



Insights: Scenarios for the future of sustainable trade

Setting the course for a green future

Financial Institutions: Partnership meets expertise

In cooperation with



The bank at your side

Contents

Foreword by Commerzbank	6
Foreword by Oxford Analytica	8
The five drivers: Where we are today	10
1. Introduction	11
2. Building the scenarios	14
3. Deconstructing the five drivers	15
Scenario 1: A sustainable global future emerges	20
1. Introduction	21
2. The economy: Progress towards a new model	23
2.1. Introduction	23
2.2. The circular economy and 'cradle to cradle'	23
2.3. The functional and sharing economies	27
2.4. Measuring beyond GDP	28
3. Trade: Globalisation flourishes	30
3.1. Introduction	30
3.2. Trade agreements foster sustainable trade	30
3.3. Sustainability conditionality for trade	31
4. Technology: Accelerating change	33
4.1. Introduction	33
4.2. Additive manufacturing	33
4.3. Robotics	34
4.4. Digitisation	35
4.5. Water management and technologies	36
4.6. Sustainable technology clusters	36
5. The private sector: Strategies become more sustainable	38
5.1. Introduction	38
5.2. 'Coopetition'	38
5.3. Supply chain resilience	39
5.4. Informed and proactive consumers	39
5.5. Innovative finance: crowdsourcing and crowdfunding	40
5.6. Investment in sustainable technology	40
6. Politics: Stakeholders come together	43
6.1. Introduction	43
6.2. Climate accord and carbon pricing	43
6.3. Enhanced public-private collaboration	45
6.4. Consumer campaigns drive politics	46

Scenario 2: A vicious circle of stagnation and protectionism	48
1. Introduction	49
2. The economy: A downward spiral takes hold	51
2.1. Identifying 'hot spots'	51
2.2. Risk mitigation may only provide limited support	51
2.3. Potential triggers of an economic crisis	51
2.4. Low prices for fossil fuels persist	54
3. Trade: Countries turn inward	56
3.1. Introduction	56
3.2. Goods and services trade are both affected	57
3.3. Stagnation of the WTO system	58
3.4. Green protectionism becomes commonplace	59
3.5. 'Greenwashing' detracts from sustainable trade efforts	60
3.6. Unsustainable agriculture	61
4. Technology: Innovation and productivity weaken	63
4.1. Introduction	63
4.2. The weak economy slows technical progress	63
4.3. Labour markets become more precarious	64
5. The private sector: A failure to lead	66
5.1. Introduction	66
5.2. Supply chain sustainability falters	66
5.3. The banking sector rethinks its engagement	67
6. Politics: Unable to deliver	69
6.1. Introduction	69
6.2. National resource needs versus sustainability	69
6.3. EU political crisis	69
6.4. Rise of extreme parties drives protectionism	70
6.5. No global climate agreement	70
6.6. Consumer pressure for sustainable trade declines	71

Conclusion	74
1. Likely course of the five drivers	75
2. Recommendations	81
Glossary	85

Foreword by Commerzbank

Dear reader,

We know the central importance of sustainability in finance, as we made clear in our recent report, 'Insights: Five drivers of sustainable trade'. That report highlighted how demand for sustainability will only grow – socially, environmentally and politically – as scarce resources threaten trade, and the public increasingly demands progress in fields such as clean energy and responsible finance. With more regulation, globalisation and competition, amidst slower economic growth, sustainability in the banking industry will be needed more than ever.

Commerzbank has been engaging in international trade ever since it was formed in 1870, originally by a merchant engaging in trade with Latin America. If we are to still be in the same business in another 150 years, however, it is essential that we have a long-term viable and competitive strategy of sustainable trade and practice – something to which we have dedicated much time and effort.

Of course, we are not alone in the drive towards sustainability, nor should we be. A relationship-driven bank by nature, our focus is on the overall picture: developing trade standards, practices and solutions to the mutual benefit of all involved parties. As such, we take the view that only cohesive action on the part of corporates, banks and governments together can transform the global economy to a sustainable model.

However, we must accept that the concept of sustainable trade is so complex and nuanced, not to mention fast-changing, that it can be hard for this cohesion to be established and long-term strategies to be set. As such, as an industry we must engage realistically with the pressing issues of the world today, preparing for problems – and opportunities – relevant to the next 10-15 years and beyond.

But what environment will we face in the future? If we are to realise the potential of sustainable trade, planning ahead is vital. To this end, building on the success of our first report, we are honoured to present at Sibos a second: 'Insights: Scenarios for the future of sustainable trade'.

With experts at Oxford Analytica, we have pinpointed two possible future sustainability scenarios. These are the 'best-case' and the 'worst-case' situations for the development of sustainability in world trade: can the global economy grow, with trade continuing to flourish? Or might slower economic development accompany protectionism amid a worsening of opportunities for trade flows? These two scenarios are firmly grounded in the five drivers analysed in our first report, and each involves far-reaching implications for sustainability.

Considering these scenarios, we then suggest a more likely future outlook, offering recommendations and case studies – a projection balanced between the two extremes. Thus we can assess the next 10–15 years with the potential for trade and sustainability in mind.

Above all, we intend to stress the value of sustainable trade with a clarity that the financial sector sorely needs: we believe banks should be instrumental in this. Because at Commerzbank, we are convinced not only of sustainable trade's value, but also of the need to communicate it to the public – to financiers and corporates, to governments, NGOs and the media – so they can recognise our work and help realise our vision. We want to promote discussion of such a crucial topic. We hope you find the report thought-provoking, and look forward to joining you in the debate.

Christof Gabriel Maetze
Member of the Executive Management Board



Christof Gabriel Maetze
Member of the Executive Management Board

Foreword by Oxford Analytica

Commerzbank and Oxford Analytica have partnered for the second time to prepare a forward-looking report on sustainable trade. Oxford Analytica is a global analysis and advisory firm that draws on a worldwide network of experts to advise its clients on their strategy and performance. Our insights and judgements on global issues enable our clients to succeed in complex markets where the nexus of politics and economics, state and business is critical.

Nobody can be sure what the future holds for sustainable trade. However, it will undoubtedly be closely linked to developments in the global political economy, as we have detailed in this report. The best- and worst-case scenarios we have described are each underpinned in different ways by the five key drivers that we identified in the first report produced by Commerzbank and Oxford Analytica, 'Insights: Five drivers of sustainable trade', launched in March 2015. These drivers are: regulatory competition and protectionism; new patterns of global demand; supply chain trends; alliances, standards and labels; and innovative finance and the role of banks.

Moreover, the course that sustainable trade takes in the next 10-15 years will depend on actions taken by corporations, financial institutions, policymakers, NGOs and individuals. This report makes clear what the positive or negative consequences of such actions could be, and we hope this encourages all stakeholders to act wisely, in the interest of promoting sustainable trade in the long term.

The report contains inputs from a range of members of our network of experts, most of whom are based at leading universities around the world and some of whom are former executives or senior public sector officials. Furthermore, we conducted interviews with five recognised thought leaders in the field of sustainable trade: Georg Kell, outgoing Executive Director, UN Global Compact; Prof. Dr. Michael Braungart,

Founder and Scientific CEO of EPEA Internationale Umweltforschung GmbH, an international environmental research and consulting institute; Sabrina Borlini, Global Manager, Trade and Commodity Finance, Financial Institution Group, International Finance Corporation; Prof. Simon Evenett, Academic Director at the St. Gallen MBA and Professor of International Trade and Economic Development, University of St. Gallen; and Dr. Valerie Wilms, Member of the Bundestag, Bündnis 90/Die Grünen. We are very grateful to each of them for giving us their time to be interviewed, and for their valuable contributions.

We look forward to continuing to support Commerzbank in shaping the debate on the future of sustainable trade.

Graham Hutchings
Chairman of the Board of Directors, Oxford Analytica



Graham Hutchings
Chairman of the Board of Directors,
Oxford Analytica

The five drivers: Where we are today

1. Introduction

In our first report, 'Insights: Five drivers of sustainable trade', launched in March 2015, we identified and analysed the five key drivers of sustainable trade in the next 10-15 years (see Figure 1). In this second report, we analyse the outlook for sustainable trade by examining two distinct, high-level scenarios with very different implications for trade over the next 10-15 years.

Figure 1. The five drivers of sustainable trade in the next 10-15 years



Under the best-case scenario for the next 10-15 years, the further opening-up and development of the world economy progresses and world trade flourishes; this enables substantial progress within many of the 25 subcomponents of the five drivers outlined in Section 3 of this introduction. Under the worst-case scenario, with slow global growth and a rise in protectionism, progress on many of these subcomponents stagnates, or in some cases even reverses. These two scenarios focus

primarily on the global economy, trade and related policy. They do not aim to analyse potential trends and developments in other very important and often related areas, such as geopolitics, violent conflicts, migration, poverty and inequality, public health or climate change.

Today there is an unfortunate lack of consensus, certainty and clarity about the many trends in sustainable trade, which in this report we define as follows:

The business and activities of buying and selling commodities, goods and services that meet such environmental, social and economic criteria capable of benefiting all actors involved to foster global sustainable development.

Moreover, rapid change is taking place in the area of sustainable trade, and companies are finding a new role in society, often in collaboration with other stakeholders.



Georg Kell,
Outgoing Executive Director,
UN Global Compact

“Companies are undergoing a transition from being merely resource extractors to being a stakeholder in society, addressing some of the most critical issues such as education or health. Foreign direct investment (FDI)¹ used to be largely about access to cheap resources. Today, as economic growth has long migrated to the East and South, FDI is increasingly about building markets. Companies are there for the long run, and this inevitably induces a willingness to collaborate in order to overcome shared growth barriers.

There is a huge wave of new forms of collaboration in the area of sustainable trade, and sustainability more broadly. More and more companies realise that to overcome challenges and growth barriers they need new forms of collaboration that go beyond the classic one-to-one partnerships model. They need alliances that span industry sectors and value chains, and that include their competitors and peers. Even market leaders realise they cannot make the necessary

impact acting alone. In this context, industry associations are undergoing a small, silent revolution. Our recent study with MIT Sloan Management Review and the Boston Consulting Group² found that sustainability-related collaborations have doubled in the last three years, and that a big share of the additional collaborative efforts are channelled towards industry associations. These industry associations are now increasingly seen as partnership hubs that support their members in addressing critical sustainability-related issues.

The big question is whether political will for market openness is maintained or whether, in this increasingly fragmenting world, protectionism and inward orientation gain the upper hand. If the answer is that we are falling back to a protectionist world then sustainable trade considerations and collaboration will diminish in importance – they will be an add-on, but not decisive criteria. In a best-case scenario, there will be an open race to the top where competition increasingly is also played out by sustainable trade performance, rewarding good performers.”

¹ Foreign direct investment is cross-border investment in which the investor acquires a significant level of control over the company in which it invests.

² ‘Joining forces: Collaboration and leadership for sustainability’, UN Global Compact, MIT Sloan Management Review and Boston Consulting Group, 12 January, 2015. <http://sloanreview.mit.edu/projects/joining-forces/>.

2. Building the scenarios

In order to construct each scenario, we held several workshops to brainstorm the most important macro forces that would differentiate the scenarios from each other over the next 10-15 years. We brainstormed what would be the most impactful macro forces on sustainable trade over this time period and the most uncertain (i.e. with the widest range of possible outcomes). Questions we debated included: What trends or uncertainties (political, economic, societal, technological) most concern you as you think about sustainable trade in 2030? Which give you the most hope? What would be the single most positive development for sustainable trade over the next 10-15 years, however unlikely it may seem? What would be the most disruptive? If you could have any question about the next 10-15 years answered about sustainable trade, what would you want to know?

The two macro forces selected incorporate many aspects of our collective answers to these questions. The first macro force selected was ‘globalisation/integration’: Will countries embrace accelerated globalisation or resort to protectionist and isolationist measures? The second macro force selected was ‘innovation’: Will innovation – in terms primarily of technology, but also of policy – be strong or will it be weak/stagnant? Our two scenarios consider what kind of futures different combinations of globalisation/integration with innovation might produce.

3. Deconstructing the five drivers

Tables 1-5 below outline where we stand today on each of the five drivers, compared to where we could optimally be, by deconstructing those drivers and evaluating the different components. Where there is a significant divergence between OECD and non-OECD countries, this is highlighted.

Table 1. Current state of play on key components of Driver 1

Strong			Weak			How supportive of sustainable trade?			Weak			Strong		
						OECD	Level of sustainable trade regulation	Non-OECD						
						OECD	Enforcement by authorities on sustainable trade issues	Non-OECD						
						OECD	Standards on sustainability reporting and their implementation	Non-OECD						
						OECD	Role of government authorities in supporting sustainable trade	Non-OECD						
						OECD	Pursuit of sustainability objectives in multilateral and bilateral trade	Non-OECD						

Driver 1. Regulatory competition – and protectionism

EU regulation is often regarded as best practice in the area of sustainability, and governments in other parts of the world have replicated some EU regulations. The EU (and more generally most of the OECD) has integrated sustainability objectives at the multilateral, bilateral and unilateral levels in its trade policy.

The EU’s new directive on non-financial reporting is going to help to entrench and standardise reporting on sustainability by corporations further. In addition, the OECD export credit sector plays an important role

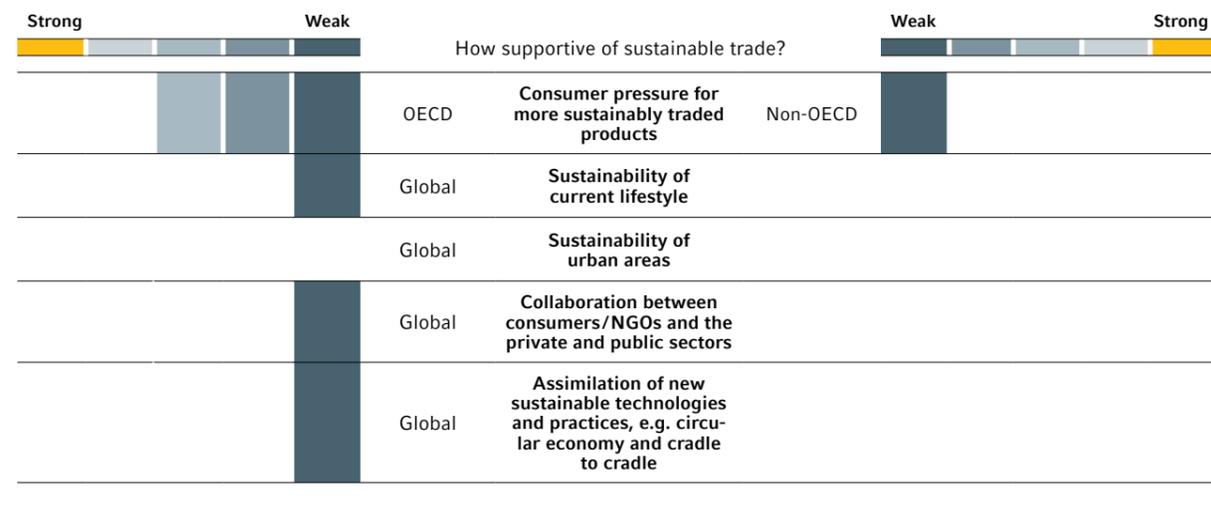
in driving sustainable trade at a global level. The EU has implemented schemes to help companies, especially SMEs, to meet the costs of complying with ‘best practice’ sustainability regulation and reporting. Research has shown that the efforts undertaken by companies to comply can boost innovation.³

Despite its efforts, the EU does not have a distinct ‘sustainable trade vision’ as such.⁴ Even in the EU, and more generally in the OECD, in many areas regulation has struggled to keep pace with sustainable trade initiatives that have been put in place by the private sector, NGOs and multilateral organisations.

³ ‘Insights: Five drivers of sustainable trade’, Commerzbank in cooperation with Oxford Analytica, March 2015.

⁴ http://ec.europa.eu/environment/integration/trade_en.htm

Table 2. Current state of play on key components of Driver 2



Driver 2. New patterns of global demand

Currently, consumers in OECD countries are more active than their non-OECD counterparts in driving initiatives on sustainable trade. They do this in part by performing a ‘monitoring’ role, scrutinising trade activity (increasingly using online mass and social media), and in part through their choices of products and services. Citizen awareness and concern for sustainable trade is generally lower in non-OECD countries, where many consumers prioritise fulfilling basic needs or purchasing good-value products.

Table 3. Current state of play on key components of Driver 3



Driver 3. Supply chain trends

Today, most large corporations have sustainability-related risks or weaknesses in their global supply chains. Such risks and weaknesses are in the areas of human rights, working conditions, corruption, pollution, energy waste and suboptimal use of raw material inputs. Many leading corporations are trying to take a

long-term, strategic approach to engaging with these issues. However, the increasingly competitive global market often creates tensions between that strategic approach and focusing on short-term survival and profit. These tensions are frequently not yet resolved, and as a result there is still some way to go before supply chains become truly sustainable.

Table 4. Current state of play on key components of Driver 4



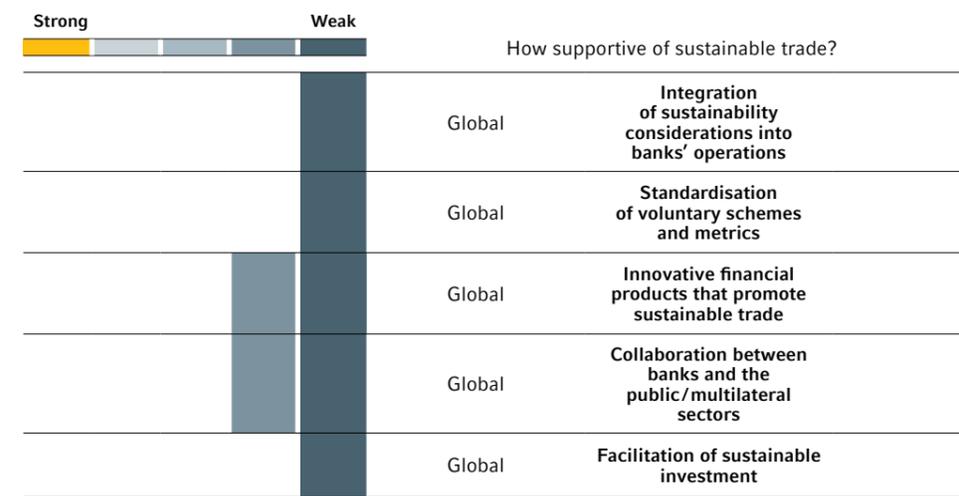
Driver 4. Alliances, standards and labels

Open collaboration between the private sector and NGOs, suppliers and consumers is taking place at many levels, generating ideas for improving the sustainability of trade. For example, in 2013, there were more than 110 national and international business-led sustainability coalitions, and several hundred industry- and issue-specific coalitions.⁵ However, there are only a few examples of cor-

porate functions such as research and development (R&D) and marketing being undertaken through such open collaboration. In many cases, alliances of firms and other stakeholders are ahead of regulation, by self-regulating on sustainable trade issues. However, public and private sector collaboration is required to identify solutions to increasingly intense resource challenges in the areas of energy, raw materials, water, food and clean air.

⁵ David Grayson and Jane Nelson, 'Corporate responsibility coalitions: the past, present and future of alliances for sustainable capitalism', Stanford University Press, 2013.

Table 5. Current state of play on key components of Driver 5



Driver 5. Innovative finance and the role of banks

Already, the risk management mandates of most leading banks and insurers place some form of requirements on firms engaged in trade to demonstrate sound strategies for sustainability-related risk exposure. Banking practices are driven primarily by commercial considerations around risk and opportunity calculations, but sustainability issues have a growing weight in reaching those assessments.

As the above tables show, each of the five drivers outlined is already having some degree of impact on the nature of sustainable trade. As we describe how each of the two scenarios plays out, we will refer back to the five drivers.

This enables the reader to chart the role of the drivers in each case. The drivers help to shape each scenario and in parallel, as each scenario develops, it shapes the drivers.

The final chapter of this report uses the five drivers to provide a summary of a realistic outlook for sustainable trade for the next 10-15 years, drawing on aspects from both scenarios. This chapter also offers a set of recommendations for policymakers, corporations, the banking sector, and society (NGOs and consumers). In the future, more attention needs to be paid to sustainable trade, which should also receive more government incentives and private sector funding. In part, this report is an effort to draw attention to this need.

Scenario 1: A sustainable global future emerges

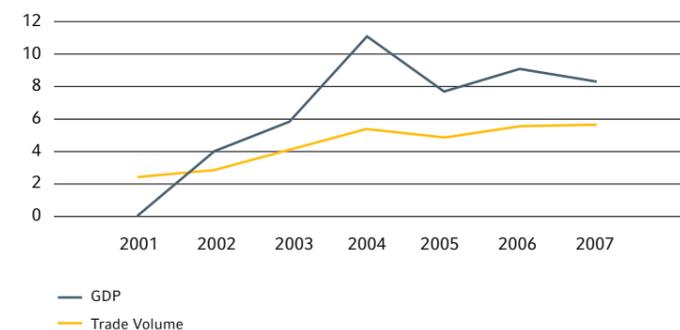
1. Introduction

In this best-case scenario, we envisage a return to robust economic growth around the world, such that financial resources and collaboration further develop international business, increase employment (and thus social inclusion), grow the skills of workforces, and fund research and development (R&D). The return to high rates of growth both requires and creates innovation of all kinds, and stimulates investment, including investment in human capital. Against this background, trends towards sustainable development and trade develop a wide following and set deep roots.

In economic growth terms, the best-case scenario can be likened to a return to the 'golden growth' years of a decade ago, when globalisation took off and living standards in non-OECD countries improved rapidly, driving up annual world GDP growth to the 4-5% range and annual world trade growth to double these rates, compared with today's lacklustre 3% annual growth (see Figure 1). Around 50-60% of such GDP growth is likely to come from technical progress, based on a mix of employee skills and innovative techniques and products.

