

Disruptive “green” Innovation in B2B- Industries – The case of the Diffusion of Bioplastics.

Institute of Innovation Marketing,
Technical University Hamburg-
Harburg (TUHH)

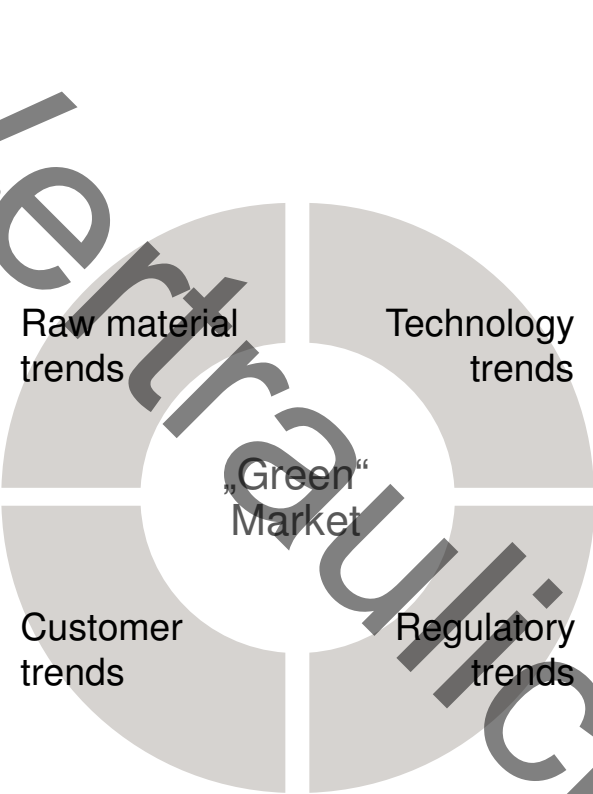
16-02-2017 BiNa-Workshop |
Friederike Esther Rhein

Bei den folgenden Inhalten handelt es sich um bislang unveröffentlichte (Zwischen-)Ergebnisse. Wir bitten darum diese mit der entsprechenden Vertraulichkeit zu behandeln.

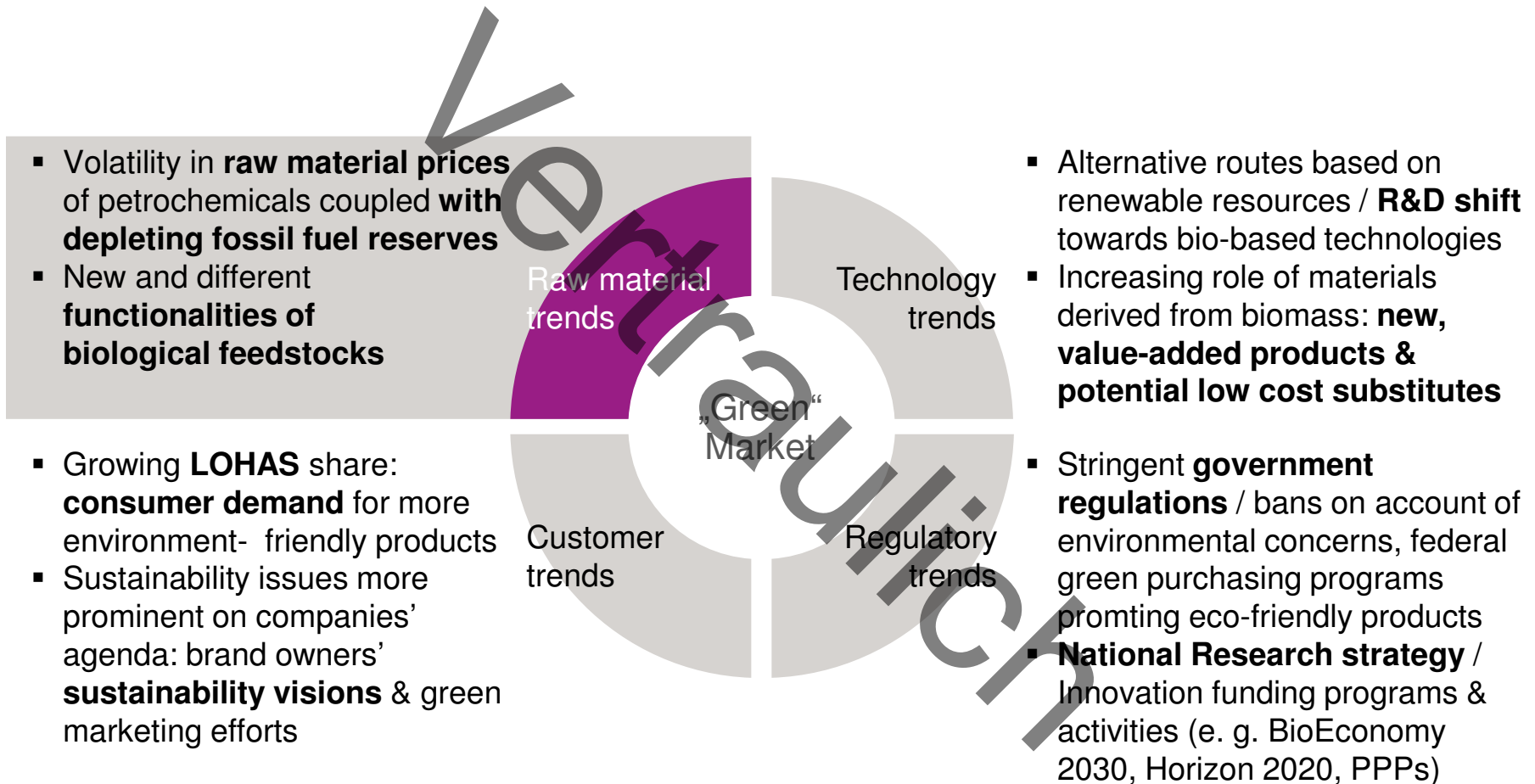
Weiterverwendung der Inhalte darf nur nach Absprache mit der Verfasserin erfolgen.



