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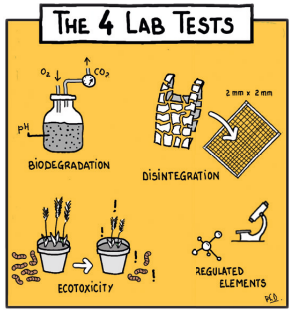

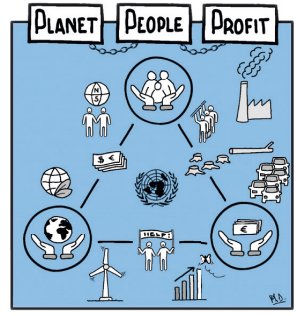

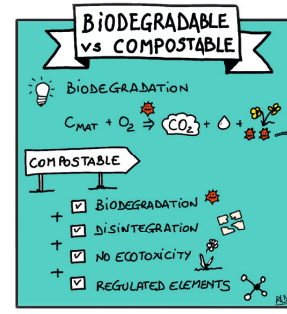

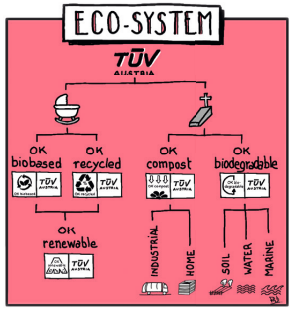

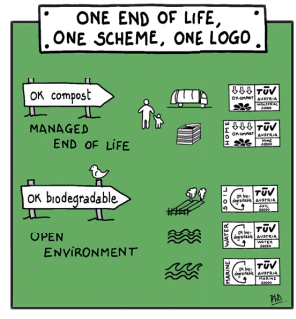

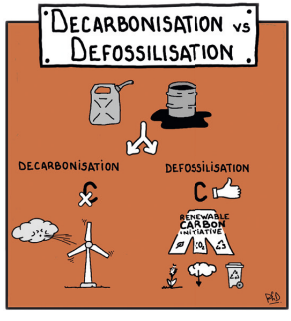

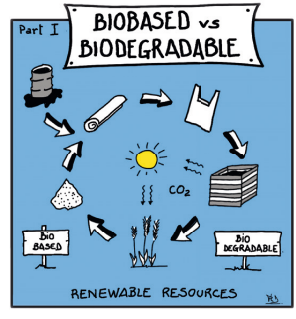

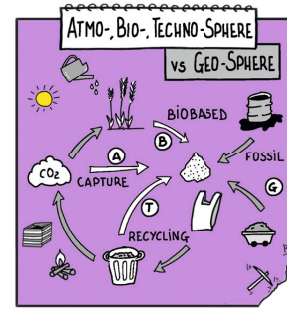

THE OK ECO-SYSTEM

Biodegradable – Biobased – Compostable

Philippe Dewolfs

TÜV AUSTRIA Publishing

Imprint

The OK Eco-System
Biodegradable – Biobased – Compostable

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Foreword

Sustainability is without any doubt of utmost importance for the future of mankind. While this is – with few exceptions – undebated as of today, 30 years ago it has not been obvious at all. When Philippe Dewolfs started his work on biodegradability of plastics, the ecological awareness has not been on the same level as of today and the littering of our planet with plastic waste has not been perceived as a major problem yet.

The history of *OK compost* is clearly demonstrating that sustainability is something that one needs to follow on large time scales. There are no quick wins or easy solutions. At first, it had only been an idea, but it had been followed up very consequentially, sometimes against all odds.

To turn an idea into a real success, you need to have somebody truly believing in the subject and driving it. Philippe Dewolfs for sure is a true believer and he dedicated a significant portion of his professional career to develop the *OK compost* certification family. I am very proud that he and his team developed *OK compost* to be the work-market leader in biodegradability of plastics. The enthusiasm and dedication of Philippe Dewolfs for this subject can be clearly seen when looking at his cartoons, where he is educating and advocating in a unique and entertaining way. He developed his own graphical style, which is eye-catching and easily recognizable. I confess, I am loving it!

May this book contribute to a better understanding of this complex and important matter.

I am wishing you a very enjoyable reading experience!

Dipl.-Ing. Dr. Stefan Haas
Chief Executive Officer TÜV AUSTRIA HOLDING AG

Foreword

Philippe Dewolfs stands at the heart of this story, a man with a vision, whose dedication and expertise have shaped the OK certification ecosystem from the start.

