



# DELIVERING TOMORROW

**Customer Needs in 2020 and Beyond**  
**A Global Delphi Study**

**PUBLISHER**

Deutsche Post AG, Headquarters  
represented by  
Holger Winklbauer,  
Executive Vice President Corporate First Choice  
53250 Bonn, Germany

**PROJECT DIRECTOR**

Heike Humpf,  
Corporate Communications, Deutsche Post AG

**PROJECT MANAGEMENT AND EDITORIAL OFFICE**

Monika Schneider,  
Corporate Communications, Deutsche Post AG

**ART DIRECTION**

Moritz Sattler,  
Corporate Communications, Deutsche Post AG

**STUDY CONCEPT & REALIZATION**

Deekeling Arndt Advisors in Communications,  
Düsseldorf, Berlin, Frankfurt, Munich

**COVER IMAGE**

Adrian Frutiger

1. Edition June 2009

© Deutsche Post AG, Bonn, Germany

ISBN 978-3-00-027266-0

Change is the law of life. And those who look only to the past or present are certain to miss the future.

*John F. Kennedy*

# Table of Contents

<b>Preface by Frank Appel</b>	<b>9</b>
<b>Objectives, Framework, Method</b>	<b>12</b>
<b>1. Future Prospects</b>	<b>17</b>
1.1 A Look at the World in the Year 2020: Global Optimism – New Winners, New Losers	19
1.1.1 Focus on Energy: Before the Breakthrough to Sustainable Production	19
1.1.2 Focus on Natural Resources: Still an Important Factor in Power Politics	21
1.1.3 Focus on Climate: <i>the</i> Big Issue around the World Sparks a “Green” Revolution	22
1.1.4 Focus: Old and New Players in the Globalized World	26
1.1.5 Focus: Financial Crisis – a Phenomenon That Will Pass	29
1.1.6 Focus: Technological Developments – “Always On”	30
1.1.7 Focus: Social Conditions – Inequalities Grow	35
1.1.8 Focus: Terrorism, Violence, and Epidemics – No Serious Obstacles to Global Growth	38
1.1.9 Focus: Values – the Spiritual Self	40

1.2 A Glance at the Customer in the Year 2020: New Demands, New Possibilities	43
1.2.1 Focus on Climate and Values: the Ethics of Consumption and Its Limits	43
1.2.2 Focus: New Technologies – the Relationship between People and Machines	46
1.2.3 Focus: Internet Commerce – the New Culture of Diversity	50
1.3 A Look at Logistics in the Year 2020: the New Model Industry	52
1.3.1 Focus: Climate – the Central Challenge	52
1.3.2 Focus: Values – the Ethics of the Logistics Company	55
1.3.3 Focus: Technological Developments – Radical Changes in the Industry	56
1.3.4 Focus: a New Understanding of Companies – the Age of Cooperative Efforts	58
1.3.5 Focus: New Scopes of Responsibilities	60
1.4 The Most Important Results at a Glance: Ten Trends for the Next Ten Years	65
<b>2. Detailed Study Results – Theses 1 to 81</b>	<b>67</b>
<b>Panel of Specialists</b>	<b>150</b>
<b>Index</b>	<b>154</b>

# Dear Reader,

Today's companies are confronted with rapidly changing business environments and a seemingly ever-increasing complexity. The current financial and economic crisis is just one – albeit a very significant one – driver of change. Further key driving factors are public and political demands for sustainable business approaches, the limitation of natural resources, and the future role of technological innovation. All business fields – and the logistics industry in particular – will be affected by those developments. More than ever, companies need to be ready to adapt to shifting situations.

As a global player in logistics, Deutsche Post DHL makes every effort to prepare its business and customers for the challenges of the future. To this end, we have launched our global Delphi study, "Delivering Tomorrow – Customer Needs in 2020 and Beyond." The study helps us forecast groundbreaking new trends in consumer and corporate demand over the next twelve years and beyond.

With challenges being as complex as they are, we needed our study to cut across boundaries. Therefore, we invited industry experts from various sectors and regions as well as renowned academics with different scientific backgrounds to participate in this study.

Over the course of several months, we discussed our ideas with logistics experts, futurologists, as well as economists and gathered evaluations from many of our international clients. The result is a comprehensive picture of various trends and developments, some of which may even seem contradictory. Yet the world has never been free of inherent contradictions and never will be – so the study also highlights paradoxes. Plus, the view of the majority does not always decide the issue. The view held by the minority can just as well hold the key to future trends as well as sustainable products and services. Other findings may evoke surprise. However, as long as you feel encouraged to debate about them, our aim has been achieved.

Of course, a study of this kind can never completely encompass present-day beliefs or current political trends. Nor is it possible to rely completely on any predictions as technological innovations or natural disasters may have consequences that are difficult, even impossible to predict. But the range of participants and their breadth of knowledge and expertise do, we believe, allow better forecasting than other available methods. Indeed, the study gives a very accurate picture of how industry experts today envisage the future and which trends and developments they expect to shape our tomorrow. Thus, it incorporates the strategic propositions of leading executives for the upcoming years and indicates which future developments they are already preparing their businesses for today.

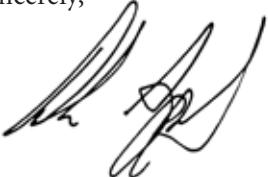
From my point of view, the Delphi study successfully achieves its objective of preparing Deutsche Post DHL's business and its customers for the future. It provides a stimulating perspective on the challenges that lie ahead and serves as a barometer for corporate decisions in all kinds of industry sectors. And I trust that it will give you inspiring and informative insights into the future.

I would ask you to do as I did and read through the study, skipping back and forth between the parts which interest you the most. Ask yourself how you stand on certain issues, what your position is, not only what you think of the view held by the major-

ity, but also which minority opinion is nevertheless important, and what prompts you to disagree. Pay attention to the time frame anticipated by the experts for certain scenarios to take shape and note the regional differences expected in future forecasts. And draw inspiration from new ideas. I invite you to enjoy delving into the future with this, the most comprehensive study of its kind.

The past is only open to interpretation. The present is fleeting. The future can be shaped.

Sincerely,

A handwritten signature in black ink, appearing to read "Frank Appel".

Frank Appel

# Objectives, Framework, Method

The term “Delphi study” is derived from the most important oracle in Greek antiquity, the oracle at Delphi, where a priestess named Pythia predicted the future. For the modern version of making predictions, social science methods are used: The Delphi process (or Delphi study) is a **socio-scientific method** which combines the knowledge of carefully selected experts in a structured and systematic process. In several rounds, the experts assess a number of hypotheses with respect to the likelihood of their occurrence and expected development timeframe. After each round, participants are encouraged to revise or confirm their earlier answers in response to the group summary. During this process, the range of predictions will decrease, and the group will converge towards a very precise and consistent answer allowing for a significant and reliable prognosis of the future. At the same time, opinion leadership by a specific person or group, which might skew the results, is impeded.

The RAND Corporation (Research AND Development), a U.S. think tank, first used the Delphi method during the Cold War in the 1950s to enable analysts to chart the likely course of military developments. Then in 1964, the Delphi forecasting technique, a methodology developed by RAND as a way of predicting long-term scientific and technological developments, came to the forefront with its successful prediction of the computer’s widespread success.

Since then, the Delphi method has been applied to numerous business and public policy issues, including health care and education. The approach has been particularly successful for business forecasting: In 1977, the sales predictions for a new product for the following two years using the Delphi study had an inaccuracy of only 3% to 4% of the actual sales. The majority of quantitative methods used for predictions have a 10% to 15% margin of error, and traditional forecasting methods have an inaccuracy rate close to 20%.

To summarize, the Delphi process is unique in that it allows us to tap into and combine the information and knowledge that was previously “hidden” in the minds of various experts to generate an accurate forecast of future trends.

### **“Delivering Tomorrow – Customer Needs in 2020 and Beyond”**

How will consumer behavior change between now and 2020? Which overall political and global economic conditions will influence the behavior of companies and individuals? What must companies begin preparing for today, and which strategic courses can and should they set for themselves? These are only a few of the central questions addressed by the current Delphi study.

### **Group of Participants**

To find answers to these questions, experts must come together from both **theoretical and practical fields**. Therefore, we began discussing possible developments for the year 2020 with theorists and practitioners (including CEOs from prestigious international companies and scholars from the fields of economics, futurology, and logistics), the so-called “specialists.” These developments were consolidated into a comprehensive questionnaire and presented to 900 industry experts (select clients of the Group) for evaluation. The panel of industry experts included practitioners from an extremely diverse range of industrial sectors and branches. The

study's participants come from all over the world, which ensures that they bring a global perspective to the various topics. Most of them live and work in Europe. More than a quarter of them hold executive or senior management positions, which means that the study is based on the assessments of top managers with many years of corporate experience and an international background.

## Methodology

In accordance with the Delphi methodology, the study "Delivering Tomorrow – Customer Needs in 2020 and Beyond" was implemented in several steps in order to obtain the most precise and well-balanced representation of customers' needs in the year 2020. Following intensive discussions with the specialists, the results from a total of 81 Theses on the future were consolidated and presented to the industry experts for evaluation. These experts assessed the likelihood of the occurrence of a particular development as well as the possible time when it would occur – either in 2015, 2020, or after 2020. In a second round of questions, the participating industry experts were once again presented with 20 Theses that had been particularly controversial during the first round of voting. At this stage, against the background of the results of the general voting and their own individual votes, they could reconsider their evaluations and change them if necessary. The consolidated voting results to both rounds of questions are found in the section "Detailed Results." Selected specialists also discussed these results in a fourth and final round, and developed them further. This provides the basis of "Future Prospects," where future developments and their effects are described. You can find these on the following pages.

In addition to the expertise of specialists and the practical experience of industry experts, this multi-step process makes a balanced and comprehensive assessment of future challenges and opportunities possible. The current study is groundbreaking both in its joining of practical and theoretical knowledge and in its **global orientation**.

For purposes of illustration, the Delphi method typically uses scenarios. These predictions are based on the results of the initial quantitative survey of industry experts which were then validated and expanded in qualitative discussions with the specialists. From the combination of the **quantitative survey and the qualitative analysis**, a meaningful illustration of the future emerges.



# 1. Future Prospects

## Introduction

2020 – this date represents more than a decade of new issues and technologies that lie before us. What will the world look like then? In a nutshell: We will still recognize the world in 2020. However, it will have changed in many ways – sometimes more, sometimes less radically, according to regional and cultural influences. The same will be true of people's values, as well as the relationship between states and cultures. Our handling of resources and the environment will change. Even if they can't meet every expectation, innovative technologies will open up entirely new possibilities. And last, but not least, the role of companies and our modes of working and cooperation will evolve. Of course, all of these changes will have an impact on customer expectations, customer needs, and customer demands.

## GLOBAL DEVELOPMENTS

In the following, we give a sketch of our future world. The first section describes anticipated **global developments** from now through the year 2020, with a focus on the following issues:

- Energy
- Raw materials
- Climate
- Old and new players in the globalized world
- Financial crises
- Technological developments
- Social conditions
- Security/Violence
- Values

## THE "NEW" CUSTOMER

The second section illustrates the effect of these changes on **customers** – on their needs, expectations and behavior.

## ALTERED LOGISTICS

In the third section, the attention shifts to **logistics**. Here, the discussion centers on the impact of global developments and changing customer behavior on the logistics sector.

## TOP TEN TRENDS

The fourth section summarizes the most important and influential developments for 2020 in a list of the **ten most important trends**.

# 1.1 A Look at the World in the Year 2020: Global Optimism – New Winners, New Losers

Despite all the crises: The world economy will continue to grow through the year 2020. The race for economic power and technological innovation, for prosperity and resources will continue. Global regions will profit in extremely different ways from growth and technological progress: Cultural factors will influence who wins and who loses. Global economic growth will not solve every problem. The global distribution of wealth will not become more equitable, and new competition for resources and potentials for conflict will arise. Together, these potential risks will present a constant threat to the world economy in the year 2020. By and large, however, they will not prevent further economic growth.

**WORLD ECONOMY CONTINUES  
TO GROW**

## 1.1.1 Focus on Energy: Before the Breakthrough to Sustainable Production

A sure indicator of world economic growth is the rising **price of oil**. Over the long term it will continue to climb. In the year 2020, it will be at least twice as high as in mid-2008, i.e. approximately \$300 per barrel.

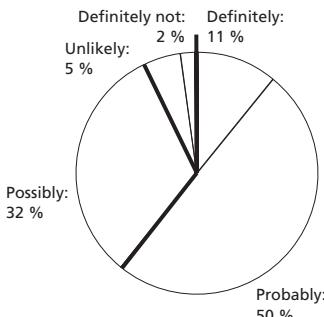
---

## THESIS 1

### In Future ...

... skyrocketing **oil prices** are not a transient phenomenon. Prices continue to rise substantially – the oil price has doubled (compared to its peak in 2008).

### PROBABILITY



In the years following 2009, the inexorable rise of the price of oil will accelerate the search for alternative energy sources to satisfy the constantly rising demand for energy. Despite many setbacks, this search will be successful to a great extent: Of course non-fossil fuels cannot fully compensate for the rising price of oil. However, they will make a significant contribution to worldwide growth.

## NUCLEAR ENERGY AS A BRIDGE TECHNOLOGY

**Nuclear energy** has an important part to play here. As a form of energy that is low in CO<sub>2</sub> as well as being comparatively cheap, it will experience a renaissance in Europe after 2010. Beginning in 2009, large amounts will be invested in Europe, America, and Asia in the development of nuclear energy (thorium breeding reactors, etc.). Peter Schwartz, founder of the think tank Monitor Global Business Network, provides an explanation: *“Anything that does not produce CO<sub>2</sub> is good because climate change is such a hard problem. We need everything we can get, as fast as we can get it.”* However, this does not mean that nuclear energy will be able to establish itself as “green” energy. Despite all marketing efforts, it will continue to be seen around the world as a necessary evil.

By 2020, nuclear energy will once again have lost its significance as an “alternative” source of energy. Schwartz confirms this assessment: *“Nuclear energy will play a major role but will be slowly phased out.”* Clemens Beckmann, managing director of Inhouse Consulting at Deutsche Post World Net, describes the situation in even more drastic terms: *“Nuclear energy will at best be a bridge technology, since it is not clean energy. It’s a dinosaur technology.”* Nuclear energy functions as a transitional technology. It will

support the move to renewable energies, which will have made enormous progress by the beginning of the 2020s: Renewable energies – **wind power, solar energy, geothermal energy and biofuels** – will account for 50% of energy production. This upward trend will continue – in 2020, the breakthrough to sustainable energy production is in the immediate future. The enormous investments that have flowed into its development since the turn of the century will begin to pay off.

The search for alternatives to oil will also lead to an efficiency revolution in drive technologies. By 2020, the triumph of **fuel cells and hydrogen drives** will be well underway and will continue throughout the following years.

However, all hopes for alternative energy sources and systems will not be fulfilled by 2020: The concept of completely **decentralized energy generation** will not yet be realized. “*Energy generation will still be in a relatively centralized form,*” according to Schwartz. For example, the development of decentralized block heating stations in individual city districts will still be in its infancy. In 2020, the idea of turning every person into an energy producer by using solar cells and energy-generating clothes will still not have progressed beyond small-scale tests.

### **1.1.2 Focus on Natural Resources: Still an Important Factor in Power Politics**

In the year 2020, access to natural resources will determine the position of a state or region in the global political power structure more than ever before. Regions that have access to gas or uranium will join together to form new cartels. New power blocs modeled after OPEC (Organization of the Petroleum Exporting Countries) or the GECF (Gas Exporting Countries Forum) will emerge, this time made up of countries that possess clean drinking water. As in the past, access to natural resources will offer dictatorships of all sizes the opportunity to stabilize their power, while at the same time providing a provocation for war. According to Michael ten Hompel, director of the Fraunhofer Institute for Material

### **RENEWABLE ENERGIES ON THE UPSWING**

### **ACCESS TO NATURAL RESOURCES CREATES NEW POWER BLOCS**

Flow and Logistics: “*We can expect to see many wars in Africa. The main potential for conflict is created by resources, which means not only raw materials, but especially water and arable land.*”

#### GROWTH ONLY FOR A FEW

To a large degree, **access to natural resources** will decide which states and regions profit from the prosperity effects of globalization. Large parts of the world will still be shut out of growth in the year 2020. The chasm between developing and industrialized countries will tend to grow ever deeper. Only a few developing countries will be able to leap over the development phase of “energy-intensive” industrialization and enter directly into the age of highly energy-efficient products and services.

