

Bewertung von Technologieplattformen in der Biotechnologie

BIO Deutschland

15. CEO & CFO Meeting

Berlin, 5. December 2013

Dr. Matthias Schmusch, Dr. Siegfried Bialojan

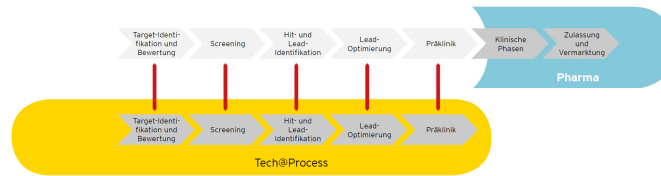


EY

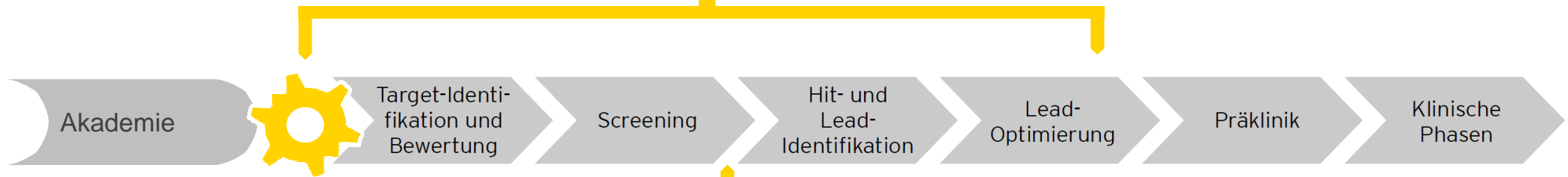
Building a better
working world

Technologieplattformen im Therapiesektor...

... „Enabler“ entlang der Pharma-Wertschöpfungskette



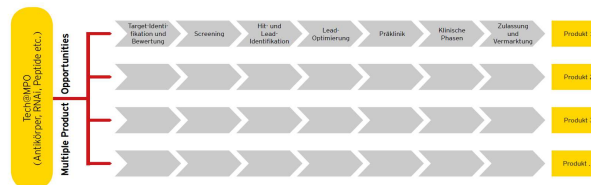
Tech@Process



Tech@Translation

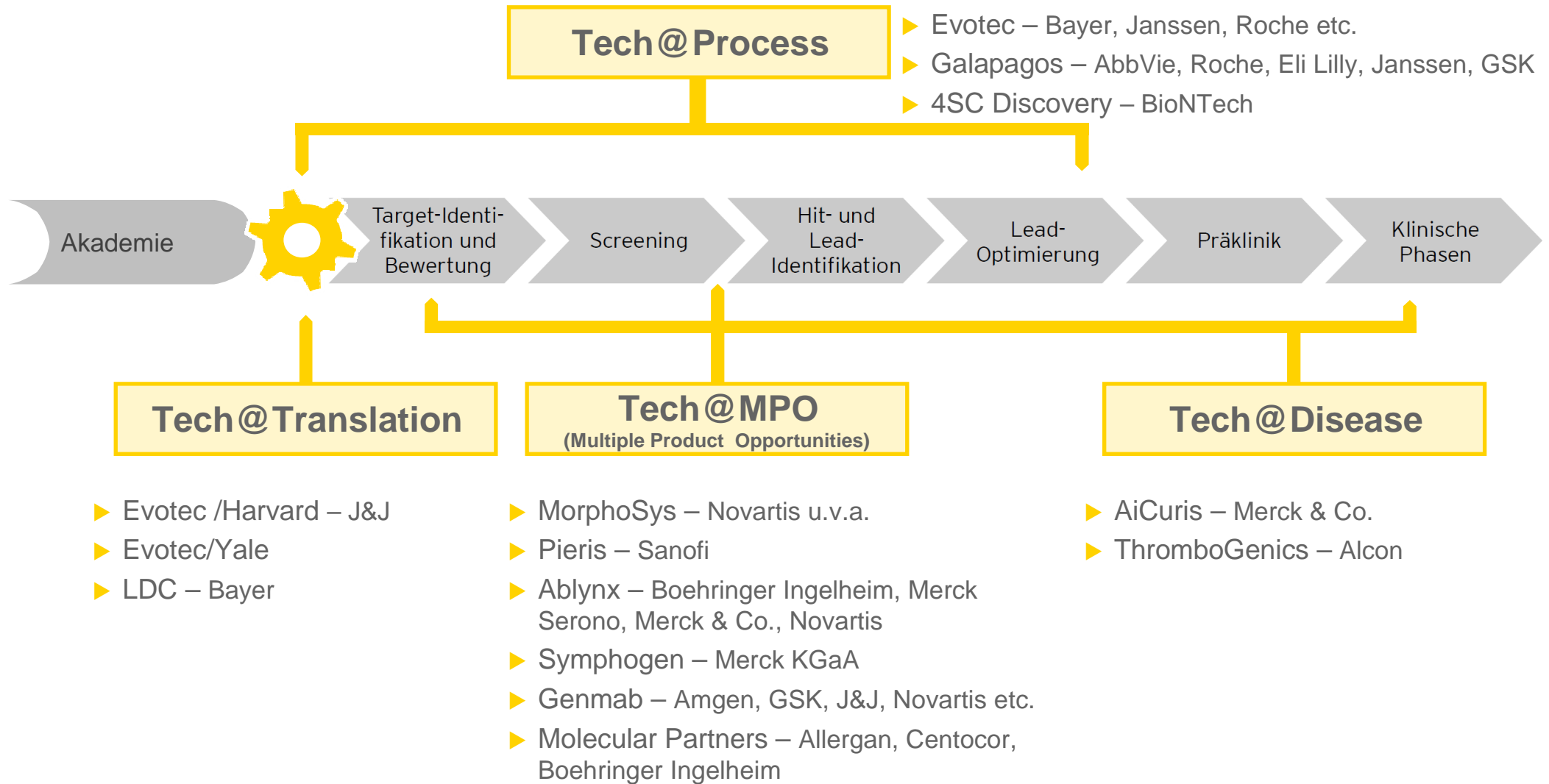
Tech@MPO
(Multiple Product Opportunities)

Tech@Disease



Technologieplattformen im Therapiesektor...