The best-case scenario can be likened to a return to the 'golden growth' years of a decade ago.

Figure 1. GDP and trade volume growth (%) between 2001 and 2007



Source: IMF

Yet, in spite of the similarity based on high rates of economic expansion, some important aspects of this new 'golden age' scenario are different. This is an increasingly wealthy but also informed age for populations everywhere. The next 10-15 years see more educated populations with the power to vote but also the power to influence corporate decisions

and to shape their own futures. Companies themselves look for strong relationships with counterparts and customers, not just for lower costs and higher sales. In this future world, the drivers of success become more closely identified with the drivers of sustainable development and trade, enabling the latter to progress rapidly.

Non-OECD countries catch up significantly with their OECD counterparts in sustainable trade policy.

In 10-15 years, if the world experiences the rapid growth and trade expansion we envisage in this scenario, it will become even more globalised and integrated than today, and innovation in technology, policy and finance will contribute to rising living standards as well as a more sustainable world economy. In this best-case scenario, non-OECD countries catch up significantly with their OECD counterparts in sustainable trade policy and in how this is encouraged and enforced. Just as access to and use of new technologies and innovative products accelerate markedly, so it becomes much easier and quicker to assimilate global 'best practices' in terms of acquiring knowledge about sustainable trade practices and purchasing goods and services that are sustainably produced and traded. Free trade agreements (FTAs) proliferate on both a bilateral and regional basis. The majority of new FTAs contain detailed provisions on sustainability.

Due to the pressure of continued globalisation and rapid innovation coupled with a drive towards sustainable trade, the economic model changes. Momentum towards 'circular' and 'cradle to cradle', 'functional' and 'sharing' economies is strong and appears irreversible. The EU and other leading OECD countries introduce metrics at the national level that complement GDP and provide a more complete gauge of wellbeing. Citizens increasingly assess performance based on this broader measure.

Governments and firms work together to overcome the obstacle of sustainable trade regulation compliance costs, in terms of time and money. Public-private partnerships and collaboration also permit rapid penetration of game-changing technologies in areas such as additive manufacturing, service robotics and water technologies. In energy markets, the EU, China and other countries make substantial progress in developing well-functioning carbon markets, and a global price for carbon – the basis of a coherent global energy policy – is close to being established by the end of the 10-15 year timeframe.

Meanwhile, the global consumer class is not only wealthier and more powerful in the world economy than ever, but it also becomes a much more active force for change than it is today. Consumer pressure on governments and corporations, enabled by a variety of new technologies and expressed partly through investment and divestment decisions, is much better informed and more direct than it used to be.

Under this scenario, in 10-15 years' time, the five drivers of sustainable trade have all become much more powerful than today. The macro forces of globalisation/integration and innovation have helped to push the impact of these drivers to new levels. In the following sections, we trace the development of the best-case scenario over the next 10-15 years and analyse specific developments that highlight or shape the role being played by the five drivers.

2. The economy: Progress towards a new model

2.1. Introduction

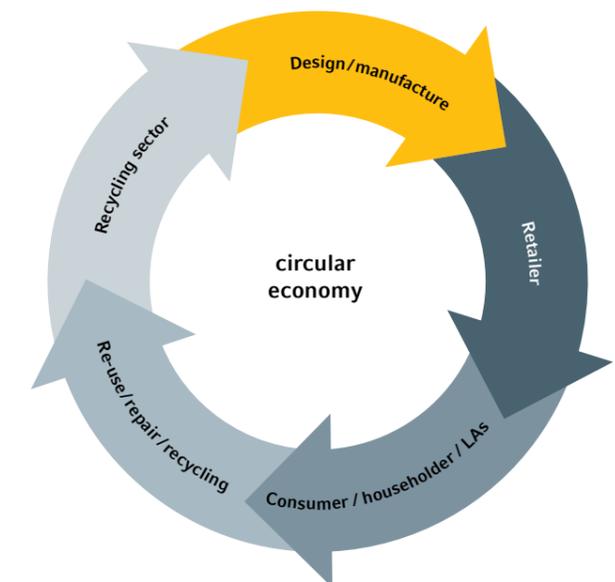
Under the best-case scenario, progress is made towards a new, sustainable economic model. This model is a combination of the 'circular' and 'cradle to cradle', 'functional' and 'sharing' economies. These approaches depend on the adoption of a different mindset and a cultural change compared to today's production system, from the perspective of both consumers and business. The approaches are inherently collaborative and participatory. **(Driver 2: New patterns of global demand.)**

2.2. The circular economy and 'cradle to cradle'

The circular economy concept aims to eradicate waste and reduce the overall consumption of raw materials during production – in a systematic way, not just through incremental efficiency gains (see Figure 2). Strategies relevant to the circular economy include: 'lightweighting' (reducing materials used in products); increasing durability to extend the time in which a product delivers its service; encouraging more efficient use of energy and materials both in production and product use; reducing use of hazardous materials and those difficult to recycle, in both design and production; developing standards and public procurement policies that create markets for recycled raw materials; implementing ecodesign, so that products are easier to maintain, repair, upgrade, remanufacture or recycle; developing maintenance and repair services to encourage acceptance of ecodesigned products; and creating collection systems that minimise recycling costs, and encourage re-use.

Progress is made towards a new, sustainable economic model: a combination of the 'circular' and 'cradle to cradle', 'functional' and 'sharing' economies.

Figure 2. The circular economy



Source: www.waste-management-world.com. Note: LAs = local authorities.

The 2014 World Economic Forum (WEF) Annual Meeting in Davos launched 'Project Mainstream' to create a more circular system for packaging, covering multiple industries, over twenty years. McKinsey, which is partnering with the WEF on the project, estimates that it could save one trillion dollars in materials per annum by 2025 and prevent 100 million tonnes of waste globally.⁶

The European Commission on 28 May, 2015 sent for public consultation an ambitious circular economy package for increasing resource efficiency, which it is likely to release to coincide with the United Nations Framework Convention on Climate Change (UNFCCC) 21st Conference of the Parties (COP21) meetings in Paris in December 2015.⁷ This new proposal moves beyond the Commission's July 2014 proposals that focused almost exclusively on waste reduction; instead, it applies to the entire value chain, including sourcing, design and production, and will incorporate changed public procurement standards. The Commission proposal represents the most significant public endorsement of the circular economy concept to date. **(Driver 1: Regulatory competition – and protectionism.)**

In its optimal form, the circular economy involves 'cradle to cradle' production; the efficient and essentially waste-free development of a product whereby all inputs can be recycled in a non-toxic closed loop. This implies the recycling, upcycling or re-use (in all cases without any loss of quality), or composting or consumption of all material inputs and outputs,⁸ requiring coordination across the entire supply and distribution chain. Hundreds of companies have adopted cradle to cradle-inspired approaches for product development and some countries are advancing policies based on the model. **(Driver 3: Supply chain trends.)**

The Netherlands has been an early adopter of cradle to cradle design. For example, the city of Venlo has used the cradle to cradle principles on a large scale, the first city in the world to do so. The city hosts a cradle to cradle product certification training centre and C2C ExpoLAB,⁹ a cradle to cradle consultancy, and has developed several initiatives to test the cradle to cradle concept, including cradle to cradle designed buildings and circular economy education activities. Also in the Netherlands, Delta Development, Schiphol Trade Park and the Ellen MacArthur Foundation recently launched 'The Valley', an innovation area at Amsterdam airport that aims to accelerate the circular economy by showcasing cradle to cradle design and processes at scale.¹⁰

The Netherlands has been an early adopter of cradle to cradle design.

⁶ www.weforum.org/reports/project-mainstream-global-collaboration-accelerate-transition-towards-circular-economy

⁷ www.ec.europa.eu/smart-regulation/impact/planned_ia/docs/2015_env_065_env+032_circular_economy_en.pdf

⁸ www.sustainabilitydictionary.com/cradle-to-cradle

⁹ www.c2cxpolab.eu/en

¹⁰ www.schipholtradepark.com/sub-areas/valley

"The cradle to cradle approach stems from a realisation that our current organisation of society, and how natural resources are used, is unsustainable. At present, sustainability efforts usually are more about minimising damage, instead of actively improving environmental and social problems.

There are now over 7,000 cradle to cradle products on the market, most of them in OECD countries. Cradle to cradle represents a new model and will take time to become the dominant production model; however, its penetration of the market is taking place at a rate that is much faster than experienced by, for example, the internet or mobile telephony as those new technologies were rolled out.

In the OECD, the biggest challenge facing cradle to cradle is the speed with which industry is shifting to non-OECD countries. For example, the (leather) tanning industry has become significantly more sustainable in the OECD in recent years, but in parallel that industry has been moving outside the OECD. In other words, the potential market for cradle to cradle is shrinking in the OECD, perhaps faster than cradle to cradle can be rolled out. Thus, cradle to cradle faces a race against time to develop.

An increasing number of countries, for example Taiwan and the Netherlands, are seeking to re-orient their production systems towards cradle to cradle. The country that has so far been most successful at implementing cradle to cradle is Japan. This is because in Japan cradle to cradle is established as an aspect of Total Quality Management.¹¹ This is different to Europe and the United States, where cradle to cradle is regarded primarily as an ethical or environmental consideration. In times of economic stress, it is more likely that quality considerations remain relevant, while ethical or environmental concerns might take a back seat."



Prof. Dr. Michael Braungart, Founder and Scientific CEO of EPEA Internationale Umweltforschung GmbH, an international environmental research and consulting institute headquartered in Hamburg. He is the co-founder and scientific director of McDonough Braungart Design Chemistry (MBDC) in Charlottesville, Virginia (USA), co-founder and scientific manager of Hamburger Umweltinstitut (HUI) (a non-profit research center) as well as director of Braungart Consulting in Hamburg. He is professor of Process Engineering at Leuphana University of Lüneburg and holds the chair for Cradle to Cradle® & Eco-Efficacy.

¹¹ Total Quality Management is a management approach that involves maintaining a continuous organisation-wide focus on improving the quality of products and services

Further technological breakthroughs are likely to support the spread of cradle to cradle; but complete social adoption of the approach will take longer than 10-15 years.

Further technological breakthroughs are likely to support the spread of cradle to cradle in the coming years. For example, a huge boost may be provided by the recycling of carbon dioxide to create synthetic petrol and diesel. German company Sunfire is one of the leaders in this area; its pioneering work is supported by the German government and by several large corporations, including Total, EDF and Bilfinger.¹² Other research in the area of recycling carbon dioxide involves using it in the production of carbon fibre.¹³

Meanwhile, companies are emerging that occupy niches in the transformation of products or sectors towards cradle to cradle production. One example is German company Teqport, which supports corporations, primarily in the information technology and communications sector, in recycling and remarketing their products.¹⁴ **(Driver 3: Supply chain trends.)**

The Cradle to Cradle Products Innovation Institute¹⁵ provides a third-party standard for certifying products. Certification is based on meeting five quality categories: material health, material reutilisation, renewable energy and carbon management, water stewardship, and social fairness. A 2014 study on a small sample of cradle to cradle-certified products done by the Institute together with Trucost, an international sustainability consulting firm, found that there was a 6 % increase in revenues the year following certification as well as a 21 % increase in sales in the certified

product versus industry benchmarks.¹⁶ **(Driver 4: Alliances, standards and labels.)**

Even in a best-case scenario, complete societal adoption of a cradle to cradle approach will take longer than 10-15 years, as it requires the adoption of a new mindset across the entire supply and distribution chains. It must gradually overcome several barriers, including the issue of acceptable material sourcing. In a best-case scenario, technological breakthroughs – such as recycling carbon dioxide (see Section 2.2 above) or the recently developed carbon battery by Power Japan Plus that contains no rare metals, rare earth elements or heavy metals, and is 100 % recyclable – will provide important foundations for the commercialisation of waste-free products. **(Driver 3: Supply chain trends.)**

Government programmes to mainstream circular production gather pace and influence increasing numbers of businesses. For example, the EU's LIFE+ programme becomes increasingly focused on supporting circular projects, in line with the European Commission's new proposal on the circular economy (see Section 2.2 above). The general objective of LIFE+ is to contribute to the implementation, updating and development of EU environmental and climate policy and legislation by co-financing projects.¹⁷ Overall, over the next 10-15 years, EU regulation begins to consolidate the circular economy. **(Driver 1: Regulatory competition – and protectionism.)**

2.3. The functional and sharing economies

The functional economy (also referred to as the 'functional service economy' or 'performance economy') – where companies sell usage and service rather than products – represents a move away from traditional ownership patterns and consumption attitudes, aiming to reduce waste linked to increased consumption. Services may include carsharing, renting equipment or products, and providing maintenance, upgrades or training. Companies compete over delivering the best services rather than focusing on maximising sales of material products. Profitability is gained by maximising usability of products. **(Driver 2: New patterns of global demand.)**

The sharing economy overlaps with the functional economy, but is primarily focused – in its present form – on the renting of assets, often using sophisticated digital platforms. In both the EU and United States, momentum is growing in favour of sharing economy firms, premised on the prospect of consumer and economic benefits.

In areas such as car, equipment and accommodation use, home delivery and shopping, peer-to-peer (P2P) finance and staff provision, internet-based sharing economy companies such as Uber, Airbnb, TaskRabbit, Funding Circle and WeWork have established significant market presence and raised substantial capital to deliver their services. Advocates of the sharing economy claim that such services harness the network effects of the web to deliver more flexible services to consumers. However, some European economies, including Germany, have so far taken a tough stance against some sharing economy firms. Over the next 10-15 years, this is likely to change. The sharing economy's deregulatory impulse chimes with the EU single market's consumer-focused objectives. There are already signs that the European Commission is sympathetic to the sharing economy model. **(Driver 1: regulatory competition – and protectionism.)**

The functional and sharing economies represent moves away from traditional ownership patterns and consumption attitudes.

¹² www.sunfire.de

¹³ A research team at George Washington University led by Professor Stuart Licht is undertaking pioneering work in this field: <http://home.gwu.edu/~slicht/>

¹⁴ www.teqport.com

¹⁵ www.c2ccertified.org

¹⁶ 'Impacts of the cradle to cradle certified products program', Cradle to Cradle Products Innovation Institute and Trucost Plc, 2014. Technical report: http://s3.amazonaws.com/c2c-website/resources/impact_study_technical_report.pdf

¹⁷ LIFE began in 1992 and to date there have been four complete phases of the programme (LIFE I: 1992-1995, LIFE II: 1996-1999, LIFE III: 2000-2006 and LIFE+: 2007-2013). During this period, LIFE has co-financed over 4,000 projects, at a total value of 3.4 billion euros. <http://ec.europa.eu/environment/life/about/index.htm>

Sharing products

A global survey in 2014 by market research firm Nielsen found that 68 % of respondents were willing to share or rent personal items, including electronic devices, power tools, bicycles, clothing and sports equipment. Asia-Pacific respondents were more likely than respondents elsewhere to rent items from others.¹⁸

The online consumer product sharing economy is already well-established in OECD markets, with companies such as Germany's erento, Belgium-based Zilok, and Hire Things in New Zealand providing members with platforms to rent their personal belongings to other people to make a profit and, simultaneously, reduce the impact on the environment.

¹⁸ www.nielsen.com/lb/en/press-room/2014/global-consumers-embrace-the-share-economy.html

2.4. Measuring beyond GDP

As the circular, functional and sharing economies grow, so the primacy of gross domestic product (GDP) as the measure of economic success is increasingly challenged. Already today, environmentalists believe that focusing on a narrow definition of GDP leads to an overemphasis on growth at the expense of sustainability, while ‘happiness’ advocates argue that GDP ought to be replaced with more direct indicators of wellbeing. Measuring what is happening to the economy’s natural, physical and human capital is needed to properly report on sustainability. Several governments, including those of Germany and France, have conducted research into implementing alternative measures of GDP. However, the country that has gone the furthest down this route is Bhutan.

Bhutan: Gross National Happiness

Bhutan has used the concept of Gross National Happiness (GNH) to guide government policy implementation since 1972. GNH, which is based on four pillars – 1) sustainable and equitable socioeconomic development; 2) preservation and promotion of culture; 3) conservation of the environment; and 4) good governance – emphasises that current pursuit of development should not cause misery to future generations or other societies. While GNH recognises the importance of individual happiness, it emphasises that happiness must be realised as a collective or societal goal and not be defined as an individualised or competitive good. It is concerned that limiting happiness to an individual competitive pursuit introduces potential inequalities and unjust externalisation of costs. Unlike GDP-based economic models, the philosophy of GNH considers economic growth as one of the means towards achieving happiness and not as the ultimate objective of development.

Focus grows on the measurement of material flows and ‘decoupling’ of human wellbeing from environmental impact.

Over the next 10-15 years, focus also grows on the measurement of material flows and ‘decoupling’ of human wellbeing from environmental impact. Material flow

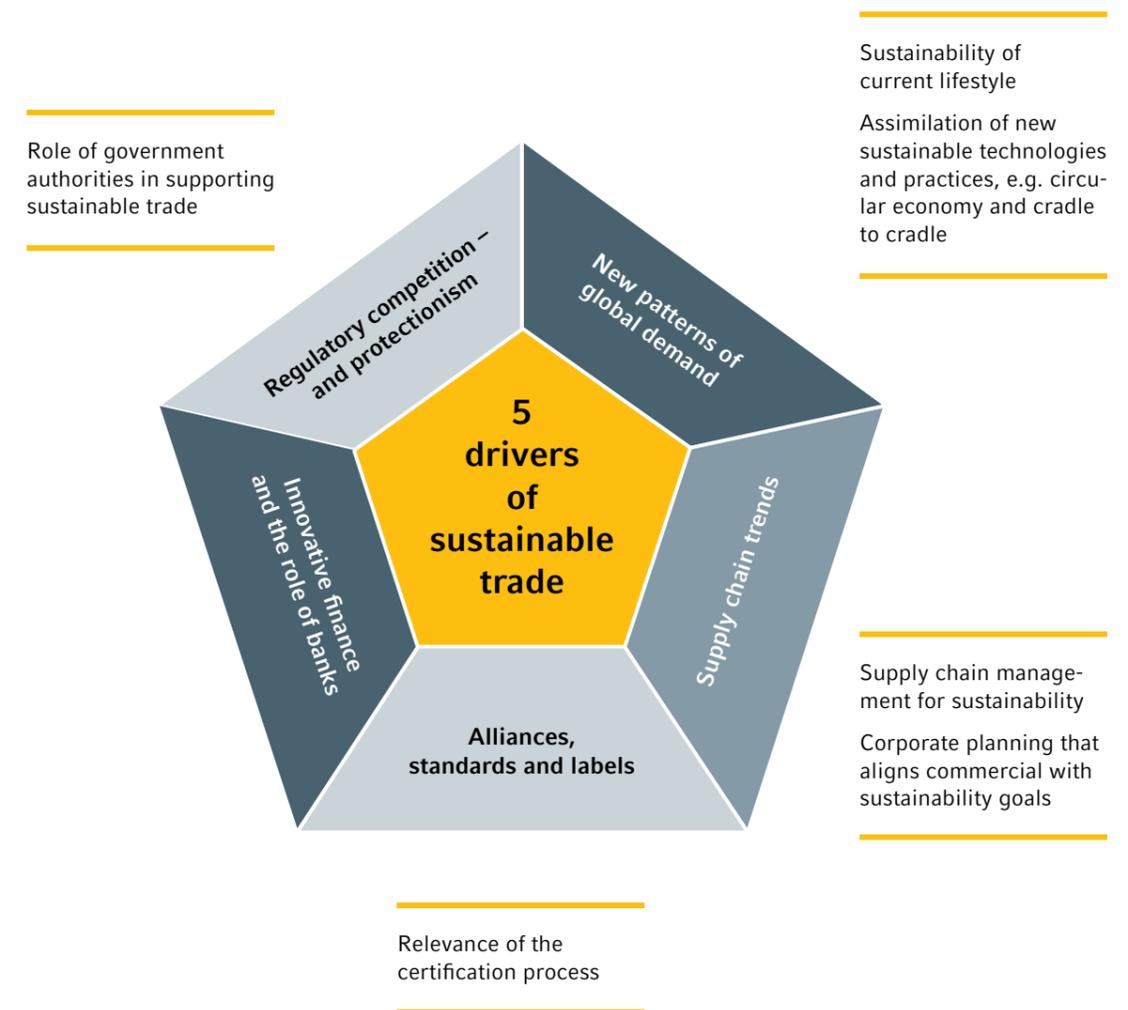
analysis places greater emphasis on understanding all aspects of the trade in natural resources. Many European countries are big importers of hard and soft commodities, with the resources used to produce them and the environmental impacts occurring on other continents. Europe also imports manufactured goods from outsourced ‘dirty’ industries and ‘virtual water’ embedded in food. European policymakers thus need to reason globally in order to assess the full environmental impact of Europe’s trade with the rest of the world, and for that, specific metrics are required.

(Driver 4: Alliances, standards and labels.)

Eurostat, the EU statistical agency, is engaged in measuring materials consumption and material or resource efficiency of EU member states. Under the best-case scenario, the development of such metrics progresses fast. However, it is likely to take more than 10-15 years for a substantial decoupling of European economic development from natural resources consumption within the EU and abroad to take place.

As the global economy progresses to a new model, among our five drivers two are particularly critical: **Driver 2: New patterns of global demand** and **Driver 3: Supply chain trends** (see Figure 3).

Figure 3. Key driver components as the economy progresses to a new model



3. Globalisation flourishes

3.1. Introduction

In the best-case scenario, most or all OECD economies and many large non-OECD markets are committed to maintaining or increasing levels of cross-border trade. Bilateral and multilateral trade disputes will inevitably take place, but in this best-case scenario, such disputes do not occur in ways that are systemic, frequent or punitive enough to discourage cross-border cooperation. The best-case scenario can still be achieved if some economies play the role of 'rogue traders'; i.e. through isolation and/or self-isolation from trading standards, failure to adhere to the WTO dispute resolution process, or exclusion from various forms of financial intermediation.

