

PRESS REPORT

INNVENTIA GLOBAL OUTLOOK 2016: A CELLULOSE-BASED SOCIETY

This is Innventia's third Global Outlook in a series of forward-looking reports that have gained a lot of international attention in recent years. The two previous reports focused on the future of packaging in "Packaging 2020" (2013) and the future of papermaking in "Papermaking Towards the Future" (2014).

This time the theme is somewhat broader. With its report "A Cellulose-Based Society", Innventia focuses on the conditions for a vital social transformation – from a fossil-based and linear society where products are produced, used and then thrown away, to a biobased and circular society where "waste" as we think of it today will not exist and where all material will find a new use once it has served its initial purpose.

A Cellulose-Based Society highlights the conditions for any such transformation through the results of a comprehensive *international survey, trends* affecting development in key areas, and *future scenarios* that describe various outcomes based on an analysis of crucial uncertainties. The report has been produced by a project team from Innventia in cooperation with Kairos Future.

The report touches on the understanding that we live in a world where the ability to *demonstrate* ideas and concepts in reality is the route to sustainable social transformation.

"The consumer survey and trends show overall that the really successful brands and organisations will be those with the ability to actually *demonstrate* ground-breaking ideas and concepts in reality for consumers. The attitude to what is possible and desirable will then change. We call this the Demonstration Economy and understanding this is the key to social transformation," says Marco Lucisano, Innventia.

INNVENTIA INTERNATIONAL CONSUMER SURVEY 2016

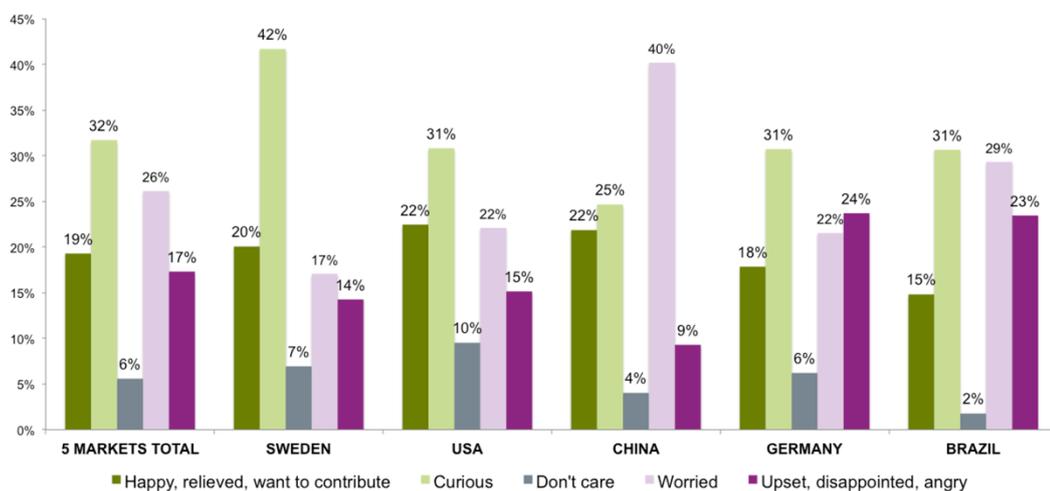
The international consumer study in the report, which was carried out by Kairos Future during 2016, includes 2,500 responses from consumers in five countries (500 responses from the USA, China, Germany, Brazil and Sweden) and reveals several exciting results.

A cellulose-based society?

As the report is about investigating the conditions for a transition to a more biobased economy, one question was asked that clearly addressed the theme. The respondents were asked to react to the description of the following future scenario:

“Imagine a future in which raw materials from the forest are used to manufacture a variety of products – everything from textiles and automotive parts to cosmetics and prosthetics. This implies that the forest will be a more important resource in the manufacture of materials and products in which we currently use oil, plastics, glass and metals.”

Respondents were asked to choose from nine possible answers. Three were overwhelmingly positive, one cautiously positive, one indifferent, one cautiously negative and three overwhelmingly negative (in the chart, the responses are combined into these groups and shown in abbreviated form).



The picture that emerges is that this is a polarizing issue, with few people indifferent to it. The view of the forest and its role in our society touches us, and awakens strong feelings. Overall, however, a majority of respondents are on the positive side, although there are large differences between the countries. Swedes represent the most positive country in the

face of a cellulose-based society (62%). There are also more positive than negative reactions in the USA and Germany. In China and Brazil, the negative responses are predominant, and there is significant concern about what more biobased development would mean. But even in these countries, this is a subject that many people find interesting and exciting.