Best Practice und Erfolgsfaktoren: attraktive Allianzen



Kennzahlenanalyse: Allianzen

Technologieplattformen dominieren das Feld der Allianzen (EU)

Tech@MPO

Tech@Proces
s

Tech@MPO

Tech@Proces
s

Tech@MPO

Tech@MPO

Firma	Molecular Partners	Galapagos	Genmab	Evotec	Symphogen	Ablynx
Land	Schweiz	Belgien	Dänemark	Deutschland	Dänemark	Belgien
Partner	Allergan	Abbott Laboratories	Janssen Biotech (Tochtergesellschaft von J&J)	Bayer	Merck KGaA	Merck & Co.
Land	USA	USA	USA	Deutschland	Deutschland	USA
Datum	21. August	29. Februar	30. August	1. Oktober	6. September	2. Oktober
Deal-Fokus	Produkt	Produkt	Produkt	Produkt	Produkt	Technologie/ Produkt
Therapeutischer Status	Präklinik	Phase II	Phase II	Forschung	Phase II	n/a
Krankheitsgebiet	Altersbedingte Makuladegeneration und verwandte Augenkrankungen	Autoimmunerkrankungen (Rheumatoide Arthritis)	Onkologie	Endometriose	Onkologie	n/a
Potenzieller Wert (Mio. €)	1.137,5	1.050,0	882,7	592,0	495,0	456,5
Upfront-Zahlungen (Mio. €)	48,6	116,7	105,0	12,0	20,0	8,5
Meilensteine (Mio. €)	1.088,8	933,3	777,7	580,0	475,0	448,0
Royaltys	zweistellig	zweistellig	zweistellig	zweistellig	ja	ja



Technologieplattformen – industrielle Biotech

...Biokonversionstechnologien für die Stoffumwandlung



Quelle: Ernst & Young, aevotis GmbH, 2013

- ▶ aevotis
- ▶ ASA Spezialenzyme
- ▶ BRAIN

- ▶ c-LEcta
- ▶ Industrial Biotechnology
- ▶ Enzymicals

- ▶ evocatal
- ▶ W42 Industrial Biotechnology

Technologieplattformen – industrielle Biotech

...Erfolgsfaktor attraktive Allianzen

B·R·A·I·N BioArchives
&
BioDiversity

- ▶ BioActives
- ▶ Enzymes & Catalysts
- ▶ Designer Microorganisms

- ▶ BASF
- ▶ Bayer
- ▶ Celanese
- ▶ Clariant
- ▶ Evonik Degussa
- ▶ Genencor
- ▶ Henkel
- ▶ Nutrinova
- ▶ RWE
- ▶ Sandoz
- ▶ Südzucker
- ▶ Symrise

- ▶ evozymes
- ▶ evochemicals für
- ▶ evoservice

- ▶ Textil-
- ▶ Klebstoff-
- ▶ Waschmittel-**Industrie**
- ▶ Lebensmittel-
- ▶ Kosmetik-
- ▶ Baustoff-



- ▶ Implant Coatings
- ▶ Functional Cosmetics für
- ▶ BioSteel

- ▶ Kosmetik-
- ▶ Medizintechnik-**Industrie**
- ▶ Textil-

Valuation of biotech technology platforms

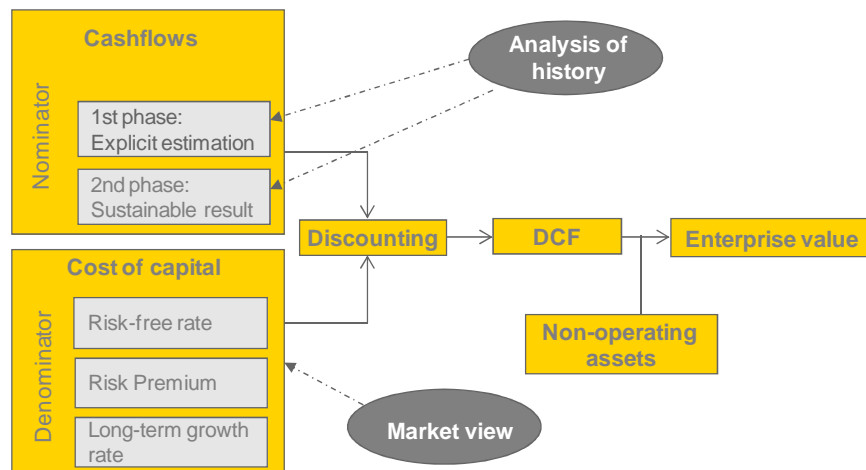
Agenda

- ▶ Thoughts on the specifics of technology platforms
- ▶ Valuation of biotechnology platforms

Basic valuation principles and challenges for startup valuation

▶ Basic principle/theory

The value of a business shall be based on the value of future economic benefits, and not based on the value of its existing assets



▶ Valuation Methods in practice

- ▶ Market approach (stock price, market multiples, transaction multiples)
- ▶ Income approach (DCF and similar methods)
- ▶ Cost approach