Trade deals increasingly incorporate the highest of the standards that pre-exist among trading partners.

ingly common for improved practices in the area of sustainable trade to be adopted more widely geographically: trade deals increasingly incorporate the highest of the standards that pre-exist among the trading partners. This is partly because consumer pressure makes it difficult to loosen standards on sustainable trade that have become well established. **(Driver 2: New patterns of global demand.)**

3.2. Trade agreements foster sustainable trade

As a consequence of this deepening of trade relationships, it becomes increasingly

3.3. Sustainability conditionality for trade

Trade conditionality is applied on criteria such as carbon and greenhouse gas emissions, biodiversity and ecosystem preservation.

Aside from FTAs, the EU's trade negotiations rely on a differentiated system of trade preferences.

The EU currently has two 'speeds' for access to its Single Market: better access (i.e. less red tape) is given to countries that implement tough rules on labour rights and the environment. The EU recently concluded a deal with Bangladesh to grant better access in exchange for measures favouring safety regulations and human rights at work. In this scenario, such agreements become common. Conditionality is applied on criteria such as carbon and greenhouse gas emissions, biodiversity and ecosystem preservation. That would mean in-

corporating more sustainability criteria into the Generalised Scheme of Preferences + (GSP+) scheme. In this scenario, such a system starts to be replicated in other markets (in addition to the EU) over the next 10-15 years and possibly even included in World Trade Organization rules, via the expansion of the Green Goods Initiative, launched by the EU with 13 other WTO members in January 2014. This initiative aims primarily to eliminate tariffs on a broad list of green goods. **(Driver 1: Regulatory competition – and protectionism.)**

At the national level, an increasing number of countries develop strategies that aim to combine resource security with sustainability goals. For example, in 2010 the German federal government adopted a raw materials strategy²³ that integrates foreign, trade and development policy approaches and objectives.

¹⁹ Lorand Bartels, 'Human Rights and Sustainable Development Obligations in EU Free Trade Agreements', University of Cambridge Faculty of Law Research Paper No. 24/2012.

²⁰ The GSP allows developing country exporters to pay less or no duties on their exports to the EU. GSP+ means full removal of tariffs on a similar set of product categories to those covered by GSP.

²¹ Evita Schmieg, 'Human Rights and Sustainability in Free Trade Agreements Can the Cariforum-EU Economic Partnership Agreement Serve as a Model?', Stiftung Wissenschaft und Politik, 2012.

²² 'Facts and figures: EU trade agreement with Singapore', European Commission, 16 December, 2012.

EU FTAs that foster sustainable trade

The first of the EU's free trade agreements (FTAs) to make reference to the principle of sustainable development was the 1993 EU-Hungary Europe Agreement.¹⁹ Since then, the EU has promoted sustainable development with its trading partners using both the Generalised Scheme of Preferences + (GSP+) arrangement²⁰ and its FTAs. The EU's 2008 Economic Partnership Agreement (EPA) with the Caribbean Forum (Cariforum) was at the time highlighted as a 'best practice' in respect of its inclusion of sustainable trade criteria.²¹ The agreement explicitly pursues an overarching objective of sustainable development, in addition to containing numerous provisions related to aspects of sustainability.

The EU-Mexico FTA – the Economic Partnership, Political Coordination and Cooperation Agreement – established a High Level Dialogue on the Environment in 2008 to strengthen cooperation in areas such as sustainable production and consumption. In 2012, the EU and Singapore signed the world's first 'green FTA', especially designed to promote green growth, including the green technology sector.²²

The agreement is likely to serve as a reference point for future FTAs. The more recently negotiated treaty between the EU and Canada – the Comprehensive Economic and Trade Agreement (CETA), likely to become operational in 2016, includes a strong commitment to the principles and objectives of sustainable development. Both parties encourage the involvement of civil society representatives to help implement and monitor the agreement.

Germany's raw materials strategy

The goal of the strategy is to guarantee long-term security of supply of so-called 'critical' raw materials (strategic natural resources) for German industry. The strategy states that sustainable development and economic and social progress are not possible without good governance, respect for human rights and compliance with environmental and social standards.

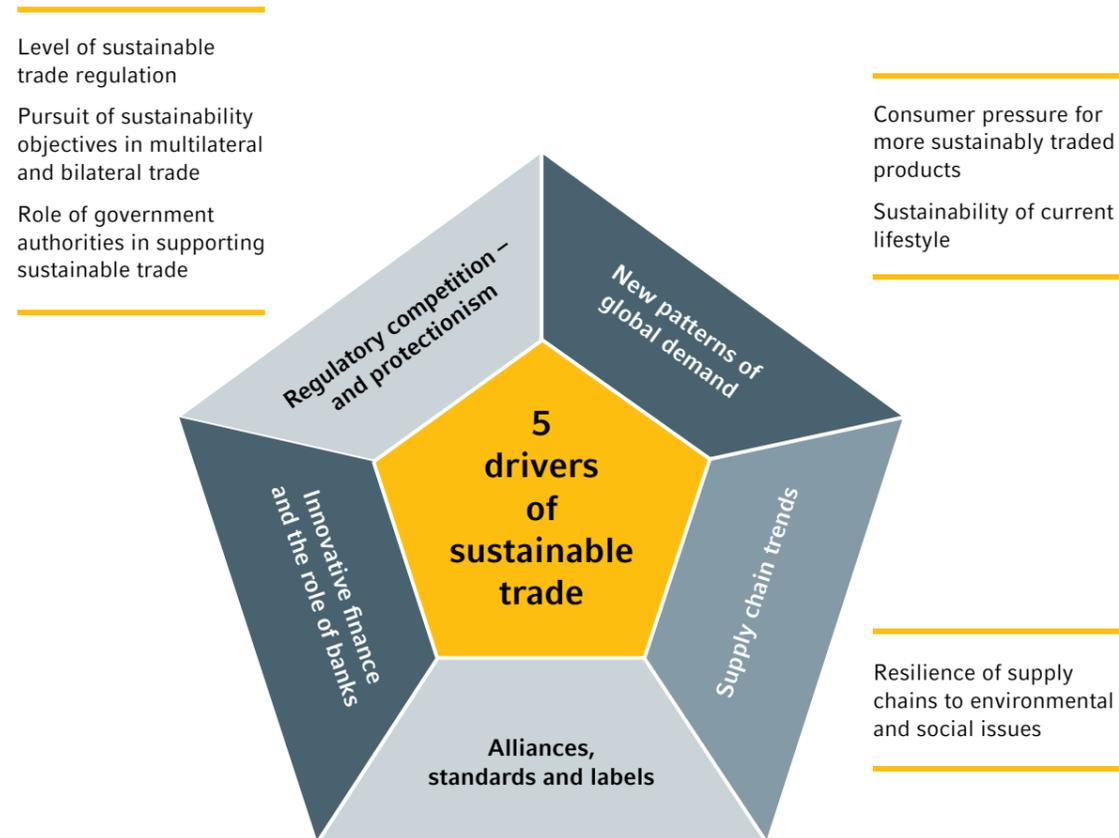
The core objectives of the raw materials strategy are: reducing trade barriers and distortions of competition; helping commerce to diversify its sources of raw materials; helping commerce to develop synergies from sustainable economic activity and enhanced materials efficiency; developing technologies and instruments to improve the conditions for recycling; establishing bilateral raw materials partnerships with selected countries; doing research into substitution and materials in order to open up fresh options; focusing research programmes relating to raw materials; creating transparency and good governance in raw materials extraction; and integrating national measures with European policy on raw materials.

In line with its raw materials strategy, Germany and Kazakhstan agreed in April 2015 to cooperate on projects in the field of energy savings and energy efficiency, building on the raw materials, industry and technologies partnership signed between the two countries in 2012. In October 2014, Germany also expanded its raw materials partnership with Mongolia to strengthen cooperation on renewable energies and energy efficiency.

²³ www.bmwi.de/English/Redaktion/Pdf/raw-materials-strategy,property=pdf,bereich=bmwi2012,sprache=en,rwb=true.pdf

In support of the flourishing of globalisation detailed in this section, among our five drivers there is rapid progress under both **Driver 1: Regulatory competition – and protectionism** and **Driver 2: New patterns of global demand** (see Figure 4).

Figure 4. Key driver components as globalisation flourishes



4. Technology: Accelerating change

4.1. Introduction

In the best-case scenario, the global economy makes rapid progress in policy innovation and technology, which together generate substantial productivity improvements. Rising productivity helps the European economy to return to solid economic growth over the next 10-15 years. Short-term shocks, such as a potential Greek default and contagion, are overcome without deviating significantly from this long-term positive growth path given the underlying rise in productivity in Europe.

Critical breakthroughs in innovation allow for medium- and high-tech 'in-sourcing' by corporations, helping supply chains to become more sustainable and resilient.

Coupled with steady enhancement of 'green' regulatory frameworks worldwide, institutions, corporates and banks are able to encourage the growth of sustainable trade through this increasing productivity.

Critical breakthroughs in innovation occur, for example in additive manufacturing, robotics, digitisation, and water management and technology, allowing for medium- and high-tech 'in-sourcing' by corporations, helping supply chains to become more sustainable and resilient. **(Driver 3. Supply chain trends.)**

4.2. Additive manufacturing

Additive manufacturing (AM) involves making three-dimensional objects using a digital file, by joining together a series of layers. Its growth has so far been fuelled by demand for low-volume, high-value components – primarily in the aerospace and automotive sectors. There is tremendous potential for growth in AM (see Figure 5). Nonetheless, as noted by the UK Royal Academy of Engineering, AM is

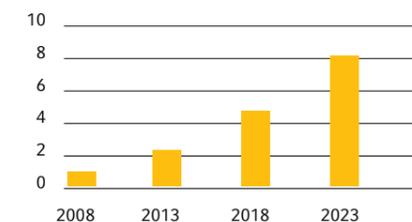
not inherently more sustainable than traditional manufacturing supply chains.²⁴ The key to making AM a driver of sustainable trade is in the materials used – lightweight, non-metallic, non-toxic polymers with a range of applications across fast-growing sectors such as biotechnology and personalised medicine.

These polymers have the potential to replace titanium and aluminium in the creation of transport components, with the main benefits to sustainability arising from lower transport costs (of the components themselves) and lighter-weight vehicles that consume less fossil fuel.

The majority of public and private R&D for AM is currently taking place in OECD countries. Over the course of this scenario, an increasing number of companies become able to scale up AM processes and develop the rapidly advancing software that enables AM. Increasingly, AM gains a competitive advantage in some sectors compared to traditional manufacturing. **(Driver 3. Supply chain trends.)**

²⁴ 'Additive manufacturing: Opportunities and constraints', Royal Academy of Engineering, 23 May, 2013. See www.raeng.org.uk/publications/reports/additive-manufacturing

Figure 5: Projected global additive manufacturing market size from 2008 to 2023 (billion euros)



Source: Roland Berger

Over the next 10-15 years, the service sector is rapidly transformed by robotics.

4.3. Robotics

Robotics is set for rapid growth (see Figure 6). Over the next 10-15 years, the service sector in particular is rapidly transformed. Advances in machine vision, tactile sensors, autonomous navigation and big data enable service robots to transform the workplace and consumer lifestyles. As citizens start to benefit from service robots in their homes and popular consumer-oriented companies use robot technology, public interest increases rapidly. Service robots are used much more on production lines to perform intricate tasks, raising productivity in the same way that they already have in the automotive sector. **(Driver 2: New patterns of global demand.)**

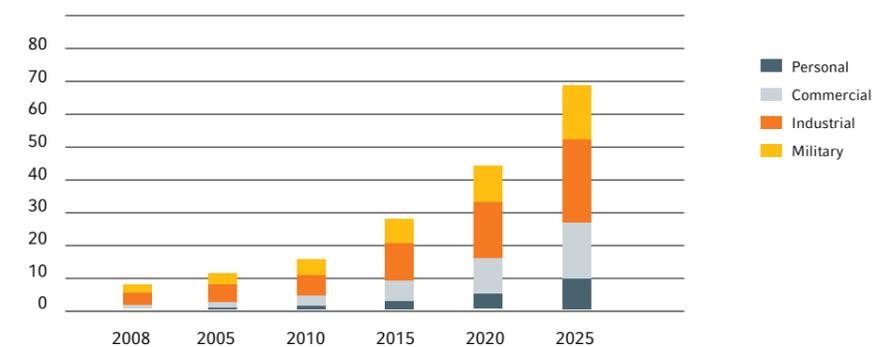
Sectors that are likely to benefit from service robotics include health-care (e.g. autonomous vehicles already ferry laundry or waste around hospitals; surgical robots are making new forms of minimally invasive surgery possible; and robots can monitor patients²⁵), logistics, defence, agriculture and the film industry. **(Driver 3: Supply chain trends.)**

The growth of robotics used in manufacturing (in industry and the military) continues as well. Like the growth of service robotics, this has a substantial impact on corporate efficiency, enabling a simplification of supply chains through automation, re-shoring and a reduction in corporate energy needs. Often, re-shoring has the positive side effect of enhancing supply chain sustainability – but sometimes local production turns out to be less sustainable overall, even if costs and resources related to transport are reduced. **(Driver 3: Supply chain trends.)**

However, the growth of manufacturing robotics may lead to job losses. Many low-skilled workers face competition from robots and entire manufacturing subsectors are likely to reduce employment levels. However, at the same time manufacturing robotics creates a platform for new, creative business models. Some start-up companies will find ways of using manufacturing robots that enable them to become large corporations, thereby again creating employment for humans. Moreover, rising labour market pressure caused by the shift to manufacturing robotics could lead to policy initiatives that aim to re-train workers in more advanced skills that robots cannot perform. Education policy and funding devoted to relevant training will become increasingly strong determinants of a country's ability to succeed in the robotics age.

²⁵ For example, the GiraffPlus telepresence robot can monitor blood pressure and determine whether a patient has fallen. See www.giraffplus.eu

Figure 6: Growth outlook for the global robotics market (billion US dollars)



Source: International Federation of Robotics, Japan Robot Association; Japan Ministry of Economy, Trade & Industry, euRobotics; Boston Consulting Group

4.4. Digitisation

Digitisation has already had a dramatic impact on the established business models of a range of industries and markets, forcing firms to review traditional approaches to creating value. The impact has been particularly notable in data-intensive industries, where content can be digitised and delivered via the internet – music, films, books, newspapers, magazines and advertising/marketing.

In the best-case scenario, digitisation stimulates economic growth thanks to productivity gains. Digitisation continues to permit the outsourcing of many jobs from OECD countries to non-OECD countries. Although in some sectors digitisation (like manufacturing robotics) creates a short-term rise in unemployment as tasks performed by workers are replaced by digitised processes, in the longer term the opportunities presented by digitisation create new jobs for skilled employees. The number of start-ups that exploit sectoral and geographic opportunities presented by digitisation rises fast, and governments renew their focus on providing education and training, and investing in technology, so that their citizens can benefit from the new employment opportunities available to workers who are capable of operating digitised processes. **(Driver 3: Supply chain trends.)**

4.5. Water management and technologies

At present, investment in water technologies is driven largely by players in water-intensive industries such as the energy sector, agriculture and food and beverage groups. However, water impacts all global supply chains through the reliability and quality of its supply. Increasing expectations by investors and regulators will drive greater disclosure of water-related risk. Over the course of this scenario, governments and corporations make more progress on improving water management and making use of new water technologies. Moves to understand and manage supply chain water risk will increasingly become standard practice throughout the private sector. Actions include development of standards and policies, for example on water use efficiency, and detailed expectations for suppliers and partners. Integration of ‘smart’ water technologies becomes increasingly important for corporations. Improvements in the cost effectiveness of desalination become a more important driver of economic sustainability in the face of rising water scarcity. Membrane technology, which separates salt from water, and related process automation is likely to bring about a substantial reduction in desalination facilities’ energy usage over the next 10–15 years. **(Driver 3: Supply chain trends.)**

4.6. Sustainable technology clusters

Harvard economist Michael Porter developed the theory that clusters – i.e. geographic concentrations of interconnected businesses and institutions in a particular field²⁶ – drive productivity and innovation. He demonstrated this across ten countries, and argued for cluster-based policies to replace industry-level and firm-level policies, because the former are more efficient, minimise distortions to

competition and are better aligned with the nature of competition in the modern economy. Examples of innovation clusters are Foodpolis in South Korea, a centre for the production of value-added food products that is expected to generate about 12.5 billion euros in output annually and 22,000 new jobs,²⁷ or the King’s Cross area in London, which is concentrating technology, innovation and research in medical and life sciences with support from the national and local governments.²⁸ **(Driver 1. Regulatory competition – and protectionism.)**

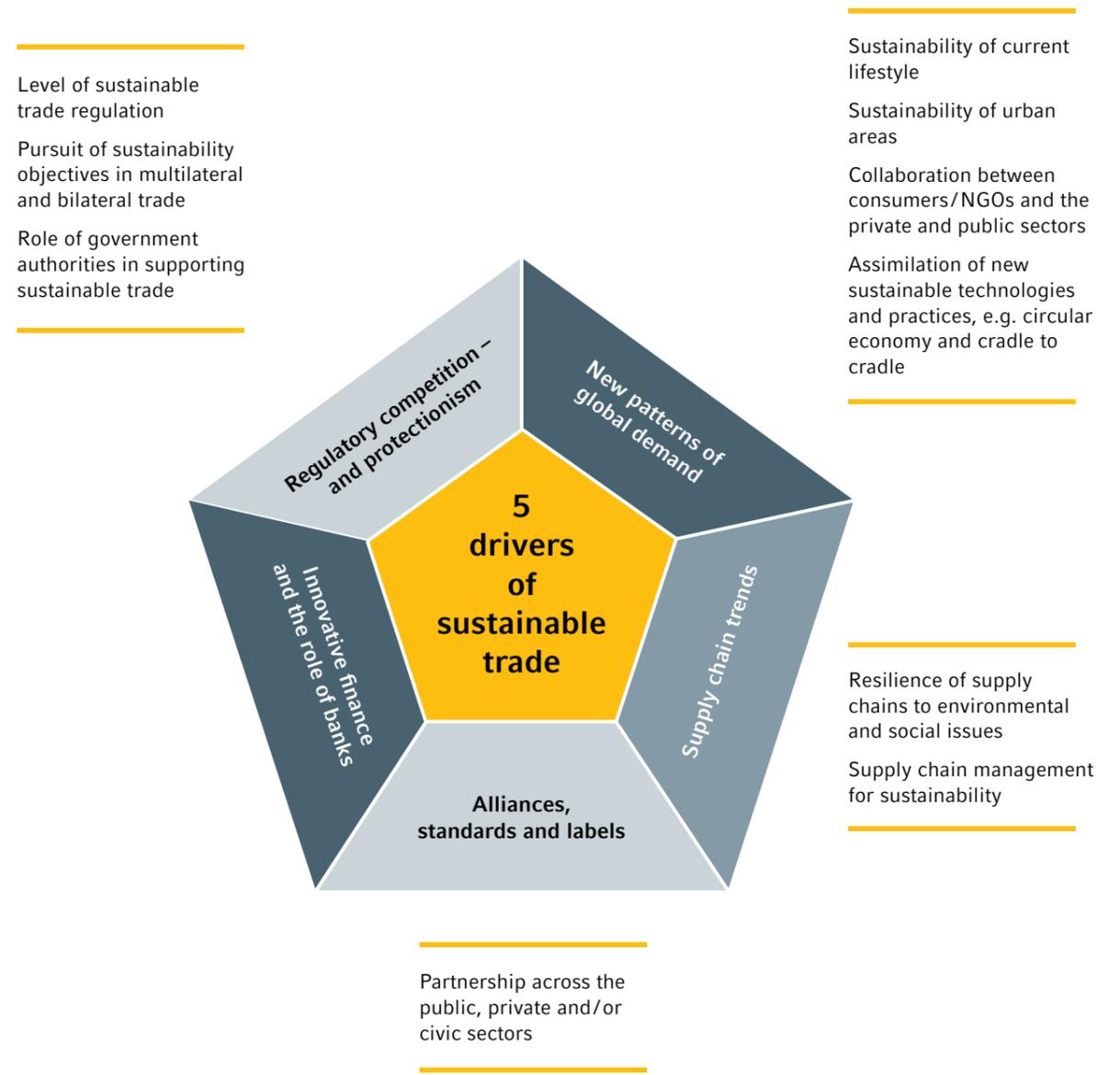
In the best-case scenario, many countries target innovation clusters at sustainable technology. The development of such clusters is a result of enhanced public-private sector collaboration. Being in close proximity, businesses benefit from economies of scale and can collaborate closely to develop sustainable, geographically limited supply chains. Governments offer incentives and funding, and bring research institutions close to sustainable technology investors. Clustering allows small companies to be linked into a network of suppliers, customers and markets. Being close, businesses can benefit from skilled workers being attracted to that location. Clusters attract not only industry, but also governmental and other institutions, such as universities and trade associations, which provide specialised training, research and technical support. **(Driver 4: Alliances, standards and labels.)**

The acceleration of technological change is due in particular to developments under **Driver 1: Regulatory competition – and protectionism, Driver 2: New patterns of global demand** and **Driver 3: Supply chain trends** (see Figure 7).

²⁶ In Europe, the European Commission’s Directorate-General for Enterprise and Industry financed the European Cluster Observatory from 2006 to 2012. It is now run privately at the Stockholm School of Economics.
²⁷ <http://eng.foodpolis.kr>
²⁸ In 2014, the UK government opened the 10 million-pound Digital Catapult Centre in King’s Cross, while the local government allocated 4 million pounds for MedCity, bringing together a number of medical faculties and research centres.

Sustainable technology clusters develop as a result of enhanced public-private collaboration.