„Green Chemistry“: Market Dynamics

- 
- Volatility in **raw material prices** of petrochemicals coupled **with depleting fossil fuel reserves**
 - New and different **functionalities of biological feedstocks**
 - Growing **LOHAS** share: **consumer demand** for more environment- friendly products
 - Sustainability issues more prominent on companies' agenda: brand owners' **sustainability visions** & green marketing efforts
 - Alternative routes based on renewable resources / **R&D shift** towards bio-based technologies
 - Increasing role of materials derived from biomass: **new, value-added products & potential low cost substitutes**
 - Stringent **government regulations** / bans on account of environmental concerns, federal green purchasing programs prompting eco-friendly products
 - **National Research strategy** / Innovation funding programs & activities (e. g. BioEconomy 2030, Horizon 2020, PPPs)

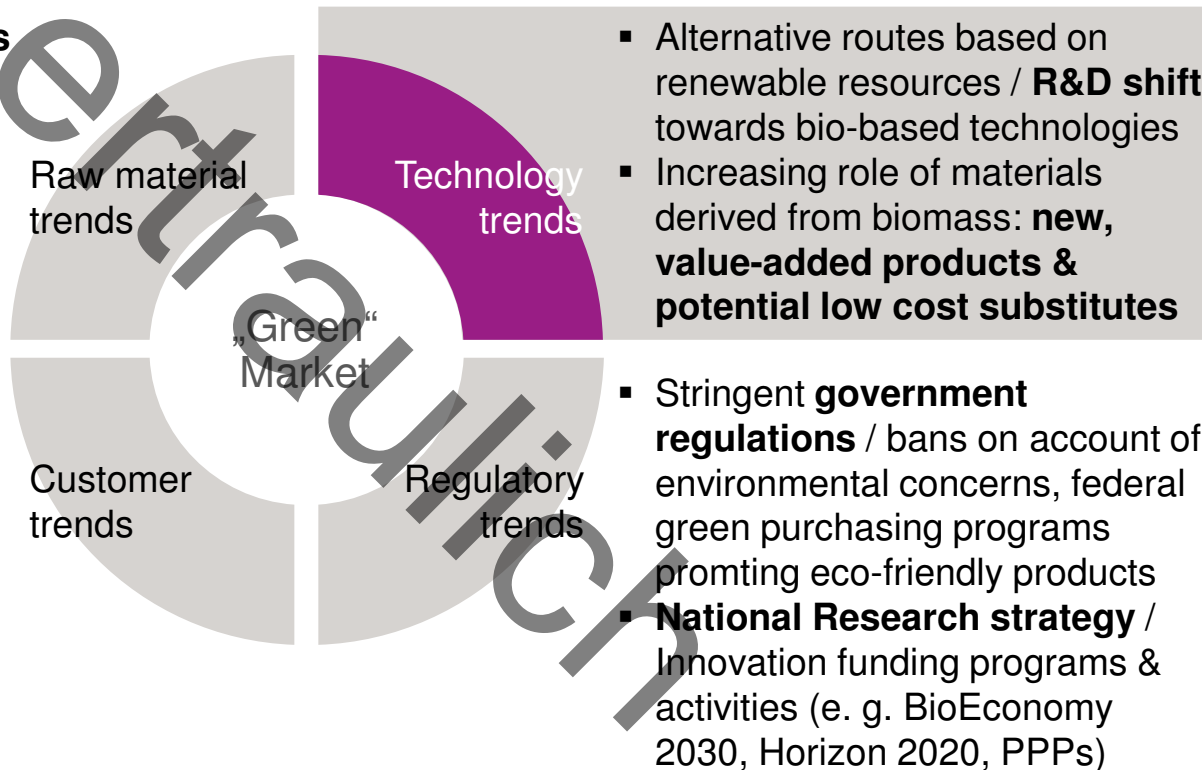