▶ Challenges for platform technology valuations

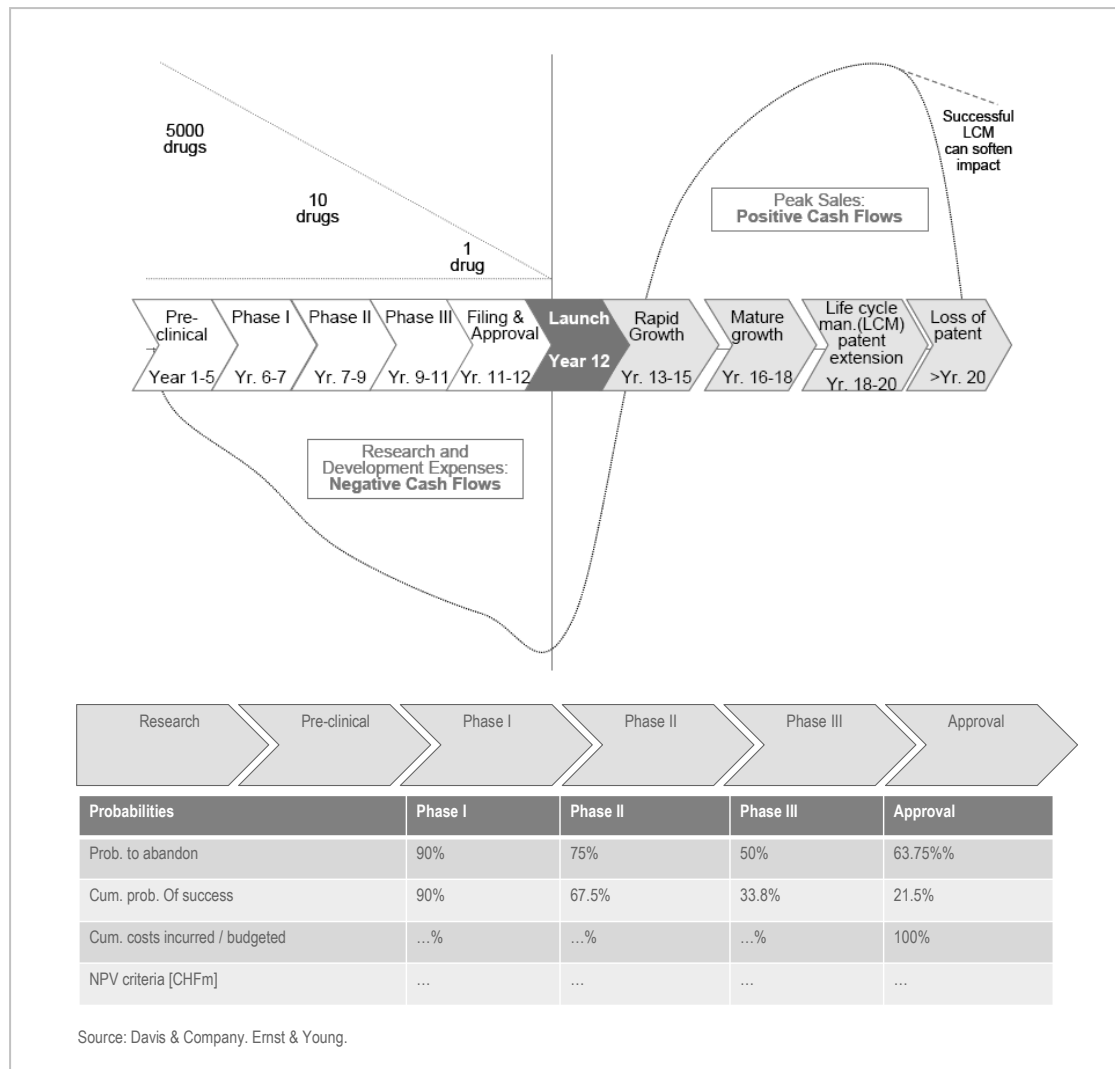
- ▶ Early stage of evolution
- ▶ Multiple product outcomes possible
- ▶ No revenues for new applications
- ▶ No history of financial performance
- ▶ Negative Cash Flows
- ▶ Financing needs for growth funding
- ▶ Risks and opportunities are difficult to evaluate
- ▶ Peer group based approach is difficult to realize
 - Highly subjective uniqueness
 - Different portfolio stages

Valuation models by stage

	Stage 1	Stage 2	Stage 3	Stage 4
	Research	Development	Emerging profitability	Growth profitability
Stage characteristics				
Profitability	Loss making	Loss making	Emerging profitability	Full profitability
Stage of R&D	Research business	Development Stage	Post Launch/reinvestment	Maturity
Activity	Platform / Res	Development	Commercialisation	Maximisation of market share
Investment phase	Investment phase: Research	Investment phase: Development	High growth phase	Lower growth phase
Portfolio	Preclinical to phase I	Preclinical to phase III		
Valuation methods				
DCF single projection	10%	50%	60%	75%
DCF multiple scenarios/simulation	45%	70%	80%	90%
Comparable transactions - financial multiples	10%	30%	50%	70%
Comparable listed companies - financial multiples	10%	30%	50%	70%
Comparable transactions - operational/pipeline multiples	30%	50%	60%	60%
Comparable listed companies - operational/pipeline multiples	30%	50%	60%	60%
Investment cost analysis	55%	25%	10%	5%
Investor Exit IRR	30%	35%	30%	20%

Source: Ernst & Young European Biotech Center Mannheim; various sources

In-depth future scenario modelling as the core of valuations. Example: Red Biotech



Business Plan Modelling

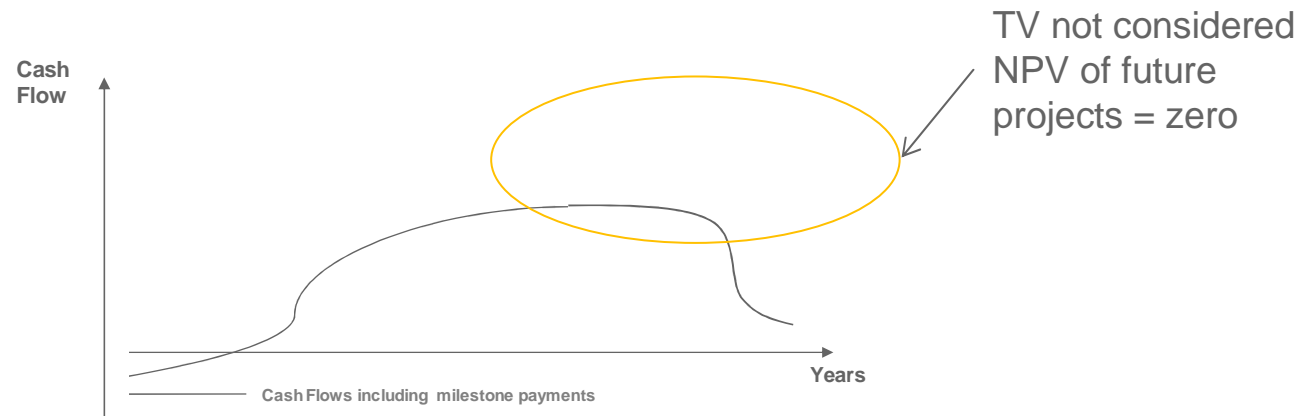
- ▶ Build scenarios for future market volumes and time to peak period
- ▶ Derive different market share options
 - ▶ Life cycle model
 - ▶ Peak sales
 - ▶ Relevant applications
 - ▶ Up-side potentials, e. g. off-label use
 - ▶ Global rollout vs. selective countries
 - ▶ Product-specific growth rates
 - ▶ Pricing strategy
 - ▶ Macroeconomic risks
- ▶ Probability weight the outcomes
- ▶ Assume normalized income margin
- ▶ Calculate costs to complete