Figure 7. Key driver components as technological change accelerates



5. The private sector: Strategies become more sustainable



Sabrina Borlini,
Global Manager, Trade and
Commodity Finance, Financial
Institution Group, International
Finance Corporation.

“In the future, all multilateral organisations, corporations and banks will need to agree to global standards for sustainable supply chains and sustainable commodity trade, and the International Finance Corporation (IFC) wants to be part of this critical effort.

There have been several new initiatives in recent years, for example focused on sustainable palm oil, but while these are important first steps, they are not enough. There is still a long way to go before the different stand-

ards used by different institutions are harmonised. At present, IFC implements and applies its own set of standards, and several large global corporations and banks have their own standards. Increasingly, implementing some type of sustainable trade standard or criteria is becoming an important component of reputational and risk management for corporations and banks. This is particularly true if these organisations do business in OECD countries, where public expectations of corporate and bank behaviour are high and rising. IFC is currently working with some banks, corporations, manufacturing associations, and NGOs to establish how to work together in this area and learn from each other’s methodologies. However, what is missing is a truly global initiative in the area of sustainable commodity trade and supply chains; but this is difficult to establish, as it requires strong leadership capacity by an institution or group of institutions. Progressing requires that we develop a consensus among all key stakeholders that are active in this area – from multilateral organisations such as IFC, to financial institutions, corporations and producers. The starting point has to be an agreement on what ‘sustainability’ really means with reference to trade, supply chain and commodity finance. Agreeing on this is a necessary first step towards establishing global ‘Equator Principles’ for commodity finance and will help to determine which organisations are better placed to set global industry standards and conduct the necessary certifications.”

5.1. Introduction

In the best-case scenario, corporates and financial institutions recognise that a convergence of bottom-line performance and sustainability achievements is possible, often going beyond regulatory mandates. A virtuous circle of innovation takes place, whereby consumer preferences make it all but impossible for companies to thrive in the absence of improvements to their sustainability performance.

Corporates and financial institutions recognise that a convergence of bottom-line performance and sustainability achievements is possible.

5.2. ‘Coopetition’

Driven by cost savings and efficiency gains as well as a consideration for larger societal or environmental benefits, companies increasingly engage in ‘coopetition’, a practice in which competitors recognise the value of cooperation in areas of shared interests. A proliferation of ‘coopetition’ initiatives that allow companies to become more cost effective and ‘greener’ at the same time takes place in this scenario. **(Driver 4: Alliances, standards and labels.)**

Companies increasingly engage in ‘coopetition’, a practice in which competitors recognise the value of cooperation in areas of shared interests.

The banking sector itself engages in coopetition, and in so doing plays a key role in encouraging coopetition in the corporate sector. Over the next 10-15 years, there is a consolidation of banking sector initiatives, with major ones such as the Banking Environment Initiative and Consumer Goods Forum ‘Soft Commodities Compact’ (SCC) having a sub-

stantial impact on how business is conducted worldwide. The SCC is an initiative that aligns the banking and the consumer goods sectors behind the goal of achieving zero net deforestation in consumer goods supply chains by 2020.²⁹ So far, banks that represent about half of global trade finance have subscribed to the SCC; under the best-case scenario, this figure rises steadily over the next 10-15 years. **(Driver 5: Innovative finance and the role of banks.)**

5.3. Supply chain resilience

Natural disasters such as the November 2011 floods in northern Thailand can cause severe disruption to global production chains. The Thai floods were the fifth most costly global disaster in three decades. More than 400 multinational companies were forced to suspend production due to disrupted supplier links. For example, the floods affected electronics component manufacturer ROHM and Co, causing production delays in Honda plants as far away as the United States and the United Kingdom. Computer hard drives from Seagate were also in short supply, affecting global manufacturers such as Acer. Sony’s NEX-7 camera suffered a launch delay because of the flooding.

In the best-case scenario, companies strive to adopt more proactive strategies that either limit their exposure to these kinds of systemic shocks, and/or improve the overall resilience of their global supply chains. Business responses to such risks include implementing more robust risk-assessment processes, carrying greater inventory levels, adopting multiple-sourcing strategies or bringing some production in-house. These responses may involve higher costs, at least in the short term. **(Driver 3. Supply chain trends.)**

5.4. Informed and proactive consumers

In the best-case scenario, there is a strong bottom-up, consumer-driven push for greater product sustainability and cradle to cradle production, especially of more capital-intensive white goods and automobiles. Consumers demand greater transparency in product supply chains and more holistic definitions of sustainable production. There is rapid growth in the use of apps such as ‘barcoo’,³⁰ developed in Germany in 2009, ‘Noteo’³¹ in France and ‘Good Guide’ in the United States,³² which enable consumers to take decisions on the basis of sustainability criteria. If adequately scaled and rigorously measured, these data could even provide a basis for sustainability and cost competition among major consumer products suppliers – in a best-case variant, pushing down end-user prices while increasing bottom-up pressure for more sustainable production and trade. **(Driver 4: Alliances, standards and labels.)**

Furthermore, new research insights into what constitutes sustainable trade are taken on board by consumers. In turn, consumers exert pressure on corporations in more informed ways. For example, a comparative study conducted by Cranfield University in the United Kingdom using Environmental Life Cycle Assessment (LCA) found that air freighting roses from Kenya was less environmentally damaging than importing roses from the Netherlands, where they are grown in heated greenhouses.³³ Such insights are rapidly disseminated at a global level, providing a powerful force for more sustainable trade. **(Driver 2. New patterns of global demand.)**

Consumers demand greater transparency in product supply chains and exert pressure on corporations in more informed ways.

²⁹ www.cisl.cam.ac.uk/business-action/sustainable-finance/banking-environment-initiative/programme/soft-commodities

³⁰ The barcoo app is a free barcode scanner that allows customers to check a company’s social responsibility rating and environmental credentials. www.barcoo.com

³¹ The French app ‘Noteo’ is a free service that evaluates the nutrition, environmental and health impacts of products. www.noteo.info

³² The Good Guide app, available in the United States, covers more than 250,000 consumer products and offers measurements of these products’ nutrition, safety, animal welfare ratings, human rights compliance, sustainability and energy efficiency. www.goodguide.com

³³ ‘Comparative Study of Cut Roses for the British Market Produced in Kenya and the Netherlands’, Cranfield University, February 2007.

Consumers increasingly participate in crowdsourcing and crowdfunding in the financial sector.

5.5. Innovative finance: crowdsourcing and crowdfunding

In the best-case scenario, the role

of consumers goes further still, for example through their participation in crowdsourcing and crowdfunding in the financial sector. Banks use crowdsourcing methodologies to innovate products and services and gain consumer insights. For example, Commerzbank's corporate incubator – 'main incubator'³⁴ – offers innovative financial solutions to financial technology start-ups through to the market launch of products. Support includes access to the bank's 15 million private customers and one million corporate and business clients.

Crowdfunding is a related area and is experiencing rapid growth (see Figure 8). It involves raising finance by taking small investments, loans or donations from a large number of people where lenders are connected directly to borrowers. This can have potential adverse impacts on the competitive environment for traditional banks, as SMEs are increasingly looking at crowdfunding as a way to raise finance without going through banks. There is an added benefit of lending to customers online in terms of the increased ease and accuracy of undertaking credit checks. As more accounting data is uploaded into the 'cloud', key financial information can be downloaded from borrowers' books. Analysis of data using algorithms further reduces time and costs. Data from companies and from individuals' online activity can also be incorporated to build up a richer picture of the borrower's creditworthiness.

The growth of crowdfunding is likely to be constrained by regulation that aims to mitigate the risks associated with it, but the banking industry will increasingly consider crowdfunding as an opportunity over the next 10-15 years.

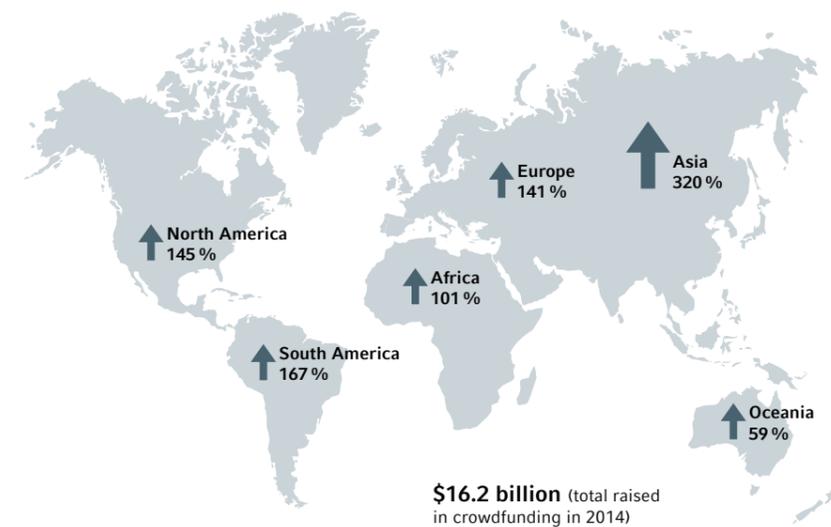
A number of banks, including Santander and Credit Suisse, have taken steps to move into the P2P lending space by partnering with established portals. Royal Bank of Scotland recently announced that, through a partnership with P2P lenders Funding Circle and Assetz Capital, it would expand choice for its customers by referring rejected loan applications to alternative sources of finance.³⁵ **(Driver 5. Innovative finance and the role of banks.)**

Evidence accumulates showing that engaging in sustainable financing improves institutions' creditworthiness.

5.6. Investment in sustainable technology

In the best-case scenario, portfolio investment³⁶ in sustainable technology shifts further from private equity, hedge funds and venture capital towards larger, more institutionalised providers of capital. Evidence accumulates showing that engaging in sustainable financing also improves institutions' creditworthiness. For example, research by the University of Maastricht and Ozyegin University (Turkey) has focused on real estate investment trusts' performance, examining commercial mortgages as well as corporate debt. It finds a significant positive correlation between trusts' credit ratings and the proportion of their investments in sustainable real estate. Likewise, specific buildings and developments with higher environmental ratings were financed at rates of (on

Figure 8: Crowdfunding growth, 2014 (compared with 2013)



Source: Massolution, 2015CF – Crowdfunding Industry Report

average) 30-60 basis points lower than their less sustainable counterparts.³⁷

A report in March 2015 by Morgan Stanley reviewed a range of studies on sustainable investment performance and examined performance data for 10,228 open-end mutual funds and 2,874 Separately Managed Accounts. The study found that investing in sustainability has usually met, and often exceeded, the performance of comparable traditional investments. Individual firms that actively pursue improvements in environmental, social and governance metrics tend to have lower costs of capital and higher operational and

stock price performance. More broadly, the study found that benchmark performance of the MSCI KLD 400 Social Index, which includes firms meeting high Environmental, Social and Governance (ESG) standards, has outperformed the S&P 500 on an annualised basis by 45 basis points since its inception.³⁸ **(Driver 5. Innovative finance and the role of banks.)**

As the corporate and financial sectors take a more strategic approach to sustainability, this is reflected in particular in **Driver 3: Supply chain trends** and **Driver 5: Innovative finance and the role of banks** (see Figure 9).

³⁴ www.main-incubator.com/en

³⁵ www.rbs.com/news/2015/january/rbs-to-become-biggest-player-in-the-p2p-lending-referral-market.html

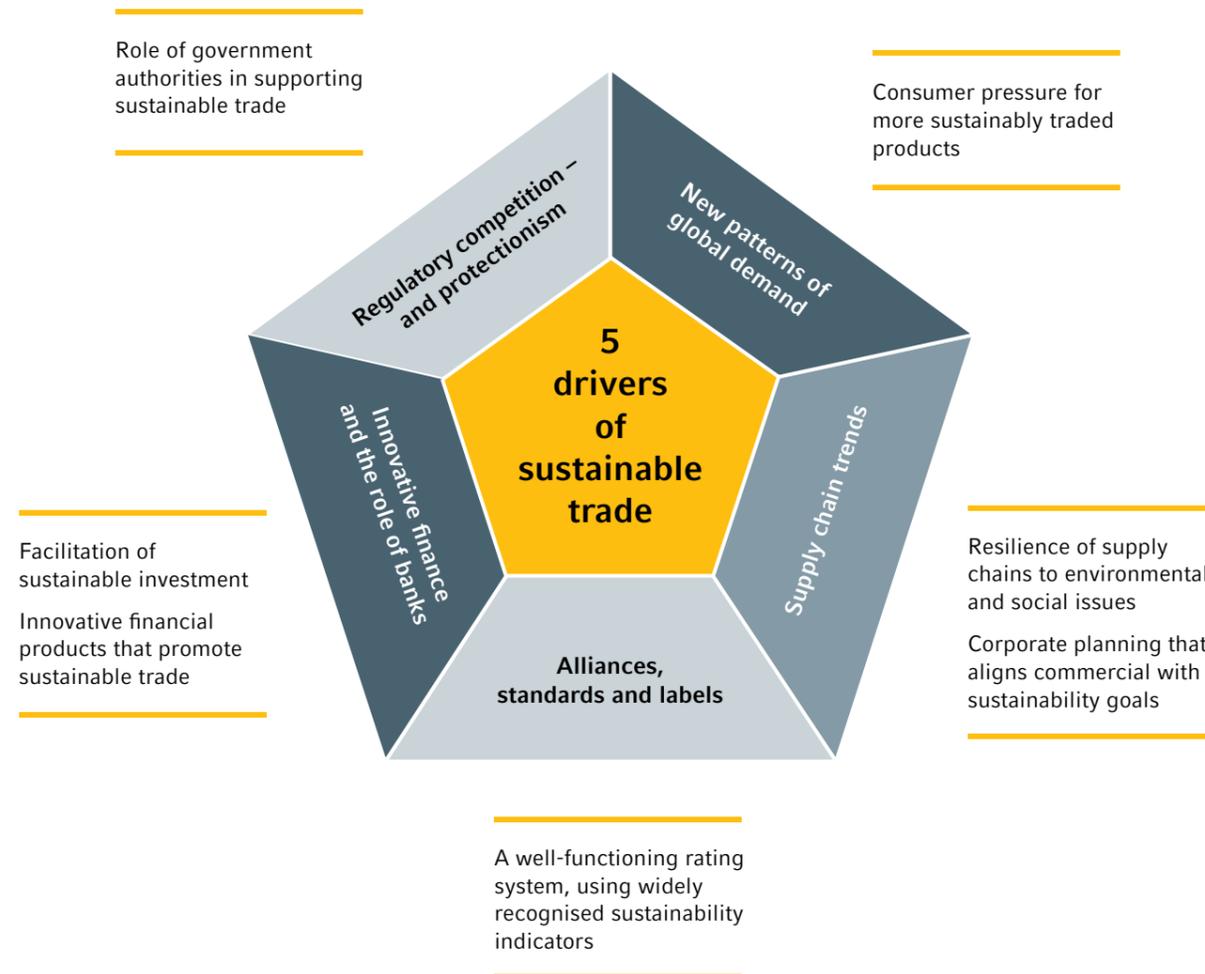
³⁶ Portfolio investment is investment in listed equities, where the investor is not seeking control of the company invested in.

³⁷ Piet Eichholz, Nils Kok and Erkan Yonder, 'Environmental Performance and the Cost of Capital: Evidence from REIT Bonds and Commercial Mortgages', 31 October, 2014. Presented at the Geneva Summit on Sustainable Finance.

³⁸ www.morganstanley.com/sustainableinvesting/pdf/sustainable-reality.pdf

6. Politics: Stakeholders come together

Figure 9. Key driver components as private sector strategies become more sustainable



6.1. Introduction

In September 2015, countries will agree on the new United Nations Sustainable Development Goals (SDGs) to replace the United Nations Millennium Development Goals (MDGs), which expire at the end of 2015. Unlike the MDGs, which were primarily anti-poverty, consensus is building around an ambitious set of SDGs that would include environmental protection, gender empowerment, sanitation, nutrition and access to energy. The SDGs enjoy great international legitimacy and are endorsed at heads of state level. The UN member states signed the Addis Ababa Action Agenda in July 2015, which sets out broad principles on how to mobilise finance in sufficient quantities to achieve the SDGs.

In Europe, the entrenchment of pro-sustainability approaches in political discourse deepens further in the best-case scenario. In the next 10-15 years, policymakers place greater emphasis on regulation where the burden of proof is on businesses and not on European regulators. This follows the regulatory model established by the EU’s REACH regulation.³⁹ This kind of regulation has a profound impact on trade, not only to the EU but also elsewhere, because businesses usually align their production to the most stringent standards.

(Driver 4: Alliances, standards and labels.)

A cornerstone of the best-case scenario is the first truly global and binding climate accord.

6.2. Climate accord and carbon pricing

The rising number and intensification of extreme weather events⁴⁰ encourages

policymakers and corporate decision-makers to undertake more serious and concerted efforts to proactively manage the consequences of increased climate volatility. Therefore, a cornerstone of the best-case scenario is the successful signature of the first truly global and binding climate accord at the UNFCCC COP21 summit. Such an accord serves as a key symbol of government commitments to reducing emissions, catalysing further improvements in day-to-day corporate practices and potentially transforming the financial intermediation of sustainable business. **(Driver 5: Innovative finance and the role of banks.)**

In particular, climate negotiations shift their focus from reduction of greenhouse gas emissions in volume to the adoption of carbon pricing, first at the national level and then at the global level. The World Bank estimates that 74 countries and over 1,000 companies and investors currently support a price on carbon.⁴¹ There are two broad approaches on how to establish a carbon price: carbon taxes and emission trading systems (ETSs), also known as cap-and-trade regimes. In this scenario, over the next 10-15 years, the EU makes substantial progress in developing its cap-and-trade regime. **(Driver 1: Regulatory competition – and protectionism.)**

³⁹ The REACH (Registration, Evaluation, Authorisation and Restriction of Chemicals) regulation, which entered into force in 2007, demands that firms doing business in the Single Market provide information on the toxicity of materials they export to the EU.

⁴⁰ Geoffrey Parker, 'Global Crisis: War, Climate Change and Catastrophe in the Seventeenth Century', Yale University Press, 2013.

⁴¹ World Bank Carbon Pricing Supporters List, most recently compiled in September 2014 and available at: <http://siteresources.worldbank.org/EXTSDNET/Resources/carbon-pricing-supporters-list-092114.pdf>

Carbon taxes

Carbon taxes impose levies on the carbon content of fossil fuels used by organisations. A growing number of OECD countries or subnational jurisdictions, i.e. British Columbia, are implementing carbon taxes (see Figure 10).

Figure 10. Countries and subnational jurisdictions where carbon taxes are implemented



Source: World Bank Group

Within 10-15 years, most large transactions of goods and services across most countries must internalise the price of carbon.

Crucially, following pressure from the World Bank, the United Nations, and the International Energy Agency, in this scenario one of the outcomes of the Paris summit is a forum on carbon pricing, whose objective is to promote the development of carbon markets. Taken together, these developments mean that a strong carbon signal is sent to businesses globally, fostering sustainable trade. Within 10-15 years, most large transactions of goods and services across most countries must internalise the price of carbon. **(Driver 5: Innovative finance and the role of banks.)**

Emissions trading schemes

Emissions trading schemes (ETSs) cap the total amount of greenhouse gas emissions, enabling companies with low emissions to sell the extra allocation to larger emitters. The biggest ETS in the world, the EU ETS, has to date been unable to generate a robust price signal due largely to the problem of over-allocation of allowances. Nevertheless, the European carbon market, which is currently in its third phase (2013-2020), eventually succeeds in the best-case scenario and then links up with compatible systems around the world to form the backbone of a global carbon market.

In the best-case scenario, China gradually develops a national ETS, which becomes one of these compatible systems. At present, China has seven regional pilot ETSs driven by the central government as part of a high-priority national-level plan. Each pilot covers a large city – Beijing, Tianjin, Shanghai and Shenzhen – or a province – Chongqing, Guangdong, and Hubei. Nationwide rollout is envisaged for 2016, which would create the world's largest market. This in turn would pave the way for China's integration into an international carbon market. China's draft law on climate change contains provisions for either a carbon tax or a cap-and-trade system. The latter has the backing of the powerful National Development and Reform Commission and is closer to implementation, despite the unpromising precedent of the EU scheme upon which it is partly based. China aims to cut its carbon intensity – the carbon dioxide it emits for each unit of GDP – by 40-45% from 2005 levels by 2050 (China's 12th Five-Year Plan (FYP), 2011-15).

Governments legislate improved sustainability and energy consumption standards in areas that pose the greatest challenges for meeting sustainability targets.

6.3. Enhanced public-private collaboration

In several sectors, governments (particularly in non-OECD markets, where in this scenario significant regulatory catch-up takes place) legislate

improved sustainability and energy consumption standards in areas that pose the greatest challenges for meeting sustainability targets. For example, in the Chinese automotive sector, young consumers have strong aspirations towards personal vehicle ownership. This poses a tremendous challenge for the emissions reductions to which Beijing has agreed as part of its landmark bilateral environmental pact with the United States, which envisages a drop of nearly 25% in Chinese carbon emissions

by 2030. If the Chinese authorities opt not to impose a public transit-centric model on their citizens, the only viable alternative to meet transportation needs and emissions targets is to mandate electrification (or initially, partial electrification) of new vehicles purchased in the coming years.⁴² This could involve partnering with the private sector. Given the brand dominance of VW (and Audi) in the Chinese market, a possible variant on this scenario is that VW partners with the authorities to transform the domestic auto sector from fossil fuel- to electric-centric in the next 10-15 years.

(Driver 4: Alliances, standards and labels.)