„Green Chemistry“: Market Dynamics



„Green Chemistry“:

Market Dynamics

- Volatility in **raw material prices** of petrochemicals coupled **with depleting fossil fuel reserves**
- New and different **functionalities of biological feedstocks**
- Growing **LOHAS** share: **consumer demand** for more environment- friendly products
- Sustainability issues more prominent on companies' agenda: brand owners' **sustainability visions** & green marketing efforts



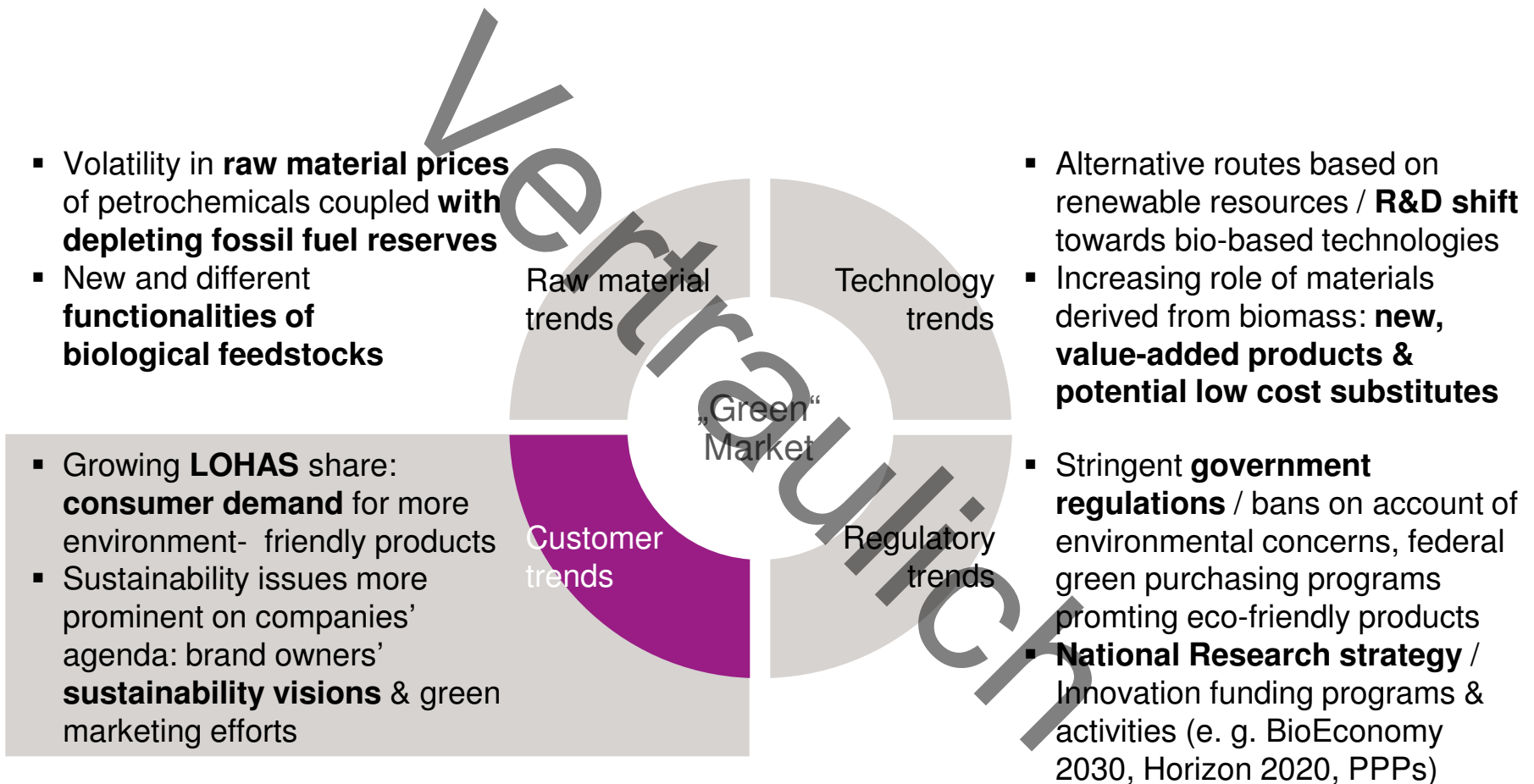
- Alternative routes based on renewable resources / **R&D shift** towards bio-based technologies
- Increasing role of materials derived from biomass: **new, value-added products & potential low cost substitutes**
- Stringent **government regulations** / bans on account of environmental concerns, federal green purchasing programs prompting eco-friendly products
- **National Research strategy** / Innovation funding programs & activities (e. g. BioEconomy 2030, Horizon 2020, PPPs)