Some thoughts around Terminal Value

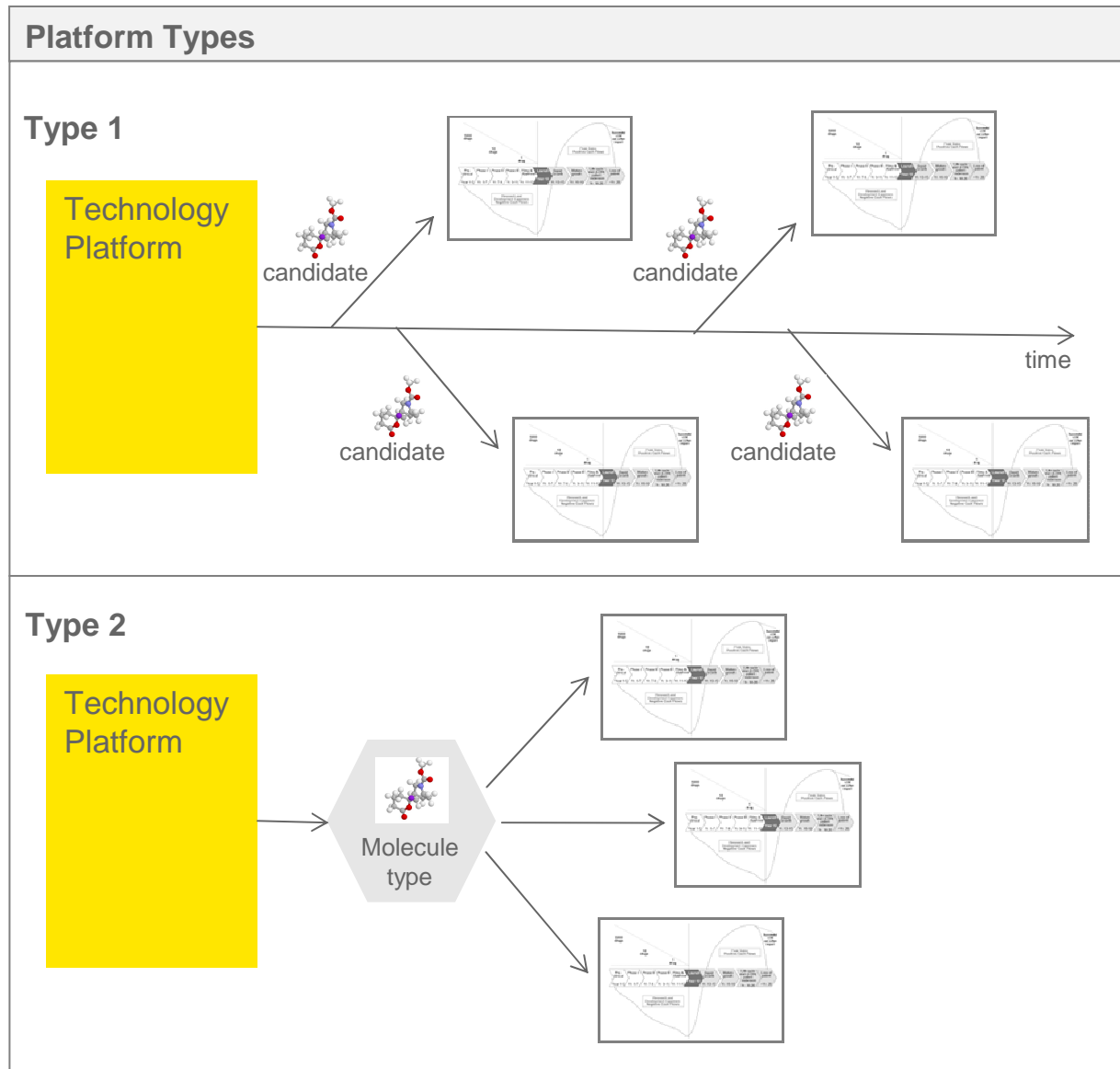
- ▶ In general, the going concern assumption requires to compute a terminal value to account for the value of future projects



- ▶ In start-up valuation, the terminal value is often neglected due to the complete uncertainty around the development of the business model. Thus, the NPV of future projects is assumed to be zero