Industry experts questioned on the **future of the EU region** hold varying opinions. The majority of the panel does not expect a significant expansion of the EU region. However, they are contradicted by Asian industry experts who believe that a group of additional countries, including Turkey, the Ukraine, and Georgia, will have joined the EU by the year 2020.

#### 1.1.3 Focus on Climate: *the Big Issue around the World Sparks a “Green” Revolution*

In the year 2020 it will be clear that **climate change is the most important challenge** facing humanity. Over the previous years, obvious environmental disruptions – increased flooding, catastrophic hurricanes, droughts, and changes to flora and fauna – will have made this clear to everyone. According to the estimate of industry experts, continuous worldwide population growth will cause dramatic **resource scarcity and damage to the environment** by 2020. Only the Asian industry experts disagree with this evaluation. They believe that due to increasing prosperity and increasing industrialization the world population will level off at between seven and eight billion people, and will not continue to grow.

#### DRAMATIC EFFECTS OF CLIMATE CHANGE

Ten Hompel paints a bleak picture of the effects of climate change: “*Within the next 20 years we will see environmental problems that we can hardly imagine today. In 2020 climate change will be a much more*

*important issue than it is now.”* The most impressive effect: The melting of the polar ice caps will make the Northwest Passage ice-free.

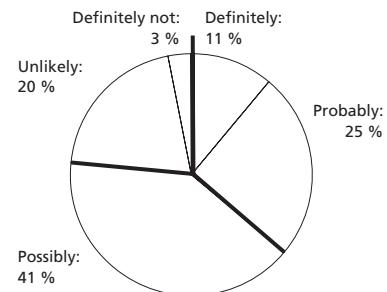
---

#### THESIS 16

##### ***In Future ...***

*... the melting of the polar ice caps opens up new transportation routes, e.g. the **ice-free Northwest Passage** becoming a major container route between Europe and Asia.*

#### PROBABILITY



All around the world, individuals, corporations, and states will focus their intelligence and ingenuity on fighting climate change. To support this fight, the USA and Europe, the prosperous “old industrialized nations,” must first and foremost involve the “new players,” today’s emerging markets. *“If China and India are not involved in climate protection agreements,”* Schwartz explains, *“it’s almost impossible for the rich countries to do anything. The deal will look something like this: The rich countries will agree to a set of standards, China and India agree basically to follow the same path a little slower than the industrialized countries.”* **Innovative technologies** will play a key role in combating climate change. American industry experts place particular emphasis on these technologies. Beckmann agrees that “human ingenuity” should not be forgotten in the fight against climate change. In his opinion, environmental problems *“will be confronted with a combination of regulation, intervention and quick reaction.”*

Nevertheless, industry experts are skeptical about the extent to which such technologies will affect the planning and realization of so-called **“zero-emission cities.”** Only a minority of them believe that such a surge in development will be possible at all, and they expect it to take place in the years following 2020.

On the other hand, new drive technologies and new energy sources will be used more frequently all over the world (see 1.1) and lead to a significant

#### REDUCTION OF CO<sub>2</sub> IS A PRIORITY

reduction of CO<sub>2</sub> emissions. Companies in all regions will be forced to spend enormous amounts on the implementation of CO<sub>2</sub>-free technologies. Customers will ensure that they do this: Environmental awareness will have risen all over the world, and customers will be more and more persistent in demanding products that are climate neutral in their manufacture and operation (for more details see 2.1; for effects on the logistics sector see 3.2).

As a result, the **market will become the actual driver** of the fight against climate change. It is true that individual nation states or transnational institutions such as the UN are always starting new initiatives with the goal of bringing about international agreements on the reduction of greenhouse gases (and it is possible that a world environmental organization could come into existence as part of the United Nations). However, these initiatives always play a secondary role. Peter Wippermann, futurologist and founder and director of Hamburg's "Trendbüro," concludes: "*Regrettably, the belief that there will be no binding governmental regulations is correct. This remains true, even as the issue becomes increasingly urgent.*" Industry experts share the same opinion. They are convinced that the **market creates standards** that are quickly followed by politics and then molded into laws and international agreements. Here, the primary function of the state is supportive. However, it can fulfill an important role as a sanctioner and an initiator of ideas. Schwartz explains: "*The state has a very important role for setting standards that drive technological development.*" Likewise, the majority of industry experts from Asia assign a central role to politics. Unlike their European and American colleagues, they consider government-stipulated, globally binding agreements for reducing climate change to be likely.

#### CARBON FOOTPRINT LABEL

Despite this controversy, one thing is certain: In many countries, the market will have been responsible for making carbon-footprint indicators legal requirements. **Proof of energy efficiency** will be necessary to ensure a product's acceptance and marketability. Nevertheless, there are differing opinions on the extent to which "global warming" represents a genuine business opportunity. Beckmann speaks for

many specialists when he says: “*An enormous amount of money can be earned with the right answers to ‘global warming.’*”

---

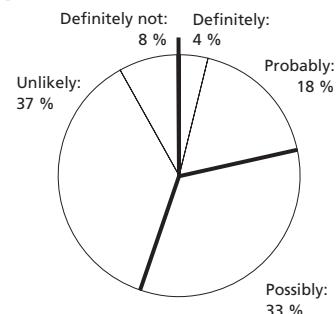
#### THESIS 8

##### ***In Future ...***

***... carbon footprint measures are imposed on a global scale and become a standard characteristic of both services and products, as package labels mark the CO<sub>2</sub> emissions of each product.***

---

#### PROBABILITY



However, the majority of industry experts surveyed believe that the **first-mover advantages** gained by companies through “green” products will be of short duration. Once introduced, higher environmental standards will quickly become the norm. Any company that does not uphold these standards will not last long. Nevertheless, the environmentally friendly policies of “greener” companies will not necessarily produce higher profits over the long term. Profits will be almost completely offset by the enormous costs of implementation. As a result, at the end of the day the growth effects of a market that is constantly becoming “greener” will be limited. Companies that want to stay in the “green” race and to become or remain market leaders will need to constantly set new standards. It will not be enough to react; they will also need to initiate. Only in this way will it be possible to operate profitably with their “green” ideas – at least until these ideas become the legal standard. The timeframes during which it is possible to earn a profit with sustainable efforts will become shorter.

All the experts and specialists agree that the involvement of emerging markets in climate change initiatives and measures is necessary. Most industry experts are of the opinion that emerging markets will not be able to lower their CO<sub>2</sub> emissions initially, as their economic growth will necessarily lead to increased emissions. In contrast to the panel’s majority opinion, Asian and African industry experts

#### CLIMATE PROTECTION IN EMERGING MARKETS

estimate the ability of emerging markets to substantially reduce CO<sub>2</sub> emissions as much higher than their European and American colleagues. One of the reasons for their optimism is that they believe emerging markets can jump forward in the innovation cycles of CO<sub>2</sub> reduction. Nonetheless, the majority of industry experts take a “wait and see” view of this development.

#### 1.1.4 Focus: Old and New Players in the Globalized World

Substantial expenditures on security (see 1.8) will be the primary source of significant cost increases in international trade. Nevertheless, in the world economy of 2020, many of today’s central players will continue to play important roles. The global division of labor between low-wage countries and industrialized countries will also persist; the **offshoring and outsourcing trend will continue uninterrupted.**

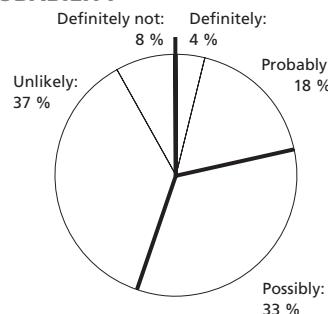
---

##### THESIS 24

###### ***In Future ...***

***... outsourcing is out, insourcing is in, as the rising transport costs outweigh the advantages of low-cost countries.***

##### PROBABILITY



This assessment is shared by Yuwa Hedrick-Wong, economic advisor for Mastercard Worldwide and principal of the Insight Bureau, Singapore: “*I cannot see how the outsourcing trend could be reversed.*”

In 2020, most countries will have completely recovered from the financial crisis (see 1.5). Johan Peter Paludan, futurologist and director of the Copenhagen Institute for Future Studies, believes that the **effects of the financial crisis will be confined in their temporal scope**, and confirms the assessment of the panel: “*The challenge today is not*

*to ignore the crisis but to remember that it is probably a rather short-term development within a long-range development – which is quite different.”*

The undisputed winner of globalization will be Asia. **Inner-Asian trade** will rise to become the focus of the global economy.

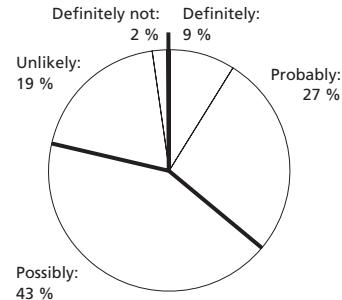
---

#### THESIS 25

##### ***In Future ...***

*... inner-Asian trade is the center of the global economy and far more important than the trade between North America and Europe.*

#### PROBABILITY

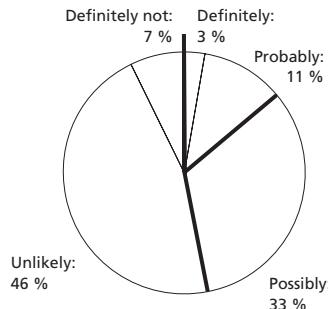


In the words of Hedrick-Wong: “*Intra-emerging markets trade is between inner-Asia, Africa, South America and so on – this market will be far more important and perhaps surpass the importance between inner-Asia and the developed markets in Europe and North America.*” At the beginning of the millennium, some countries were considered to be “certain” to profit from globalization, but not all of them have. **India and Latin America**, for example, are held back by social and political tensions. Hedrick-Wong explains India’s delayed development as follows: “*In the case of India, the government has neither been a major leader nor a facilitator in development. Anything is an obstacle. Physically, it's manifest in India's infrastructure deficit. In terms of policy, it's manifest in terms of a lack of reform.*” The panel of industry experts has a pessimistic assessment of India’s development possibilities: Industry experts from Asia and America, in particular, consider India’s economic and political potential to be limited.

---

**THESIS 26****In Future ...**

*... India is the world's center for technology and innovation; Indian products dominate the high-tech market and set the standard.*

**PROBABILITY**

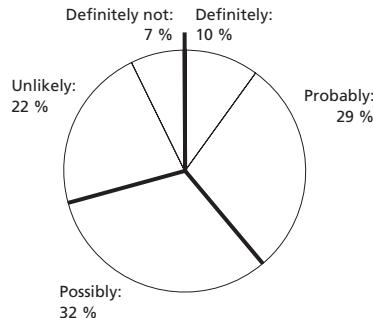
In contrast, the industry experts and specialists believe that Russia will be able to use its resource base to develop successfully – in the years leading up to 2020 **Russia** will experience rapid growth. Yet, this ascent will also create victims. In Russia, as in numerous other emerging markets, large sections of the population will not be able to participate in the (new) prosperity. The social gap will become wider. The people left behind represent a potential source of unrest that could severely damage the country's economic development (see 1.7 for more details).

In the year 2020, **China** will be the **undisputed frontrunner**. The country will have made up more ground technologically and will be one of the world's leading industrialized nations.

---

**THESIS 72****In Future ...**

*... technological intelligence is at home in **China** and **Singapore** rather than in Europe or the USA; Asian countries educate far more engineers than Western countries.*

**PROBABILITY**

In the years to come, technological intelligence will find a new home: **Singapore and China**. Both countries offer a globally recognized education in engineering that is coming to be appreciated in Europe and the US. However, the social risks of technological and industrial advancement should not be

underestimated, especially in China. The success of further development will depend to a large extent on whether it is possible to prevent the chasm between rich and poor, country and city, and old and young from growing larger than it already is. The issue of migrant workers and demographic developments are additional factors that could threaten China's stability and ultimately undermine its growth.

### **1.1.5 Focus: Financial Crisis – a Phenomenon That Will Pass**

The financial crisis, which dominates debates in the period between 2008 and 2010, will create powerful aftershocks: An unusually severe recession will lead many companies into bankruptcy which, in turn, will cause unemployment to explode in some industrialized countries as well as emerging and developing markets. Many governments will be brought down. But this much is certain: The international financial and trading system will not collapse completely. Finance will become less important, however, as the **real economy** regains its importance in the years following 2009. Schwartz extrapolates on the panel's results and emphasizes the opportunities presented by the crisis: *"If we solve the financial crisis and manage it without collapsing the world economy, we are actually setting the stage for relatively high growth. The fundamentals of growth could be accelerated again in terms of innovation and globalization, the two big drivers of relatively high growth globally."* This opinion is shared by most of the industry experts on the panel. Yes, the financial crisis must be taken seriously. But, over the long term, it will not endanger the stability of the world economy.

The financial crisis will perhaps make its most important mark on the media and on intellectual discourse. Opinion makers worldwide (on the political left, but, increasingly, also on the right) will call the fundamental growth principle of economic trade into question with increasing vehemence. Nevertheless, it is questionable if this intellectual debate will affect the broader population: In 2020, the **antiglobalization movement** will still not have gained widespread support. It is true that the call

#### **FINANCE LOSES ITS IMPORTANCE**

## THE END OF PROTECTIONISM

for protectionist measures will grow louder as a consequence of the financial crisis. However, according to Wippermann: “*Every country is aware that it will be out of the game if it gives in to protectionist impulses. This is primarily a matter of a sentimental propaganda issue.*” The majority of industry experts also believe that **protectionism worldwide will have been overcome** in the year 2020. Particularly Asian and African experts believe that unrestricted global trade will be a reality. Schwartz formulates this clearly: “*Protectionism is a way to poverty. If we cut our economies off, we collapse the world economy.*”

## THE STATE FADES INTO THE BACKGROUND

The state will not emerge as a victor from the financial crisis. It is true that it will be asked to intervene into the economy to a greater extent as a consequence of the financial crisis, sometimes successfully, and sometimes less so. However, its engagement will be mostly confined to specific, limited time periods. The majority of industry experts assume that in the year 2020 states and supranational institutions will merely provide the basic conditions for the economy and guarantee security (as well as flows of commodities). A tendency toward a greater exertion of state influence is definitely not expected.

### 1.1.6 Focus: Technological Developments – “Always On”

In industrialized countries, technological progress will radically transform life by the year 2020. The Internet will be omnipresent. It will be fully integrated into both our working and private lives. In 2020, human beings will be one thing above all – networked. Thanks to smaller and smarter devices and applications, people will be “always on,” i.e. permanently online.

---

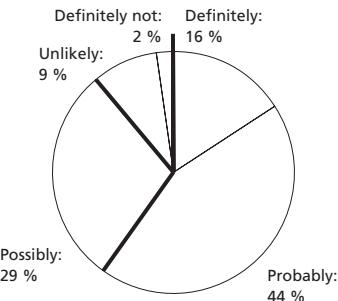
#### THESIS 54

##### **In Future ...**

*... people are “always on” the Internet, surrounded by easy-to-use appliances and virtual “smart agents” automatically assisting the users in their daily activities, filtering information and serving as personal coaches.*

---

#### PROBABILITY



At the same time: “*The more everybody can be on, the more it will be regarded as a luxury to be off*” (Paludan). The value of “online-free” time will grow in the estimation of people: less is more.