„Green Chemistry“:

Market Dynamics

-
- Volatility in **raw material prices** of petrochemicals coupled **with depleting fossil fuel reserves**
 - New and different **functionalities of biological feedstocks**
 - Growing **LOHAS** share: **consumer demand** for more environment- friendly products
 - Sustainability issues more prominent on companies' agenda: brand owners' **sustainability visions** & green marketing efforts
 - Alternative routes based on renewable resources / **R&D shift** towards bio-based technologies
 - Increasing role of materials derived from biomass: **new, value-added products & potential low cost substitutes**
 - Stringent **government regulations** / bans on account of environmental concerns, federal green purchasing programs prompting eco-friendly products
 - **National Research strategy** / Innovation funding programs & activities (e. g. BioEconomy 2030, Horizon 2020, PPPs)

„Green Chemistry“: Market Dynamics



The “greening” of brand owners drives innovation in bio-based materials: Brandowners’ sustainability messages



“We are working to completely eliminate the use of nonrenewable fossil fuels in our plastic bottles while maintaining quality and recyclability”



“Reducing the environmental impact of packaging: we will be developing partnerships with 2nd and 3rd generation bioplastics manufacturers”



“Using 100% renewable or recycled materials for all products and packaging”



“Halve the greenhouse gas impact of our products across the lifecycle by 2020”



“By 2020 100% of our plastics will be from renewable or recycled sources (...) With size comes responsibility.”



“... We have already taken important steps to reduce our carbon footprint (...) Now we are accelerating our focus on materials.”



TOYOTA

“Green. That’s how we’d like the world to be. As an environmental leader, we do more than meet industry standards – we seek to raise them”

Diffusion of „green“ Product Innovation: Increasing role of bioplastics

Bridgestone, Cooper Tire and Goodyear developing sustainable tires made from plants



PlantBottle 2.0: Coca-Cola Unveils World's First PET Plastic Bottle Made Entirely from Plants



LEGO Group to invest 1 Billion DKK for sustainable materials



POSTED BY DORIS DE GUZMAN - JUNE 23, 2015 - LEAVE A COMMENT



Industry News

Bio-based Microcellular PU Foam for Shoe Soles: Reverdia/Xinhuarun Partnership

Published on 2016-10-07. Author : SpecialChem

Mitsubishi Chemical develops new bio-based plastic, Durabio, for automotive touch panels

11/02/2014 09:02 GMT



Sharp launches the first bio-based smartphone

14 July 2015 | Bioeconomista | 1 Vote

BIOPLASTIC, COMPANY INITIATIVES, ...