Thirty years ago, Philippe recognized the urgent need for credible certification in compostable, biodegradable, and biobased products, long before sustainability became a global priority. Through his dedication and together with his team, he transformed an idea into a worldwide benchmark, that now reaches across industries and continents.

What makes this achievement truly special is the human factor. Philippe's ability to communicate complex concepts, often through his distinctive sketch notes, has helped people understand the principles behind our certification schemes. His leadership has guided our team to anticipate market needs, develop new certification schemes, always with a focus on transparency and trust.

I am proud to be part of an organization that has realized this success. Every certificate issued and every logo displayed is a testament to our shared commitment to sustainability and innovation.

As we look ahead, the journey is far from over. The challenges of sustainability continue to evolve, demanding new ideas, strong collaboration, and dedication. Together, let's continue to build on the legacy of Philippe Dewolfs, shaping a more sustainable world for generations to come.

I hope this publication inspires others to join us in driving sustainable change, one certified product at a time.

Kamiel Vanderlinden
General Manager TÜV AUSTRIA BELGIUM

Foreword by the Author

I have always enjoyed scribbling, without ever really learning how to draw, and I am known for my ability to easily summarise an idea or concept. For a long time, I wanted to enhance my conference presentations with drawings, but I had never found the right style. Then, during the pandemic, I took part in an online introductory info evening on sketchnoting. This convinced me to sign up for a comprehensive training course, which helped me overcome my inhibitions: even without really knowing how to draw, it is possible to communicate through drawing!

For years, we had been publishing numerous technical information sheets explaining various topics related to our compliance marks and certification in general. But this sketchnoting course gave me another idea: why not publish posts on LinkedIn that answer questions we are often asked? These would be popularised, slightly playful posts with fairly short texts, sometimes longer, accompanied by a sketchnoting-style drawing to catch the eye and spark interest. After a few attempts, I found my style: a square box, a coloured background and simple, even simplistic drawings, usually in black, grey and white, sometimes with a little text in the sketch. The sketches serve as visual aids to a slightly more detailed text explaining the concept in question, or vice versa.

The first publications appeared in autumn 2021, and their modest success encouraged me to publish more posts, one per week, for a total of 12 sketches. This was much more than I had initially planned. Positive feedback from my network led me to create a new series of 12 sketches, then another ... and finally I ended up with more than 60 sketches! In the meantime, these sketches were used in presentations and on roll-ups at conferences. Coffee mugs and bookmarks were also produced and distributed at events. Without really meaning to, we have created a recognisable visual signature that works. Finally, the idea came to me to compile all these publications into a book to be published to mark *OK Compost's* 30th anniversary. A kind of legacy, too.

The basic concept remained the same: a short text explaining a concept, accompanied by a sketch that summarises it visually, or vice versa. This book therefore brings together the sixty-six LinkedIn posts published between 2021 and 2025, with texts that have sometimes been expanded, often edited or updated, grouped into a few major themes, with some repetition due to the fact that each post was written to be self-contained. This book tells a story that can be read in any order, whether it is in one sitting or small in chunks. A story that began 30 years ago, in 1995 when we issued the first *OK compost* certificate.

Enjoy reading!

About the Author

With an engineering and computer science background, Philippe Dewolfs has always worked in the field of conformity assessment.

In the road and rail sector at the beginning of his career, then, since the end of the 1990s, in the certification of bioproducts.

Until recently, he was head of the bioproducts certification department at TÜV AUSTRIA, which acquired this activity in 2017, and is currently its technical director.

TÜV AUSTRIA is a leading certification organisation with more than 6000 active certificates in this field.

He is a member of several Steering Committees of EU-funded projects, national and international working and standardisation groups and is regularly consulted to share his experience.

