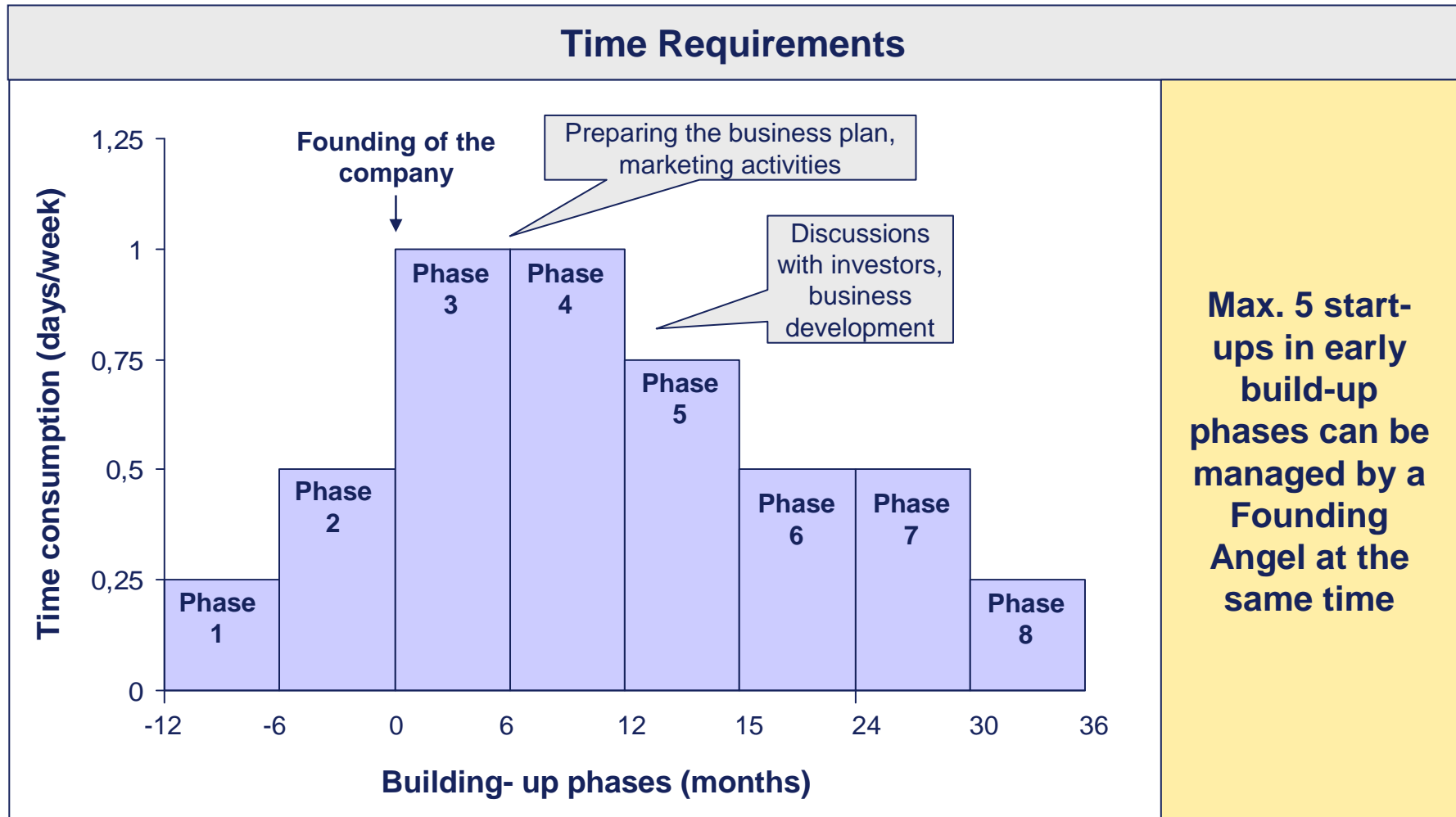
## Our own practise shows that a number of important aspects have to be considered with the Founding Angel's model

Important Aspects	
<ul style="list-style-type: none"><li>• All founders, including the Founding Angel, should receive <u>the same equity share</u></li><li>• The Founding Angel like all other founders should <u>not receive any compensation</u> until the company reaches break-even</li><li>• The Founding Angel should be in a position to give cash injections, if necessary, as shareholder loans (<u>in order not to change the ownership structure</u>)</li><li>• The Founding Angel usually takes on the role as <u>interim CEO</u>, but should hand over the position to a full-time CEO as soon as possible</li><li>• Very important is the "<u>personal chemistry</u>" between the partners (team spirit, team work, respect, trust)</li></ul>	<p>The engagement of a Founding Angel is based on the <u>right combination</u> of ...</p> <ul style="list-style-type: none"><li>• business and start-up expertise/ experiences</li><li>• understanding of all relevant scientific/technical aspects</li><li>• understanding of all commercial implications</li><li>• team building competence</li><li>• willing to take own risks</li><li>• financial independence <b>!</b></li></ul>