Constantly smaller and lighter mobile devices allow Internet access from almost everywhere: A new dimension of the **mobile Internet** evolves. Data and programs will no longer be saved locally, but instead on enormous off-site server farms (for impact on logistics see 3.3 and 3.5). With increased data capacity and options for cooperation, new applications will be possible, and new business models will emerge.

The “**Internet of Things**,” in which billions of objects, applications, and systems create their own networks and communicate with each other, will be a reality.

---

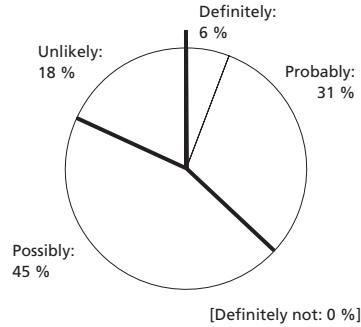
#### THESIS 50

##### **In Future ...**

*... in the “Internet of Things” radio tags are embedded in all products and items, enabling them to communicate and navigate on their own, making each item traceable and connected to others.*

---

#### PROBABILITY



Paludan explains: “*I think that the ‘Internet of Things’ will come. The only question is the question of timing. Will it be ready by 2015, 2020 or maybe first 2025? But*

*I don't doubt the direction of the development. I think it's only a matter of time.*" The "Internet of Things" will be perceived as an integral part of life: "*It will spread like automatic glass doors*" (Peter Schwartz).

The future of the Internet is guaranteed: A collapse, which has been constantly predicted since the beginning of the 21st century due to data overload and spam, will still not have taken place by the year 2020. The threats that some specialists warn of will be addressed in time to prevent large-scale disruptions. Schwartz explains: "*There is a great challenge ahead towards being able to have a more effective Web that is not as vulnerable to kinds of current disruptive phenomena, e.g., spam. The functionality of the Web in its current form is beginning to become problematic.*" Substantial investments in technologies such as fiber optics and satellite infrastructure will make the network largely invulnerable. Asian and American industry experts are even more convinced than their European colleagues that the **threat posed by spam will be averted**.

The industry experts are unanimous on one point: In the year 2020, the Internet will – to a large extent – remain **self-regulated**. It is true that there will still be attempts by authoritarian states to censor Internet content and strictly regulate it. However, the free character of the Internet will prevail. The Asian experts in particular believe that the future ability of states to control the Internet will be limited.

## GLOBAL KNOWLEDGE SOCIETY IN THE MAKING

The triumphal rise of the Internet will be accompanied by plummeting **communication costs**. In most regions of the world in 2020, they will be very close to zero. Knowledge will be freely accessible to almost everyone. The consequences for the economy will be enormous. Everyone will have potential access to every product from almost anywhere on the planet. Nevertheless, this new accessibility will not only have economic consequences. Industry experts consider it highly likely that emerging markets will quickly be able to close the gap with Western societies due to mobile infrastructure and free access to information. Industry experts from Africa consider this development to be particularly likely.

People in the year 2020 will become increasingly more closely connected; they will be “always together.” Constant and easy communication with friends on the other side of the world will be a matter of course. Web-based networks will perform many of the functions previously associated with family relationships, especially since the number of single households in industrialized countries will continue to increase and birthrates are expected to remain low. Peer-to-peer forums will be relevant sources of opinions, information, recommendations, or self-help. However, industry experts are skeptical regarding the extent to which these forums will actually influence purchasing decisions. They still foresee an important role for classical advertising.

Even in the age of Internet networking, personal contact will remain decisive in doing business: Long-term, trusting business relationships can only be developed through personal contact. **Videoconferences** will still be considered “impersonal” in the year 2020. Therefore, the frequency of business trips and trade fairs will not decline considerably. They will, however, both be much more convenient than in the 2010s.

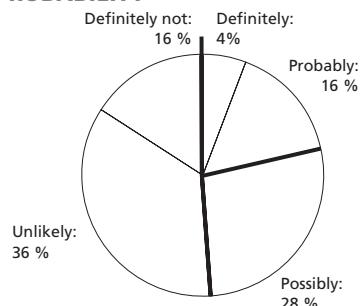
## THE PEER-TO-PEER SOCIETY

### THESIS 13

#### *In Future ...*

*... business trips are obsolete as they are superseded by video-conferencing and holographic communication of a new dimension and quality.*

### PROBABILITY



The Asian industry experts disagree with the majority of their colleagues in Europe and Asia, and believe that technological solutions will prevail. They expect that videoconferences and holographic communication will replace classic business trips.

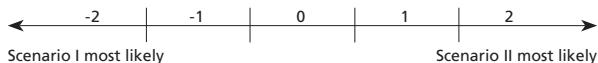
At the same time, **worldwide trade over the Internet** will increase. Regional niche products will enjoy greater popularity (see 2.3 for more details): Seals of approval confirming “cultural and regional authen-

ticity" will attract customers. Consumers will be increasingly aware of their regional and cultural roots and reach back to familiar products and handcraft traditions, specifically requesting such products.

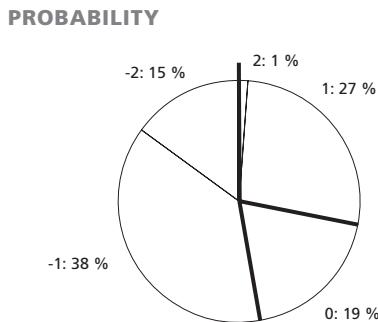
THESIS 77

## *In Future ...*

*[Scenario I]: ...  
in search of security and  
orientation, people all  
over the world increas-  
ingly refer back to their  
**regional and cultural**  
**roots** and customs.*



[Scenario II]: ...  
as an effect of globalization,  
different cultures,  
mentalities and religions  
merge into **one universal**  
**one-world culture** with a  
single value system.



# THE WORLD DRAWS CLOSER TOGETHER

Nevertheless, according to the majority of industry experts, this in no way means that companies should direct strategy, production, HR, and marketing only at local markets and cultures. The panel is convinced: **Standards will continue to be set and maintained at the global level.**

The global exchange of information and merchandise will change and expand people's attitudes and preferences. They will develop a more comprehensive global understanding, and the feeling that formerly "foreign" countries are now very close. The old idea that merchants have no interest in war, since it is not good for their bottom line, will acquire a new meaning in an age in which everyone can potentially trade with everyone else. Additionally, buyers and sellers will not only exchange merchandise and money via Internet trade, but also cultural capital. As they come to understand the expectations and requirements of their virtual counterparts, they will become acquainted with the attitudes and preferences of others and begin to comprehend different ways of thinking and acting.

In this way, a positive global understanding will establish itself subtly, but steadily. A “**global consciousness**” will emerge, one that is, of course, increasingly shaped by international media coverage and promoted by worldwide free trade.

### **1.1.7 Focus: Social Conditions – Inequalities Grow**

Not only in developing countries and emerging markets, but also in some of the industrialized countries of Europe, the **gap of social inequality** will be wider in 2020. The middle classes, formerly the backbone of Western societies, will become more and more marginalized due to financial burdens. A new underclass, which cannot keep pace with a globalized and highly technological world, threatens to increase in size. In terms of education, living, standards, and chances for advancement, this class will be “left behind.” This trend is confirmed by Beckmann: *“A ‘clash of cultures’ will primarily occur within nation states: between the highly qualified rich and the unqualified poor who cannot find a place in a working world that is becoming more and more specialized. The stability of societies will essentially depend on whether it is possible to integrate the socially disadvantaged and those who are unable to succeed in the jobs’ market.”*

#### **SOCIAL GAP WIDENS**

At the same time, the educated, internationally oriented cultural elite will become more stable. They will be increasingly segregated from the underclass, both geographically and in terms of behavior. It will become clear that class-based societies are being established: There will be a notable increase in environments that consist mostly of young men without good prospects who are prepared to use violence. Riots on the edges of congested urban areas will only be contained with considerable effort by the police. Educational and support programs that could help effectively eliminate the causes of social tensions will be more necessary than ever, but will be only implemented sporadically.

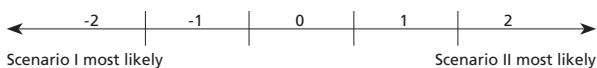
In some European countries, **authoritarian movements** will act as a reservoir for people who are left behind socially and economically. In these cases, it is of secondary importance whether these individuals associate with a fascist or communist group, or with groups that profess an entirely new political alignment. One thing is clear: These are populist movements, following extremely oversimplified reasoning. There will usually be a charismatic leadership figure. This leader will articulate the poverty and suffering of the group’s members and promise to use a “strong

hand” to provide assistance. Such movements will represent a constant potential for violence and conflict within Western societies.

#### THESIS 78

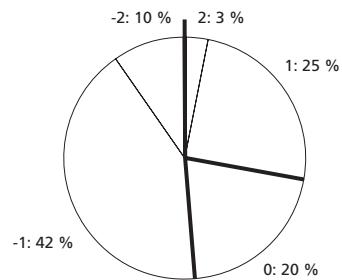
##### **In Future ...**

[Scenario I]: ... the social polarization within emerging economies and industrialized countries continues to increase and leads to a **renewed class society**. As a result of the growing inequality, social unrest and riots are commonplace.



[Scenario II]: ... the middle class in both emerging economies and industrialized countries increases; the **gap between upper and lower classes narrows considerably**.

#### PROBABILITY



More than at any time in the past, the greater the number of people who have a share in a society's prosperity, the greater that society's prospects for growth and stability will be.

Opinions on the subject of **social tensions** were far from unanimous. The majority of industry experts subscribe to the views outlined above. Specialist Hedrick-Wong confirms this view: “*The possibility that social tension will be created is very high.*” In contrast, American industry experts are less pessimistic regarding social tensions and conflicts: Unlike their colleagues from Asia and Europe, they expect the middle class to become stronger.

#### URBAN VS. RURAL

Societal changes will have direct effects on the **economic and social gap between urban and rural areas**. Emerging markets in particular will be affected, though many industrialized countries will also feel the impact of a widening gap. Hedrick-Wong sees a powerful impetus toward urbanization: “*Urbanization is clearly a strong trend. You will end up with a scenario of 75%, 80%, even 90% of the population living in urban areas, megacities, metropolitan regions and so on.*” As a consequence, large investments will flow to a few growth zones in order to

develop the infrastructure – these zones will attract substantial investments and prosper. At the same time, large sections of rural areas will be increasingly neglected and become impoverished.

Along with the trend toward urbanization, the populations in rural areas of many emerging markets are growing older. Young people will move to cities and metropolises, while older people stay in rural areas. Given projected demographic changes, this development will be dramatic, especially in China. Many of these older people will be trapped in poverty, cut off from public life, and excluded. They cannot expect any support from the state.

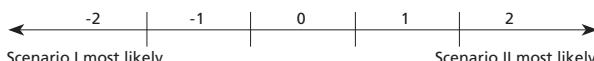
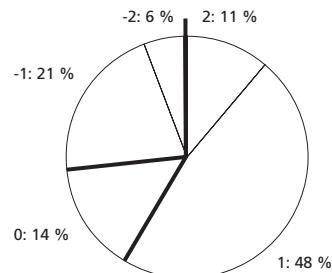
#### AGING IN RURAL AREAS

A small, young and prosperous group will make up the social and economic **elite** in the emerging markets. They will profit from technological progress, and above all from the opportunities provided by an easily accessed, omnipresent Internet. This group will be strongly oriented toward Western consumption habits; they will buy Western cars, wear Western fashions and rely on the Western media for information on current events. This will remain true, even though China will have become a “hot spot” for the socialization of technical elites (see 1.4): The elite will still tend to immigrate to Western industrialized countries. They will be drawn by a relaxation of immigration restrictions in Western countries and a newly established, aggressive **recruitment policy**. This recruitment policy will be the result of demographic changes in the growth centers of Western industrialized countries: They will increasingly suffer from a shortage of skilled workers.

**In Future ...**

[Scenario I]: ...  
**the scarcity of talented young people** causes aging Western societies to fall behind economically.

[Scenario II]: ...  
*industrialized countries effectively compensate for supply problems on their domestic labor market by immigration from developing countries.*



### 1.1.8 Focus: Terrorism, Violence, and Epidemics – No Serious Obstacles to Global Growth

The tensions between various cultural groups will tend to increase. As at the beginning of the 21st century, they will find their expression in terrorist acts and civil disturbances. Industry experts from Asia and Africa believe that this will have enormous consequences for the world economy. However, most of the experts on the panel believe these consequences to be manageable, particularly with regard to securing the free exchange of products and information. Nevertheless, managing these crises will come at a high price: In the year 2020, **expenditures on security measures** will be enormous, not only within individual states (see 1.7), but particularly in ensuring the secure transportation of goods and people between different countries. Here, technology will open up completely new possibilities: Genetic “fingerprints,” which use the unique indicators of DNA to identify individuals, will be standard in passports and ID cards in 2020.

The international community will be successful in **fighting and containing highly infectious diseases** such as SARS and avian flu. Most industry experts consider the threat that such diseases pose to the markets to be limited. However, the Asian industry experts do not agree with this assessment. Perhaps based on their recent experiences with epidemics, they consider the dangers to be considerably more

#### TECHNOLOGY FOR SECURITY

serious than their colleagues in Africa, America, and Europe. As a consequence, they expect markets to become much more volatile.

The financial and technological expenditures for security measures will be successful: Violence and terrorism will not pose a serious threat to the world economy.

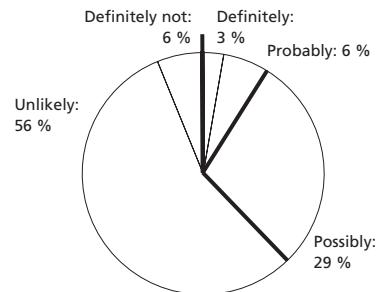
---

#### THESIS 29

##### ***In Future ...***

*... across the world, fear of terrorist attacks dominates life, increasing restrictions on the movement of people, goods, and information.*

#### PROBABILITY



---

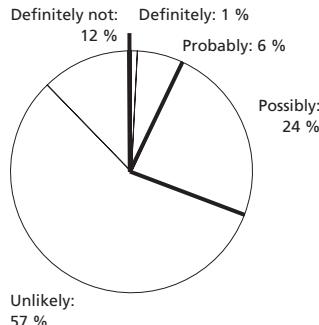
The panel of industry experts is convinced that the **monitoring of the population** in Western industrialized nations will continue to expand – and that the public will accept these measures. Western societies are prepared to pay the price of the restrictions on individual freedoms that will inevitably follow increased security measures. Paludan comments on this conclusion: “*The fear of the Big Brother society is highly overrated. People can clearly see the advantages of Big Brother states – and will have to live with the bad side of it.*”

Despite rising tensions, the will to do away with the **roots of violence** will be fairly weak. Western countries will make only limited efforts to eliminate the gap in wealth and education. For example, a global **Marshall Plan for education** intended to improve the innovation base in emerging markets and counterbalance their disadvantages will not be carried out.

---

**THESIS 70****In Future ...**

*... to avoid a “clash of cultures” and segregation, industrialized countries successfully implement a global Marshall Plan for education.*

**PROBABILITY**

Asian industry experts are more optimistic than the majority of other panel members. They believe that the implementation of such a Marshall Plan is entirely realistic.

**BACK TO OUR ROOTS**

Perhaps more important than the effects on the world economy are the impressions that terrorism, unrest, and social tensions will make on people's psyches. Around the world, there will be a noticeable tendency for people to return to their **regional and cultural roots and customs** in a search for security and orientation. Beckmann comes to the same conclusion as the panel of industry experts: "*We will experience a return to traditional values. In the face of globalization, things like home and security will play an increasingly important role. They create meaning and provide orientation.*" This withdrawal to the immediate environment and the return to the home are grounded in the desire for emotional attachment. They will not inevitably lead to violent outbreaks of nationalism.

Although at the end of the previous century, strategists from some global corporations promoted the idea that cultures and religions would melt into a universal world culture, in the year 2020 this hope is still far from being realized.