Tetra Pak signs Bio-LDPE supply deal in Brazil

POSTED BY DORIS DE GUZMAN - JUNE 26, 2013 - LEAVE A COMMENT

International packaging company Tetra Pak has signed a supply agreement with Braskem for polyethylene (LDPE), which will be used in all Tetra Pak packages produced in Brazil.



Research Aim

- (1) Examine why companies “go green” & investigate Switching behaviour
- (2) Exploring Market Entry Dynamics & Diffusion Patterns



BIO-PLASTICS
THE NEXT BIG
THING?

Research Aim

- (1) Examine why companies “go green” & investigate Switching behaviour
- (2) Exploring Market Entry Dynamics & Diffusion Patterns



BIO-PLASTICS
THE NEXT BIG
THING?

Why companies “go green” - parts of a big jigsaw puzzle

„In all, PlantBottle™ packaging is delivering against three key business values: It is a brand differentiator. It is a major advance in our goal to use more sustainable packaging. And by reducing our dependence on petroleum and natural gas, it enables us to control costs and keep our products affordable. [...] In April 2011, PlantBottle™ packaging received an Edison Award recognizing the most innovative products from a variety of categories. Wal-Mart Stores, Inc., recognized PlantBottle™ packaging in June 2011 with their Sustainable Packaging Award. In 2012, McDonald’s Corporation selected PlantBottle™ packaging for its 2012 Global Best of Sustainable Supply Report.“ (Coca Cola Company Website; 2016)

“One important lesson we have learned on our journey toward zero waste is that more sustainable packaging is a complex issue and a hard one to communicate.“ (Coca Cola Company Website; 2016)

Why companies “go green” - parts of a big jigsaw puzzle

“Four years ago, the only driver was that it would be a marketing angle for consumers interested in buying a “green” product, he said. Today, PLA also is starting to offer a more competitive financial prospect. On a price per pound basis, PS is still cheaper, but because PLA packaging can be produced with a thinner wall and takes less space in shipping, it can be the same in a price per piece, Forowycz said. Danone also sees the potential for PLA to offer greater price stability in the long run than a material based on petroleum.” (Plasticnews, 19.02.2014)

„Es ist beides, market push und pull. Es sind politische Aspekte mit der CO2-Bilanz, das kann einen Vorteil haben. [...] Und die Angst vor Skandalen, die großen Marken sind da alle dran. PET – es gibt zwei, drei Chemieunternehmen und keiner verrät was drin ist. Was ist eigentlich PET? Und wie ist es mit den Hormonen, wie bei BPA? [...] Man muss auch die Gesamtbilanz betrachten. [...] Den Endkonsumenten kriegt man dort wo es um Lebensmittel geht.“ (Interview #3 Verpackungsmittelhersteller, 2015)

„Als weltweit erster Eishersteller bieten wir unser Premium Genießeris in einer ökologischen Thermobox aus nachwachsenden Rohstoffen an. [...] BioFoam® ist die erste Verpackung dieser Art, die mit dem Cradle to CradleCM-Zertifikat ausgezeichnet wurde. Neben vielen anderen hat auch Frost & Sullivan die Innovation mit dem „Green Excellence in Product Innovation 2011 Award“ gewürdigt.“ (Unternehmenswebsite Sandro's Bio, 2016)

„Das „Plastik“ um ausnahmslos all unsere Teeschachteln haben wir 2012 auf Zellulosebasis umgestellt: Innerhalb weniger Wochen zersetzen sich die CO2-neutral produzierten Folien im Hauskompost in ihre natürlichen Bestandteile. Die großen Kompostierungsanlagen sind noch nicht ganz so weit: Dort werden kompostierbare Folien leider nicht als solche erkannt und deshalb wie herkömmliche aussortiert. Trotzdem wollen wir Abstand nehmen von Plastik aus endlichen Ressourcen. Ein Anfang muss gemacht werden.“ (Unternehmenswebsite Lebensbaum, 2016)