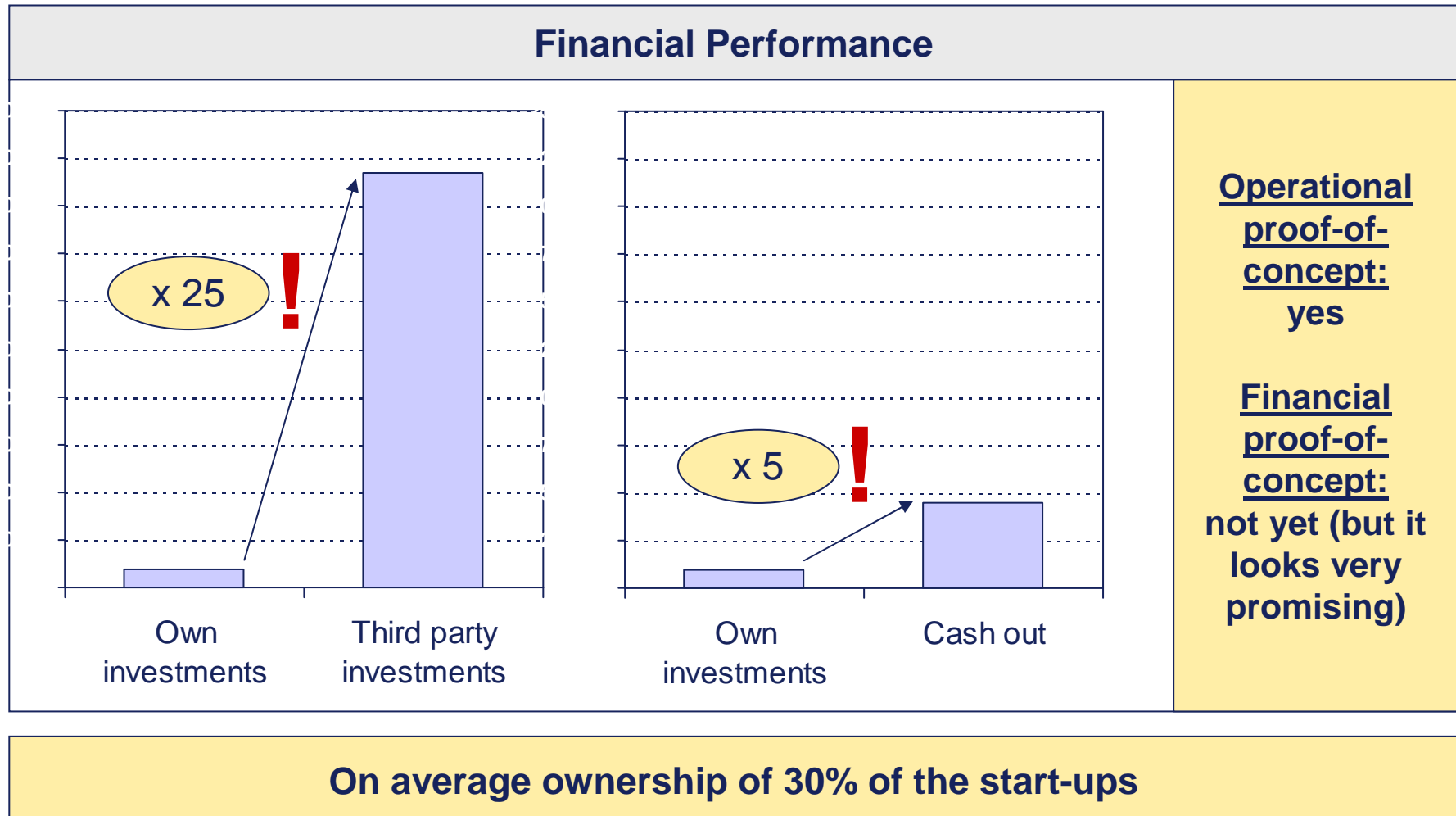
The two most important success factors are reputation of the team and attractiveness of the area/topic



## The engagement as Founding Angel is a full-time job, if more investments are managed



**With small own investments it was possible to recruit significant third party investments and to build-up a 100 times higher book value**





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## The Founding Angels initiative is a non-profit platform to promote the business model

Initiators	Advisory Board	Partners
<ul style="list-style-type: none"> <li>• Prof. Dr. Roman Boutellier, ETH Zurich</li> <li>• Dr. Gunter Festel, FESTEL CAPITAL</li> <li>• Dr. Berndt Samsinger, SE Swiss Equities</li> <li>• Prof. Dr. Dirk Schiereck, European Business School, Oestrich-Winkel</li> <li>• Prof. Dr. Max von Zedwitz, AsiaCompete</li> </ul>	<ul style="list-style-type: none"> <li>• John Cheesmond, Member of the Supervisory Board, Cognis</li> <li>• Walter Groll, Member of the Board of Management, DekaBank</li> <li>• Prof. Dr. Josef Nassauer, Chief Executive, Bayern Innovativ</li> <li>• Dr. Achim Riemann, CEO of International Chemical Investors and previously CEO of Arthur D. Little in Central Europe</li> <li>• Thomas Schäfer, Senior Director New Business Development, Novozymes</li> <li>• Dr. Klaus Warning, Business Angel with c-LEcta and previously Member of the Board at Hoechst Celanese and SGL Carbon</li> </ul>	<ul style="list-style-type: none"> <li>• Best Excellence Rhein-Main </li> <li>• Forseo Freiburg </li> <li>• Fraunhofer UMSICHT </li> <li>• High-Tech Gründerfonds </li> <li>• Life Science Center Dusseldorf </li> <li>• Science4Life </li> <li>• Universität Bayreuth </li> <li>• Universität Düsseldorf </li> </ul>

Please visit [www.founding-angels.com](http://www.founding-angels.com) for further information