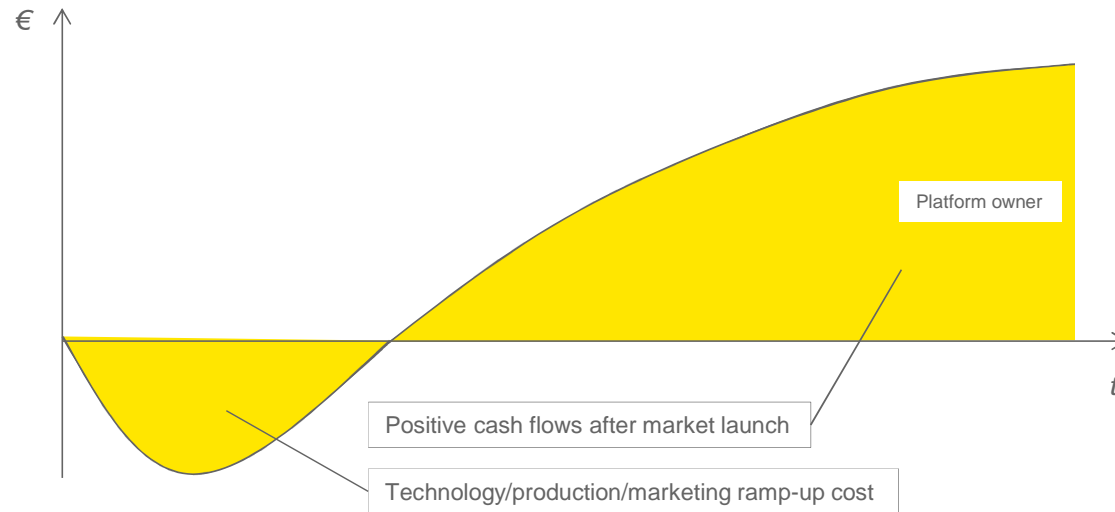


Biotech platform valuation



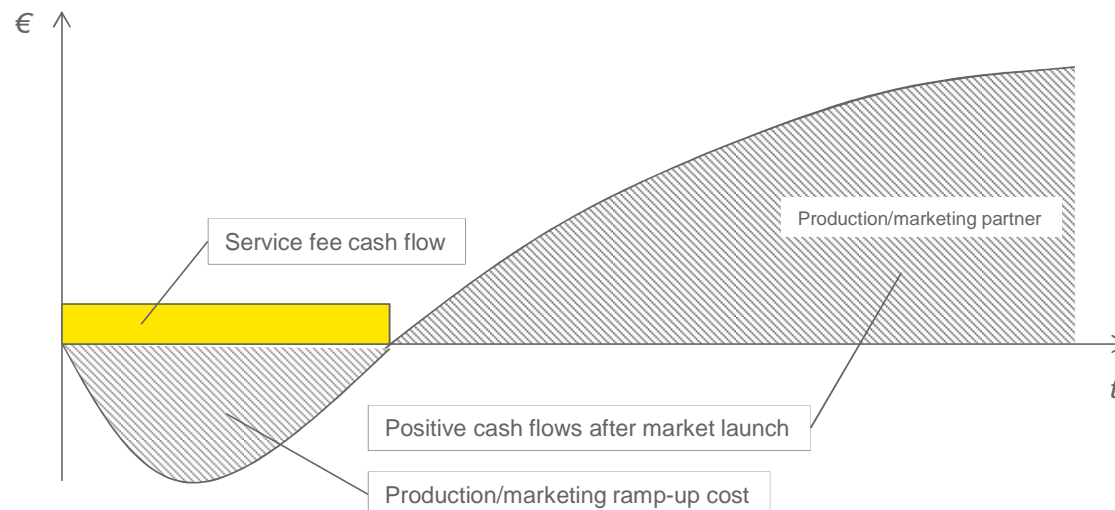
- ▶ Platform valuation goes far beyond traditional early stage valuation
- ▶ As a main issue we see that platform technologies are – in general – able to produce candidates for a large number of (unknown) indications (type 1) or the molecules identified could itself be commercialized in a number of applications (type 2)
- ▶ To handle complexity, the valuation has to be split into two different point of views:
 - ▶ Relevant Applications view: evaluate the indications the buyer is interested in
 - ▶ Holistic view: Compute scenarios for different types of applications, limited only by time (discounting effect), management capacity (ability to negotiate project successful within a given time frame), and investment funds
- ▶ For White Biotech, the valuation focus lies on „outlets“ of technology application

Valuation basis: platform business models (1)



The full risk model

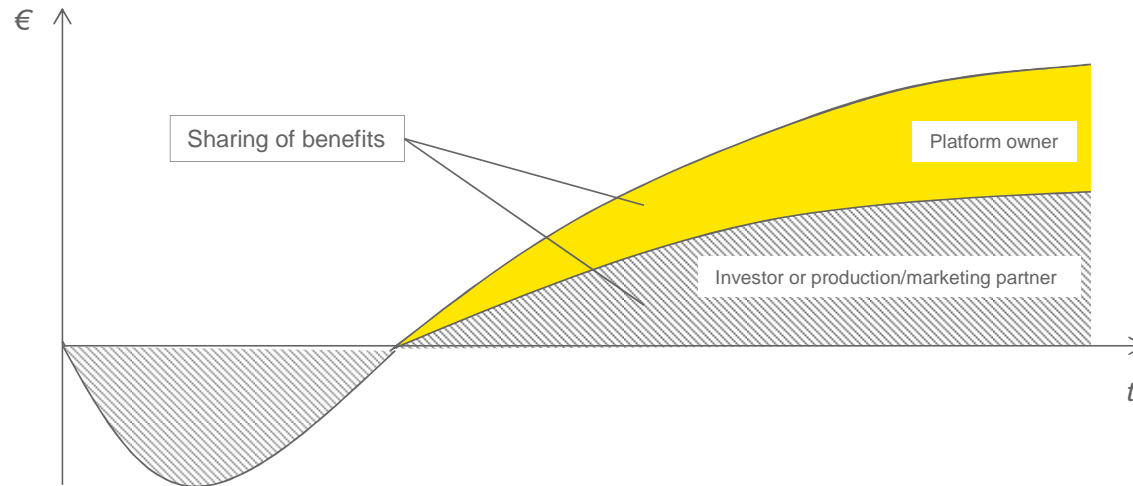
- ▶ Platform owner bears initial cost and is attributable to the full economic return
- ▶ Often not realistic due to capital constraints