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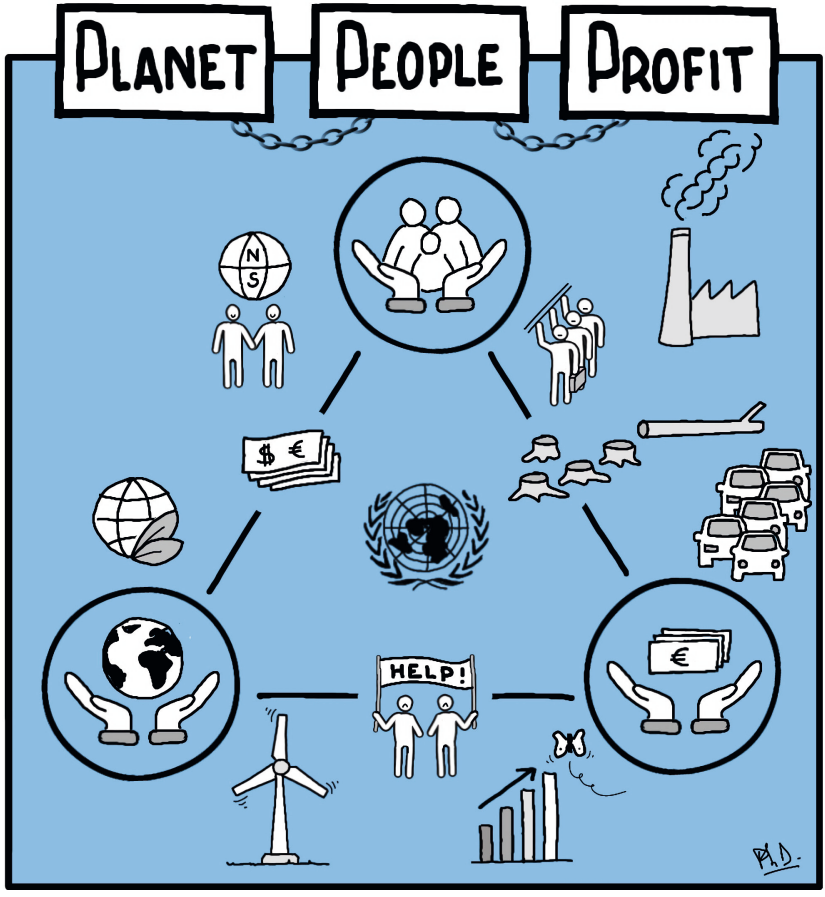
General Intro


PLANET
PEOPLE
PROFIT
N
S
$ €
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€
Ph.D.

You can pick two: People. Planet. Profit. Which one drops?

We all know the story of the shop that advertises: *"Here we offer quality, fast service and at low prices. You can choose two of these points, but not all three."*

If you want quality service at a low price, you will have to be patient. If you want fast, quality service, you will have to pay for it. Etc.

We could make up a similar story using the concepts of **Planet, People** and **Profit.**

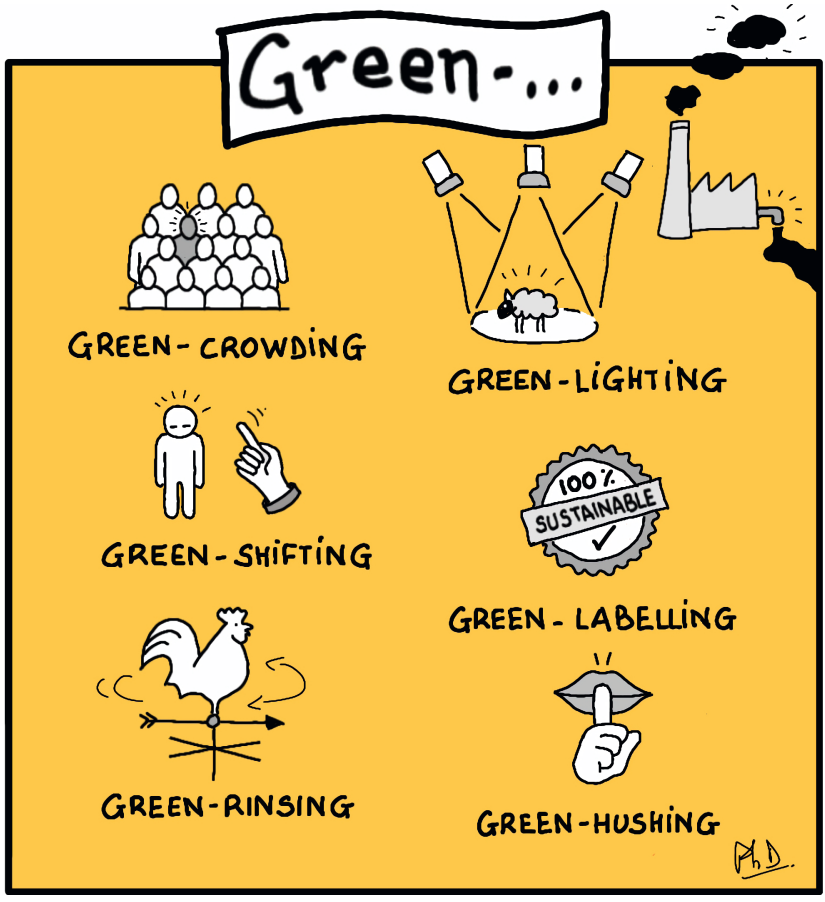
When combining **People** and **Planet,** the focus lies on social justice and environmental protection. This model, often led by NGOs or community-driven initiatives, seeks to improve living conditions while respecting ecological limits. It promotes equity and responsibility but struggles with long-term funding and economic scalability. Without profit incentives, such models may remain local or fragile.