### 1.1.9 Focus: Values – the Spiritual Self

**DECLINE OF RELIGION**

“Classical” religions or spiritual exercises will not become more important during the 2020s. Today’s growth in fundamentalist religious movements is expected to continue over the next few years,

the more so as it is increasingly characterized by a powerful political and social component. Radical fundamentalist Islam, in particular, as an ideology of the socially disadvantaged, will continue to be responsible for social unrest and terrorism around the world (see 1.8). In the opinion of industry experts, however, the importance of this movement and especially its religious character will have declined by the year 2020.

In the view of individual specialists, the USA represents an exception. Schwartz illustrates the development here as follows: “*We are actually becoming more religious. This is happening in a very conventional sense, such as an increasing number of church memberships, building of new churches, and so on.*” This could be another indicator that Europe and the United States are drifting further apart culturally.

Worldwide, however, a different development will be observed: In Western countries, in particular, people will less often turn to churches and more towards the self in their search for meaning and orientation. One's own body will achieve an entirely new status. Health and medicine will have more significance, and in some cases a new meaning. Many experts, therefore, speak of **“healthstyle” as a new substitute for religion**. In the year 2020, maintaining the body in a good balance, and keeping it fit and youthful, will be more important than ever. In relation to this point, Wippermann says: “*There are two new spiritual realms: one is the climate, which is nature, and the other is a person's own body, which in some sense also belongs to nature.*”

#### “HEALTHSTYLE”

People will be under enormous pressure from the constant acceleration of everyday existence and working life, especially the demand for flexibility and the need to be accessible at all times (see Sec. 1.6). All the same, the industry experts believe that life in the year 2020 will not be characterized by a desire to slow down, but that the maxim **“higher, faster, further”** will still be in effect. For this reason, people will rely much more on performance-enhancing, psychoactive remedies and anti-aging medications to keep pace. The health and wellness industry will experience a lasting boom.

Paludan explains: “*The more time-stressed we are, the more we would like good health in order to enable us to live up to the demands.*”

Individualized sites will offer health services from fitness training to medical checkups and virtual consultations.

---

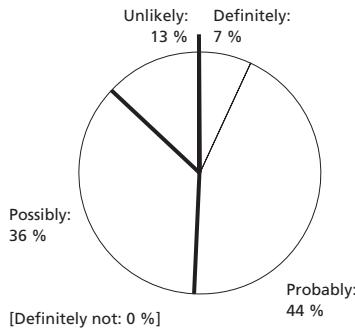
#### THESIS 73

##### ***In Future ...***

***... “healthstyle” dominates private consumption in Western societies, the market for performance-enhancing psychoactive drugs and anti-aging medication experiences a lasting boom.***

---

#### PROBABILITY



“Portable life vests” will monitor the most important bodily functions and evaluate the results – not only for people with chronic illnesses or for hypochondriacs, but also for “regular people.” Wippermann emphasizes: “*It is likely that ‘healthstyle’ will develop into a concept of greater significance.*”

# 1.2 A Glance at the Customer in the Year 2020: New Demands, New Possibilities

Customer attitudes will shift radically between now and 2020. A growing ecological and ethical sensitivity, combined with an increase in interaction through the Internet, will be the primary drivers of these changes.

## 1.2.1 Focus on Climate and Values: the Ethics of Consumption and Its Limits

In the year 2020, especially for more affluent customers in Europe as well as Asia and America – it will be more important than ever to have transparent information about the **ecological footprint** of goods and services. Customers will become more and more demanding. As a result, every product and service will include a label certifying its CO<sub>2</sub> output.

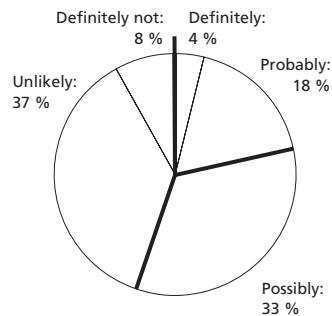
---

### THESIS 8

***In Future ...***  
***... carbon footprint measures are imposed on a global scale and become a standard characteristic of both services and products, as package labels mark the CO<sub>2</sub> emissions of each product.***

---

### PROBABILITY



#### TRANSPARENCY IS REQUIRED

“Ethical” products will become increasingly important. Customers will want to be assured that everything they buy conforms to their ethical and moral standards, and therefore they will expect an extremely high degree of transparency. They will want to be aware of any factors that could affect their conscience. For example, how and under what conditions was the product manufactured? How and by what route was it transported? Who earned how much from this product, and when? Connected with this demand for information, will be the wish for companies to do more than just make a legitimate profit. Companies will be expected to show commitment to creating a better world: The relevance of corporate social responsibility programs will increase (see 3.2 for more details).

#### CONSCIENCE COUNTS

In the case of environmentally sound and “ethical” products, the customer will want to buy with a “clear conscience.” But customers will have to weigh many competing factors. For example, an ecological production method can sometimes be more important than a product being manufactured close to where it is sold, which requires less energy for transportation. Particularly for customers from Western industrialized countries, it will not seem a contradiction to consume organic fruit that comes from another continent.

#### PRICE BEATS CONSCIENCE

However, customer demand for products that are ethical and environmentally friendly will have its limits: For many purchasing decisions price will still be an important criteria, and in many cases a deciding factor. Customers will be prepared to pay more for “ethical” and “green” products and services – but this will only be true as long as the price difference in comparison to competing products is not too high. **This limit on conscience-based decisions** will be even stronger, given the far-reaching consequences of the financial crisis, as Paludan explains: *“I would expect people getting somewhat less willing to pay anything extra for ‘green’ products in the coming year or coming years because of the economic crisis. But then I suppose these basic attitudes toward a healthy environment and so on will come back, of course. But it will be an uphill fight for the coming years.”*

At the same time, customers do not want to sacrifice **comfort**. The automobile will still be the most important means of transportation. Individual, self-determined mobility will remain important in the year 2020 and people will not give it up, in spite of rising gasoline prices.

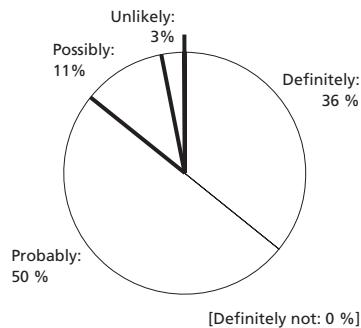
---

#### THESIS 38

##### ***In Future ...***

*... in individual traffic, the automobile, equipped with new and more efficient engines, remains the most important means of both mobility and transport.*

#### PROBABILITY



Even in the constantly growing metropolises, **individual transportation** will remain more important than public transportation. And yet, how can a high degree of environmental consciousness and the desire for a clear conscience be combined with the need for independent movement? A majority of the experts surveyed believe that in many cases automobiles will be equipped with new drive technologies such as fuel cells or hydrogen drives.

“Green” products or “conscientious” commodities will always exist in a fundamental tension with clients’ desires for convenience and comfort, and their demand for simplicity. Schwartz confirms: “*People want to be ‘green’, but they want to do it with better fuels in the aircraft not with less traveling by aircraft.*” If manufacturers and service providers want to make things simple, convenient, and comfortable for their clients, while meeting the demands for “ethical” products, they will need to integrate the values of ecofriendliness and conscientiousness into their products. In this way, they will achieve another value of vital importance to customers in the year 2020: **simplicity**.

#### INTEGRATED COMFORT

## 1.2.2 Focus: New Technologies – the Relationship between People and Machines

Technological innovations will lead to enormous changes (see 1.6 for more details). In particular, the omnipresence of the Internet will make new orientation systems for consumers necessary – new applications will be created for **human-to-machine communication**. Integrated “smart agents” will assume an important orientation function in the year 2020

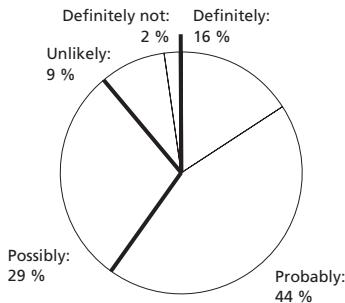
---

### THESIS 54

#### **In Future ...**

*... people are “always on” the Internet, surrounded by easy-to-use appliances and virtual “smart agents” automatically assisting the users in their daily activities, filtering information and serving as personal coaches.*

#### PROBABILITY



They will accompany us constantly. A “smart agent” will wake us up in the morning and provide us with individualized news from the Internet, coordinate our appointments, independently research the best prices, or make travel reservations. According to some specialists, it will also be possible to use mobile devices as real-time translators. However, industry experts are skeptical about this prospect. They do not believe that it will be possible to overcome semantic barriers with the help of technology in the next few decades.

**Everything will be completely individualized:** In private living rooms, the temperature, ambient scent, and lighting, as well as the television and Internet programming, will be automatically adjusted to the time of day and the preferences of the respective user. The technology that will make this individualization possible will not be located in or controlled by individual, independent devices. Instead, it will be incorporated into clothing, watches, and telephones thus integrating the functions of computers, telecommunications, and IT systems seamlessly into daily life. Paludan attributes this development

primarily to the memory capabilities of “smart agents”: *“They will probably prevail because they can remember. They can remember all your preferences; they know what you’re looking for.”*

With the rising importance of “smart agents,” companies will face entirely new challenges: They will no longer be able to confine themselves to addressing the customer directly. Companies will have to work harder to target their appeal to the search criteria of “smart agents.” Increasingly, marketing will need to be prepared to pitch products directly to the filters of “smart agents,” and to adapt quickly when these filters change.

In general, **marketing will be more personal**. People will exchange data and make it available worldwide. Nevertheless, industry experts are divided on the extent of this development toward the “transparent” customer, whose personal information is readily available. Industry experts from Europe and Africa, in particular, believe that the “transparent” customer will have become the norm by the year 2020.

However, the customer relationship contains inherent limits to the application of technology. The most important: The preference for **person-to-person communication** will still persist in the year 2020 – in all parts of the world. Therefore, a completely automated approach to marketing and sales does not seem particularly promising. Accordingly, robots or computer voices will only be used for standardized processes.

In the year 2020, personal exchange, particularly **individual consultation**, will be considered critical. When dealing with corporations, customers will want to feel that information and services are tailored to their individual needs and desires.

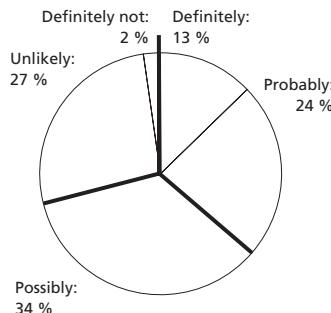
#### **“SMART AGENTS” NAVIGATE OUR LIVES**

#### **THE MORE HUMAN, THE BETTER**

---

**THESIS 61****In Future ...**

... customers insist on a **human point of contact** and reject being addressed by computer voices, robots, or machines.

**PROBABILITY**

This will be especially true when they have complex demands that go beyond the filter function of “smart agents,” particularly complaints, B2B, or individual consultation needs. Also, when buying clothes or luxury items, customers will want well-trained salespeople who are able to provide individualized advice. This expectation for personalized service means that there are clear **limits to person-to-machine communication**. However, Wippermann believes that this scenario, endorsed by the majority of the panel, is not pragmatic enough: *“The replacement of human contacts by machines is a development that will happen whether people want it or not. Human labor is simply unaffordable, and machines are constantly becoming cheaper, so there is definitely an economic reason to replace people with machines.”*

Do the Asians represent a more realistic viewpoint? Especially in Japan, there are great expectations for avatars. Asian industry experts predict that by the year 2020, **avatars and robots** will be firmly integrated into daily life there. According to Hedrick-Wong: *“Japan is the leader in industrial robotics. Japan is now becoming the leader in serving robotics. Japan has the highest tolerance for interfacing with machines. That’s a cultural issue.”* However, in the estimation of a majority of the industry experts in Europe and America, avatars will be used exclusively in trend-setting fields, or for simple services such as travel booking. Generally speaking, the more “human” the avatars appear and the more individualized their responses to customer wishes, the more readily they will be accepted.

An interesting controversy emerged between the specialists and the industry experts surveyed regarding so-called “**personal fabricators**.” It is predicted that these “3D printers” will be able to produce a wide range of plastic and metallic objects on demand.

Schwartz considers the feasibility of such printers to be high: “*It's quite likely that such 'personal fabricators' will exist, but it will not be a universal fabricator. As an example, you can get a personalized T-shirt from the Internet in an hour. Over time, we will do more and more things that way as people discover ways of making things, household goods, etc. Today you buy them at a department store, tomorrow you will download them.*” Peter Wippermann also believes: “*Personal fabricators' will come and they will probably be a reality by 2020.*” The Asian industry experts consider this development much more likely than their American or European colleagues. However, a clear majority of the industry experts reject the idea that in the year 2020 these “3D printers” will be as widely distributed as printers or copiers, or that they will have completely revolutionized the production and distribution of merchandise. In the estimate of some specialists, a precursor of the “3D printer” is much more realistic: For example, customers would be able to design their athletic shoes via the Internet, and would then receive the finished product a few days later. This development will be driven to a large degree by customers’ constantly growing demand for **individualization**.

#### PRODUCTION AT HOME

In Western countries, in particular, innovative technologies will open up new possibilities for older people: Those who are financially well off will remain very active and will be comfortable with adopting the latest technologies. For most companies in the year 2020, it will become increasingly important to develop devices that are easy for inexperienced and older people to operate without an instruction manual: **Everything will be self-explanatory**. This will not only be true for IT firms, but for all companies that manufacture technical devices.

#### NO MORE MANUALS

### **1.2.3 Focus: Internet Commerce – the New Culture of Diversity**

#### **THE POWER OF THE NICHE**

The Internet will transform us. The possibility of global interaction will shape the attitudes and behaviors of customers in a completely new way. One important change is described by the **long-tail theory** developed by Chris Anderson. According to this theory, the exponentially increasing selection – not only of products, but specifically of information – will lead to a new culture of diversity. Products and services that previously could only be sold in limited quantities in regional markets will now reach a large audience over the Internet and will be in demand all over the world. As a consequence, it will be possible to earn high profits with niche products.

The dissolution of geographical restrictions through Internet commerce will have significant consequences. For one: **Success in sales will be completely redefined.** For another, the definition of a “bestseller” will be reformulated. In the year 2020, there will be “instant bestsellers,” i.e., products that achieve high sales figures immediately after their appearance. At the same time, new marketing strategies will be developed to support “long-term bestsellers,” which in some cases may actually be more profitable. While their sales figures may well be mediocre, the ability of “long-term bestsellers” to maintain consistent sales over a long period of time, means that suppliers will ultimately be able to achieve higher total sales with several niche products than they can with a few bestsellers. In the interplay between global networking and the need for individualization, which will be particularly pronounced in Western cultures, more and more **niche products** will emerge from subcultures to become part of the global range of products. These products will then be recommended and evaluated via peer-to-peer groups and on exchange forums. In this way, niche products will become part of the “mainstream.”

#### **THE POWER OF PEERS**

The Internet will have even more far-reaching effects on customer behavior: In the year 2020, customers will no longer be mere “consumers.” Instead, they will simultaneously be salespeople, producers, service providers, and, above all, critics. Because of

the Internet and “smart agents,” they will remain constantly up to date on new products in their areas of interest. At the same time, the commentary and criticisms of their Internet peers will have more of an influence on their purchasing decisions than traditional advertising. Asian industry experts in particular see this as an unstoppable development. Beckmann confirms: *“Peer communities will continue to play a more and more important role on the Internet.”*

As a result, companies and their **products and services will constantly be on the testing bed.** Much will depend on whether they succeed in using these new consumption trends to their advantage. If they see the “consumer critics” as a threat or choose to ignore them, they will not survive in the market for long. The companies that have a strong future are those that involve their customers and create an experience in which they can participate (for example by establishing customer advisory boards or through intensive product tests with end users). In the 2010s, companies that ignore Internet bloggers or attempt to use legal means to contain their criticism will encounter serious problems. They will encounter resistance precisely because their behavior, which does not favor dialogue, will be reported by blogs.