The traditional service model

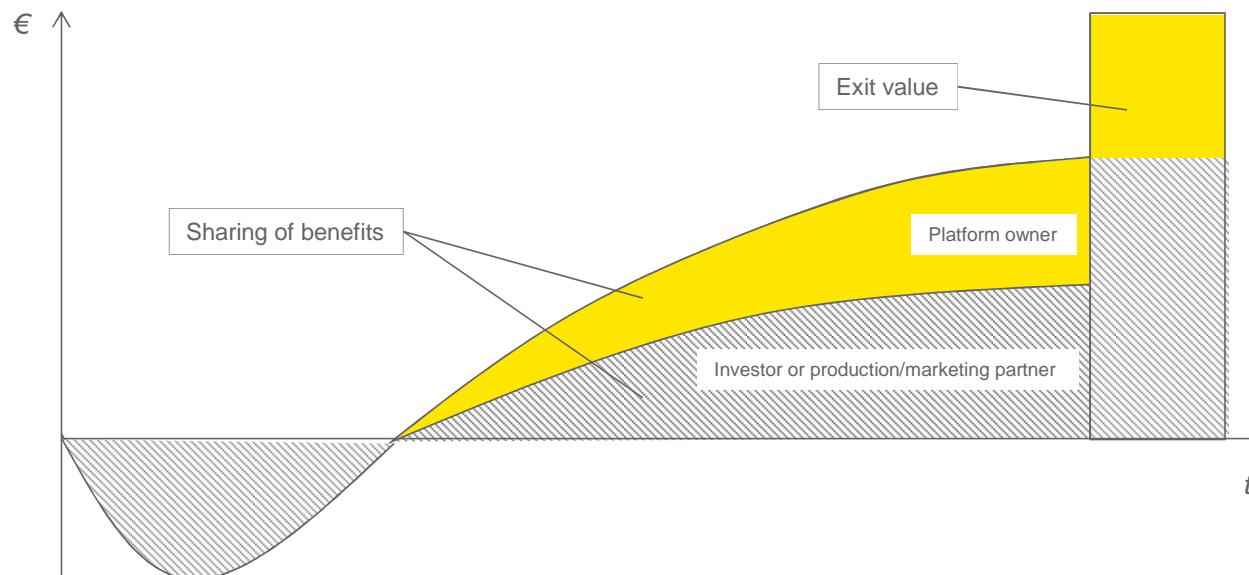
- ▶ Revenue to platform owner is limited to a fixed service fee
- ▶ Entrepreneur bears initial cost and is attributable to the whole economic gain

Valuation basis: platform business models (2)



The investor/entrepreneur model

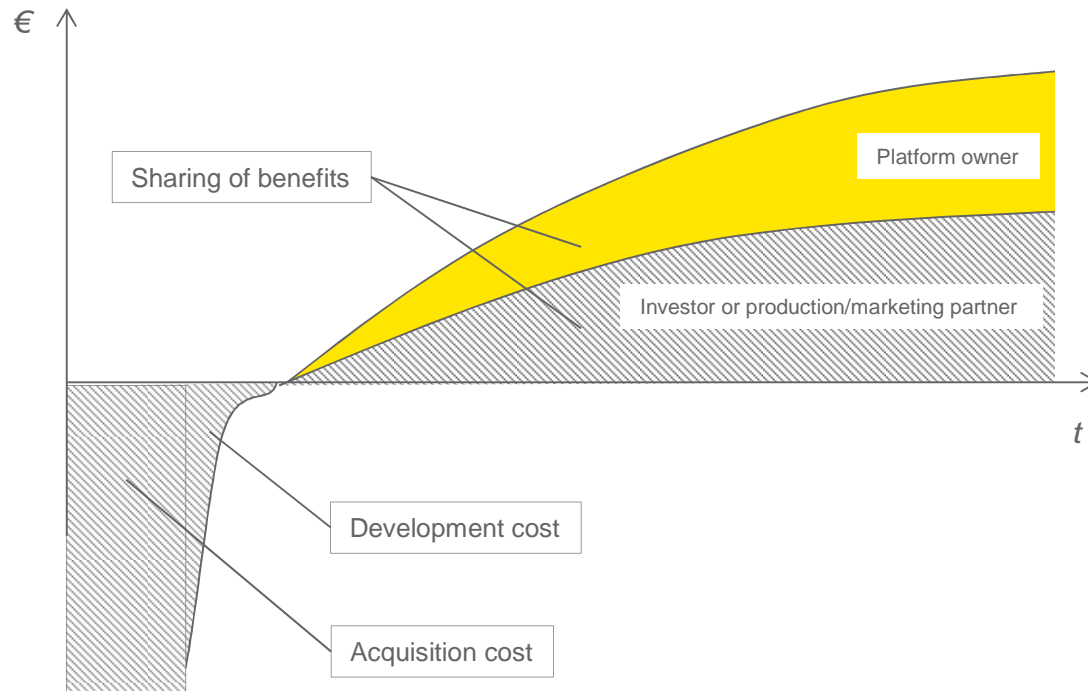
- ▶ Entrepreneur bears initial cost and is attributable to a large portion of the economic gain
- ▶ Platform owner gets rewarded after successful market launch
- ▶ The business continues as a going concern



The Venture capital model

- ▶ Entrepreneur bears initial cost and is attributable to a large portion of the economic gain
- ▶ Platform owner gets rewarded after successful market launch
- ▶ After a hold period, the investment is terminated by an exit process

Valuation basis: platform business models (3)