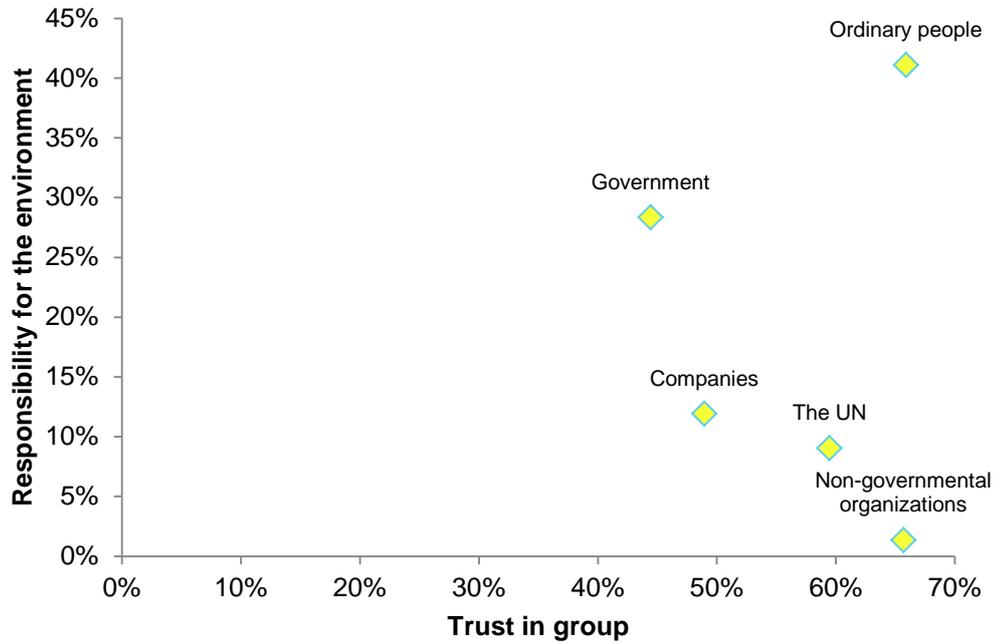
The results show how large groups in all countries surveyed are cautiously optimistic (“curious”) or cautiously negative (“worried”). The results therefore highlight the importance of being able to show, and actually *demonstrate*, what a more sustainable and biobased economy might look like in order to get support from consumers and the public.

There is also great political unrest in the world – that is also clear from the survey. Crime, war and conflict and terrorism top the list of the biggest worries among respondents overall. Worries about environmental threats such as global warming or natural disasters are relatively low – resource scarcity, deforestation and pandemics are seen as major threats to the environment, particularly in China and Brazil, where they are at the top of the list of worries.

5 MARKET TOTAL	SWEDEN	GERMANY	USA	CHINA	BRAZIL
CRIME	TERRORISM	TERRORISM	WAR & CONFLICTS	RESOURCE SCARCITY	CRIME
WAR & CONFLICTS	WAR & CONFLICTS	WAR & CONFLICTS	CRIME	PANDEMICS / DISEASE	DEFORESTATION
TERRORISM	CRIME	CRIME	TERRORISM	DEFORESTATION	PANDEMICS / DISEASE
PANDEMICS / DISEASE	FINANCIAL CRISES	GLOBAL WARMING	FINANCIAL CRISES	GLOBAL WARMING	RESOURCE SCARCITY
FINANCIAL CRISES	PANDEMICS / DISEASE	PANDEMICS / DISEASE	PANDEMICS / DISEASE	FINANCIAL CRISES	FINANCIAL CRISES
DEFORESTATION	DEFORESTATION	DEFORESTATION	RESOURCE SCARCITY	TERRORISM	FOOD SHORTAGE / STARVATION
RESOURCE SCARCITY	RESOURCE SCARCITY	RESOURCE SCARCITY	DEFORESTATION	NATURAL DISASTERS	WAR & CONFLICTS
GLOBAL WARMING	GLOBAL WARMING	FINANCIAL CRISES	GLOBAL WARMING	CRIME	GLOBAL WARMING
NATURAL DISASTERS	FOOD SHORTAGE / STARVATION	NATURAL DISASTERS	FOOD SHORTAGE / STARVATION	WAR & CONFLICTS	NATURAL DISASTERS
FOOD SHORTAGE / STARVATION	NATURAL DISASTERS	FOOD SHORTAGE / STARVATION	NATURAL DISASTERS	FOOD SHORTAGE / STARVATION	TERRORISM