In Germany, the federal government's 'Industrie 4.0' initiative is a programme that, in this best-case scenario, proves successful and is subsequently followed by many other governments. Industrie 4.0 was initiated in 2012. It aims to support German industry in

⁴² 'Emerging Market Survey 2015', Credit Suisse Research Institute, released in January 2015.

the transition through the ‘fourth industrial revolution’. This involves primarily intelligent manufacturing and the ‘Internet of things’. The government has so far allocated 200 million euros (120 million from the Ministry of Education and Research, and 80 million from the Ministry of the Economy) to supporting research in these and related areas.⁴³ This effort is complemented by a further, much larger and broader research programme led by the Ministry of Education and Research’s Research for Sustainable Development (FONA) programme. FONA and FONA2 have channelled several billion euros into research on sustainable development. FONA3 begins in 2015, and will support research on the themes ‘green economy’, ‘future cities’ and ‘energy transformation’.⁴⁴ **(Driver 1. Regulatory competition – and protectionism.)**

6.4. Consumer campaigns drive politics
Over the course of the best-case scenario, the international campaign for divestment from fossil fuels intensifies, first in the United States and in Europe (especially in the United Kingdom) and then globally. More organisations and institutions divest from fossil fuels in the coming years under the pressure of public campaigns, regardless of oil price levels.

Launched by pioneer climate activist Bill McKibben and the environmental organisation 350.org⁴⁵ (founded by McKibben), the leading current divestment campaign tries to instil the opinion that the use of fossil fuels is immoral. The campaign’s website defines divestment as “getting rid of stocks, bonds or investment funds that are unethical or morally ambiguous”. The idea of the promoters is to use the same strategy against the fossil fuel industry

as the countries opposing apartheid in South Africa did in the 1980s against the regime. Divesting from fossil fuels is a strong symbol, especially in developed countries.

According to its latest report on responsible investing, published in February 2015, Norway’s Government Pension Fund Global (GPGF), the world’s largest sovereign wealth fund, has divested from 114 companies in the past three years due to concerns over global warming, deforestation, and water as well as long-term financial viability. These include 27 companies divested from because they were considered to produce palm oil unsustainably, and 35 companies have been dropped because of their unacceptable impact on water.⁴⁶ In May 2015, Norway’s parliament approved a law by which the GPGF should sell stakes in firms that generate more than 30 % of their output or revenues from coal-related activities. The measures, which will be implemented by 1 January, 2016, are considered the largest fossil fuel divestment to date.⁴⁷

In this scenario, fossil fuel companies start to find it more difficult to obtain financing. Policymakers in some countries take this message on board and decide to divest from fossil fuel companies and industries. However, many countries have important national interests in fossil fuel industries so this movement is still limited in scope over the next 10-15 years.

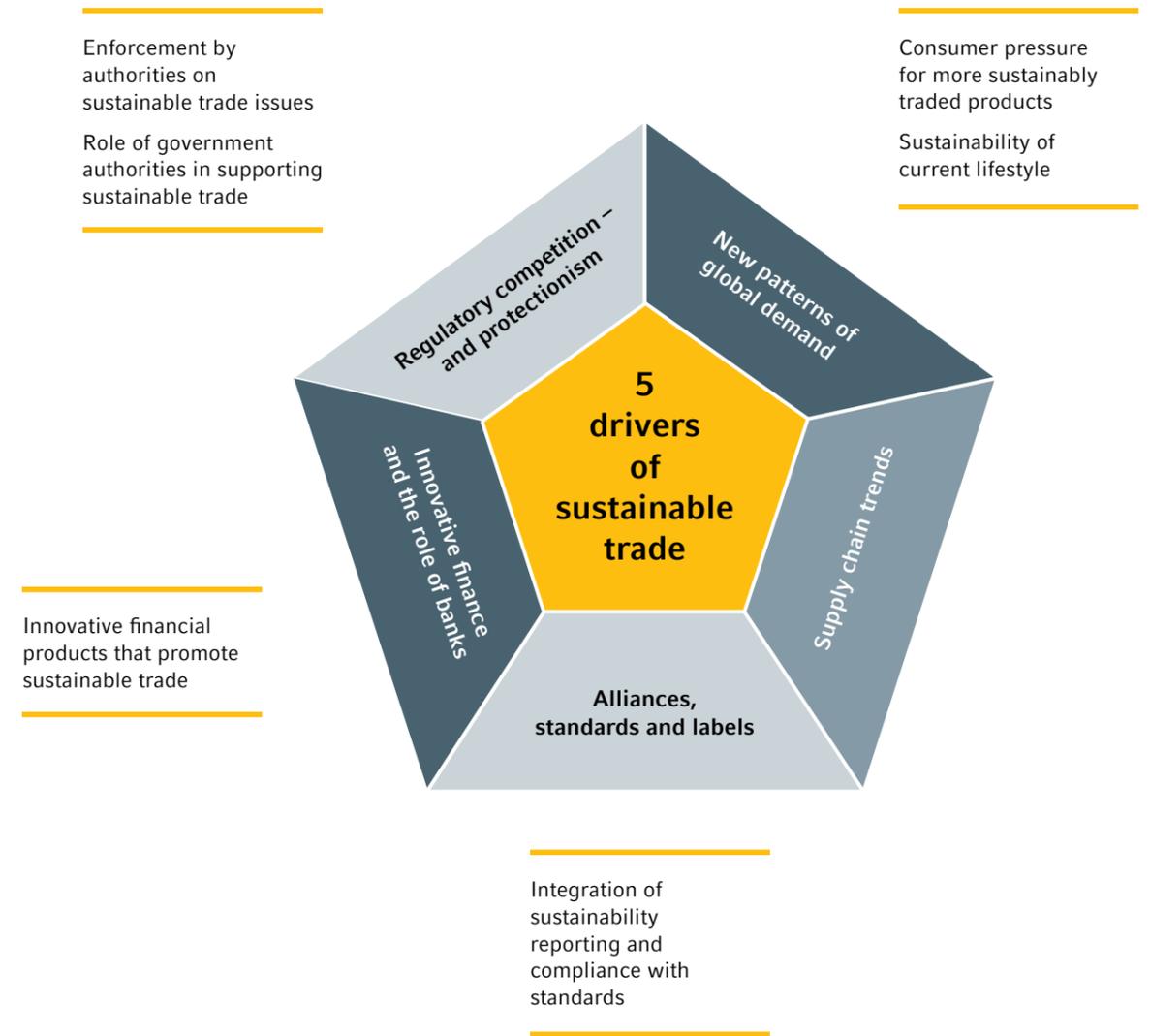
(Driver 2. New patterns of global demand.)

The coming together of political stakeholders is mainly thanks to positive developments under **Driver 1: Regulatory competition – and protectionism** and **Driver 2: New patterns of global demand** (see Figure 11).

More organisations and institutions divest from fossil fuels in the coming years under the pressure of public campaigns, regardless of oil price levels.

⁴³ www.bmbf.de/de/9072.php
⁴⁴ www.fona.de
⁴⁵ www.350.org
⁴⁶ www.nbim.no/en/transparency/reports/2014/responsible-investment
⁴⁷ www.stortinget.no/en/In-English/About-the-Storting/News-archive/Frontpage-news/2014-2015/hj9

Figure 11. Key driver components as political stakeholders come together



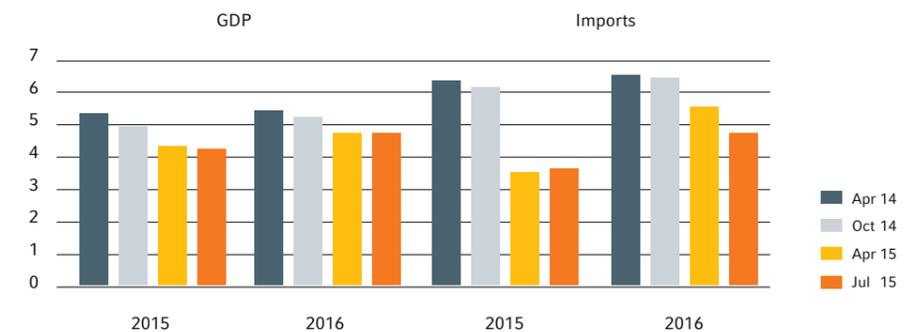
Scenario 2: A vicious circle of stagnation and protectionism

1. Introduction

This deeply pessimistic scenario for the future of the world economy and sustainable trade develops in the context of weakening global economic growth and the inability of policy and politics to counteract adverse trends. A sharp deterioration in economic conditions would probably be led by a further substantial slowdown in non-OECD economies, following on from the weakening trend already visible in recent data and forecast revisions (see Figure 1). In particular, China is likely to play a key role in this slowdown given its increasing vulnerability to a financial crisis and economic instability.

This deeply pessimistic scenario develops in the context of weakening global economic growth and the inability of policy and politics to counteract adverse trends.

Figure 1: Forecast revisions downgrades for non-OECD economies, GDP and volume of imports of goods and services (% change)



Source: IMF World Economic Outlook Database

The OECD is not isolated from the effects of such a shock. Indeed, most OECD economies continue to be concerned about their own still-fragile recoveries, the risk of setbacks and their vulnerability to even mild shocks. Resilience may have been enhanced since the 2008-09 financial crisis by more prudent policies and use of advanced risk indicators, but the ability of governments to actually respond to deteriorating economic circumstances will remain severely limited as long as debt burdens are high (see Figure 2), forcing fiscal policy to remain tight.

Persistently weak economic growth is likely to lead to a shift towards trade protectionism.

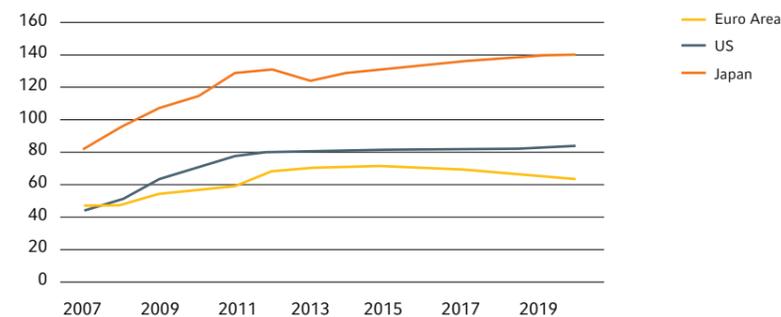
While the usual economic policy levers are largely suspended, persistently weak growth will start to provoke alarm, and reactions are likely to include a shift towards trade protectionism, curbs on immigration (even in sectors with skills shortages) and increasing reluctance to invest outside safe-haven OECD economies. Such restrictive attempts to maintain the internal status quo and appease voters will also slow productivity growth and stall innovation, tipping the economy from short-term weakness towards long-term stagnation.

In the worst-case scenario, many governments struggle to cope with ensuing short-term economic and social pressures, as well as rising natural resource constraints and climatic volatility. An increasing number of governments resort to populist policies, which are focused on short-term fixes. Green movements continue to lose relevance in the OECD and remain on the fringes of political culture in most non-OECD countries. Some regions, such

as the Middle East, are preoccupied with political instability; in others, economic stagnation stifles progress on sustainability. For example, Brazil's environmentalism struggles to maintain its relevance.⁴⁸

Failure among governments to chart a clear path on sustainable trade is interpreted by many businesses as a strong signal that pressure for more sustainable trading and business practices is dissipating around the globe. Along with the poor growth outlook, this only serves to encourage a rush towards short-termism. Globally, pro-sustainability movements come to be regarded as more of a niche area by corporates and financial institutions rather than being accepted as a part of their mainstream core activities. Corporates prioritise immediate self-interest over the development of new and more sustainable growth models and innovation, and there is faltering interest in sustainable growth within societies worldwide.

Figure 2: Government net debt (% of GDP)



Source: International Monetary Fund, World Economic Outlook Database, April 2015

⁴⁸ Brazil's environmentalism is founded on the protection of the country's natural wealth and diversity, and driven by groups such as the Blue Wave Foundation, Funatura and Pro-Nature.

2. The economy: A downward spiral takes hold

2.1. Introduction

Under the worst-case scenario, once the initial macroeconomic tipping point is reached, a vicious circle takes hold. The global economic slowdown causes a weakening in global trade, which in turn negatively affects the global economy, worsening the economic slowdown. Such a cycle occurred at very high speed in the first phase of the 2008-09 global financial crisis.

2.2. Risk mitigation may only provide limited support

OECD central banks, finance and economy ministries, international organisations and think tanks have all investigated mechanisms enabling improved identification of systemic and/or macroprudential risk – key issues have been identified and potential actions put into place. While this does not eliminate the possibility of a major financial or economic crisis arising from within the OECD, it does reduce the risks. Moreover, this also enables OECD policy makers to take steps to mitigate such risks before they become full-blown crises. However, if there is a significant economic crisis in the next 10-15 years, OECD governments will face major fiscal constraints on their responses.

Pre-crisis planning and mitigation is less common in non-OECD economies. This lack of preparedness – perhaps even of the appropriate levers to regain control in a crisis – supports the development of a scenario in which the non-OECD countries are the most likely source of the next global crisis. This will be severe enough to a) catalyse a new round of global protectionism and b) minimise the drivers of innovation.

2.3. Potential triggers of an economic crisis

The current sharp slowdown in growth across the commodity and energy producing countries, provoked by weak demand and a collapse in prices and thus investment, is already creating a poor background for the global economy – but not yet a crisis. Commodity and energy importers – largely in Asia – have so far been able to sustain reasonably robust growth, helped by the steady performance of parts of the OECD. However, this is a fragile equilibrium and another shock could easily tip the situation into a more serious crisis. This new pressure could come from a much steeper collapse in growth in the already weakening energy and commodity producers – putting much of Latin America, Eurasia, the Middle East and Africa into a critical position. The extra pressure could also emanate from a sharp slowdown across a range of Asian manufacturing economies, where competition for sales into poorly growing world markets is causing rising stress. **(Driver 3. Supply chain trends.)**

China would be an integral part of any deepening crisis. It is now the world's second most powerful economy and is currently fighting to regain stability and growth. This tense situation has the power to impact heavily on a wide range of economies both directly and indirectly (through contagion effects). A full-blown crisis in China could severely damage – perhaps even end – the story built up over the last 20-30 years of the unstoppable rise of the emerging powers. Their vulnerabilities and obstacles to growth would come back into focus after a long absence. **(Driver 2. New patterns of global demand.)**

A much steeper collapse in growth in the already weakening energy and commodity producers is a potential trigger of a more serious economic crisis.

As the world's second most powerful economy – and currently fighting to regain stability and growth – China would be an integral part of a deepening crisis.

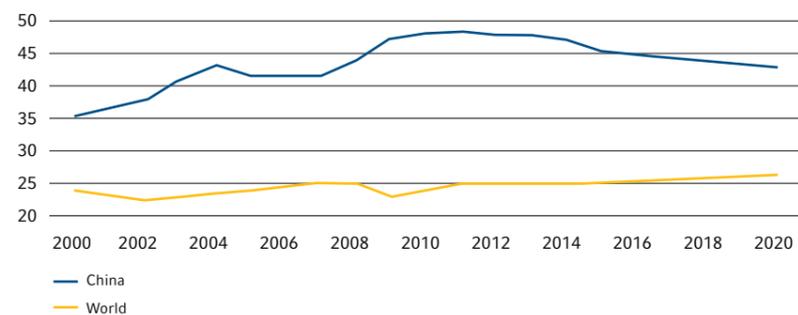
The problem for the OECD economies is that such a crash would damage world growth, trade and investment, leaving them weakened in the process. Corporate outlooks and plans would have to be reconfigured – most probably prompting a period of very conservative

development and sluggish growth, with a far more inward looking focus thanks to what will be seen as the failure of the great race for development and trade across emerging markets. **(Driver 2. New patterns of global demand.)**

China: a looming investment collapse

A plausible trigger for the next global crisis is an investment collapse in China, causing a sharp drop in Chinese GDP growth and shock waves around the world. According to official figures, so-called 'rebalancing' has been progressing slowly. In spite of recent declines in investment growth rates and stronger growth in consumer demand, investment still accounts for about 45% of GDP in China, based on IMF data (see Figure 3). Such a high investment share is generally considered a threat to stability and unlikely to be sustainable. Indeed, some other Asian countries have seen sharp reversals in high historic investment rates and these shocks have typically caused considerable economic turbulence. An orderly transition to a more balanced growth model is extremely difficult to achieve – even for a country such as China that has shown itself adept at managing many changes over several decades.

Figure 3: China's investment as % of GDP compared to world average



Source: International Monetary Fund, World Economic Outlook Database, April 2015

Given the massive scale of China's investment rate, this implies that even a 5% drop in annual investment spending would be large enough to cut GDP growth by as much as 2%. But a far larger slump in investment of 20-30% cannot be ruled out. In this case, even allowing for the offsetting fall in imports, GDP growth would plummet.

In a worst-case scenario for China, a very sharp slump in investment could come at the same time as the emergence of a domestic financial crisis, for example in the shadow banking sector and the volatile

stock market. The property sector may then come under further pressure, adding to the turmoil. Such a combination of events might provoke the kind of recession that has not been seen in China for 25 years – beyond the experience of a large part of the population.

Accompanying any sharp drop in China's domestic demand would be a cut in imports, affecting China's trade partners. Those countries that have benefited from China's recently burgeoning outbound investment would also suffer. Leading components of Chinese imports are machinery and equipment as well as raw materials that are used heavily in construction (e.g. copper and other metals) and for producing building materials (e.g. energy and iron ore to produce cement and steel). Therefore, countries that export these products to China will quickly suffer from lost export earnings. Moreover, contagion would spread to other large non-OECD economies, as diminished international investor confidence in China is transmitted to these economies.

As non-OECD economies weaken, this leads to a return to the past pattern of global growth in which there was little distinction between the mediocre rates of the OECD and those of the non-OECD economies. **(Driver 2. New patterns of global demand.)**

The severe economic downturn in China spreads to the whole of the global economy – with a major impact on sustainable trade.

Under the worst-case scenario, the severe economic downturn in China and the many countries that are dependent on its trade and investment spreads to the whole of the global economy. Assuming China's crisis is deep and slow growth subsequently persists over many years, this would be reflected in lower global GDP growth over the long run, with outbreaks of substantial volatility at times. This mirrors the evidence provided by the 2008-09 financial crisis, which confirmed the strong interdependence of economic cycles between the OECD and non-OECD economies during periods of sharp shifts in economic activity, as noted by the WTO⁴⁹ among others. In good times, business cycles may become somewhat desynchronised but this is most unlikely in hard times. The economic downturn has a major impact on sustainable trade. Although con-

sumers in large non-OECD economies continue to aspire to an 'American way of life', in the worst-case scenario the number of households able to afford such a lifestyle over the next 10-15 years is far lower than is currently forecast.⁵⁰ Therefore, demand for natural resources grows more slowly (or even declines). This causes leading policymakers, corporations and consumers to lose focus and/or have doubts about the urgency of implementing measures in support of sustainable trade. **(Driver 2. New patterns of global demand.)**

However, the economic downturn does not slow the fast growth in non-OECD populations, nor the pace of urbanisation. However, given the weak tax revenues resulting from low economic growth, governments in many countries lack the funds to implement major sustainability programmes in urban settings. Large non-OECD cities increasingly enter downward spirals, in which sustainability goals become extremely difficult to meet. **(Driver 2. New patterns of global demand.)**

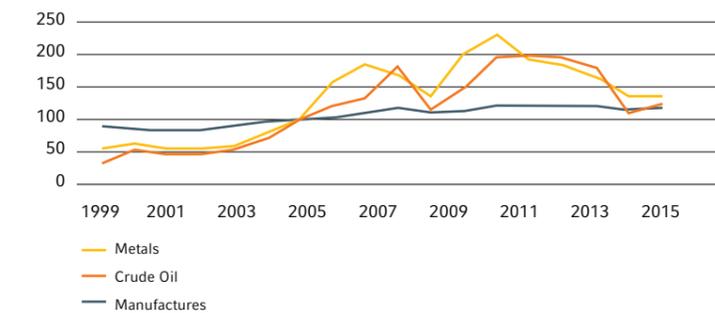
⁴⁹ World Trade Report 2014, Section 'E. Increased synchronization and globalization of macroeconomic shocks', page 170.

⁵⁰ 'Insights: Five drivers of sustainable trade', Commerzbank in cooperation with Oxford Analytica, March 2015.