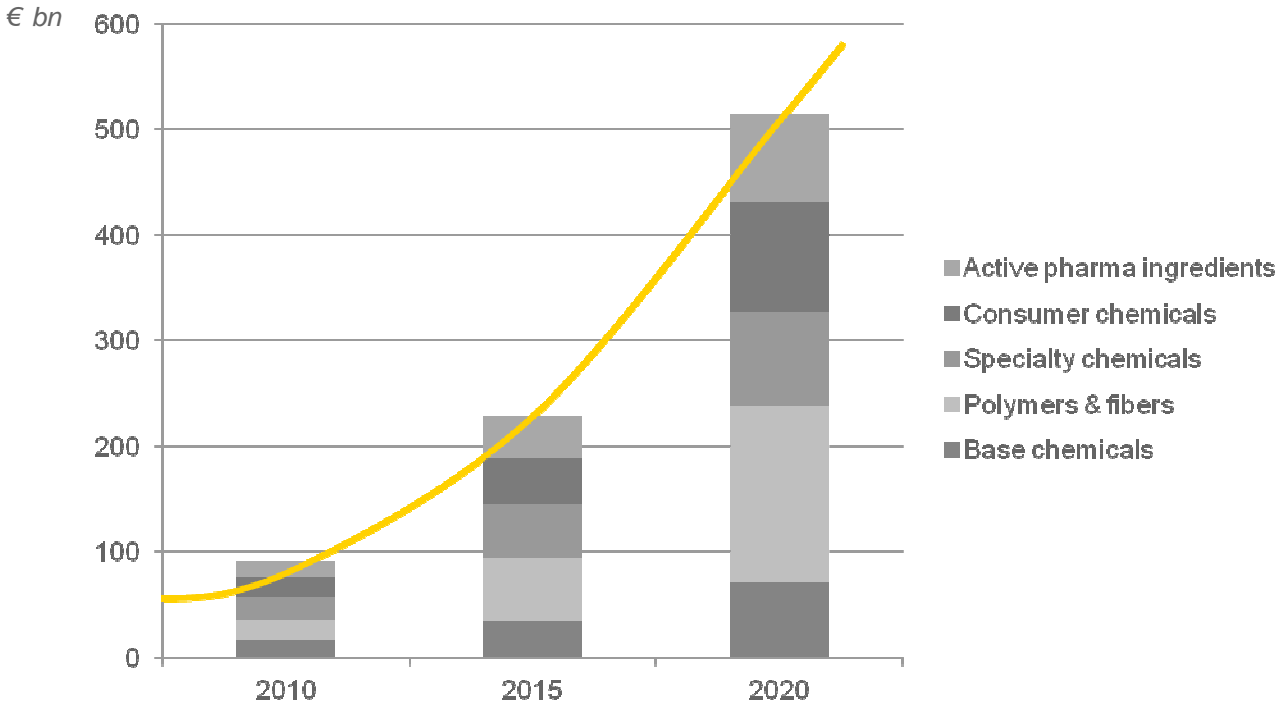


The M&A model

- ▶ Existing producer/market access is acquired
- ▶ Entrepreneur bears initial cost and is attributable to a large portion of the economic gain
- ▶ Platform owner gets rewarded after successful market launch
- ▶ The business continues as a going concern
- ▶ Significant time savings can be realized (at higher cost)

Estimating the total market potential

White Biotech sales development estimate (w/o biofuels)

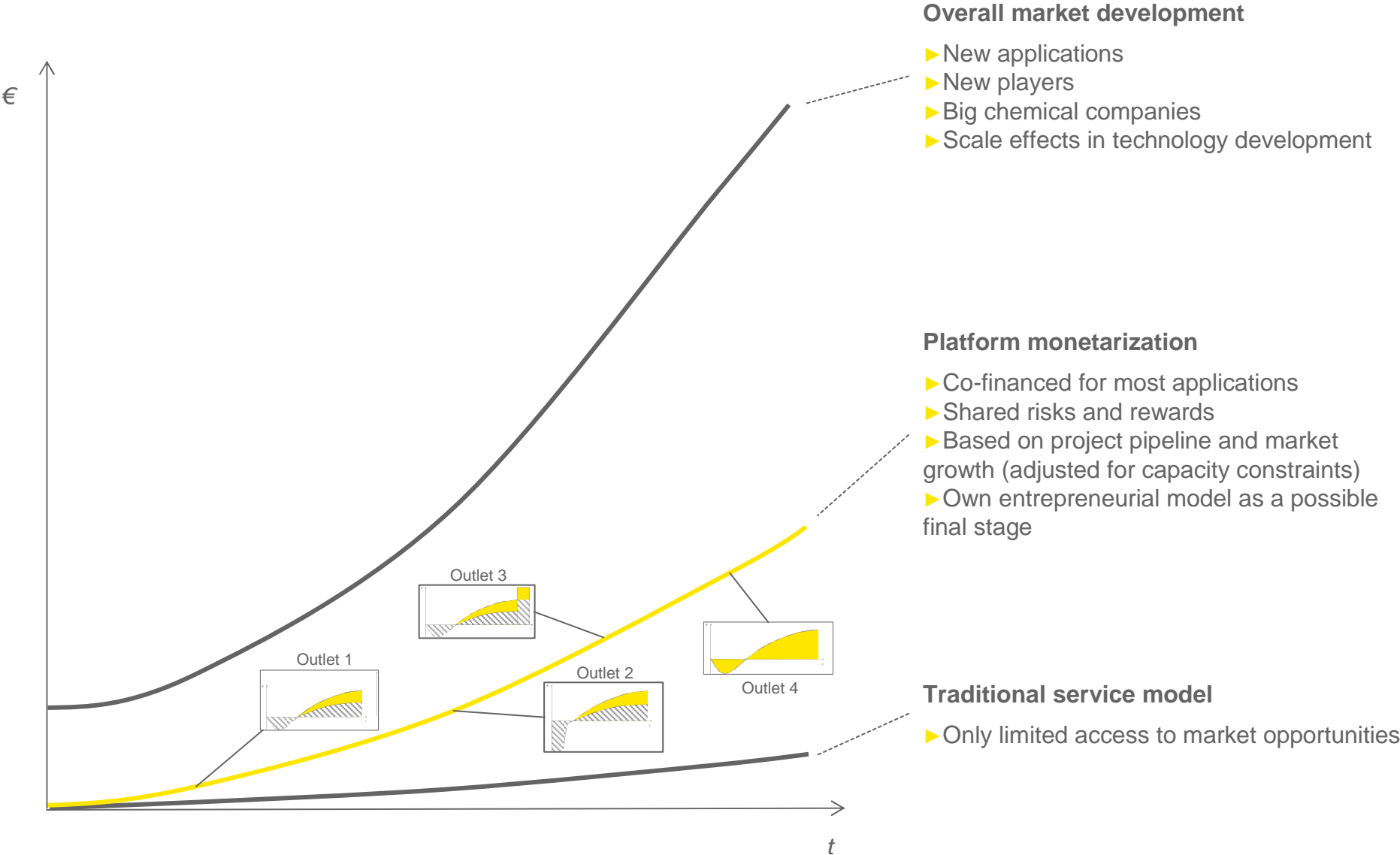


Source: Festel, R.; Detzel, C.; Maas, R.: *Industrial Biotechnology – Markets and industry structure*, *Journal of Commercial Biotechnology*, Vol. 18 (2012), No. 1

Market estimate

- ▶ An estimate of the overall market volume is necessary as a starting point for the valuation
- ▶ The market expansion curve serves as a guideline for the platform revenue development