Pairing **Planet** and **Profit** reflects the promise of a green economy: renewable energy, clean technologies, and circular production models. This is an attractive option for governments and businesses, as it is compatible with their commitment to reducing their carbon footprint. However, this logic neglects social aspects: exclusion of the most vulnerable, and lack of equitable redistribution of benefits.

Finally, the alliance between **People** and **Profit** focuses on economic and social inclusion. By improving access to employment, education and healthcare, this model can rapidly raise living standards. However, without sufficient attention to the environment, it could lead to serious consequences such as pollution, resource depletion and climate change. This model is the one that has led to rapid economic growth, but it is not sustainable. In reality, the pursuit of two of these dimensions often leads to the neglect of the third.

Finding a true balance between Planet, People and Profit is one of the greatest challenges of our time.
Philippe Dewolfs

This is a demanding balance that requires us to redefine our collective priorities and innovate our economic models. This is what the UN's 17 SDGs (Sustainable Development Goals) are targeting: the balance between these 3 pillars: Planet, People & Profit. Unfortunately, too many people see it only in terms of profit and disregard for the planet (and its inhabitants).


Green-...
GREEN-CROWDING
GREEN-LIGHTING
GREEN-SHIFTING
100% SUSTAINABLE
GREEN-LABELLING
GREEN-RINSING
GREEN-HUSHING
PhD.

Greenwashing

Talking green is easy. Acting green, not so much. As sustainability becomes a selling point, some companies exploit it without real actions.

The following 6 forms of greenwashing show how misleading strategies can disguise environmental inaction:

1. Green-crowding

Companies hide behind group commitments to appear eco-conscious without real action. They rely on collective efforts to avoid scrutiny and mask their individual environmental inaction.

2. Green-lighting

A small green initiative is highlighted to distract from larger polluting practices. It's a PR tactic that exaggerates one positive detail while ignoring the company's overall environmental harm.

3. Green-shifting

The company shifts environmental responsibility to the consumer, focusing on personal choices while downplaying its own environmental footprint and role in climate-related issues.

4. Green-labelling

Vague, unverified terms like "green" or "natural" are used to suggest sustainability. These labels mislead consumers and are detrimental to genuine conformity marks based on evidence and professional assessment by independent 3rd parties.

5. Green-rinsing

Firms regularly revise environmental goals, often lowering them. This creates the illusion of progress while avoiding real accountability or measurable climate action.

6. Green-hushing

Companies deliberately stay silent about their sustainability actions to avoid criticism. This lack of transparency limits comparison and slows collective progress toward environmental responsibility.

Our mission is to verify the statements in point 4, based on standards, test reports from competent laboratories and the expertise of our team.

Pioneers since 1995

In the following pages, I invite you to explore the various facets of our work as a certifier of biodegradable, compostable, bio-based, recycled and renewable products, from legislation to certification processes, including standardisation, laboratory testing and our market surveillance protocols.

But there has been one constant in this adventure that began in 1995: each time, we have been pioneers, ahead of standards, legislation and other certification bodies.

OK compost INDUSTRIAL, for example, was launched more than 5 years before EN 13432 – the very first international standard for industrial composting – was published.

OK compost HOME was developed well before the first standards for home composting of manufactured products. The Australian standard AS 5810, the French standard NT T51-800 and even the European standard EN 17427 are based on the technical reference document we developed in 2003, particularly with regard to temperatures and testing times. And we have been involved in the development of each and every one of these standards.