2.4. Low prices for fossil fuels persist

Under the worst-case scenario, the low-demand global environment also exerts continued downward pressure on commodity prices. The collapse of oil prices in 2014-15 (see Figure 4) is followed by a sustained period of low fossil fuel prices. Although this does not necessarily impede growth of the green economy, it does under this scenario of prolonged low growth – at the very moment that renewable energy had started to appear economically profitable. Important sectors of the green economy (e.g. plastics recycling and offshore wind power projects) find themselves in deep and prolonged crisis, while others are prevented from emerging, such as the

Figure 4: World prices (Index, 2005=100)



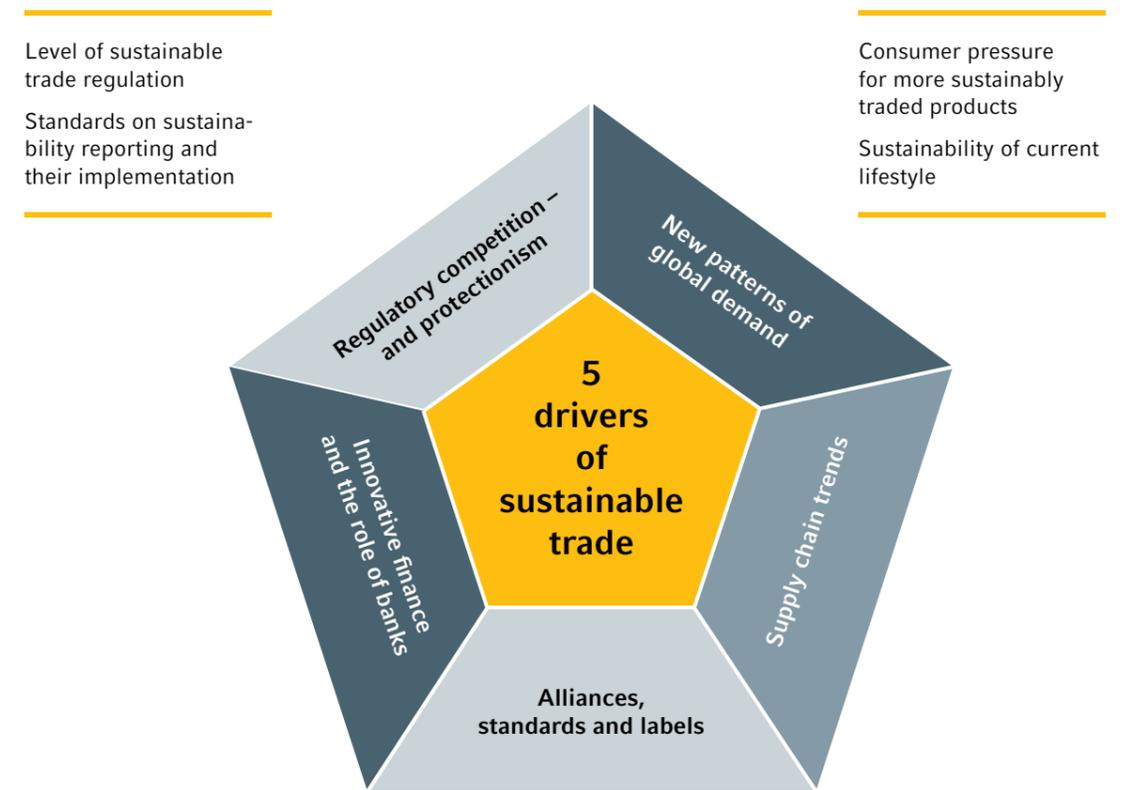
Source: International Monetary Fund, World Economic Outlook Database, April 2015

affordable full electric car. Energy-efficiency investments, such as building retrofit projects, become less financially attractive compared with a high energy price environment. Controversial projects such as carbon capture and storage become even more contentious. Overall, investment in renewables falls and their market share is threatened.

European governments are hesitant to counteract this trend by increasing subsidies to green economy sectors, in large part because they continue to face major fiscal adjustments over the duration of the worst-case scenario. Instead, they tend towards reaping the benefit of lower fossil fuel prices and gradually regaining some of their fiscal leverage. This would not be the first time that green projects have lapsed (e.g. the European effort to develop biofuels petered out) but this time the chances of reviving a new effort in this direction could be longer delayed. **(Driver 1. Regulatory competition – and protectionism.)**

As a downward economic spiral takes hold, developments are especially negative under **Driver 1: Regulatory competition – and protectionism** and **Driver 2: New patterns of global demand** (see Figure 5).

Figure 5. Key driver components as a downward economic spiral takes hold



3. Trade: Countries turn inward

3.1. Introduction

Historical evidence suggests that the risk of protectionism is much higher in times of weak economic growth than in times of prosperity,⁵¹ even though protectionism (at least overt protectionism) has been relatively limited since 2008-09. The net result of such protectionism is not only a decline in trade growth overall, but also is likely to be reflected in a stalling of growth in sustainable trade and financing.

⁵¹ For a discussion on the relationship between growth, real exchange rates and trade protectionism see <https://www.ecb.europa.eu/pub/pdf/scpwps/ecbwp1618.pdf>



Professor Simon Evenett, Academic Director at the St. Gallen MBA and Professor of International Trade and Economic Development, University of St. Gallen.

“There are two sets of forces working against trade in a worst-case scenario: policy protectionism and corporate short-termism, both leading to geographical retrenchment. We know that sharp global economic downturns are followed by rising policy protectionism. In many non-OECD countries, e.g. India, there is considerable room for tariffs to be raised, and this could happen in a worst-case scenario. This could be combined with an acceleration of subsidies worldwide, often disguised under industrial policy (e.g. tax breaks for exporters) and a further spread of local content requirements. In addition, customs offices may increasingly be instructed to delay imports through discretionary and/or bureaucratic procedures, creating more uncertainty for supply chains. Finally, the increase in the use of surgical measures (e.g. anti-dumping procedures) and sanitary and phytosanitary standards as barriers to trade will be especially sharp in the worst-case

scenario. Taken together, these measures will slow trade growth. At the corporate level, there are already clear signs of a shift in focus to more short-termism: corporations are seeking quick returns on investment and are reluctant to invest in long-term sustainable sourcing projects. They are trying to push the cost of such projects onto suppliers, while at the same time squeezing supplier prices. In the worst-case scenario, this trend is likely to strengthen.

More positively, as seen from the point of view of sustainability, there is also a strong drive towards local sourcing, which is unlikely to be reversed in the worst-case scenario. Companies are increasingly seeking to save transport costs, increase supply chain resilience and improve supply chain management. While this local sourcing trend is negative for cross-border trade, it may be positive for overall supply chain sustainability.”

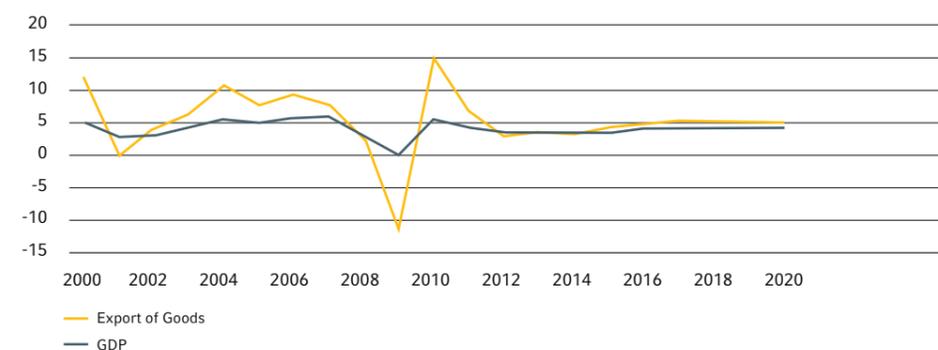
3.2. Goods and services trade are both affected

Growth in world merchandise exports and imports has remained very disappointing over the years since the 2008-09 crisis and the 2010 rebound. Rather than expanding faster than world GDP – a sign of opening up, new investment and growing globalisation – goods trade has actually performed barely in line with the mediocre expansion in GDP. This situation was expected to improve, but in the face of mounting evidence of a recovery failure, projections for future trade growth have started to be substantially reduced. For example, the WTO now predicts that trade growth will pick up only slightly over the next two years, rising from 2.8 % in 2014 to 3.3 % in 2015 and eventually to 4.0 % in 2016⁵² (the IMF has similar forecasts). These growth rates are well below the pace of expansion just before the 2008-09 collapse, when world

merchandise exports were growing at an average of 7-8 % annually (see Figure 6). However, the outcome could be worse than the WTO and IMF predict for 2015 and beyond – it is possible that goods trade may expand at just 3 % per year or less, consistent with this low-GDP-growth scenario.

While goods trade has stalled, world trade in services has still been performing well so far and is further catching up in scale with goods trade. However, services trade growth is also vulnerable to the impact of a future financial or economic crisis, and in this scenario, services exports also stall, perhaps crashing even more sharply than goods trade. This causes severe repercussions, e.g. for the viability of critical infrastructure supporting travel and tourism, leading not just to cancellation of new projects and investment but to decay in existing capital stock.

Figure 6: GDP and volume of exports of goods (percent change)



Source: International Monetary Fund, World Economic Outlook Database, July 2015 (revision)

⁵² WTO press release No. 739, 14 April, 2015.

As growth in the volume of global trade stalls or even declines, momentum in sustainable trade efforts diminishes.

In some cases, the weak economy encourages more rapid uptake of sustainable trade practices by corporations keen to save costs. However, as growth in the volume of global trade stalls or even declines, this tends to diminish momentum in sustainable trade efforts. Consumers worldwide start to lose interest in advocating for sustainable trade, given that their overriding concern becomes their personal financial situation. **(Driver 2. New patterns of global demand.)**

Moreover, increasingly populist policies lead to a stalling of major trade initiatives. One of these is the Trans-Pacific Partnership (TPP), which among other things would require countries to adopt stricter labour rights and environmental practices (although some critics fear that some of the TPP's environmental standards might be voluntary, not binding).⁵³ **(Driver 1. Regulatory competition – and protectionism.)**

Another possible outcome, following the slow demise of the TPP, is the failure of the Transatlantic Trade and Investment Partnership (TTIP) between the United States and the EU, and with it the potential of a comprehensive and ambitious approach to trade and sustainable development issues, as strongly advocated by the EU.⁵⁴ TTIP's failure is caused both by diminishing political support for this partnership in the EU and by Washington's policy agenda following the next election. **(Driver 1. Regulatory competition – and protectionism.)**

Countries focus more on domestic import substitution.

A broader new trend also continues to strengthen: countries focus more on domestic import substitution. A January 2015 analysis by the IMF and World Bank⁵⁵ notes that trade growth since the 2008-09 crisis has had a lower correlation with GDP growth, as compared to historical averages from 1986-2000. Both OECD and non-OECD economies have increased their share of domestic substitution (producing goods domestically instead of importing) – a structural change that is related to the 'onshoring' trend described below. This structural change becomes further entrenched in the world's largest economies over the next 10-15 years, under the worst-case scenario. **(Driver 3. Supply chain trends.)**

3.3. Stagnation of the WTO system

So far, the strategy to prevent a stagnation of the WTO system has been to move away from the previous, very ambitious, Doha Round to-do list towards a new focus on more achievable targets. But this runs the risk of the WTO becoming gradually less relevant in global trade, giving more importance to regional negotiations and agreements. Indeed, the failure of the Doha Round negotiations in advancing global trade liberalisation – particularly in agricultural products – has been a major factor stimulating the recent growth of new bilateral and regional trade agreements, such as TPP and TTIP.

The WTO Doha Round

Launched in 2001, the WTO Doha Round was a grand bargain aimed at negotiating lower barriers on agricultural products in developed countries in return for greater market access to the emerging world. Agricultural trade became the central focus as delegates realised that protectionist policies were causing trade in agricultural products to decline. After twelve years of disputes and impasse, an agreement was reached in Bali that leaves aside many items initially on the Doha Declaration list in 2001. In a context of slowing global trade, a weak global economy and protectionist tensions, the WTO delegates opted for a limited, realistic approach – rather than tackling a more comprehensive trade agreement, which would have risked a complete breakdown of negotiations. Most key Doha issues, including services liberalisation and intellectual property, were simply postponed in Bali.

The WTO framework steadily loses relevance while China continues to attempt to create a parallel institutional economic framework.

The outlook for major multilateral progress on trade is weak. Under the worst-case scenario, the WTO framework steadily loses relevance. Emerging powers, led by China, decide that it no longer serves them well. The recent launching of the Asian Infrastructure Investment Bank (AIIB), along with the less significant New Development Bank ('BRICS bank') and the Silk Road Fund are conceived as an alternative to the US- and EU-controlled 'Washington consensus' institutions of the IMF and World Bank Group. The United States had lobbied its allies not to join the China-led AIIB, which recently saw its 50 founding members sign articles of association. Although geopolitics is the primary motive for US opposition, it has also expressed concern that the AIIB will not meet sufficiently high standards in terms of environmental, governance, and social safeguards. **(Driver 4. Alliances, standards and labels.)**

In this scenario, China continues to attempt to create a parallel institutional economic framework. Meanwhile, continued lack of

reform at the Western institutions, and their tendency to prescribe economic policy to loan recipients, will further alienate non-OECD economies from OECD economies in the next 10-15 years, causing a deepening of tensions between Chinese- and US-led economic blocs. This will further contribute to the weakening of the WTO, in turn reducing the space for the creation of global rules on sustainable trade. If the WTO loses relevance, global trade will be severely affected. There will be a lessening of external restraints on national protectionism, and trade dispute resolution would be more difficult in a multilateral framework, triggering multiple international disputes. **(Driver 1. Regulatory competition – and protectionism.)**

3.4. Green protectionism becomes commonplace

Weaker global economic growth and the failure to conclude TTIP lead to an increase in populist policies. One way in which these are manifested is in rising 'green protectionism', which in turn causes a further slowdown in global trade. Environmental motivations are a well-established justification (either rhetorical or real) for the implementation of protectionist policies. Sometimes, these policies chiefly aim to protect 'infant industries' or 'national cham-

⁵³ This debate has been ongoing since draft TPP texts were released on WikiLeaks in 2014.

⁵⁴ http://trade.ec.europa.eu/doclib/docs/2013/july/tradoc_151626.pdf

⁵⁵ www.imf.org/external/pubs/ft/fandd/2014/12/pdf/constant.pdf

pions', which could otherwise be driven out of the market by global competition.

Under the worst-case scenario, EU restrictions on imports of biodiesel, paper and pulp, and Chinese photovoltaic technology are copied in other sectors, and tit-for-tat green protectionist measures are implemented by the EU's major trading partners. Governments and corporations, particularly in the large non-OECD economies, focus more on their large domestic markets and slow their engagement with global sustainable trade initiatives.

Green protectionism rises, restricting trade and efficiency, and in turn leads to a lack of incentives to innovate.

The ultimate impact of green protectionism is to restrict trade and efficiency, leading to a lack of incentives to innovate and offer improved solutions

and goods. Closed economies are less likely to achieve the kind of technical progress that can win markets around the world and are more likely to become inefficient and slow to innovate over time. **(Driver 1. Regulatory competition – and protectionism.)**

In parallel, increased bureaucracy in the OECD, resulting from strict environmental audits and health and safety standards, acts as a significant trade barrier. Many smaller suppliers in non-OECD countries choose to supply their domestic markets instead, avoiding the hassle of doing business with OECD companies.

Frustrated by the lack of progress on sustainable trade regulation in non-OECD countries, by the end of the 10-15-year period, OECD countries are considering implementing border carbon-adjustment mechanisms (i.e. border

carbon taxes) to compensate for what they consider to be unfair carbon dumping from countries that are not bound by carbon regulation or pricing. This could lead to very tough tit-for-tat measures, including tariff increases and sanctions. As in the 1920s and 1930s, these 'trade wars' could last for several years and result in a significant slowdown in sustainable and other trade. This would represent a substantial failure of sustainable trade regulation. **(Driver 1. Regulatory competition – and protectionism.)**

Alliances, standards and labels are increasingly mis-used as marketing mechanisms; corporate 'greenwashing' is on the rise.

3.5. 'Greenwashing' detracts from sustainable trade efforts

Alliances, standards and labels, which remain largely un-

consolidated in the worst-case scenario, are increasingly misused as marketing mechanisms, rather than developing as a driver of sustainable trade. Many corporate sustainability efforts are merely 'greenwashing' or, worse, can deliver unintended negative consequences. Sustainable labels are increasingly confusing, misleading and, in some cases, false. They become little more than of symbolic value to please the environmentally conscious consumer. A recent study by Brazilian market research firm Market Analysis, which examined 2,300 products across six different categories, found that only 15% of consumer products' green claims were backed up by third-party certifications.⁵⁶ Meanwhile, research from Rotterdam School of Management, Erasmus University⁵⁷ shows that putting sustainability labels on products can be counterproductive and can have negative effects that are often hard to anticipate. **(Driver 4. Alliances, standards and labels.)**

Part of the explanation for the rise in greenwashing lies in the worst-case scenario's low-growth environment, in which companies are increasingly forced to focus on short-term financial survival at the expense of promoting and meeting voluntary sustainable trade standards. As pragmatism and necessity take over, the bottom-up pressure for a harmonisation of sustainability requirements in international trade fades away. Without any significant streamlining and consolidation of alliances and standards, both 'initiative fatigue' and 'compliance fatigue' take hold; in these circumstances, more firms turn to greenwashing as a shortcut to try to build a reputation for sustainability. However, consumers are increasingly able to draw on tools such as the Greenwashing Index,⁵⁸ which help them distinguish truly sustainable products from others. **(Driver 4. Alliances, standards and labels.)**

3.6. Unsustainable agriculture

The worst-case scenario sees the negative environmental and social impact of the recent growth in volume of south-south trade in agricultural commodities reach a tipping point. While reduced demand growth, particularly from China, helps to ease the crisis somewhat, current voluntary initiatives and standards prove insufficient to limit the impact of agricultural expansion on deforestation and biodiversity. Without more effective regulation in place, monoculture – the industrial-sized growing of a single plant, relying heavily on chemical inputs – continues to dominate agricultural practices controlled by only a few multinational corporations, at the expense of local and more sustainable production. The large-scale global spread of mass-farming techniques has a negative impact on small farms worldwide, in turn creating acute labour market and social problems in many countries, draining government financial resources. By the end of the 10-15-year period of this scenario, the environmental and social unsustainability of monoculture is becoming increasingly clear. **(Driver 2. New patterns of global demand.)**

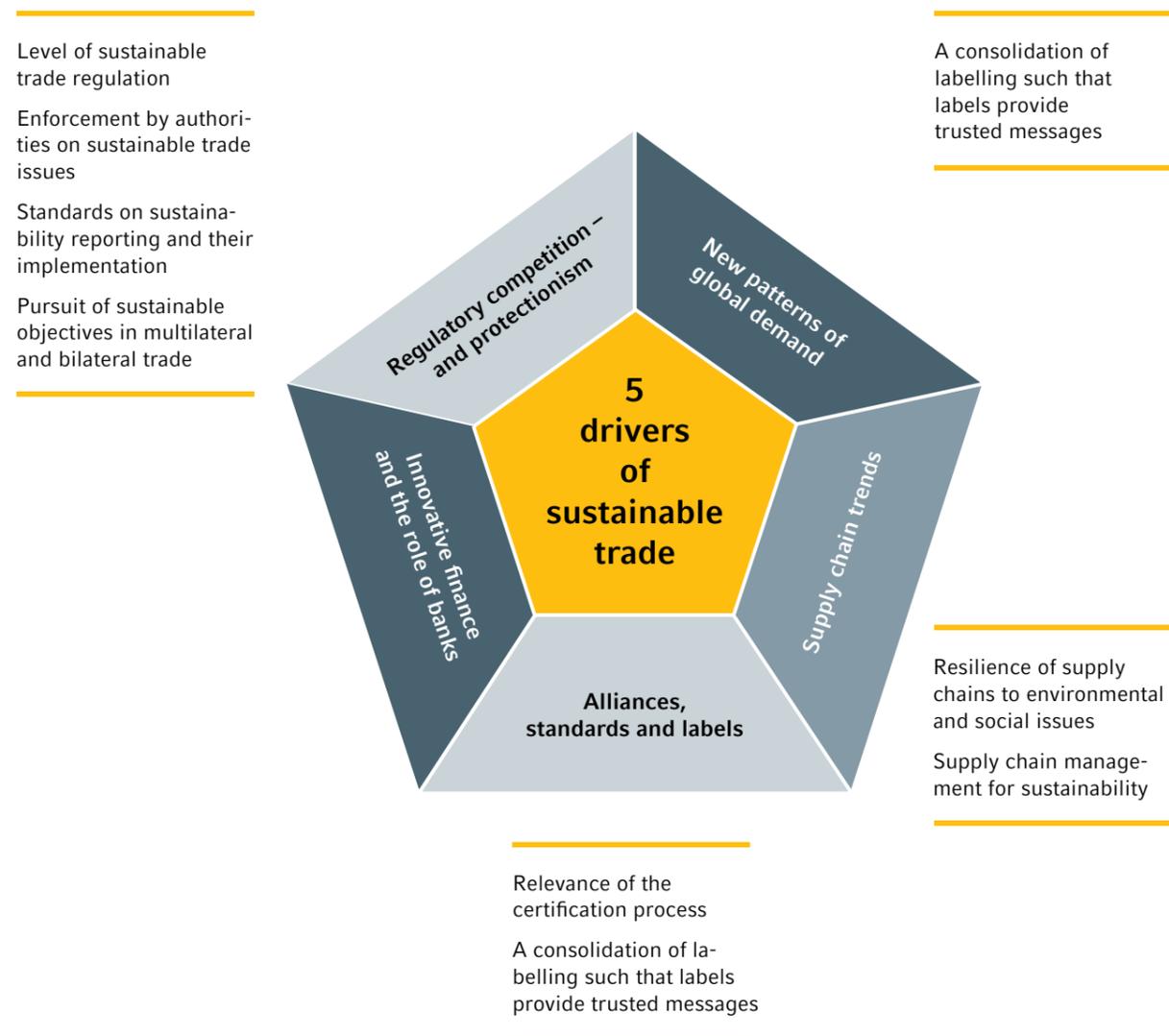
As countries turn inward and trade weakens, this is reflected in particular under **Driver 1: Regulatory competition – and protectionism**, **Driver 3: Supply chain trends** and **Driver 4: Alliances, standards and labels** (see Figure 7).

⁵⁶ <http://marketanalysis.com.br/publicacoes/greenwashing2014/?lang=en>

⁵⁷ <http://repub.eur.nl/pub/77135>

⁵⁸ www.greenwashingindex.com

Figure 7. Key driver components as countries turn inward and trade weakens



4. Technology: Innovation and productivity weaken

4.1. Introduction

As noted by the WTO, productivity improvements (which in large part are a result of technological progress and innovation) are responsible for some two-thirds of economic growth in OECD economies, as well as being important in many non-OECD economies.⁵⁹ Without efforts to maintain technical progress by governments and corporations, the ability of the leading innovators to achieve new radical breakthroughs and the dissemination of innovations around the world will suffer, and so will the expansion of investment in human capital and skills. This exacerbates an already-poor economic climate, and further damages long-run chances of technological progress and a recovery in growth and development.