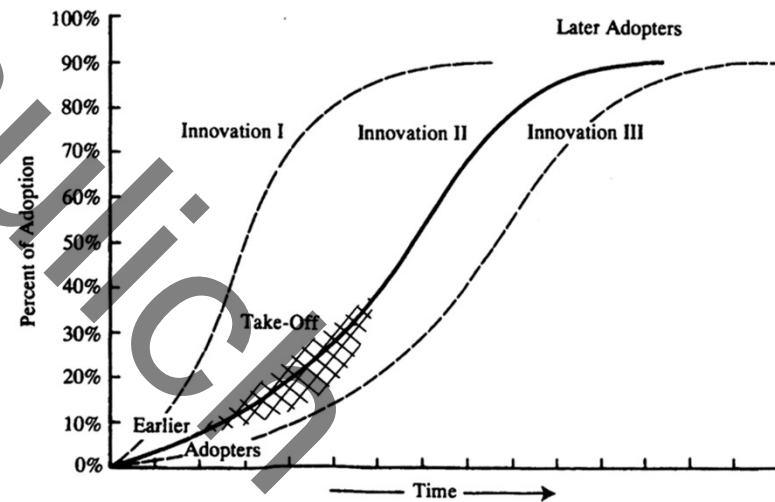
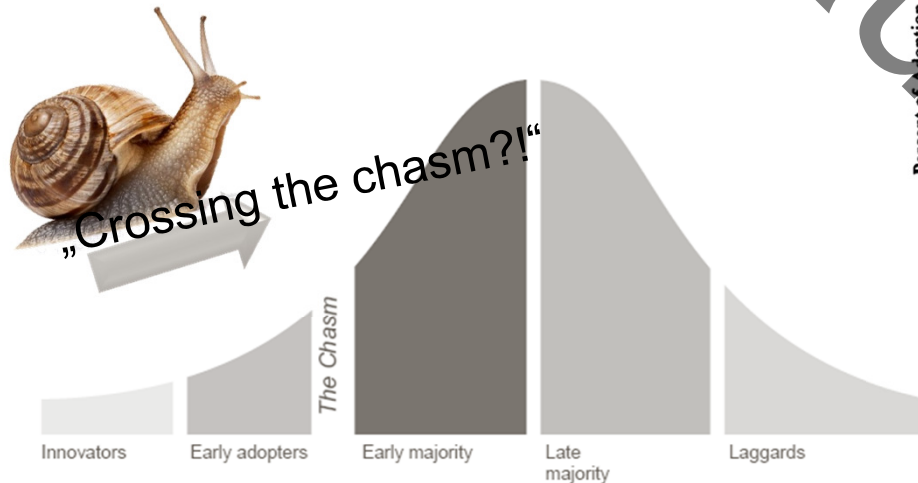
Different motivations of brand owners driving the switch towards bioplastics: The Value Equation

- **Social Legitimacy: Corporate Identity & Green Marketing**
 - Reduce Carbon Footprint (“**Low-Carbon Economy**”)
 - Embark leakage into the environment (“**Circular Economy**”)
 - Maximize conversion of renewable resources / Reduction of fossil fuel usage & decoupling (“**Bioeconomy**”)
- **Technical Efficiency: Product Performance & Cost Control**
 - **Functional benefits / “unique selling proposition”** (new / enhanced technical performance, e. g. superior gas barrier, tensile strength, impact resistance, lightweight, optical properties)
 - **Direct Cost Advantages** (easier to process, subsidies & tax credits, improving supply security and price predictability or hedging of price volatilities)
- **Or any combination thereof.**