OK biobased, based on the American ASTM D6866 standard, was also ahead of its time.

Finally, OK renewable, published in April 2025, also innovates by allowing bio-based and recycled components to be combined to communicate the overall renewable content of products.

Beyond the scientific basis that led to these different certification schemes, communicating compliance via an explicit logo partly explains the success of these schemes.

Nothing is more powerful than an idea whose time has come
Victor Hugo

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3 decades of innovation

In three decades, compostable, biodegradable, bio-based and renewable materials have become one of the most visible symbols of the ecological transition.

While conventional plastic, derived from fossil fuels, became ubiquitous in the 20th century, its omnipresence has raised growing concerns. Microplastics, littering, landfill issues, energy dependence and greenhouse gas emissions have placed conventional plastic at the heart of environmental debates.

In response to this situation, alternatives have gradually developed. Their history is that of a fundamental movement at the crossroads of several dynamics: technological developments, changing social demands and social acceptance, the structuring of legislation and the actions of manufacturers.

Each of the last three decades has marked a decisive milestone, and the next one promises to bring the sector to a long-awaited maturity.

And we have been involved since day one.

The first decade belonged to pioneers, companies or rather individuals, visionaries who wanted to do something to improve the world. It was a niche market, with simple products, blurred printing, checkout bags, bio-waste collection bags and a few packaging items, produced by a handful of players who were rightly convinced that they were on the right side of history. The proof is that many of them still exist today.

Further proof is that most companies that were certified at the time are still certified today. Certification has enabled the harmonisation of definitions, test protocols and communication.

The following decade was marked by growing awareness, with many companies seeking to differentiate themselves in a sustainable way in this new market.

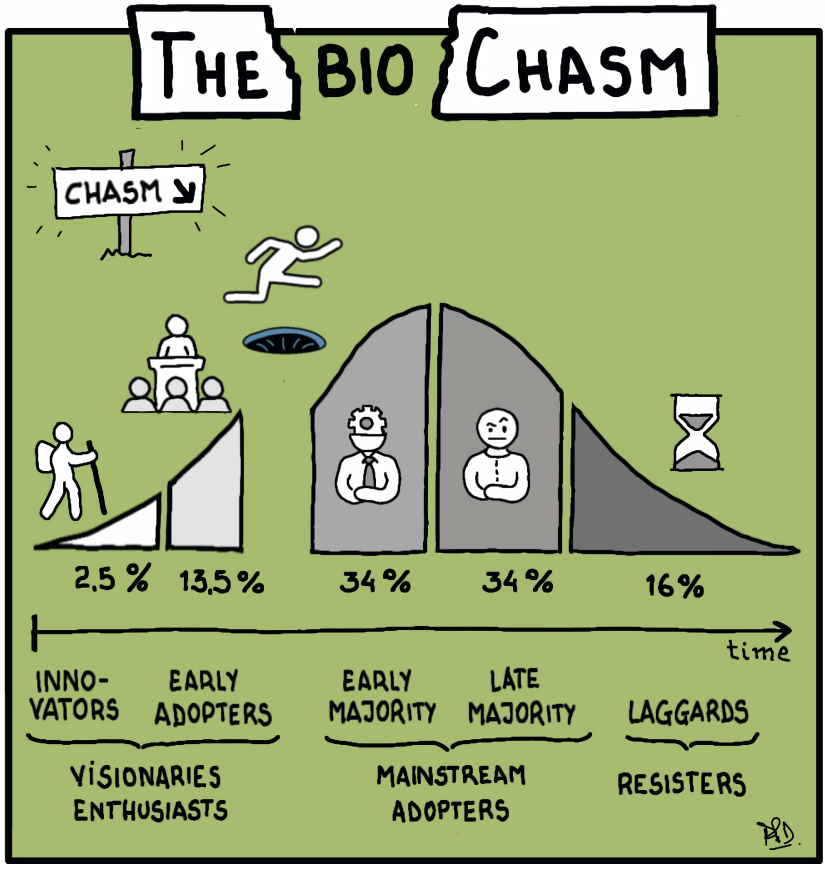
The range of base materials expanded, offering new production possibilities and more sophisticated, multi-layer or multi-component products. Various laws were also introduced in certain European countries to regulate these developments and products. Certification has boosted the credibility of compostable and bio-based products, and the companies that produce them.