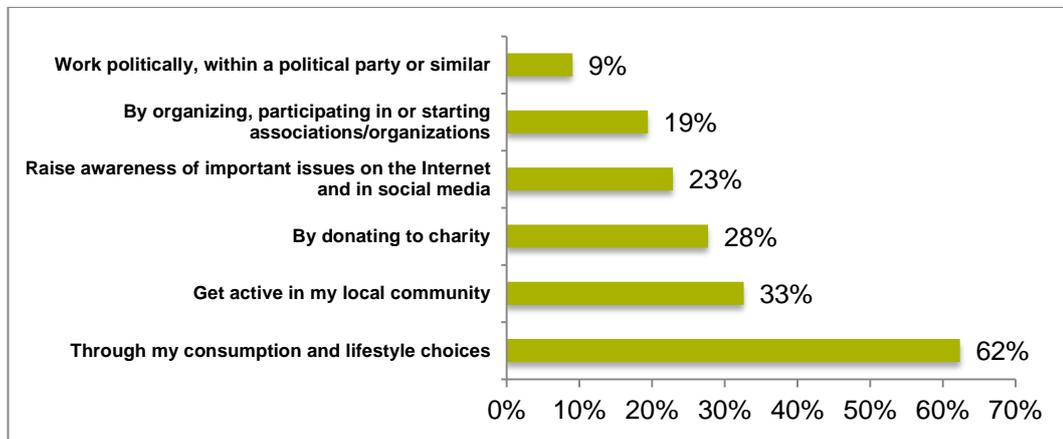
How worried are you about...? (1-7). Above is a summary of the major worries, both overall and in each country. At the top of the table are the biggest worries, then in descending order to the things causing the least worry.

We, ordinary people, are most responsible for the environment – is another clear message from all of the countries surveyed. “Ordinary people” is the group that is most trusted and is also regarded as having the most responsibility for the environment – ahead of other groups such as governments, companies, the UN and NGOs.



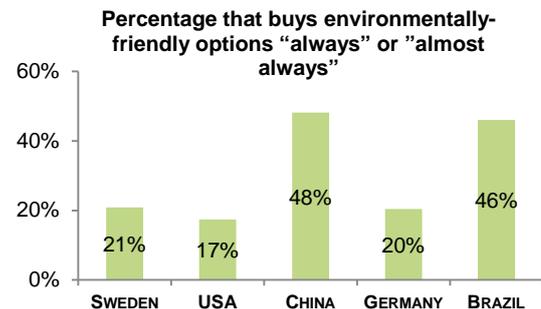
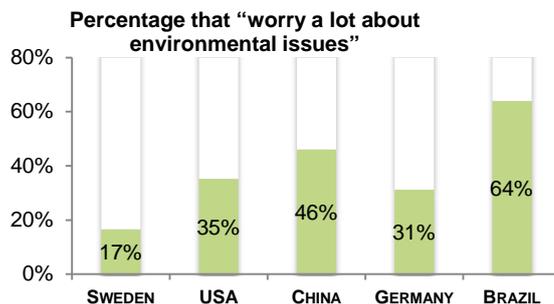
If it is the case that ordinary people have the greatest environmental responsibility – how do respondents themselves feel that they can best help to contribute to more sustainable development?

“Through my consumption and lifestyle choices” is clearly the most common perception (62%), followed by “Get active in my local community” (33%). The options that received the fewest responses were “Work politically, within a political party or similar” (9%) and “By organizing, participating in or starting associations/organizations” (19%).

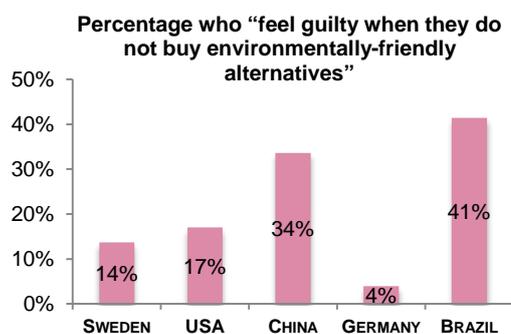


How do you think you could best contribute to a better world? (choose up to two options)

So, if it is ordinary people that are responsible for the environment through their consumption and lifestyles – How committed are they? How do they act?