It should be noted that the number of **Internet vendors** is expected to massively increase. The majority of industry experts predict that in the years following 2020 more than three billion people will be selling products on the Internet. The higher the number of people trading, the higher the number of people needed to make sure that globally traded products find their end users. Tremendous growth potential will open up for providers of logistics services (see 3.5 for more details).

#### TURNING CUSTOMERS INTO PARTNERS

# 1.3 A Look at Logistics in the Year 2020: the New Model Industry

Logistics companies will profit immediately from the transformation of global conditions and customer behavior. The first benefit will come in the form of rising transport volumes. The increase of Internet commerce, the individualization of products, and the development of new markets promise large growth potential. At the same time, logistics companies will face enormous challenges. They can only overcome them by intensively investing in the development of new transport routes and introducing a new degree of flexibility into their operations.

## 1.3.1 Focus: Climate – the Central Challenge

Climate change and its consequences will have a far-reaching effect on logistics. As one of the largest producers of CO<sub>2</sub> emissions, the logistics industry will find itself in a particularly difficult position – and under close scrutiny. The rising price of oil and the demand by customers for “green” supply chains will require enormous investments and technological innovations.

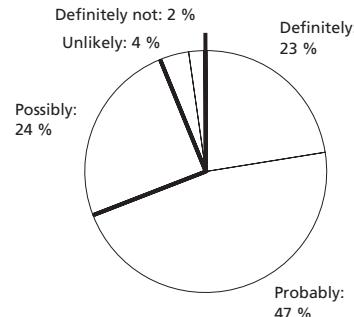
---

## THESIS 7

### **In Future ...**

**... competitors collaborate**  
with each other in order to  
develop innovative solutions  
for sustainability and to better  
shoulder rising energy costs.

## PROBABILITY



One possibility for reducing CO<sub>2</sub> emissions will be to **cooperate with competitors**. By consolidating transport volumes and decreasing the number of journeys, logistics companies will be able to reduce their environmental impact.

While requiring investments, the demand for “green” supply chains will also open up an enormous **growth market**: Customers will have an increased need for consultation and expect logistics companies to design customized transport solutions for them that are low in CO<sub>2</sub> emissions. Beckmann reasons: “The logistics company that offers the most intelligent low-CO<sub>2</sub> solutions will emerge as the market leader.” However, it will only be able to maintain its market leadership if it constantly improves these solutions. Thus, logisticians need to continuously set new standards if they are to profit from the sustainability trend over the long term. It is more truer than ever that merely reacting is not enough. Logistics companies must be actively involved in the formulation of standards and assume a leadership role in the economy. **Consulting services** and the **individualization of transport solutions** will become increasingly broad business areas for logistics.

## CUSTOMIZED SOLUTIONS

The **individualization** of transport services will involve helping customers negotiate the trade-off between speed and environmental sustainability. When it comes to the speed of deliveries, customers are only prepared to compromise so far. Often deliveries must be made as quickly as possible, even if this involves higher CO<sub>2</sub> emissions. Moreover, clients' tolerance for time delays will continue to decrease due to the time and performance pressure

## SERVICE IN REAL-TIME

they experience themselves and constant Internet use. They will expect, for example, that the honey they order with a few mouse clicks from a small apiary in a Chilean village “feels” like it was delivered in the same amount of time it took to order: **real-time**. Nevertheless, the debate on this subject is controversial: Many industry experts and specialists see a high degree of willingness among customers to sacrifice delivery speed for the sake of the environment. Beckmann explains: *“If possible, consumers will accept slower service in order to reduce the burden on the environment.”* In this case, there will be great potential for consulting on individualized transport solutions. Logisticians could potentially offer separate transport paths with varying speeds in order to create customized solutions that allow individuals to calibrate shifting and sometimes conflicting priorities: Sometimes “delivery in real-time,” sometimes “green” transport, and sometimes a compromise between the two.

In order to react adequately to the challenge of climate change, logistics companies will need to invest in three key areas: First in research and development, second in updating their fleets, and third in the training and continuing education of their employees.

## INTELLIGENT LOW-CO<sub>2</sub> SOLUTIONS

**Research and development** is the essential prerequisite for the development of intelligent logistics solutions – all individual consulting services are developed on this basis. Logistics companies will only be able to offer customers optimized solutions by taking advantage of the latest technologies. Given the debate surrounding environmental protection, a CO<sub>2</sub>-efficient form of transportation is exactly what will be needed. The **updating of the fleet** will be closely tied to these technological innovations. Logistics companies will increasingly invest in vehicles with new drive technologies (see 1.1 for more details) that make low-CO<sub>2</sub> transport possible. The challenges of city logistics will be mastered to a large extent through the use of high-performance vehicles that help conserve resources. However, all these investments will only pay off if **employees** are in a position to integrate environmentally friendly behavior into their daily work. To this end, compa-

nies will need to raise awareness and establish appropriate guidelines (for example, an environmentally friendly way of driving when transporting goods, or the conservation of paper and energy in the office). Employees in the consulting and sales departments will need to provide their customers with the best possible advice on low-CO<sub>2</sub> transport solutions. **Training and continuing education** within the company should specifically address these issues. In addition, when recruiting new employees, logistics companies will need to pay careful attention to whether they have the appropriate consulting skills.

### 1.3.2 Focus: Values – the Ethics of the Logistics Company

The cultural aspects of corporate governance will be transformed. Because consumers will become increasingly insistent on having proof that companies are meeting their ethical and ecological responsibilities, companies will increase their investment in **corporate social responsibility programs** (see 2.2). These programs will provide public evidence of their social engagement and commitment to creating a better world. Nevertheless, the meaning of corporate social responsibility programs is a controversial discussion topic. The scope of corporate responsibility should not be overestimated. For example, the new consumer orientation will not lead companies to make the “triple bottom line” (economy, society, ecology) the measure of their success. Companies will continue to focus on maximizing their profits; social and environmental themes will remain less important criteria. Companies will, therefore, still be open to criticism from consumer advocates and globalization critics that their “green” efforts are merely a smokescreen and an alibi.

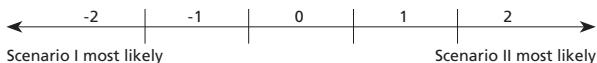
In the area of **education**, companies will play a particularly important role in the year 2020. Large companies that operate worldwide will expand their training and continuing education programs and offer customized programs for their employees. A great challenge for these companies will be the integration of foreign employees – this will be one of the main focuses of the internal education programs.

### THE SINGLE BOTTOM LINE PREVAILS

## THESIS 81

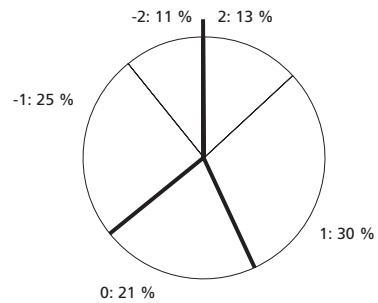
### In Future ...

[Scenario I]: ... **professional education is organized mainly by companies**, offering tailored training and education courses to educate the experts and specialists they need.



[Scenario II]: ... **state-funded universities** are the principal and most important institution in the education of young people.

### PROBABILITY



### FOCUS ON TRAINING

Ten Hompel outlines the effects of this development as follows: "*The increased involvement of companies in the top segment of the educational system will transform both sides – the state universities as well as technical and management training.*" In order to hold their own in an increasingly competitive "war for talent," logistics companies will enter into cooperative programs with universities and non-university research institutions. They will establish endowed chairs and offer programs for students in relevant areas of study. They will also increase their already high degree of engagement in the education and training of third parties, for example, in disadvantaged areas.

### 1.3.3 Focus: Technological Developments – Radical Changes in the Industry

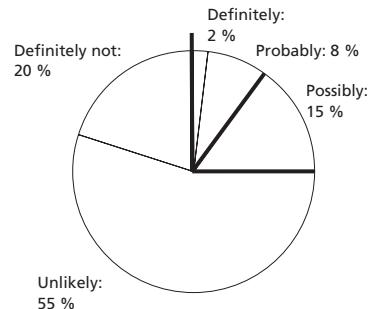
### DATA VOLUMES INCREASE COMPLEXITY

The development and spread of the "**Internet of Things**" will bring wide-reaching changes. Every product will be networked with the Web, making it easy for consumers to get information about products and track them from production to delivery. New standards for supply chain management and transparency will be implemented. The new technology, following in the path of RFID (radio frequency identification device), will lead to a massive expansion in the volume of data that logisticians will have to deal with every day. However, the panel of industry experts believes that the danger of the entire logistical infrastructure being overwhelmed is very low.

---

**THESIS 39****In Future ...**

*... international logistics reaches its capacity limits as the costs for coordination, data collection, information flow, administration, and management increase complexity exorbitantly.*

**PROBABILITY**

They are convinced that the logistics industry is well prepared for this enormous **growth in data volume**, and that it will be able to adjust for complexity by increasing the efficiency of logistical processes and structures. Future technological development will take this **increasing complexity** into account as a matter of course. Ten Hompel: “*We run into complexity traps wherever we experience exponential growth. These can be solved by using self-regulating systems. RFID thus serves not only for identification purposes, but also as a carrier of information. In this way, the place of decision is brought back to the product, where the decision is needed.*”

Thanks to the “Internet of Things,” logistics companies will be able to structure their supply chains with extreme **flexibility**. Products will communicate and navigate independently and will be networked with each other – ultimately, with this technological advance, products will be able to determine their own optimal transport path. However, new challenges will emerge: The routes of self-guiding products will need to be constantly monitored and adjusted. It will be necessary to ensure that attempts to avoid traffic jams and bottlenecks in one area do not create them in others. Conclusion: The **qualification profile of a logistician** will constantly change and expand: “*The logistician of the future must be able to think in an interdisciplinary way and at the same time be highly qualified in the field of IT systems. The logistics systems in sub-areas are already so complex that the human brain can no longer encompass them*” (ten Hompel).

**LOGISTICIANS AS IT EXPERTS**

Through the **networking of databases**, customers in the year 2020 will be able to access information on the current location and the status of their goods at any time.

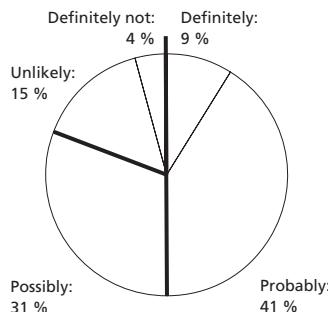
---

#### THESIS 51

##### **In Future ...**

*... most business transactions are totally automated due to the **connection of business databases**. Clients and service providers cooperate closely on the basis of aligned integrated IT systems.*

#### PROBABILITY



This will be made possible by collectively utilized data storage on the Internet ("the cloud," or "cloud computing"). Data on temperatures, delays, breakdowns, or traffic jams will be available to customers in real-time via an Internet connection. This development will lead to a change in customer behavior and to **new customer service strategies**. Expectations will shift from reaction to action. Fast and efficient processes and an extremely high degree of transparency will be essential. It is also important that service remains "invisible," so that the customer never has the impression of being bothered with too much detailed information. Here, too, **simplicity** will be the measure of all things. An important aspect of this process is that customers will be able to decide in advance how, and to what extent, they would like to receive detailed information and participate in the decision process. In this way, the process will remain transparent to customers, without overwhelming them with unwanted data.

#### 1.3.4 Focus: a New Understanding of Companies – the Age of Cooperative Efforts

#### THE NEW ERA OF COOPERATION

In some areas, the role of companies will change completely by 2020 – **cooperation** will be the **new buzzword**. Cooperative efforts will extend far beyond the forms of working together that have been common in the past. As early as 2015, companies

will engage more regularly in **cooperative efforts with competitors**. This will be especially true of logistics companies: According to industry experts, they will only be able to survive in the market if they work closely together with competitors and manufacturers, particularly in areas that involve the development of infrastructure and the conservation of resources.

For company strategists, there will be many crucial questions. What meaningful and profitable opportunities do we have for engaging in cooperative efforts with competitors and manufacturers? How can we run as many departments as possible on our own, and cover the rest through outsourcing and cooperative efforts? Which competitors can we work with – before another competitor joins forces with them and our own company is left behind? Once new cooperative strategies are introduced, they could in extreme cases lead to a true race for cooperation. The fear of missing the right moment and losing out on the opportunity to benefit from working with a particular competitor would drive this race.

#### RACE FOR COOPERATION

Questions remain, however, regarding the motive for this new form of working with competitors. Schwartz explains: “*I see a high likelihood of cooperation. Rationality is what will make it happen.*” Furthermore, John Allan, CFO of Deutsche Post AG, sees lowering costs as a primary motivation: “*The scenario that competitors will cooperate with each other is very, very probable. The driver will be cost efficiency, but wrapped up with that, it is also better for the environmental impact.*”

In the future, competitors will cooperate closely with one another in two areas: the **development of infrastructure** and the **conservation of resources** (see 1.1.1, 1.1.2 and 1.3.1). In many emerging and developing markets, the state will not have the financial resources for the necessary development of infrastructure. The amounts required for investment will be vast. As a result, some industry experts and specialists expect the financing of economically promising projects to be increasingly undertaken by private firms. Specifically in the development of infrastructure, broad cooperative efforts by different

#### PRIVATE COMPANIES INVEST

companies are to be expected, even among competitors. In this way, logistics companies will increasingly become **drivers of economic growth**. Opening up new transport paths in emerging and developing markets will be crucial if they want to remain connected to the world economy over the long term.

### 1.3.5 Focus: New Scopes of Responsibilities

By the year 2020, the logistics industry will have massively expanded its number of corporate and private clients thanks to extensive investments in research and development. The **value chain** will have been constantly lengthened, and will now include industrial production, security, maintenance, and packaging.

In the corporate client area, logistics providers will increasingly take on the tasks of production and consulting.

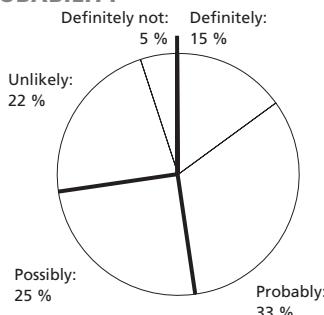
---

#### THESIS 41

##### ***In Future ...***

*... logistics companies are no longer mere “carriers.” Instead, they expand their value chain, invest heavily in R&D, and take on industrial production, maintenance, and other tasks.*

#### PROBABILITY



---

#### INDIVIDUALIZATION

Far from being only cargo handlers, logistics companies will work with their customers to develop customized transport solutions and production processes. This means that logistics companies will need to **individualize their products and services**. It will be important to go beyond customary ways of thinking and to develop appropriate strategies for a variety of situations. Here, specialists emphasize the increasing importance of the logistics involved in returning products and disposing of them.

At the same time, the general **trend toward off-shoring and outsourcing**, which American and

Asian industry experts expect to be more powerful than their European colleagues predict, will have a significant impact on logistics. Small and mid-level companies will increasingly **outsource as many elements of production and sales as possible**. They will concentrate instead on branding, marketing, and communications. Logistics companies that train their employees and invest in research and development will be ready to take over these outsourced departments. Through outsourcing projects, logistics companies will take over entire sections of the value chain, for instance, by assisting in location searches and offering customized solutions for the creation of networks between locations.

Logistics companies will also be called upon to assess and provide solutions to dangers and risks. Risk management will become one of their central areas of concern. Customers will expect logistics companies to provide higher guarantees of quality, authenticity, and security, for example, in the form of certificates. Such guarantees will be of vital importance in a context where intellectual property cannot be effectively protected in all parts of the world.

Many specialists predict, therefore, that in times of social unrest and organized crime, logistics companies will increasingly offer **security services**. In this context, they refer to the rising threat to transport routes posed by piracy, particularly for transport vessels. They suggest that these added services offer considerable potential for development and growth within logistics.