And finally, the last decade has been one of growth, with more and more companies seeing an opportunity to expand in this market. It was also a period that dealt with the proliferation of – sometimes superficial or even fraudulent – environmental claims. And certification by an independent body has become an absolute necessity to counter green-labelling and undocumented claims, for the good of citizens and the planet.

We were among the pioneers 30 years ago. We have seen this market evolve and have brought it to comply with increasingly complex standards and restrictive legislation.

By fulfilling our mission of certification and market surveillance, we are now at the forefront of the fight against misleading environmental claims.

In thirty years, compostable, biodegradable, bio-based and renewable materials have gone from being a scientific curiosity to a credible and strategic alternative. The coming decade could be one of consolidation.


THE BIO CHASM
CHASM
2.5 %
13.5 %
34 %
34 %
16 %
time
INNO-VATORS
EARLY ADOPTERS
EARLY MAJORITY
LATE MAJORITY
LAGGARDS
VISIONARIES ENTHUSIASTS
MAINSTREAM ADOPTERS
RESISTERS

The Technology Adoption Curve and the "BIO Chasm"

But if we look at the market in detail, the situation is more nuanced. The theory of the diffusion of innovations developed in 1962 by Everett Rogers[1] sheds interesting light on the subject.

Rogers divided adopters into five categories: innovators, early adopters, early majority, late majority, and laggards.

Each group has distinct motivations: innovators seek novelty, early adopters look for vision and differentiation, the early majority demands proven reliability, while the late majority and laggards adopt mostly out of necessity or social pressure.

Thirty years ago, Geoffrey Moore[2] refined this model and argued that a critical gap – the **"chasm"** – exists between early adopters and the early majority.

Early adopters are willing to take risks on new solutions, but the early majority is pragmatic and cautious. They want competitive prices, clear standards, and reliable performance. Many innovations fail to cross this gap, remaining trapped in niche markets instead of reaching mass adoption.

Compostable, biobased, or renewable products are a strong example of a technology currently struggling with this dynamic.

Innovators and early adopters: today, bioplastics are embraced by pioneering companies, niche brands, and environmentally committed consumers. These actors adopt them despite higher costs or the lack of adequate composting and recycling infrastructure.

Their motivation is ideological and strategic: demonstrating environmental responsibility, aligning with consumer values, and positioning themselves as sustainability leaders.

The chasm: the challenge lies in persuading the early majority, who are driven less by ideals and more by cost-effectiveness, reliability, and system compatibility. At present, bioplastics remain more expensive than conventional fossil-based plastics and lack public visibility.

Moreover, waste-management systems are not universally equipped to handle them. These gaps create skepticism among mainstream buyers, illustrating how bioplastics are effectively stuck at the edge of the chasm.

Sectoral differences: the starting point of the timeline, and its scale, vary depending on the sector (packaging, food service, agriculture, etc.), the characteristics targeted (compostability, biobased or recycled content), and the country or region of the world.

And the location and depth of the chasm vary depending on sector and geography.

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1) Everett Rogers – Diffusion of Innovations theory (1962)
2) Geoffrey Moore – Crossing the Chasm (1991)

For example, in shopping bags and premium food packaging sectors, adoption is already advanced and close to crossing into the early majority, as sustainability resonates strongly with both regulators and consumers. However, it is also in these sectors that the most fraudulent claims are found.

Bioplastics today stand on the verge of the chasm: adopted enthusiastically by early adopters but not yet compelling for the mainstream.

To cross this divide, four levers are critical:

- ✓ reducing costs through economies of scale,
- ✓ establishing clear standards and certifications, such as *OK compost, OK biobased,* or *OK renewable*
- ✓ improving end-of-life infrastructure, and
- ✓ leveraging strong regulation to level the playing field against fossil-based plastics.

Without these conditions, bioplastics risk remaining confined to green niches. But if these barriers are addressed, they could follow the classic diffusion curve and achieve widespread market adoption, playing a decisive role in the transition toward a more sustainable economy.

Some products or some countries will remain on the edge of the chasm, but the majority will make it across because compostable, biodegradable, bio-based or renewable products make sense and will help us limit our environmental impact.

It's only a matter of time.

This booklet is not exhaustive and does not claim to cover all topics but reflects the questions we have been asked in recent years.

Although it is intended for a wide audience, some chapters are more technical and generally focus on European legislation.