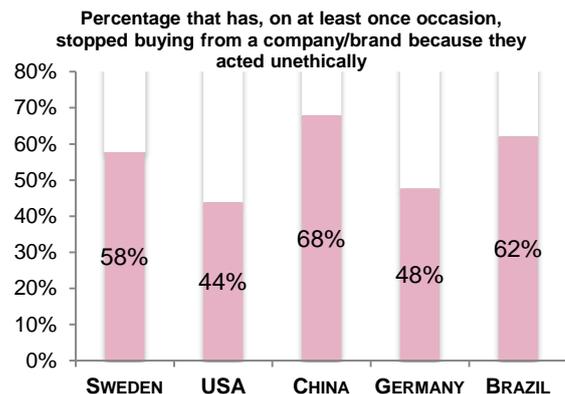
Few Swedes worry a lot about the environment. On the left you can see the percentage of respondents who “worry a lot about environmental issues”. In Sweden, relatively few people show a strong environmental commitment, significantly fewer than in the other countries surveyed. When asked how often the respondents buy environmentally-friendly alternatives, 31% answered “always” or “almost always”, but the differences between the countries are huge. In China and Brazil, it is almost half; in Sweden, Germany and the USA a fifth.



Do environmental issues give rise to feelings of guilt? Not especially in Sweden and the USA, and not at all in

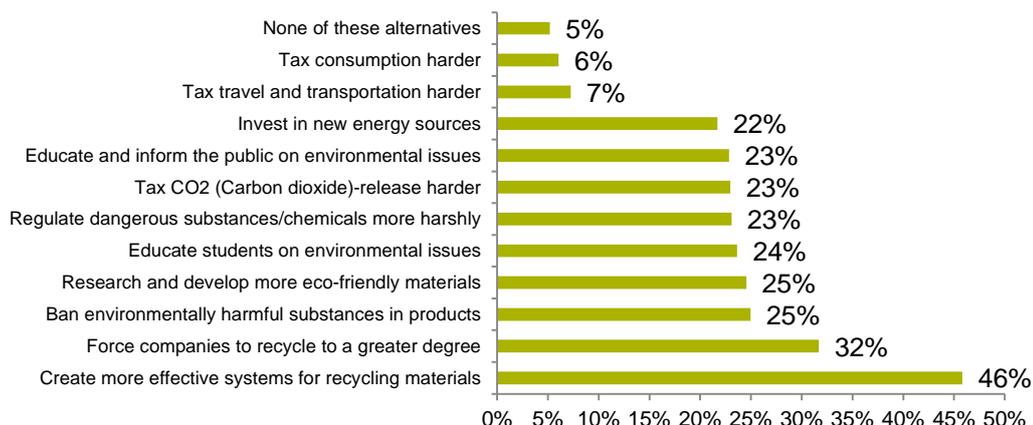
Germany. However, significantly more people in China and Brazil answered that they “feel guilty when they do not buy environmentally-friendly alternatives”.

The impact on companies and brands is huge. The survey shows that companies are greatly impacted by the ethical demands of consumers – most allow their consumption to be affected by the ethical qualities of companies. Over half of respondents (52%) feel that they *make ethical demands* on the companies they shop with and approximately the same percentage (56%) have, on at least once occasion, *stopped buying products* from companies or brands they feel act unethically.



What measures should society take to make the world more sustainable?

“Create more effective systems for recycling materials” is highlighted as by far the best measure for making the world more sustainable. Among the twelve possible answers, this was by far the most common in all five countries surveyed, in competition with other measures such as “Tax CO2 emissions harder”, “Invest in new energy sources”, “Ban environmentally harmful substances in products” or “Tax travel and transportation harder”. To “force companies to recycle to a greater degree” was the second most common response – something that further strengthens the image of the environmental importance of materials handling in the eyes of the public around the world.



Material is also something that is hugely important for the purchasing decisions of consumers. 51% of Swedes say that the material played a role in their latest significant purchase, roughly the same number as in Germany and the USA. In China and Brazil, the materials in products constitute an even more important issue – 80% and 74% respectively say that the material played a role.

The materials that are considered to be most reliable and exclusive, and which have the least environmental impact, are wood, followed by other natural materials, such as cotton, wool and flax. Plastic is the least popular material in these respects, and is also the material most people want to avoid.

EIGHT TRENDS THAT FRAME CONDITIONS MOVING FORWARD

The trends in the report highlight changes in the world that are already shaping the future of mankind and that will have huge significance on the transition to a more sustainable society.

The trends in brief

“The City Norm” puts the focus on how the speed and scope at which humanity is now crowding into cities is going to reshape and redefine our future. The cities contain the reasons for, and the solutions to, our most important challenges.

“The Need of Nature” shows how natural values do not reduce but rather increase as people become increasingly urbanised. Here you find examples of how emotional, health and practical qualities suggest that natural values will become increasingly important, and that the view of nature will change.

“No Waste” describes how increasing resource constraints and increased costs of waste management strengthen the impetuses for development towards an increase in reuse and recycling – with huge public support and ever stronger financial incentives.