**Risk management** will therefore be a must for logistics providers. Only companies that invest large sums in risk management will be able to maintain a place in the global market. In terms of logistics, risk management will encompass the review of alternative transport routes and the development of contingency plans to deal with unforeseen disruptions of delivery (extreme weather conditions, epidemics, social unrest, uprisings, or similar events). Many transport routes will be chosen primarily because their safety can be guaranteed. Logisticians, as highly specialized risk managers, will be supported in their work by the “Internet of Things” and its applications.

## LOGISTICS COMPANIES ARE PREPARED

## THE CHALLENGE OF RISK

## **NEW ROUTES, NEW MARKETS, NEW POSSIBILITIES**

The global alliances in the logistics industry will open up many **new transport routes and centers**, most of which are located in the inner-Asian region, the center of the new economic boom. Investments in alternative infrastructure projects will be essential here. Industry experts are divided in their opinion on the extent to which trains can provide an attractive and practical alternative transport solution. Despite the high initial costs and the relatively limited transport volumes, some specialists believe that much could be achieved by developing railways. In Russia, in particular, railway networks would offer enormous potential, according to John Allan: *“Railways from Asia to Europe will probably be a reality in the time frame we are talking about. The Russians would be crazy not to seize this as an opportunity for them to have a stake in the growth of world trade.”*

## **FLEXIBILITY IN TRANSPORT**

The private customer sector will be greatly influenced by the rapid rise in **Internet commerce**. The transport of numerous individualized products will create new challenges. Logistical systems will have to adjust for new markets and products in ever shorter time frames. Therefore, it is likely that logistic hubs will be designed to operate for a much shorter time frame, perhaps just one to two years. At the same time, logistics companies will need to find answers to the increase of transit and transport streams in new and growing **areas with high population densities**. The panel's opinion is divided on the issue of new transport possibilities. The majority is convinced that there will not be any new transport possibilities in large cities and megalopolises. However, a few specialists disagree. In the area of city logistics, in particular, they hope that innovations will take place. For example, they envision pipeline networks, or tube systems for alternative methods of transport. In this scenario, inactive shafts or oil and gas pipelines could be converted for the transportation of goods.

As Internet commerce grows exponentially, and almost everyone is able to trade with everyone else, the number of contacts will also increase, posing new challenges for logistics. **Recipients** will take on a new importance and begin to exert more and more influence on the method and on the place of deliveries.

This means that logisticians will need to offer more varied input and output possibilities for logistical services. **Flexibility, simplicity, and individualization** will be required.

Accordingly, in the year 2020 logistics companies will offer more **packing services**, in order to ensure that the risk of damage is minimized and that optimal use is made of transport space in containers. Offering **convenience and transparency** for the many semi-professional or private Internet merchants as well as Internet shoppers, will bring clear competitive advantages. Logistics companies will also offer additional support in the area of **customs clearance**. Here, they will profitably apply their expertise on behalf of private customers and Internet merchants. They will also mediate between senders and recipients to determine **accountability for incorrect deliveries** and reach a solution. Some specialists see great potential here for logistics: It can create the necessary degree of transparency and function as a transnational intermediary organization, and thus can add noticeable value, specifically in trade at the micro level.

Some specialists see additional fields for development in so-called “**cloud computing**,” which according to a vote by the industry experts will be the norm in the year 2020.

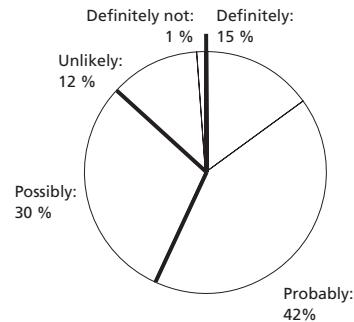
---

#### THESIS 49

##### *In Future ...*

*... data and program storage are provided not locally but on huge Internet servers, allowing for ever smaller and lighter devices.*

#### PROBABILITY



“Cloud computing” will involve storing data and applications on high capacity shared servers instead of personal computers and local servers. This will lead to a substantial increase in data storage and processing capacities, and allow both customers and

providers of logistical services to access relevant programs and data. In the interplay with data sharing, the linking of databases, and the integration of IT systems, new possibilities for **cooperation with the customer** will be created. Logisticians will work with their clients to develop individual solutions and applications, avoid frictional losses, and make the most of efficiency resources. Using “cloud computing,” logisticians will be able to develop even more technically demanding system applications and programs to meet their clients’ needs. Increasingly, they will develop these tools *with* their clients.

### BALANCED IMPLEMENTATION OF PERSON-TO-MACHINE COMMUNICATION

In the logistics industry, as in others, **person-to-machine communication** will only be accepted by customers in limited cases (see 2.2 for more details). In the B2B area and also in complaint management, personal contacts will still be preferred and expected. Nevertheless, there is no doubt that customers will accept automated technical procedures and utilities for standardized processes – as long as they simplify and accelerate the process. Simple and self-explanatory usability will remain the standard: **Simplicity must be tangible.**

# 1.4 The Most Important Results at a Glance: Ten Trends for the Next Ten Years

1. Climate change will become the big issue and unleash a “green” revolution of products and services – sustainable energy production is on the threshold of a breakthrough.
2. The economic gap will grow larger worldwide – the potential for social conflicts will increase, but will be successfully suppressed through enormous expenditures on security.
3. China will be the undisputed winner of economic growth and join the ranks of the world’s technological leaders.
  
4. The Internet will transform customer expectations and behavior all over the world – the focus will be on individualization, transparency, availability, and speed.
5. Ecofriendliness and conscientious consumption will determine purchasing behavior to an increasing degree.
6. Convenience, comfort, and simplicity will be the central requirements.
7. Person-to-person communication will remain a priority.

**GLOBAL DEVELOPMENTS:  
THE WORLD ECONOMY GROWS**

**THE “NEW” CUSTOMER:  
NEW NEEDS, EXPECTATIONS,  
BEHAVIORS**

**ALTERED LOGISTICS:  
THE NEW MODEL INDUSTRY**

8. The logistics industry will become a trendsetter and establish new standards for cooperative efforts and “green” business.
9. Offshoring and outsourcing will create new possibilities – the value chain will expand in all directions for services relating to logistics.
10. Logistics providers will increasingly develop into consulting companies; their complementary services will offer added value.

## **2. Detailed Study Results – Theses 1 to 81**

### **Introduction**

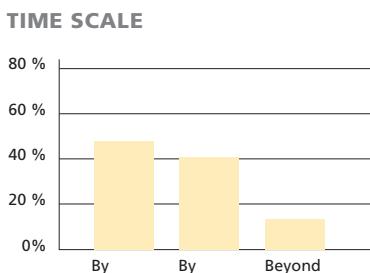
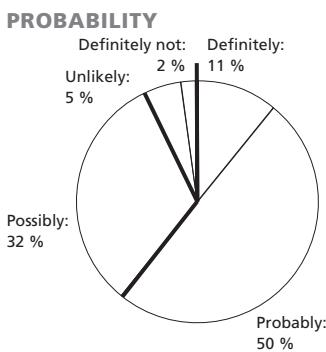
The following chapter provides a comprehensive overview of the results of the Deutsche Post DHL Delphi study. In this chapter, you will find a series of thesis statements about possible future trends and events. Each thesis statement was presented to the study participants – international industry experts and managers on senior or executive level with long-standing business expertise. They were asked to evaluate the likeliness and estimate the time scale of occurrence for each Thesis. The results were then tallied as “votes” for or against the likely occurrence of a particular trend or event.

In what follows, you will find a short paragraph that summarizes the results of these “votes.” The results are also presented graphically in a pie chart (for likeliness) and a bar chart (for time scale). A third diagram (world map) indicates specific regional variations, where applicable. In the analytical section, each result is briefly analyzed in the context of related theses, with a focus on the correlations between certain theses.

*... skyrocketing oil prices are not a transient phenomenon. Prices continue to rise substantially – the oil price has doubled (compared to its peak in 2008).*

### Voting Results

The majority of the panel believes this development will “probably” or “definitely” take place (61%), and expects it to manifest by 2015 or 2020, at the latest. A mere 7% view it as at least unlikely.



Combined votes for “possibly,” “probably,” “definitely.” No specification when development was judged improbable.

### REGIONAL ASPECTS



No significant regional variation.

### Analysis & Context

Raw materials are regarded as exhaustible and finite. Consequently, participants expect that shortages will lead to a significant rise in prices.

This evaluation mirrors the participants' generally optimistic view regarding the development of the world economy, as the strong demand for oil also indicates a positive economic development.

Even though the oil price is expected to double by as early as 2015, renewable energies are not expected to be market ready (Thesis 2) as early as that.

The rising oil price correlates with participants' expectations that new propulsion technologies will soon be available to compensate for the world's increasing demand (Thesis 45).

Also, we can see a correlation with Thesis 44, in that many participants see the high potential of rail as another alternative.

Further interdependencies with Theses 3, 13, 24, 28.

*... renewable energy (e.g. wind, sun, geothermal energy, biofuels) replaces 50% of the conventional fuels such as oil, coal, natural gas, and uranium (compared to 12% in 2008).*

## Voting Results

The largest voting group (43%) regards this development as probable or definite. A further 39% view it as possible. However, the time horizon is seen as being in the distant future. Most participants do not expect this development to become reality until after 2020.

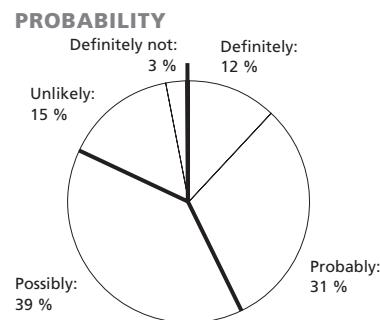
## Analysis & Context

Renewable energies are seen as having long-term relevance, and thus as sustainable investments. However, the relatively long time scale given by participants for this development to manifest shows that it is viewed more as a long-term phenomenon. This also correlates with Thesis 1, and thus stresses the world economy's relative dependence on oil. A viable alternative will, in the eyes of the participants, take a long time to be both developed and implemented.

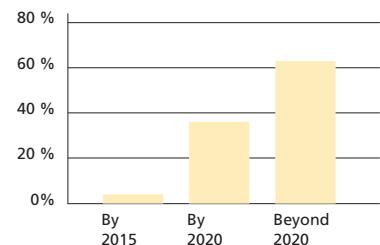
**Correlation with Thesis 3 (usage of nuclear energy):** As the potential of renewable energy is seen as more long-term, participants believe that the gap caused by the lack of a viable, renewable alternative and the increasing scarcity of oil (see Thesis 1) will be covered by nuclear energy. As the potential of renewable energy is viewed as limited, conventional energy sources remain important.

**Correlation with Thesis 6 (availability of resources will lead to dictatorships):** The availability of resources remains an important stake in economic (and political) gambles, as alternatives are seen as not being available until beyond 2020.

Further interdependencies with Theses 9, 27, 45, 65.



## TIME SCALE



Combined votes for "possibly," "probably," "definitely." No specification when development was judged improbable.

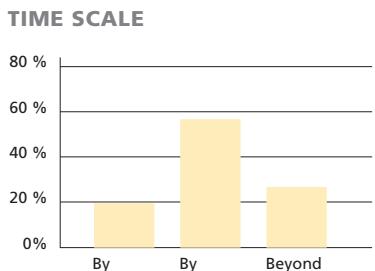
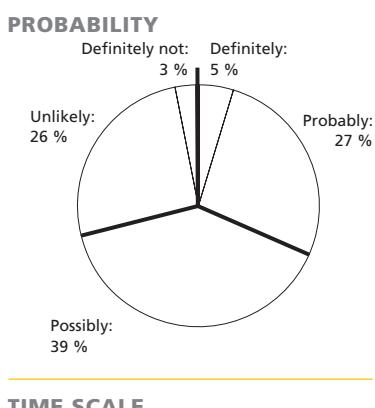
## REGIONAL ASPECTS



No significant regional variation.

*... nuclear energy is the most important source of energy in industrialized countries and emerging economies.*

### Voting Results



Combined votes for "possibly," "probably," "definitely." No specification when development was judged improbable.

### REGIONAL ASPECTS



No significant regional variation.

The largest voter group (39%) views this development as possible, followed by 32% who agree with the scenario ("probably" or "definitely") and 29% who see it as improbable ("unlikely" or "definitely not"). Those who expect the scenario to manifest envisage it happening in the medium term (by 2020).

### Analysis & Context

A large proportion of participants appear to see nuclear energy as a form of energy that could become an important player in the energy market – especially in the short and medium terms.

Correlations with Thesis 1 (rising oil prices) and Thesis 2 (renewable energy) suggest that participants view nuclear energy as a viable alternative that will help combat, or at least sidestep, rising oil prices and bridge the time until renewable energies actually become feasible alternatives – especially in the medium-term future.

Correlation with Thesis 6 (availability of resources will lead to dictatorships) suggests that dependence on countries with a large availability of uranium will grow – as well as these countries' economic (and political) weight.

Further interdependencies with Theses 9, 28.

*... the global economy is increasingly threatened and stirred up by the outbreak and spread of **highly infectious diseases** such as bird flu and SARS which make markets highly volatile.*

## Voting Results

The overall majority of participants (65%) do not see this outlined threat as given. 35% see it as a likely or possible development.

## Analysis & Context

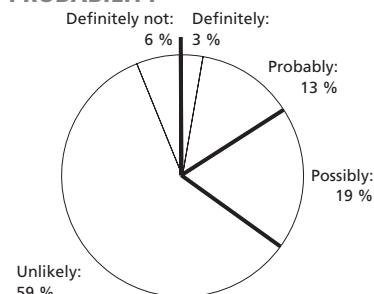
The voting behavior shows that most participants do not see the spread of diseases as a global threat or a threat to the world economy.

The panel's trust in both health care and effective action by governments limits the effects of these diseases and consequently, they do not significantly affect markets.

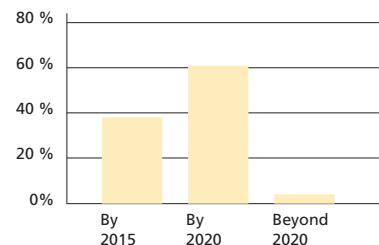
Widespread trust in both medical/scientific and technological progress underlines this judgment, and reflects the hope that certain diseases will soon be a thing of the past due to new developments and innovation in healthcare, such as the increasing availability/spread of vaccination (Thesis 73).

Overall, this Thesis highlights the participants' belief in the ability of technological and scientific progress to prevent the spread of diseases as well as in the self-healing powers of markets, which are only affected in the short term by diseases, if at all.

### PROBABILITY



### TIME SCALE



Combined votes for "possibly," "probably," "definitely." No specification when development was judged improbable.

### REGIONAL ASPECTS

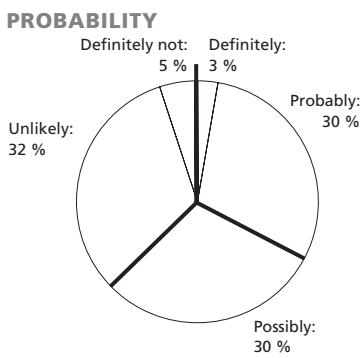


Asia votes differently, giving "probably" and "possibly" equally high votes, followed by "unlikely."

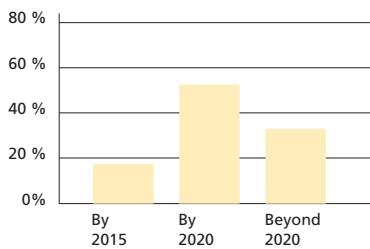
*... worldwide compulsory commitments to combat climate change are reached and adhered to by all states.*

### Voting Results

Here, the largest group of professionals (37%) views this development as improbable. However, an almost equally large proportion of participants (33%) agree with this scenario, while another large group rates it as possible (30%). Participants are thus divided on the matter. Those who expect the scenario to manifest, envisage it happening by 2020.



### TIME SCALE



Combined votes for "possibly," "probably," "definitely." No specification when development was judged improbable.