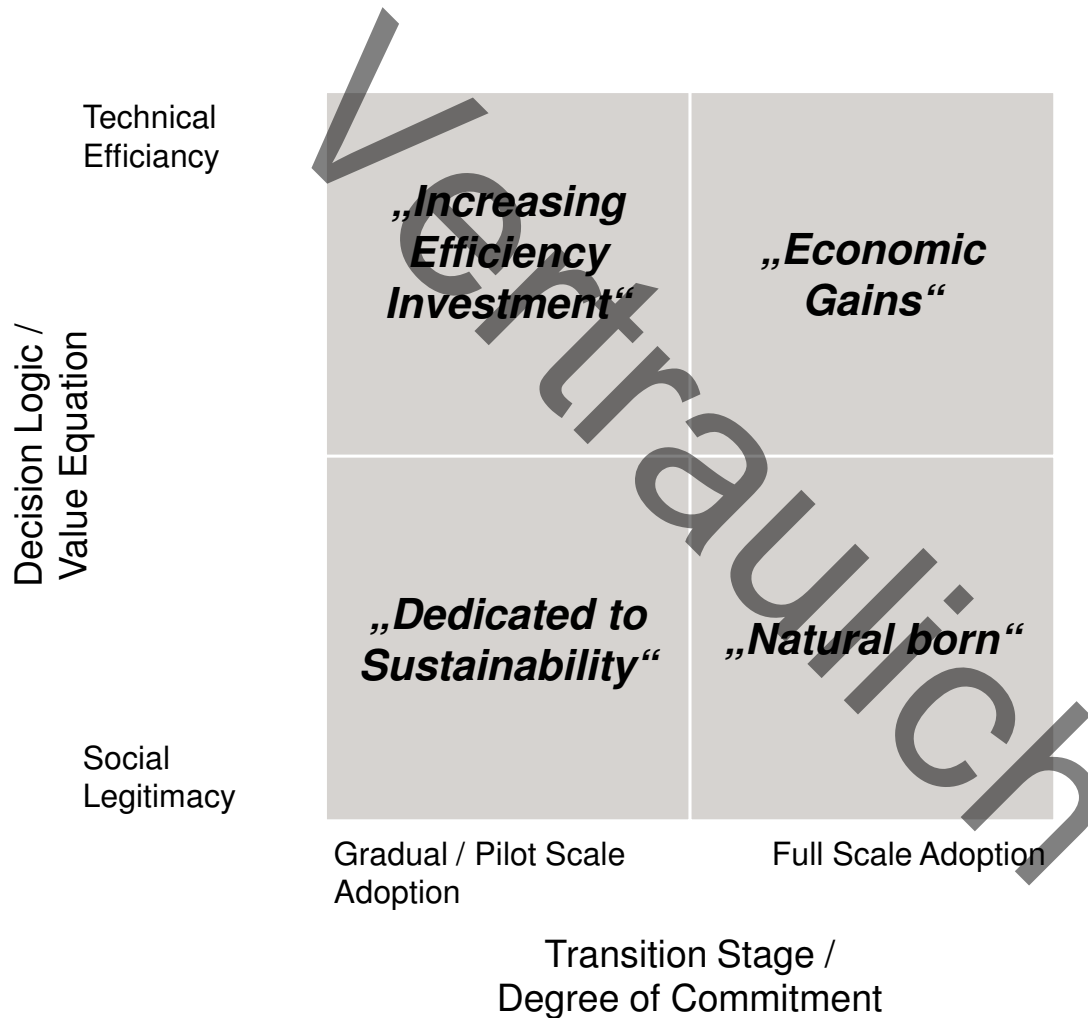
Different Logics in Procurement Decision determine Diffusion Patterns: Goal Frames & Switching Behaviour

- **Companies' „green Mission Statement“:** Long-term goals, interim targets & measures
- **Companies' resources and betting on the future:** Gains vs. losses, Capital expenditures & Payback periods
- **Green marketing:** Product portfolio, Premium pricing & Promotion, Communications & Public relations, Partnerships
- **Target market:** Niche / Mainstream
- **Scaling & Timing strategy**



Source: Everett M. Rogers, *Diffusion of Innovations*, New York: Free Press, 1983

A Typology of Early Adopters and Switching Behaviour



A Typology of Early Adopters and Switching Behaviour



Research Aim

- (1) Examine why companies “go green” & investigate Switching behaviour
- (2) Exploring Market Entry Dynamics & Diffusion Patterns



BIO-PLASTICS
THE NEXT BIG
THING?

Research Aim

- (1) Examine why companies “go green” & investigate Switching behaviour
- (2) Exploring Market Entry Dynamics & Diffusion Patterns





EVONIK

KRAFT FÜR NEUES

Vertriebsstelle