“Econsumers – Econscious and Ecofocused” points to how a growing number of consumers are committed to environmental and sustainability issues – and would be glad to pay a little extra for these values. At the same time, it is increasingly difficult to determine what “the right choices” are in a world where more and more goods are produced as “sustainable”.

“No More Plain Janes and Average Joes” portrays a development in which an increasingly heterogeneous mass market splits into a myriad of fast-moving niches, and where the “average consumer” as the target group is irrelevant. This means that the need for specialisation and branding will be increasingly important to achieve success.

“Shift Happens” describes how entry barriers and economies of scale are becoming less important in a globally competitive landscape where new technological and business opportunities are creating entirely new industries and players, while others quickly perish.

“Business Activism” illustrates a trend in which companies, on both business and ethical grounds, start to take an increasingly active role in the pursuit of a sustainable world. This has a particularly large impact at a time when both politicians and consumers are perplexed and disagree about the challenge of leading development in a positive direction.

“Innovation by Collaboration” highlights how organisations innovate their way of innovating – mainly by opening up their development departments and allowing in the ingenuity and insights that are outside the organisation. Customers, suppliers and even competitors have now been allowed into their own innovation workshops – and with good results!

The Demonstration Economy

The trends describe a world with huge shared social challenges; where the needs and requirements become increasingly diverse and fast-changing; where new technological and business opportunities create completely new conditions, challenges and needs; and where innovation and new thinking are a prerequisite for success.

The trend section therefore ends with the conclusion that the successful organisations and companies of tomorrow need to build skills that *go beyond thinking through promising ideas and concepts* – many people will be increasingly good at that in the future.

The truly successful organisations will be those that also have the ability to *demonstrate* these ideas and concepts in reality. The force for change, as well as the success, that can be created by the ability to demonstrate solutions that can actually be seen, touched and experienced can currently be exemplified in organisations such as Uber, Airbnb, Tesla, SpaceX and Khan Academy – organisations that have all changed the perception of what is possible and desirable, and shaped the reality around them.

Demonstration is the key to success – welcome to The Demonstration Economy!

FOUR SCENARIOS DESCRIBE RADICALLY DIFFERENT FUTURE CONTEXTS

If the trends in the report highlight developments and tendencies already visible today, and which will most probably characterise development moving forward, then the future scenarios in the report focus instead on highlighting how *what we cannot be so certain about* may turn out – how current uncertainties may shape reality in wildly differing ways in the coming years.

The purpose of the scenarios is to look at possible, but at the same time very different, pictures of the future with regard to global developments. These can be used as the basis for strategic dialogues within and between organisations. *“How prepared are we for these developments in our strategic planning?”*

Fragmented Worlds. Globalisation is viewed in 2030 as a historical parenthesis. After a long period of political and economic crises in the 2010s, the majority of nation states were weakened to the extent that cities and their surrounding regions are the starting point for all social understanding. International relations break down as each region has its own

functionality and sustainability in focus – the global perspective is virtually dead. All regions suffer from a lack of something, but also have something to negotiate with in a world characterized by the struggle for control and bargaining with physical, financial and information-based resources.

Through Hardship Towards the Stars. Protracted economic stagnation hampers development in the world. The next growth spurt has to wait as countries and companies cut back on long-term investments in order to protect traditional activities and work where investments have already been made. Internationally, dialogue and cooperation continues on the backburner – no major joint agreements or decisions are made. Only during the 2020s does development pick up – driven mainly by visionary business leaders.

Technological Renaissance. Suddenly everything seems to happen at once. New technologies emerge on all fronts at a furious pace when one discovery leads to another in what can best be described as development chaos. The problem in this scenario is not the lack of solutions; the problem is that there are simply too many good solutions – something that makes it difficult for policy makers to decide which way forward to invest in. The challenge is to reach a shared understanding of the world, and where it is heading...

New Horizons. Humanity shows what it is really capable of in a globally interconnected and interdependent world. The major and massive challenges that pile up in the late 2010s finally lead humanity together in a positive spiral of successful events, decisions and developments. A common way forward takes shape through a complicated but patient process, where the search for mutual opportunities and understanding inspires nations, companies and individuals.

ABOUT INNVENTIA

Innventia is a world-leading research institute that works with innovations based on forest raw materials. Our business concept is to generate and refine research findings and ideas based on forest raw materials for the benefit of customers throughout the value chain. We call this approach boosting business with science. Read more about us at www.innventia.se

ABOUT KAIROS FUTURE

Kairos Future is an international consulting and research company that helps businesses and organisations to understand and shape their futures. We provide our customers with



the big picture using trend and business intelligence analyses, innovation and strategy.
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