4.2. The weak economy slows technical progress

In any recession – even today, with greater variability in working conditions, contracts and hours – productivity initially falls as companies are slow to adjust their rates of employment to weaker-than-expected demand conditions. If the shock is short-lived, hoarding of experienced labour makes sense, and some governments (chiefly in the richer OECD economies) also provide assistance (automatic stabilisers) to encourage companies to avoid layoffs, a further slide in spending, and longer-term damage to skills and human capital. However, in a prolonged downturn, layoffs are more likely to emerge in all countries, along with cuts in investment and R&D plans, thus extending losses not just to consumer but also to technical progress. In a sense, such a decline in employment creates an apparent productivity recovery but overall reactions to weakening

economic conditions only stall incentives to fundamentally improve productivity and innovation through research, skills and investment. Thus, in whatever way companies and employment react, poor economic conditions almost always damage genuine technical progress and hamper the discovery and implementation of new innovations. In addition, as unemployment rises, so does the likelihood of an increase in precarious working arrangements (see below).

Policy efforts are typically essential during downturns if only to encourage continued human capital formation, R&D efforts and completion of key projects that aid future productivity and innovations (eg, access to fast broadband or upgraded port and airport facilities). The critical drivers of future innovation must be supported to encourage and justify optimism and belief in a better future. However, in the worst-case scenario, the impact of the global slowdown and depressed confidence in long-run growth are accentuated by the failure of the OECD to support and incentivise technological progress and improve the background for innovation. **(Driver 1. Regulatory competition – and protectionism.)**

Such lack of progress within the OECD along with the damaging impacts of their own weak growth and poor financial conditions hold back the non-OECD economies from investing in their own innovative capabilities and productivity enhancements. Investment in education and R&D will slow while key infrastructure projects are delayed or cancelled, further damaging the establishment of business links and global connectivity.

A lack of effort to maintain technical progress exacerbates an already poor economic climate.

⁵⁹ World Trade Report 2013, Section 'B. Trends in international trade', page 92.

Technological change in labour markets develops in ways that create new problems for society.

4.3. Labour markets become more precarious

In the worst-case scenario, technological change in labour markets develops in ways that create new problems for society. For example, industrial robotics improves the efficiency and reduces headcount in (primarily) low value-add manufacturing. This replacement of low-cost labour by robots allows some OECD corporations to move production from non-OECD countries back to OECD countries (re-shoring). This can make trade more sustainable, in that transport costs are saved compared to supply chains that relied on low-cost labour in other countries. In other cases, the location of the manufacturing does not change, but humans are replaced by robots. For example, Foxconn, the Taiwanese manufacturer, is gradually replacing its China-based labour-intensive workforce with one million robots, as China becomes less productive and less competitive with rival low-wage economies. Taken together, these trends in industrial robotics lead to a substantial rise in unemployment in non-OECD manufacturing centres, in particular China. **(Driver 3. Supply chain trends.)**

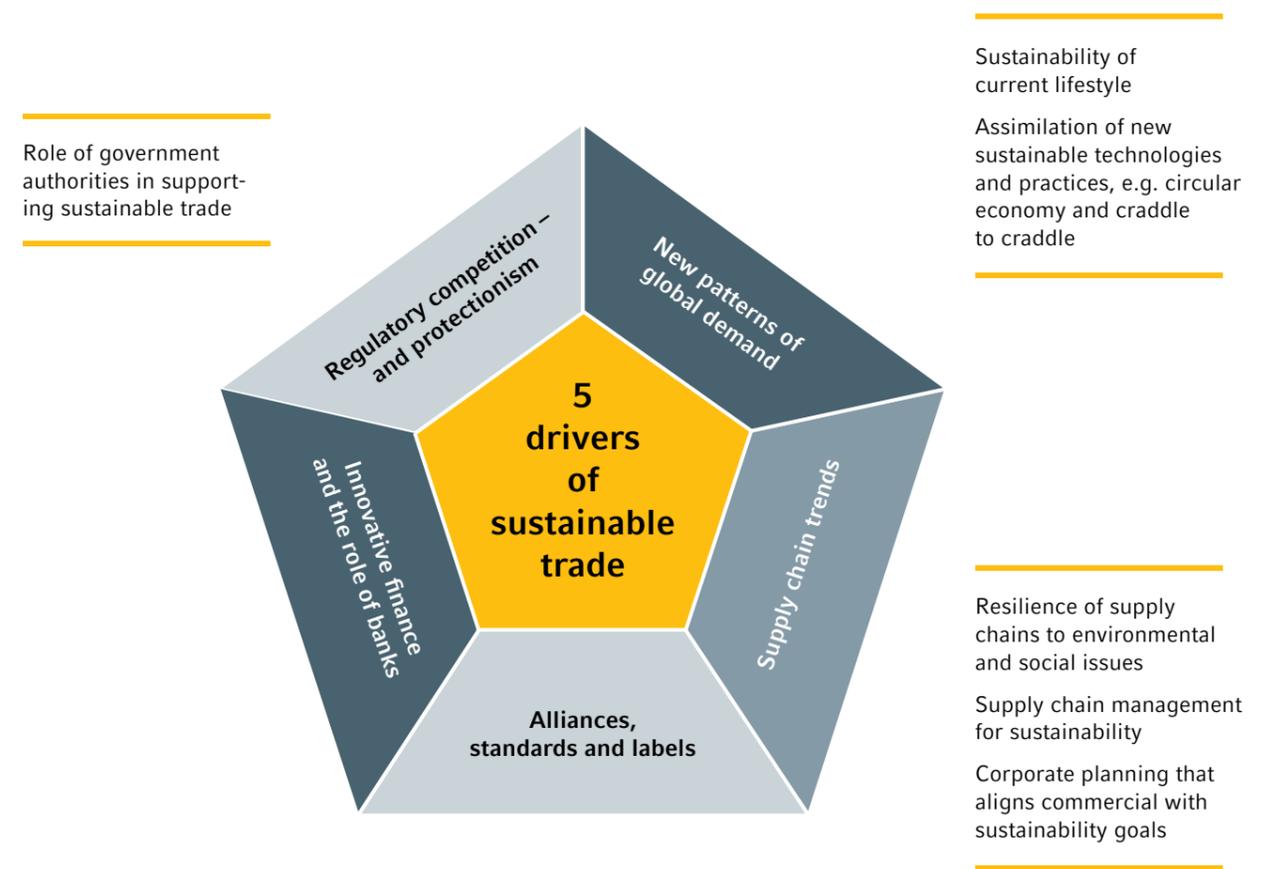
Moreover, recent analysis by Deutsche Bank warns that, for the first time since the industrial revolution, new technology and automation are destroying more jobs than they create. As the analysis points out, labour surplus means that permanent workers can be replaced with lower-paid and temporary workers to reduce production costs. This, in turn, can result

in 'job auctions' in which the manpower of low-skilled workers is auctioned off while the workers themselves have minimal bargaining power.⁶⁰ **(Driver 3. Supply chain trends.)**

A related labour market development over the course of the worst-case scenario is the rise of 'click workers': A type of crowdsourcing technique, click workers are compensated to do short online tasks as part of a job that is too large for a single person or organisation to do. For example, NASA has experimented using click workers (in this case on a volunteer basis) to classify the craters on Mars. Typically, click work is offered in the form of tenders that compensate only the winners or in the form of micro jobs that are paid at a pre-task rate. For some workers, click work is an opportunity, given that their alternative might be unemployment. However, in this worst-case scenario, there are risks of the economy becoming more dependent on flexible working arrangements such as 'click workers', which ultimately are socially unsustainable: Such workers are not generally paid well and do not usually have pensions, social insurance or job security. Formulating the appropriate government policies will be key to ensuring that their labour rights are protected. **(Driver 3. Supply chain trends.)**

Weakening innovation and productivity are the result in particular of developments under **Driver 2: New patterns of global demand** and **Driver 3: Supply chain trends** (see Figure 8).

Figure 8. Key driver components as innovation and productivity weaken



⁶⁰ www.com-magazin.de/news/business-it/deutsche-bank-kritisiert-folgen-digitalisierung-959111.html

5. The private sector: A failure to lead

Most businesses conclude that being sustainable does not make any business sense.

5.1. Introduction

It becomes increasingly apparent that the voluntary sustainability efforts of companies – such as reducing energy use and waste, and integrating sustainability into strategic planning – are nowhere near enough to make a significant difference, particularly in preventing global temperatures rising above the limit of two degrees. A general view emerges in the business community that governments are solely responsible for providing the necessary systemic solution to address sustainability and address climate change. Overall, most businesses conclude that, beyond some initial cost savings thanks to energy efficiency improvements, being sustainable does not make any business sense. **(Driver 4. Alliances, standards and labels.)**

5.2. Supply chain sustainability falters

Progress in making supply chains more sustainable is slow over the course of this scenario. Governments, corporations and NGOs fail to deepen and institutionalise collaboration on sustainable trade-related issues. These actors share the sense that they are ‘doing enough’ on sustainable trade compared to their non-OECD counterparts, and that doing more would risk competitive losses. **(Driver 3. Supply chain trends.)**

This permits many non-OECD economies to continue implementing lax regulation, creating an uneven playing field and disincentivising both deeper globalisation and the transfer of sustainable technologies from OECD to non-OECD countries. Technological breakthroughs fail to have as much of an impact outside the OECD as they do in the OECD, also because of the failure of government incentives, as well as the relative lack of private sector funds and research capacity. **(Driver 1. Regulatory competition – and protectionism.)**

Combined with the impact of slower growth in world trade and cuts in cross-border investments, the re-shoring trend translates into a retreat from global supply networks, alongside a loss in corporate confidence. Where there is still progress in making supply chains more sustainable, this takes place primarily when trade involves only countries in the OECD, rather than when it involves non-OECD countries. OECD corporations increasingly prefer to locate production within the OECD, where they view green regulation as part of a stable regulatory framework.⁶¹ **(Driver 3. Supply chain trends.)**

5.3. The banking sector rethinks its engagement

Under this scenario, banks rethink their strategies, focusing primarily on meeting the many new challenges arising from the fintech sector. Supporting sustainable trade in some cases remains a component of those strategies, but it is not at their core and often is peripheral. The declining interest in sustainable trade shown by corporations, governments and consumers is reflected in the stance taken by banks.

Voluntary initiatives taken by the banking sector in order to support sustainable trade, including the Soft Commodities Compact or the Equator Principles,⁶² continue to exist but are increasingly regarded as representing a niche group of ‘green banks’, most of which fail to attain levels of profitability and growth experienced by banks that continue actively to pursue business opportunities related to both sustainable and non-sustainable trade. As such voluntary schemes lose their attraction for an increasing number of banks, the regulatory vacuum surrounding sustainable trade becomes clear. **(Driver 5. Innovative finance and the role of banks.)**

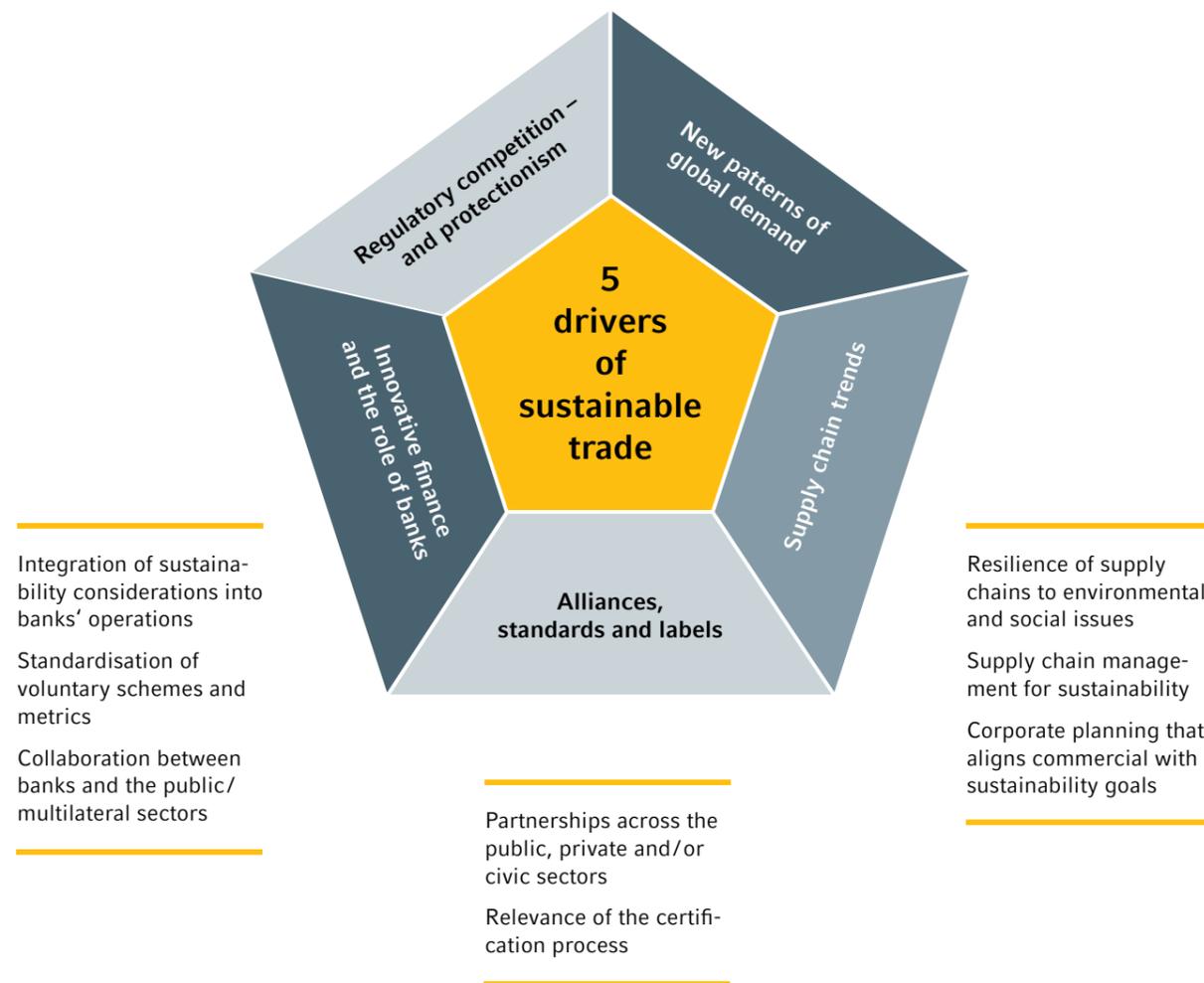
The failure of the private sector to lead on sustainable trade issues is largely because of **Driver 3: Supply chain trends**, **Driver 4: Alliances, standards and labels** and **Driver 5: Innovative finance and the role of banks** (see Figure 9).

The declining interest in sustainable trade shown by corporations, governments and consumers is reflected in the stance taken by banks.

⁶¹ According to the World Bank's Doing Business Index, the safest business environments are also those with the strictest net of regulations, including the EU, the United States, Australia, Norway and Canada.

⁶² www.equator-principles.com

Figure 9. Key driver components of the private sector failing to lead



6. Politics: Unable to deliver

6.1. Introduction

The weak economic outlook and trade slowdown is compounded by political developments that reverse momentum towards sustainable trade. Since the shock of the 2008-09 global financial crisis and recession, policymaking has lapsed back into nationalism and regionalism, and under the worst-case scenario this trend deepens in the next 10-15 years. Further global initiatives stall, following the pattern already established by, for example, the sharp decline in the political importance of the G20. The new fragmentation, along with widespread financial constraints, offers little hope of any substantive global responses to the ongoing malaise that is evident in large parts of the world economy.

The political prioritisation of sustainable trade increasingly come into conflict with countries' needs to ensure energy security.

6.2. National resource needs versus sustainability

The political prioritisation of sustainable trade can come into conflict with countries' needs to ensure energy security, and in the worst-case scenario it frequently does. This dilemma is currently very clear in Germany, about coal. In the context of its 'Energiewende' (energy transformation), Germany aims to reduce primary energy consumption by 20 % and electricity consumption by 10 %, both by 2020 (in comparison to 2008 levels), as well as raising energy intensity by 2.1 % annually. It was expected that these targets would be met in part from a reduction in use of coal. However, due to volatile prices for gas, the retreat from nuclear power in 2011 and difficulties developing the renewables sector, coal continues to play a major role in Germany's energy mix.

Research by the Fraunhofer Institut concludes that German industry's progress in increasing energy efficiency has been slow over the last decade, particularly since 2008, and that "improvements in energy efficiency have to speed up considerably in order to achieve the targets for 2020".⁶³ It is difficult to argue that there will be a very significant reduction in the need for coal in Germany over the next 10-15 years. While gas and renewables will continue to grow their shares of the energy market, their growth will be under-proportional to the decrease of nuclear, resulting in the need for an increasing share of coal in the overall German energy mix. Consequently, Germany will find it challenging to decrease its level of carbon dioxide emissions in the coming years.

6.3. EU political crisis

In response to the continuation of the current difficult economic conditions and concerns about bailouts, politics in the EU drifts even further away from focusing on deeper EU integration. The next generation of political leaders in Germany, France, Italy and the United Kingdom find it difficult to display the same level of European commitment and leadership shown by German Chancellor Angela Merkel in recent years – and even this level of enthusiasm for the 'European project' has cooled, becoming more pragmatic compared with the historic ambitious aims of the EU's founding fathers. European integration and convergence are negatively affected, and this, in turn, contributes to weakening the background conditions for global trade. Sustainable trade suffers doubly: first because of the global trade collapse, and second because of the gradual weakening of the EU and its global authority. **(Driver 1. Regulatory competition – and protectionism.)**

Politics in the EU drifts even further away from focusing on deeper EU integration, negatively affecting sustainable trade.

⁶³ Monitoring of the "Energiewende" – energy efficiency indicators for Germany', Working Paper Sustainability and Innovation, No. 5 10/2014, Fraunhofer Institut.

6.4. Rise of extreme parties drives protectionism

Citizens and political parties in the EU are currently experiencing the rise of the far right (see Figure 10). Far-right parties are emerging or re-emerging, in some cases achieving important electoral successes, e.g. the National Front in France.

Far-right parties generally have in common their dislike of European integration and globalisation. Given a chance, if in power or holding the balance of power, they may implement protectionist policies that could derail global trade and sustainable trade. Given that the EU is still at the centre of economic globalisation, the presence of a systematically anti-globalisation member state in European institutions would pose a serious obstacle to

trade negotiations and further integration. In this scenario, extreme parties have a growing impact on politics in Europe, partly through their success in elections, and partly through the impact that this success has on centrist parties. **(Driver 1. Regulatory competition – and protectionism.)**

The COP21 summit fails to include, let alone incentivise, agreement on private sector cooperation with government-negotiated targets.

6.5. No global climate agreement

In the worst-case scenario, the key milestone of the UN-FCCC COP21 summit ends in failure, either as no globally binding

treaty emerges; or because the treaty that does emerge leads only to negligible emissions reductions beyond those already agreed in the

US-China November 2014 pact, alongside the EU’s self-binding emissions reduction commitment. The COP21 summit also fails to include, let alone incentivise, agreement on private sector cooperation with government-negotiated targets. The COP21 failure leads to a loss of impetus on sustainability-related issues at the intergovernmental level, causing a lack of policy clarity and a weakening of incentives for progress. Previous hopes to have a universal treaty entering into force in 2020 – in time to start a decline in global emissions until their

halving in 2050 – are not fulfilled. At the corporate level, European trends towards greater corporate sustainability become increasingly isolated compared to their commercial counterparts in the United States, China, Japan and Australia. Moreover, international criticism of EU sustainability targets themselves intensifies over the next 10-15 years. This raises doubts among some segments of the EU NGO and consumer sectors about their level of support for sustainable trade. **(Driver 4. New patterns of global demand.)**

6.6. Consumer pressure for sustainable trade declines

“Today price is much more important than quality or sustainability for consumers. That is why discount retailers such as Aldi and Lidl are so successful. This focus on seeking the cheapest goods and services is not driven so much by financial necessity as by a cultural shift that has taken place over the last decade. Previously, goods were purchased to last for a long time; today, they are expected to be useful for a short time only and then be replaced. This leads to huge waste of natural resources.

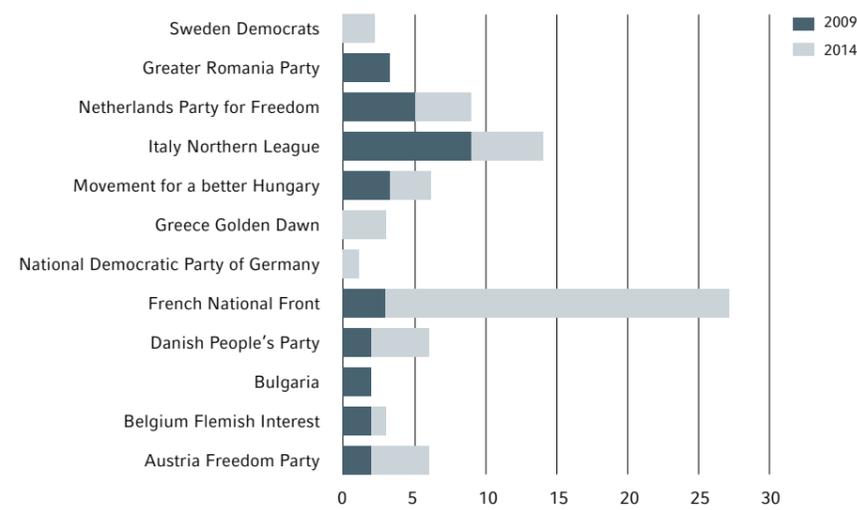
To support sustainability, the EU should focus on taxing natural resources used in production. This would raise the prices of products and incentivise the recycling of the natural resources used, e.g. the minerals used in mobile phones. However, the EU is moving very slowly in this regard.