### Analysis & Context

Opinions are divided on this matter. Only one-third of professionals expect that a comprehensive and compulsory regulatory regime will become reality. This might imply that climate change will, in turn, become a stronger competitive factor for international companies.

Nevertheless, it seems apparent that combating climate change is left to the political agendas of states and nations. Participants regard ecological questions as a responsibility of states.

As a result, companies will be confronted by dramatically rising costs that diminish their profits (Thesis 18).

Further interdependencies with Thesis 17.

### REGIONAL ASPECTS



Asia votes differently, rating "probably" highest.

*... exclusive access to resources (water, gas, uranium, etc.) leads to abuse of power and dictatorship.*

## Voting Results

A large number of participants (40%) agree that this scenario is likely (“probably” or “definitely”). Participants are divided on when this development will take place. In addition, the number of those for whom such a development seems possible corresponds to one-third of all participants (34%).

## Analysis & Context

There is a risk of resource-related abuse of power. 40% expect such a development to take place. It appears that this discussion is influenced by the shortage of fossil fuels and the feeling of being increasingly dependent on resources.

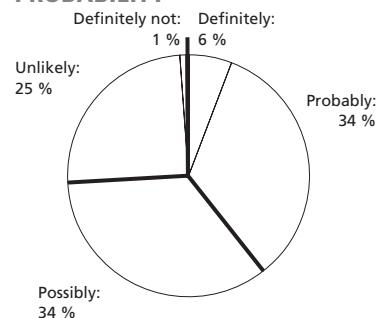
Participants believe that exclusive access to resources will put nondemocratic states (and their political leaders) in an ever more powerful position.

Increasingly, the access to water as a vital resource is seen as an important (political) asset in the gamble for wealth.

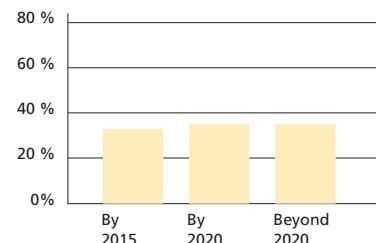
Correlation with Thesis 78 (growing social inequality): This seems to indicate a future in which access to resources also adds to the social inequality and thus social instability between states and nations.

Further interdependencies with Theses 2, 3, 28.

### PROBABILITY



### TIME SCALE



Combined votes for “possibly,” “probably,” “definitely.” No specification when development was judged improbable.

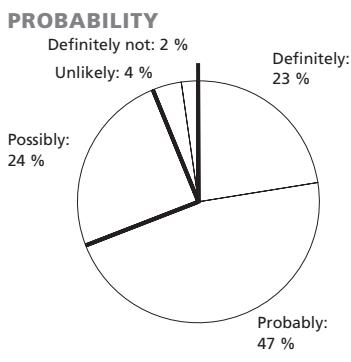
### REGIONAL ASPECTS



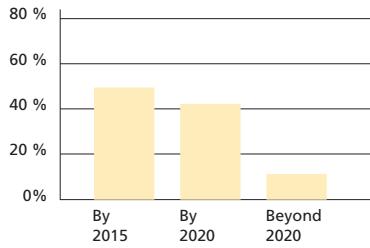
The Americas vote differently, giving “unlikely” the highest rating.

*... competitors collaborate with each other in order to develop innovative solutions for sustainability and to better shoulder rising energy costs.*

### Voting Results

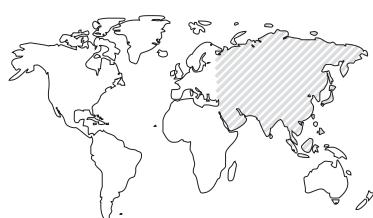


### TIME SCALE



Combined votes for "possibly," "probably," "definitely." No specification when development was judged improbable.

### REGIONAL ASPECTS



High percentage of votes for a positive scenario in Asia.

70% of the participants tend to agree with this scenario. 23% of them even see it as a definite development, while a mere 6% regard it as "unlikely" or "definitely not." A further 24% regard it as possible. The majority expect this development in the short term (by 2015).

### Analysis & Context

The question of energy supply and energy costs remains a vital aspect of economic success.

Correlation with Thesis 18 (balance sheets are influenced by rising ecological costs) shows that participants view rising energy and environmental costs as having a major impact. Cooperation between competitors is seen as a means of combating or at least minimizing such effects, even if this may lead to giving up economic advantages. Furthermore, it indicates that participants rate ecology and sustainability as highly important and highly influential topics which will strongly affect the way we do business in future.

Correlation with Thesis 34 (cooperation between logistics providers) indicates that participants view cooperation as an important means of surviving and winning a greater share of the global wealth distribution.

Further interdependencies with Theses 28, 39, 49, 51.

*... carbon footprint measures are imposed on a global scale and become a standard characteristic of both services and products, as package labels mark the CO<sub>2</sub> emissions of each product.*

## Voting Results

A clear majority (61%) of the panel expects this development to come about, while a mere 11% view it as “unlikely.” Most professionals expect this development to manifest itself by 2015 or 2020.

## Analysis & Context

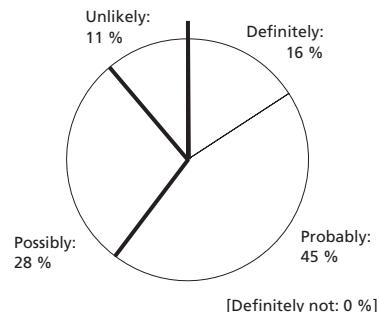
Overall, the panel expects carbon footprint measures to be implemented. For companies, this means that they need to be prepared for this change. Those that already offer transparency in their carbon emissions today can expect a competitive advantage. However, as it will soon become a mandated standard, this competitive advantage will only be short-term.

For consumers, CO<sub>2</sub> label marking might mean more transparency and, in correlation with Thesis 12, they may also be willing to pay more for environmentally friendly products. Therefore, such labeling may increase sales – at least for some products. However, the currently still unsolved problem of assessing and calculating the respective CO<sub>2</sub> emissions cannot be disregarded.

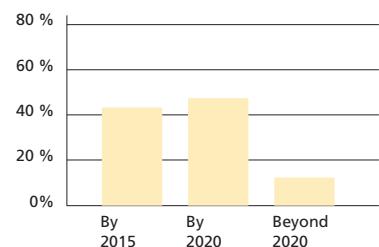
Correlation also with Thesis 18 (balance sheets are influenced by rising ecological costs), in that participants expect such measures to increase the overall costs.

Further interdependencies with Theses 17, 20, 21, 22.

### PROBABILITY



### TIME SCALE



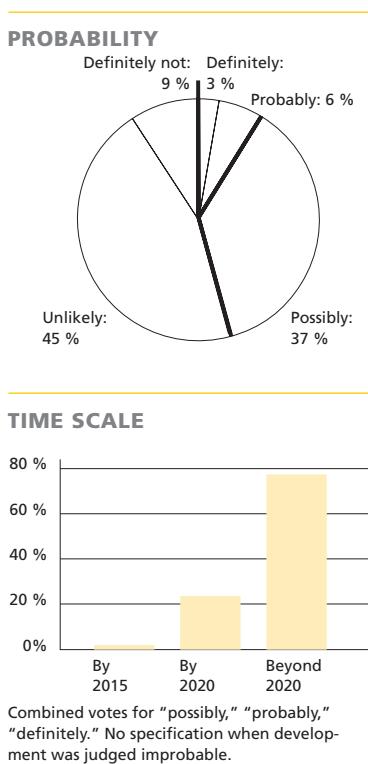
Combined votes for “possibly,” “probably,” “definitely.” No specification when development was judged improbable.

### REGIONAL ASPECTS



A large percentage of Asian participants see this as “definitely.”

*... a decentralized energy generation where everyone is his/her own individual energy supplier (e.g. nano-solar cells, recycling animal dung in developing countries, energy-producing clothing, etc.) is the most important source of energy.*



### Voting Results

The majority of professionals (54%) do not expect such a development to take place. The proportion supporting the Thesis is rather small, at a mere 9%. However, more than one-third (37%) view such a development as possible.

### Analysis & Context

Compared to Thesis 2, in which many participants expect renewable energies to replace 50% of conventional fuels in the long term (beyond 2020), participants are rather doubtful regarding the feasibility of decentralized methods of energy generation compared with conventional ones.

Although renewable energies will grow in influence and usage, they may not be sufficient to meet all energy requirements. Larger industries in particular will continue to need energy from conventional central sources.

This prospect also correlates with Thesis 3, in which participants seem to view nuclear energy as a viable alternative – especially compared to decentralized energy generation.

### REGIONAL ASPECTS



Highest percentage from the Americas votes "possibly." Asia is equally divided into strong supporters and opponents.

*... all across the world, environmentally friendly “zero-emission cities” are planned and built.*

## Voting Results

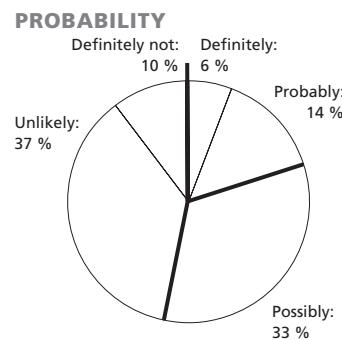
Almost half of all participants (47%) do not expect such a development. Only 20% see it as a definite or probable development. One-third (33%) view it as possible. Those who support the scenario envisage it beyond 2020.

## Analysis & Context

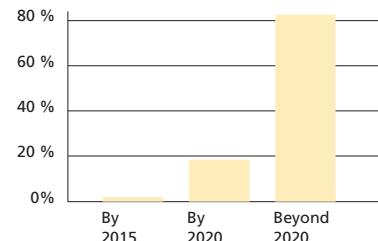
The participants want to keep their options open. While they accept the possibility that such cities can exist and may well even become more and more common across the world, they would nevertheless not bank on it, let alone base any current strategy upon it.

This skepticism is interesting, especially bearing in mind that such cities have been planned and constructed for several years, e.g. Masdar City in Abu Dhabi, or similar projects in China.

Correlation with Thesis 15 (investments into infrastructure) indicates that participants are generally rather careful or skeptical regarding the readiness and ability to invest into infrastructure.

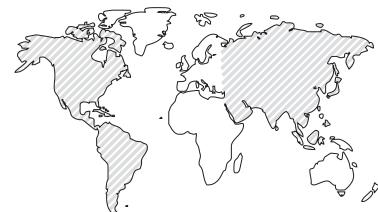


## TIME SCALE



Combined votes for “possibly,” “probably,” “definitely.” No specification when development was judged improbable.

## REGIONAL ASPECTS

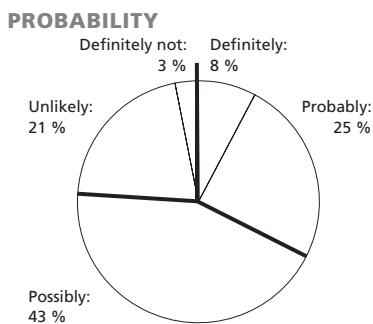


Most industry experts from the Americas vote “unlikely” or “definitely not.” Asians focus on “possibly,” “probably” and “definitely.”

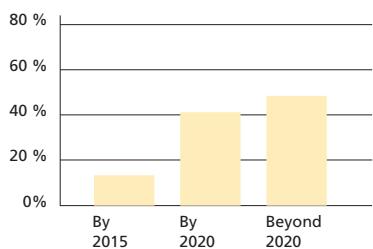
*... emerging economies experience a shift in mentality and policy and accordingly, strongly support environmentalism and climate protection.*

### Voting Results

Most professionals view such a development as possible (43%), while just under one-third (33%) regard it as a probable or even definite development. Participants expect this to happen rather in the mid to long term (by 2020 or beyond 2020).



### TIME SCALE



Combined votes for "possibly," "probably," "definitely." No specification when development was judged improbable.

### REGIONAL ASPECTS



No significant regional variation.

### Analysis & Context

Overall, participants are divided on the subject of emerging economies' position on environmentalism and climate protection. On the one hand, the drive to catch up with Western living standards seems to come at the price of high ecological costs. On the other hand, emerging economies stand to suffer a lot from environmentally induced damage and thus are also eager to limit such problems. The relatively long time horizon envisaged by participants seems to indicate that it may take a while for emerging economies to find the right balance.

Correlation with Thesis 17 and Thesis 38 (the automobile remains the most important means of transportation and is not likely to be replaced by alternative modes of transportation) indicates that the desire to drive one's own car remains unaltered (as developments such as the Tata may serve to prove). Further interdependencies with Theses 20, 23.

*... customers are willing to pay significantly more for demonstrably “green” products and services as they desire to live more ecofriendly lives.*

## Voting Results

41% of the panel regards this development as probable or definite. A further 30% see it at least as possible. These voting groups expect it to happen in the short term (by 2015). Almost one-third (29%), however, regard it as “unlikely” or vote “definitely not.”

## Analysis & Context

The majority of professionals envisage increasing profitability for “green” products. This indicates that ecofriendly lifestyles are becoming an international trend, which in turn opens up a potential new market.

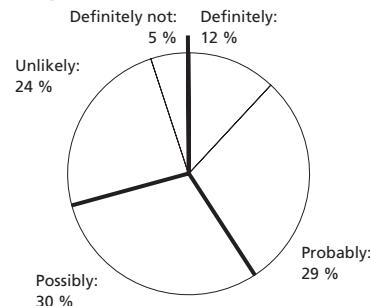
Correlation with Thesis 8 (implementation of carbon footprint measures) indicates that consumers will want to be shown “proof” of the ecofriendliness of products, and that the plausibility of “green” products is decisive.

Correlation with Thesis 14 (customers concentrate on regional products) furthermore indicates that ecofriendliness is going to be an influential and global lifestyle trend.

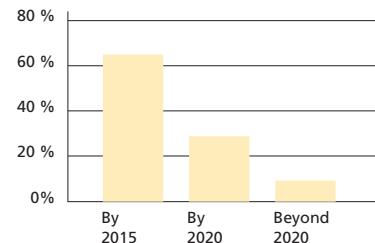
Correlation with Thesis 18 (negative impact on companies’ balance sheets) indicates that although consumers may be willing to pay more, overall, the costs brought about by ecology are going to outweigh potential new markets and niches.

Further interdependencies with Theses 20, 21, 22.

### PROBABILITY



### TIME SCALE



Combined votes for “possibly,” “probably,” “definitely.” No specification when development was judged improbable.

### REGIONAL ASPECTS

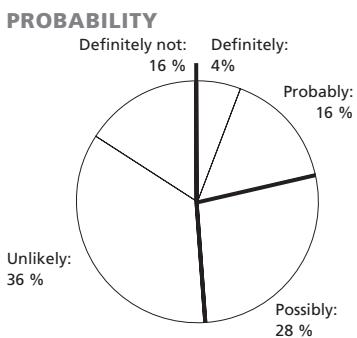


Higher percentage from the Americas votes “unlikely” or “definitely not,” while Asia votes more “definitely” and “probably.”

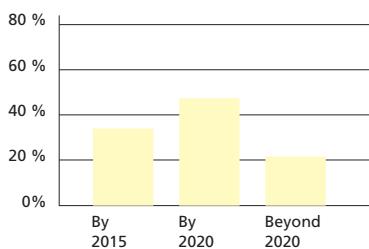
*... business trips are obsolete as they are superseded by videoconferencing and holographic communication of a new dimension and quality.*

### Voting Results

The majority (52%) of professionals do not expect such a development to happen. At 16%, the number of those assessing this as “definitely not” is comparatively high.



### TIME SCALE



Combined votes for “possibly,” “probably,” “definitely.” No specification when development was judged improbable.

### REGIONAL ASPECTS



High percentage from the Americas sees this as “unlikely” or “definitely not,” while Asia’s highest percentage concentrates on “possibly,” “definitely” and “probably.”

### Analysis & Context

The panel seems to prefer face-to-face contact when it comes to doing business and making business decisions. This is particularly interesting as videoconferencing technology is already available, yet apparently regarded as rather superfluous – at least when it comes to business matters.