Estimating the relevant market share



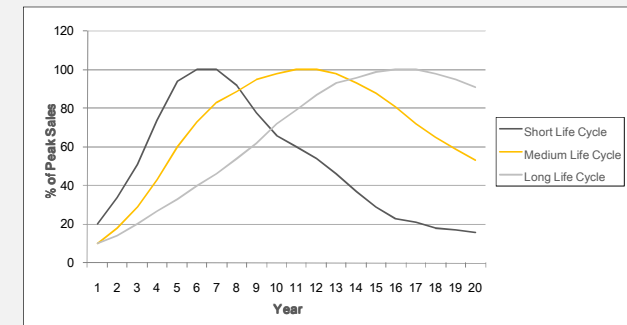
Valuation worksteps in detail

Key worksteps

- ▶ Identification of target outlet markets
- ▶ Development of market and cost model for the individual outlets
- ▶ Consider different outlet types
- ▶ Estimate financing needs for typical outlets
- ▶ Estimate financing costs over time (decreasing with increasing company size)
- ▶ Calculate investor rate of return
- ▶ Determine available management and R&D capacity
- ▶ Link outlet growth to market growth
- ▶ Calculate residual cash flows for individual outlets and future „blue sky“ outlets based on market growth
- ▶ Consider probability weighting
- ▶ Discount after-tax cash flows with a the appropriate Weighted Average Cost of Capital, based on blended target market risk
- ▶ Develop terminal value scenario based on long-term perspectives for the industry as a whole.

Market and cost model

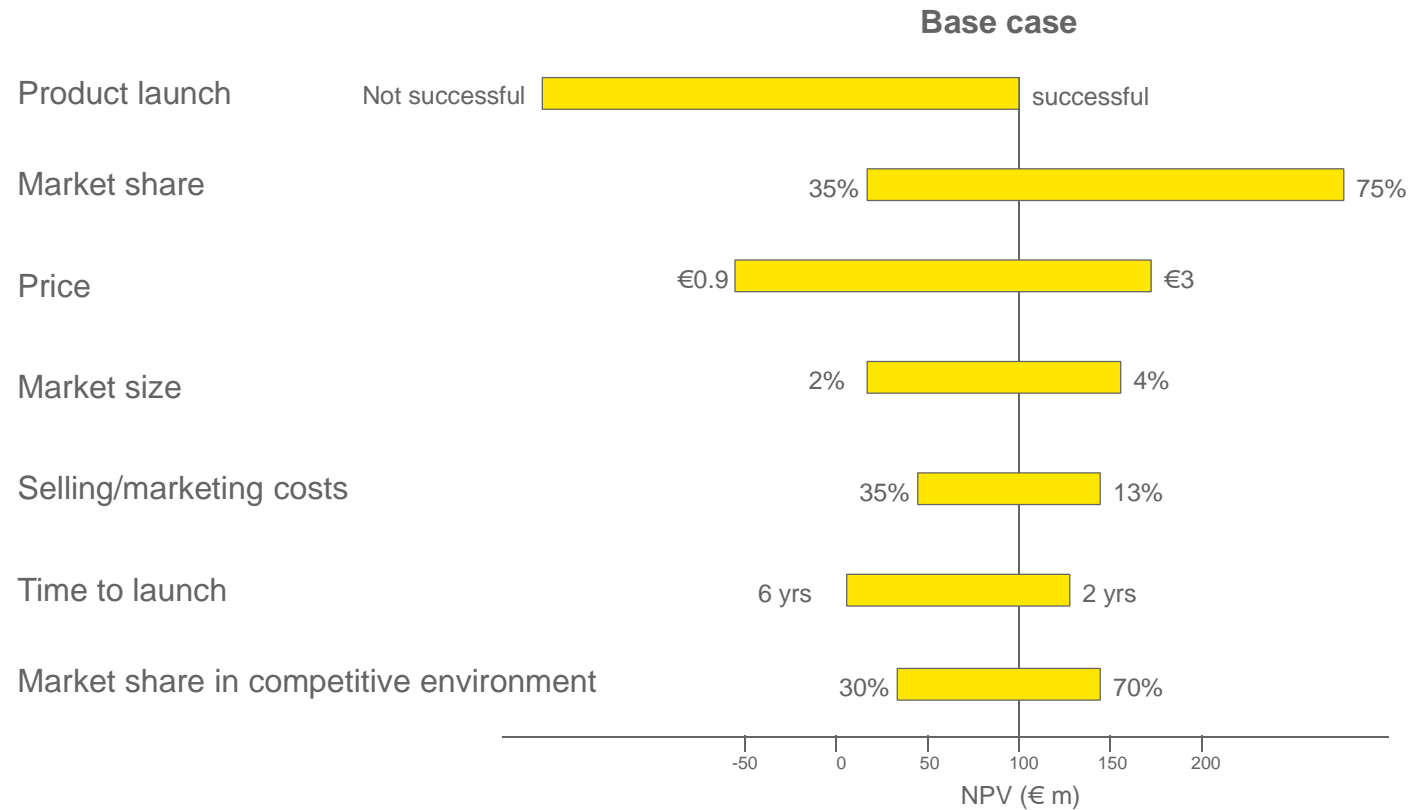
- ▶ Clarify relevant assumptions for peak sales
 - ▶ Population & growth
 - ▶ Peak market penetration
 - ▶ Revenue per unit
 - ▶ Market ramp time to peak
- ▶ Select appropriate life cycle model



- ▶ Emulate simplified cost model
 - ▶ Technology costs
 - ▶ Production ramp-up
 - ▶ Acquisitions
 - ▶ Cost to complete
 - ▶ COGS/SG&A

Focus on value drivers helps to handle complexity

To be evaluated for each pipeline outlet



Summary

- ▶ Technology platform valuations require tailor-made valuation methods based on discounted cash flow considerations
- ▶ Due to the high uncertainty of possible future activities (“outlets”), scenario modelling is essential
- ▶ Value drivers and sensitivity analysis help to focus on the essentials
- ▶ Traditional, service- or royalty-based business valuations fail to demonstrate the true value of the platform technology
- ▶ With the valuation method as outlined in this presentation, platform owners are likely to be better positioned in negotiations with potential partners

Implications for investors:

- ▶ *Understand that Company value = NPV potential of existing assets + NPV of growth potential*
- ▶ *Earnings reports can be misleading*
- ▶ *Diversify to fight against estimation noise but take care of risk correlations in the portfolio*
- ▶ *High „noise“ in estimates and ranges is not a result of poor quality of the valuation model but a proof of high uncertainty of the future*
- ▶ *Be ready to be wrong*

Vielen Dank

Fragen an....

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