Many corporations claim to operate sustainably, but in reality they do not understand the circular economy. Corporations need to become responsible for the whole life cycle of their products and refocus on product quality and longevity instead of simply increasing sales. However, corporations cannot be relied upon to take such initiatives; instead, politics must lead by passing appropriate legislation and providing the right tax and other incentives. Unfortunately, politicians are too focused on short-term political considerations, such as their re-election. They are only likely to take major steps forward in the area of sustainability if and when there is some major catastrophe, for example if climate change affects their countries much more severely than anticipated. Until that happens, the outlook for sustainable trade is not good.”



Dr. Valerie Wilms, Member of the Bundestag, Bündnis 90/Die Grünen.

Figure 10: Representation of far-right parties in the European parliament, number of seats, 2009 and 2014



Source: EU parliament election results

Environmental consciousness among European citizens declines, weakening green parties.

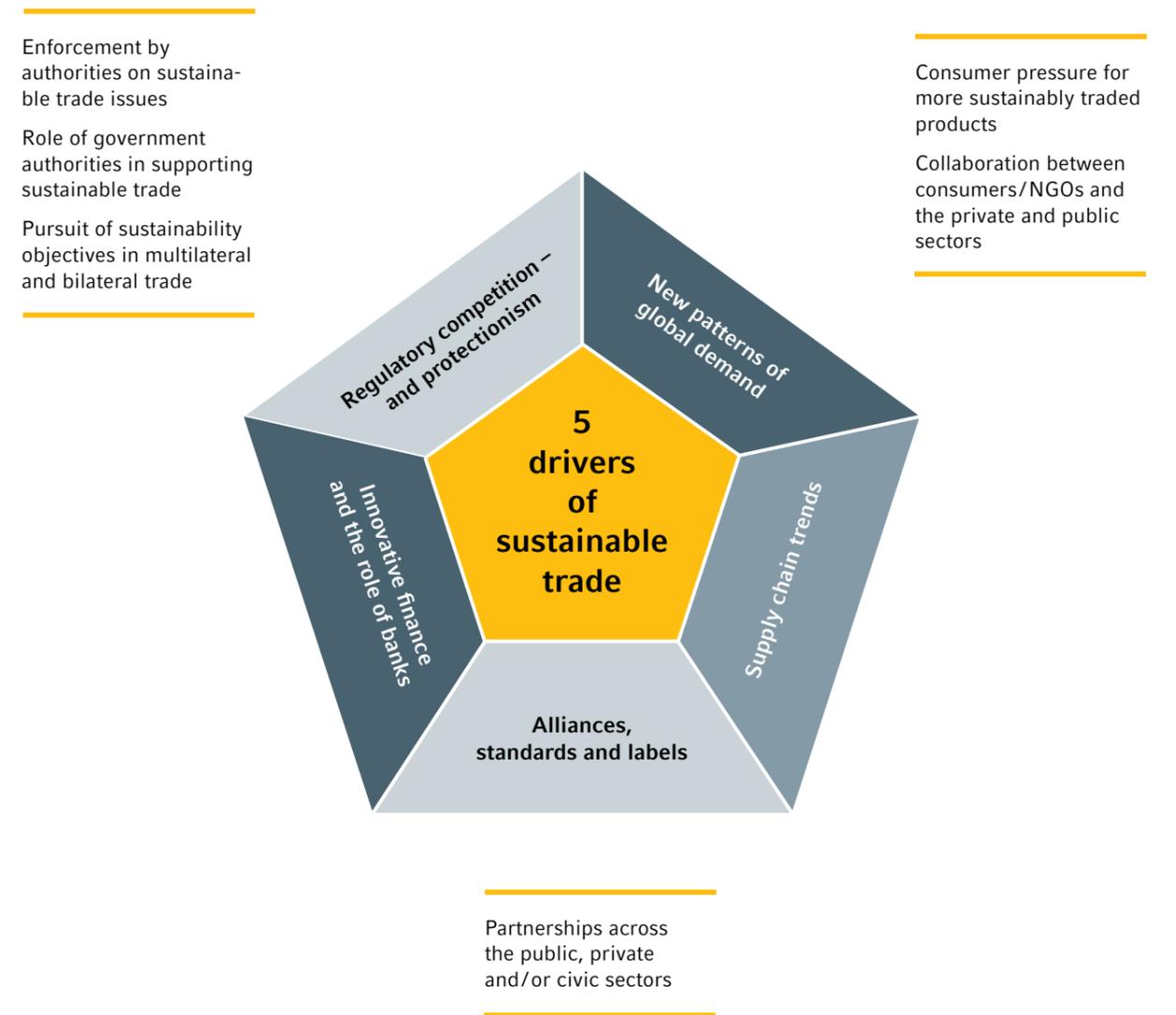
Under this scenario, environmental consciousness among European citizens declines, weakening green parties and in some cases blocking or neutralising environmental provisions and policies that are needed to promote sustainable trade. The waning influence of the Greens in Europe, which has been a trend since 2009, continues and gathers pace. As a result,

European member states are likely to become less inclined to integrate environmental concerns into their policies. In the major governmental parties, environmental policy is considered a drag on the weak European economy. **(Driver 1: Regulatory competition – and protectionism.)**

If Europeans lose interest in environmental policy, given the continent’s global ecological leadership, there is a strong risk of environmental policy losing momentum at the global level. For instance, within the United Nations framework, the EU has in the last two decades been an engine of ambitious negotiations and agreements, such as the Nagoya agreement on biodiversity in 2010.⁶⁴ The same can be said of climate negotiations, where the EU has pushed in recent years for the adoption of the two degrees threshold (above which climate change is considered ‘dangerous’) and kick-started mitigation and adaptation financing. Therefore, as a result of declining interest in sustainability in the EU, there are no major new sustainable trade initiatives over the course of this scenario. **(Driver 2: New patterns of global demand.)**

The inability of politics to deliver on sustainable trade can be ascribed mostly to **Driver 1: Regulatory competition – and protectionism** and **Driver 2: New patterns of global demand** (see Figure 11).

Figure 11. Key driver components of the inability of politics to deliver



⁶⁴ www.cbd.int/doc/press/2010/pr-2010-10-29-cop-10-en.pdf

Conclusion

1. Conclusion

The actual path followed by sustainable trade is likely to reflect some combination of the many possible outcomes that lie in between the best-case and worst-case scenarios.

1. Likely course of the five drivers

This report articulates two plausible, actionable futures, allowing sustainable trade stakeholders to develop and calibrate proactive long-term strategies. While it is tempting to regard past performance as a predictor of future outcomes, the global political economy over the next 10-15 years will undoubtedly take a different course to the one it has taken over the last 10-15 years. The actual path followed by sustainable trade is unlikely to reflect either the best-case or worst-case scenario, but rather some combination of the many possible outcomes that lie in between. The five drivers identified in our first report will continue to play an important role in influencing the trajectory of the – thus far – growing trend of sustainable trade.⁶⁵

In this concluding section, we use the best- and worst-case scenarios to help us establish our own predictions of how we see sustainable trade most likely to develop in the next 10-15 years. As in the introductory section of this report, we do this through evaluating the components of each of the five drivers.

⁶⁵ 'Insights: Five drivers of sustainable trade', Commerzbank in cooperation with Oxford Analytica, March 2015.

Table 1. Likely state of play on key components of Driver 1 in 10-15 years

Strong			Weak			How supportive of sustainable trade?			Weak			Strong		
						OECD	Level of sustainable trade regulation	Non-OECD						
						OECD	Enforcement by authorities on sustainable trade issues	Non-OECD						
						OECD	Standards on sustainability reporting and their implementation	Non-OECD						
						OECD	Role of government authorities in supporting sustainable trade	Non-OECD						
						OECD	Pursuit of sustainability objectives in multilateral and bilateral trade	Non-OECD						

Driver 1. Regulatory competition – and protectionism

Regulation in the area of sustainable trade continues to strengthen, with Europe remaining at the forefront. But the EU’s global influence shrinks and it is not completely successful in convincing others to follow its model. This can be explained partly by the absence of a distinct EU ‘sustainable trade vision’. The Paris summit in December 2015 yields a political agreement to reduce carbon emissions, and while its legal power is weak it is enough to incentivise the appropriate investment and the gradual introduction of a stable global carbon price.⁶⁶ However, with weak enforcement capability, in subsequent years actual implementation and compliance tend to lag behind in many countries.

For corporations, cost concerns continue to have a greater impact on sustainable trade in

the short-term than regulations, particularly in non-OECD countries. Meanwhile, in the OECD, the trend of self-reporting by industry sees further consolidation and there is a refinement of standards. Such standards become routinely reflected in bilateral and multilateral trade agreements that involve the EU and most other OECD countries. Despite a steady but slow catch-up of non-OECD sustainable trade regulation with its OECD counterpart, the regulatory playing field remains uneven.

‘Green protectionism’ is largely contained, as most countries recognise that it is not in their long-term interests. More generally, a gradual pickup in global economic growth and the avoidance of a major economic crisis make it less likely that the major trading blocs implement a significant increase in overall protectionist measures.

⁶⁶ For further detail on carbon pricing: <http://carbon-price.com/faq>

Table 2. Likely state of play on key components of Driver 2 in 10-15 years

Strong			Weak			How supportive of sustainable trade?			Weak			Strong		
						OECD	Consumer pressure for more sustainably traded products	Non-OECD						
						Global	Sustainability of current lifestyle							
						OECD	Sustainability of urban areas	Non-OECD						
						Global	Collaboration between consumers/NGOs and the private and public sectors							
						Global	Assimilation of new sustainable technologies and practices, e.g. circular economy and cradle to cradle							

Driver 2. New patterns of global demand

Technology continues to facilitate and strengthen both the awareness and the influence of consumers around the world. The reduced cost burden of more sustainable consumption as the cost of technologies continues to fall allows the emerging middle classes in non-OECD countries to increase their standard of living while simultaneously purchasing sustainable products and services. All over the world, buyers demand increasingly detailed information from suppliers about ethical or environmental standards.

Table 3. Likely state of play on key components of Driver 3 in 10-15 years



Driver 3. Supply chain trends

Short-term financial survival continues to be the key motivator of global firms, but as the business case for sustainability becomes increasingly apparent, the tension between sustainability demands and pursuing profits starts to lessen. However, supply chain management continue to focus on maximising economic returns. The desire to reduce complexity and over-exposure in volatile regions means that the trend of ‘re-shoring’ gathers pace. While largely driven by security and cost concerns, it also enhances supply chain sustainability.

In the OECD, the strong bottom-up, consumer-driven push for greater product sustainability and cradle to cradle production starts to have a significant impact on corporate strategy and government policies. The European Commission’s initiative on the circular economy, which represents the most significant public endorsement of the concept to date, incentivises companies through the entire supply chain to better align their business models with sustainable trade.

Table 4. Likely state of play on key components of Driver 4 in 10-15 years



Driver 4. Alliances, standards and labels

In 10-15 years, the risk of ‘initiative fatigue’ related to sustainable trade alliances, standards and labels is reduced for a number of reasons: 1) there is a significant consolidation of standards and overall consensus, at least in individual sectors, on the pertinent standards; 2) monitoring, audit and reporting on such standards becomes seen less as a burden and more as a competitive advantage with concrete returns – indeed, sustainability becomes a regular consideration for institutional investors; and 3) the process becomes integrated into financial reporting, at least for the larger companies. Organisational innovation thrives and the majority of all trade stakeholders, even some competitors, realise the value in pooling efforts to tackle the bigger social and environmental challenges. With global reach and long-term strategies, a few corporations take the extra step to become advocates of sustainable trade. The trend of alliances and collaboration may have been kicked off by companies seeking to mitigate risks, but it is increasingly also about long-term financial robustness and market opportunities.

Table 5. Likely state of play on key components of Driver 5 in 10-15 years

		Strong	Weak				
		How supportive of sustainable trade?					
	Global					Integration of sustainability considerations into banks' operations	
	Global					Standardisation of voluntary schemes and metrics	
	Global					Innovative financial products that promote sustainable trade	
	Global					Collaboration between banks and the public/multilateral sectors	
	Global					Facilitation of sustainable investment	

Driver 5. Innovative finance and the role of banks

The consolidation of standards and the progress in quantifying the impact of sustainability policies on companies' bottom lines drive banks to incorporate sustainability issues into trade and project finance on a more regular and systematic basis. However, while sustainability metrics and reporting is increasingly uniform, actual implementation still lacks consistency, particularly among non-OECD financial institutions that often are not yet fully convinced about the commercial benefits of sustainable trade.

As pressure from banks' clients grows stronger to play their part in nurturing sustainable business practices, banks – particularly in the OECD – offer a greater range of financial products that support sustainable trade.

2. Recommendations

2.1. Introduction

The two scenarios show how positive or negative developments in the world economy, public policy and private decision making either strengthen or weaken the advance of sustainable trade. They illustrate the widening gap between the outcomes generated by positive and negative trends for sustainable trade, and thus the urgent need to ensure that negative trends are quickly steered towards a better track.

There is an urgent need to ensure that negative trends are quickly steered towards a better track.

The following subsections provide recommendations for policymakers, corporations, the banking sector and civil society for actions they can take over the next 10-15 years to ensure that the outcome for sustainable trade is closer to the best-case scenario than to the worst-case scenario.

2.2. Policymakers

Support responsible free trade. In order to support sustainable trade, it is essential to maintain support for trade more generally, worldwide. Any signs of protectionism and disintegration must be vigorously countered by mainstream political parties and leaders, to push towards free trade and the opening up of most sectors.

Offer tax incentives. Tax incentives should be provided to encourage sustainable trade, on a scale similar to the incentives provided to the renewable energy sector in Europe in recent years. Tax cuts already exist for foreign direct investment in many countries but are mostly awarded on the basis of employment creation.

Encourage technical progress and innovation. Domestic economic and social policy in the OECD needs to focus urgently on stimulating technical progress and innovation, from education and human capital formation to incentives for researchers and companies to invest in the area of sustainable technology. These processes require financial support, even in times of fiscal austerity.

Strengthen the carbon market. Governments need to phase out fossil fuel subsidies and support a stable global carbon price. A relatively high, stable carbon price would facilitate long-term investment planning, incentivising the necessary investment in sustainable technology and processes.

Support the sharing economy. Governments should accelerate their adoption of regulatory frameworks governing aspects of the sharing economy, creating the conditions for new, more sustainable markets to emerge and develop.

Include sustainability in education. At all levels of education, sustainability should receive a greater focus. For example, at high school lessons on sustainability should be introduced.

Guidance and incentives for cradle to cradle. Governments should provide coaching to industry on implementation of cradle to cradle production. They can also specifically incentivise cradle to cradle, through tax breaks, subsidies and other incentives.

2.3. Corporations

Take more of a leadership role in sustainability. Corporations need actively to seek more of a leadership or first-mover role. This leadership must be fostered through cooperation. Corporate leaders in sustainability should not only have fully integrated sustainable practices and criteria in their operations, value chain and strategy while delivering sustainable products, but they also should serve as advocates for significant changes in policy and consumer behaviour.

Help to make voluntary standards mandatory. Leading corporations should demonstrate to governments a genuine and long-term commitment to voluntary sustainability standards, and be clear about which particular standards they favour and why, in order to facilitate the regulatory process of making such sustainable trade standards mandatory.

Partner with the academic community. Corporations should work more closely with the academic community to help to disseminate analytical findings into what constitutes sustainability and sustainable trade. This will help to ensure that consumers and other stakeholders can make well-informed decisions and formulate strategies on a solid methodological basis.

Align long-term strategy with multilateral organisation standards and goals. The private sector should align its long-term strategy with key multilateral organisation efforts, including the new UN Sustainable Development Goals, which are scheduled to be launched in September, the recommendations of the UN Global Compact, and the sustainability criteria implemented by the multilaterals, such as the IFC, EBRD or ADB.

Formalise relationships with NGOs. Corporations should deepen and formalise their relationships with NGOs, e.g. using each other's office networks around the world to work together on sustainable trade projects.

2.4. The banking sector

Encourage assimilation of global 'best practices'. The banking sector should work with governments and corporations to encourage more rapid assimilation of global 'best practices' in terms of acquiring knowledge about sustainable trade practices and purchasing goods and services that are sustainably produced and traded. This could involve, for example, leading conferences or workshops focused on specific sectors.

Collaborate to harmonise metrics. The banking sector should become a role model for 'coopetition' – cooperation between competitors in areas of shared interests. It can do this partly through strengthening initiatives such as the Soft Commodities Compact. Banks also need to work together with each other more to harmonise sustainable trade finance metrics.

Standardise environmental and social impact assessments. Banks should work closely with export credit agencies and leading corporations to establish sectoral (e.g. mining or infrastructure) templates for environmental and social impact assessments. These templates can then be disseminated and further refined with the assistance of multilateral organisations.

Lobby governments to institutionalise voluntary schemes. Banks that are leaders in the area of sustainable trade should lobby governments to pass legislation that mandates adherence to (hitherto voluntary) schemes, e.g. the United Nations Environment Programme's Finance Initiative (UNEP-FI)⁶⁷ or the UN Principles for Responsible Investment.⁶⁸

Increase blending of public and private sector financing. Public sector grants or guarantees, from governments or multilateral organisations, can facilitate loans or investment by the financial sector. Such opportunities should be accelerated in the area of sustainable trade.

The two scenarios illustrate the widening gap between the outcomes generated by positive and negative trends for sustainable trade, and thus the urgent need to ensure that negative trends are quickly steered towards a better track.

⁶⁷ www.unepfi.org

⁶⁸ www.unpri.org

2.5. Civil society

Become more knowledgeable about greenwashing. Consumers need to be increasingly mindful of misleading sustainability labels and be able to spot corporate greenwashing. Initiatives that educate and encourage consumers to identify such behaviour should become widely used among consumers to alleviate this negative trend involving some corporations.

Participate more in crowdsourcing. Consumers and employees should proactively participate in crowdsourcing platforms in order to share ideas on how to improve sustainable work processes and make the trade of products and services more sustainable.

Educate and publicise on sustainable trade. NGOs should seek funding from governments and corporations to develop education and publicity campaigns aimed at explaining key concepts, critical actions and core targets related to sustainable trade. Setting 'milestones' that guide consumer actions can help to maintain interest over the medium to long term.

Clarify sustainable trade. NGOs should take the lead in explaining to society how sustainable trade works, and the reason for a shift in focus towards sustainable trade. This is essential to avoid both confusion and public apathy.

Verify linkages of sustainable trade with NGO areas of activity. NGOs should carefully analyse their own operations, to make sure that they incorporate all the different facets of sustainable trade. Where new practices would make their operations more sustainable, these should be introduced.

Collaborate to identify externalities. NGOs should strengthen and extend their existing collaboration with leading corporations; for example, with the corporation's consent, an NGO could adopt a more formal surveyor role to identify all social and environmental externalities of that company's business activities, throughout its entire supply chain.

If these recommendations are followed, the probability of the positive scenario materialising will greatly increase. Corporations, banks, NGOs and consumers need to push ahead on sustainable trade rather than waiting for policymakers to move first. The possible short-term costs of such actions need to be seen as an investment in the future rather than current expenditure with no payback. In view of the serious threats to a positive outcome for sustainable trade, rapid and meaningful responses are urgently required. Short-term actions over the next couple of years could set the direction for decades to come.

Glossary

AM: Additive manufacturing

FDI: Foreign direct investment

FTA: Free trade agreement

GDP: Gross domestic product

GSP+: Generalised System of Preferences Plus

IFC: International Finance Corporation

IMF: International Monetary Fund

LCA: Life cycle assessment

LIFE+: Financial Instrument for the Environment regulation⁶⁹

OECD: Organisation for Economic Cooperation and Development

R&D: Research and development

REACH: Registration, Evaluation, Authorisation and Restriction of Chemicals

SME: Small/Medium-sized enterprise

TPP: Trans-Pacific Partnership

TTIP: Transatlantic Trade and Investment Partnership

UNCTAD: The United Nations Conference on Trade and Development

UNFCCC: United Nations Framework Convention on Climate Change

⁶⁹ See <http://ec.europa.eu/environment/life/funding/lifeplus.htm>

Disclaimer

This report was compiled and issued by Commerzbank AG, Frankfurt am Main, and/or the group companies (Commerzbank) mentioned in this draft. This draft is intended for professional and institutional customers.

This draft is based on data and/or information which Commerzbank considers to be reliable. Commerzbank assumes no responsibility, however, for the truthfulness and/or accuracy of this data. This draft does not constitute a proposal, invitation or recommendation to purchase or sell bonds, derivatives, etc. and should not be used either in its entirety or in part as a source of information in the context of a contract or any other type of obligation. It is intended solely for informational purposes. The evaluations contained within this document correspond to our best possible assessment at the time of writing, but can differ without warning at any time.

Commerzbank reserves the right to use this draft for business purposes prior to publication and/or release to customers, i.e. to carry out transactions, for example, on the basis of this draft. Commerzbank shall not be bound by the evaluations contained within this draft in the course of its business activities. This draft may also cover bonds, derivatives, etc. from issuers with which Commerzbank holds a customer relationship.

Commerzbank assumes no responsibility or liability for costs, losses or damages resulting from or in connection with the use of this draft or a part thereof.

The following should be observed outside of Germany:

United Kingdom: This draft is distributed by Commerzbank AG, London. Commerzbank is regulated by the FSA in the implementation of its investment business in the UK. Commerzbank is a member of the London Stock Exchange.

United States: Commerz Capital Markets Corporation (a subsidiary of Commerzbank AG) has assumed responsibility for the distribution of the applicable regulations.

© 2015

This draft or any part thereof may not be reproduced or disseminated by you without the permission of Commerzbank.

Legal notice

Publisher:
Commerzbank AG
Financial Institutions
60261 Frankfurt am Main
Germany

Editing:
Rüdiger Geis, Ralph Lerch, Christoph Ott, Rüdiger Senft, Andrea Siebel, Barbara Stein

Last updated:
September 2015

Commerzbank AG
Financial Institutions
60261 Frankfurt am Main
www.fi.commerzbank.com