Despite expected increases in the cost of fossil fuels (Thesis 1), which in turn would also increase the costs for traveling, participants still judge individual contact and meeting in person as justifying the expense. Also, the relative expense in time is regarded as being outweighed by the benefits gained by personal meetings.

Correlation with Thesis 61 (customers insist on a human point of contact) indicates that it will indeed be a long time before human and direct personal contact will be superseded – if ever.

*... customers concentrate on buying local and regional products, considering the environmental aspect as decisive part of their purchasing decision.*

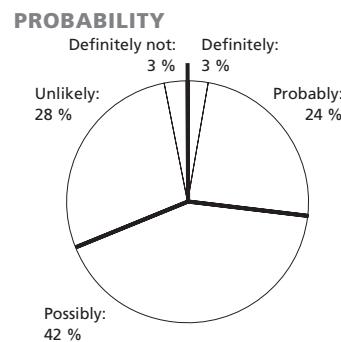
## Voting Results

The largest group of the panel (42%) rates this as a possibility, followed by 31% who regard this scenario as “unlikely” to happen or “definitely not” happening. 27% rate it as likely. Of those who anticipate this scenario, the majority expect it to happen in the short term (by 2015).

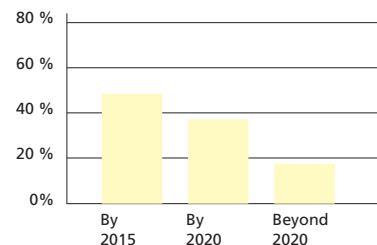
## Analysis & Context

Participants are divided on this matter. It seems that they need more data (and possible future developments or events) to rate consumers’ behavior. At the moment, two opposing trends seem to be visible: the trend for “green” lifestyles (see Thesis 12) and the trend for convenience (see Thesis 20, which shows that participants are equally undecided about the conflicting trends of ecology and convenience). The increasing availability of global goods (see Thesis 52 on the increase of Internet trade, which makes it easy to buy goods from all over the world) is also having an effect.

Further interdependencies with Theses 24, 42.



## TIME SCALE



Combined votes for “possibly,” “probably,” “definitely.” No specification when development was judged improbable.

## REGIONAL ASPECTS

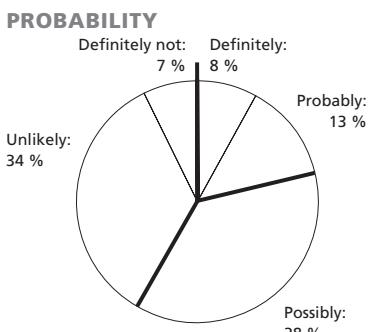


No significant regional variation.

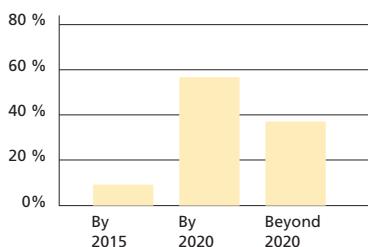
*... heavy investment into more and **improved infrastructure** eliminating detours, congestions and bottlenecks has reduced emissions significantly.*

### Voting Results

A large proportion of participants (41%) regards this development as unlikely to happen or definitely not happening, followed by a large group (38%) of professionals who see it as a possibility.



### TIME SCALE



Combined votes for "possibly," "probably," "definitely." No specification when development was judged improbable.

### REGIONAL ASPECTS



Higher percentage of participants from Asian countries rate this as "probably" or "definitely."

### Analysis & Context

Many view this scenario with skepticism. This may be due to a general skepticism on the part of the participants regarding the overall ability and willingness of states (or private companies) to invest, or it may also indicate that they view such investments and improved infrastructure as insufficient in fighting emissions.

Correlation with Thesis 36 (private companies rather than states finance infrastructure investments), where participants were divided in their opinions as to which one of the two players would pay for the infrastructure investments.

Correlation with Thesis 37 (expansion of infrastructure) indicates that participants see a need for investment, although they are doubtful whether the benefits are going to be sufficient with regards to a decrease in emissions or the reduction of bottlenecks.

Further interdependencies with Thesis 10.

*... the melting of the polar ice caps opens up new transportation routes, e.g. the **ice-free Northwest Passage** becoming a major container route between Europe and Asia.*

## Voting Results

The largest voting group (41%) regards this development as a possibility, followed by a large group (36%) of participants who see it as likely or definite. Professionals who expect this development believe it is more likely to happen in the mid to long term (by 2020 or beyond 2020).

## Analysis & Context

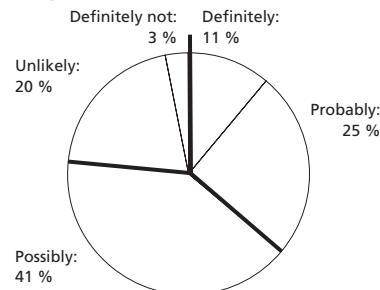
Closely connected with this scenario is the belief that climate change does not only include risks or even cause losses (see Thesis 18 regarding companies' balance sheets), but also presents chances and challenges.

This development would open up new possibilities for logistics companies and OEMs alike.

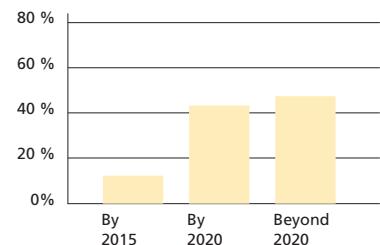
Still, it seems that most participants would rather wait for more indications before aligning their strategies to such a scenario.

Correlation with Thesis 20 (convenience vs. ecology) indicates that participants are unsure about the effect of the ecological debate and the results of climate change, and they find it difficult to evaluate the impact it will have on business and customer behavior.

### PROBABILITY



### TIME SCALE



Combined votes for "possibly," "probably," "definitely." No specification when development was judged improbable.

### REGIONAL ASPECTS

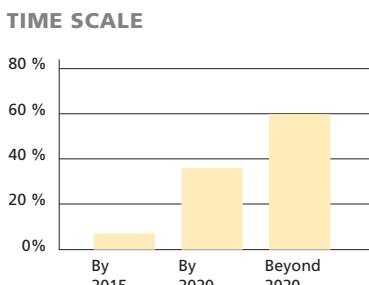
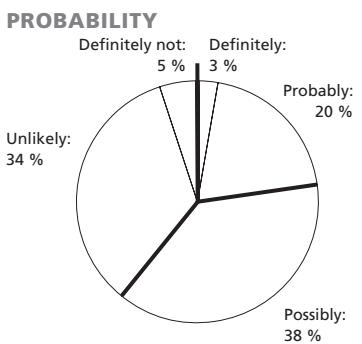


No significant regional variation.

*... logistics and transport in large cities and megapolises is based on new modes of transport, e.g. cars are banned.*

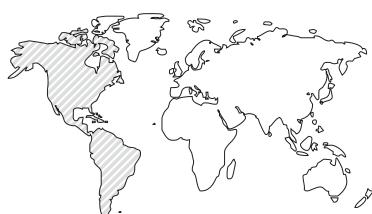
### Voting Results

While 39% cannot envisage this scenario and rate it as “unlikely” or vote “definitely not,” 38% view it as a possibility. Only 23% expect this scenario to manifest.



Combined votes for “possibly,” “probably,” “definitely.” No specification when development was judged improbable.

### REGIONAL ASPECTS



A higher percentage of participants from the Americas view this as “unlikely” or vote “definitely not.”

### Analysis & Context

In correlation with Thesis 38 (the automobile remains the most important means of transport), the majority of participants expect the known concepts and systems of transport to remain in use and in demand.

While participants expect certain new norms and regulations to be imposed (both by governments and through customer demand) regarding sustainability (see Thesis 5 regarding compulsory commitments and Thesis 8 regarding carbon footprint measures), they nevertheless rate the automobile as resistant and expect it to remain an essential element of personal transport.

Participants cannot envisage or do not believe, that new concepts of transport will be developed in due course.

Further interdependencies with Theses 11, 21, 36, 45.

*... the dramatic **increase of ecological costs** influences the balance sheets of companies exorbitantly.*

## Voting Results

53% of panel participants expect this development, with a further 38% seeing it at least as possible. Most participants expect this development in the medium term, by 2020.

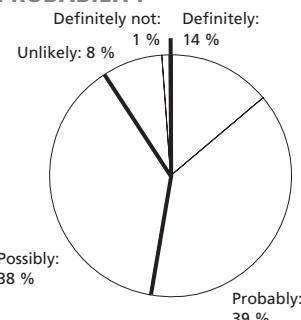
## Analysis & Context

Clearly, ecological costs will influence balance sheets. Correlation with Thesis 8 (implementation of carbon footprint measures) indicates that participants are considering the costs such measures (e.g. labeling products) may cause initially.

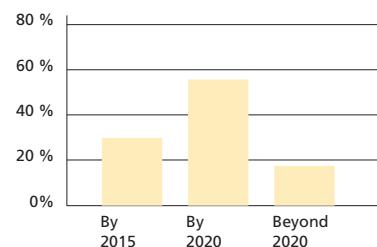
Also correlates with Thesis 12 (customers are willing to pay more for “green” products), which indicates that although participants view the initial ecological costs (caused by both government regulations and consumer demand) as having a rather negative impact, the long-term view allows for a more positive outlook in which the chances and challenges caused by this new market potential can also influence balance sheets in a positive way.

Further interdependencies with Theses 5, 7, 16, 22, 80.

### PROBABILITY



### TIME SCALE



Combined votes for “possibly,” “probably,” “definitely.” No specification when development was judged improbable.

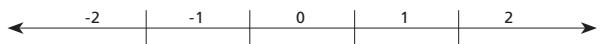
### REGIONAL ASPECTS



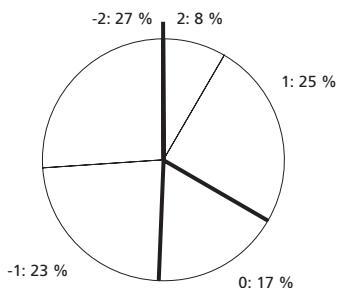
A higher percentage of participants from Africa responded with “definitely.”

[Scenario I]: ... **innovative technology** is the most important driver to combat climate change.

[Scenario II]: ... **strict governmental regulations and reduced consumption** are the most important strategies for combating climate change.



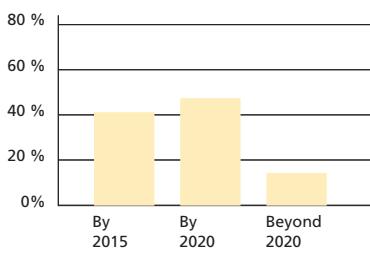
#### PROBABILITY



#### Voting Results

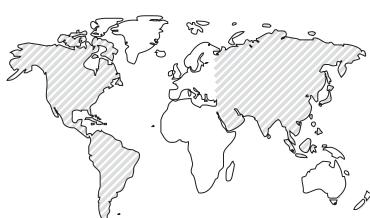
The largest voting group (50%) believes scenario I will become a reality and expects it to manifest by 2020, followed by another large group who expect it to already occur by 2015. Furthermore, the group that fully agrees with scenario I is comparatively large (27%). 33% support scenario II.

#### TIME SCALE



Combined votes for the preferred scenario.

#### REGIONAL ASPECTS



Participants from the Americas favor scenario I, while those from Asia are equally divided between all options.

#### Analysis & Context

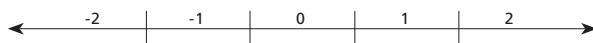
The panel prefers the scenario of a technological solution combating climate change to that of strict regulations by the state.

Professionals believe technological innovation to be more effective in combating climate change. In turn, it is not necessarily about making more economical usage of resources, but using new technology to achieve greater efficiency.

Nevertheless, one-third of participants expect the state to increase its measures and regulations, which may also correlate with the role projected onto the state or government in Theses 36 and 37, in which the state is still seen as a major investor in infrastructure.

Further interdependencies with Theses 45, 58, 60, 62.

[Scenario I]: ... sustainability and ecology are differentiating factors in customers' purchasing decisions, therefore raising the importance of corporate social responsibility and "green" supply chains.



[Scenario II] : ... sustainability does not influence purchasing decisions; instead, **price and convenience** remain the main drivers for customers.

### Voting Results

The panel is very much divided on the development of these two scenarios. While 45% favor scenario I, 42% favor scenario II. However, the percentage of those strongly agreeing with scenario I (16% for -2 compared to 9% for 2) is larger. Scenario I is expected to manifest itself by 2015.

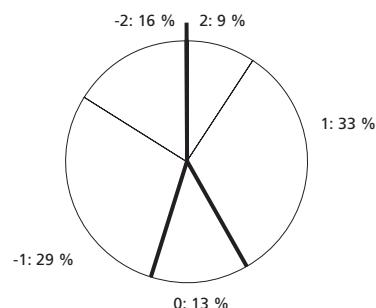
### Analysis & Context

Participants are divided about the long-term effects of the drive for environmentally friendly products and manufacturing processes. As in Thesis 12, there is an overall expectation that "green" products offer substantial potential for economic growth. However, it remains unclear whether this will affect only a few industries (Theses 11 and 8) or offer new potential for growth for the majority of industries. Professionals are also divided on whether the move towards manufacturing and shipping products in a more ecofriendly manner and limiting the negative effects on the environment is prompted by governments or driven by customer demand.

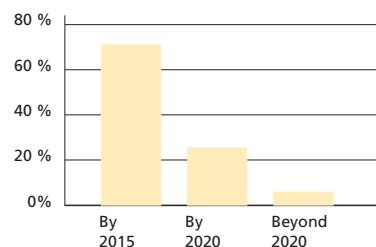
Correlation with Thesis 21: Experts are doubtful regarding the degree to which customers are willing to accept restrictions. In the end, price and convenience are seen as the decisive elements in purchasing decisions.

Further interdependencies with Theses 14, 16, 24, 42, 49.

### PROBABILITY



### TIME SCALE



Combined votes for the preferred scenario.

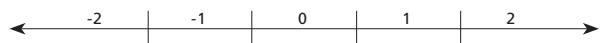
### REGIONAL ASPECTS



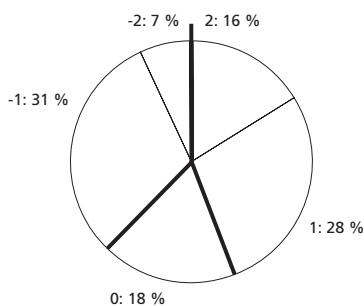
Professionals from the Americas favor scenario I, while those from Asia are equally divided between all options.

[Scenario I]: ... customers accept a massive **reduction in the frequency of shipments** or rapidly slowed speed of delivery to lessen the environmental impact.

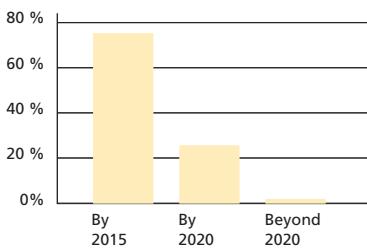
[Scenario II]: ... customers demand **more frequent shipments and faster delivery** unmindful of the environmental aspect.



#### PROBABILITY



#### TIME SCALE



Combined votes for the preferred scenario.

#### REGIONAL ASPECTS



Industry experts from the Americas and Africa favor scenario II, while those from Asia favor scenario I.

#### Voting Results

At 44%, the number of participants who regard scenario II as more likely is slightly higher than that for scenario I (38%). Scenario II is expected to manifest in the short term (by 2015).

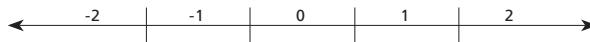
#### Analysis & Context

Overall, a slight majority of the panel expects customers to continue demanding speed, with convenience beating the environmental aspects. Nevertheless, more than one-third can imagine customers making some concessions. Correlation with Thesis 20 (influence of sustainability): Participants are divided on how customers will react to environmental issues. While companies will continue having to prove their CSR and environmental responsibility (also see Thesis 8, carbon footprint measures), and consumers will even pay more for “green” products (see Thesis 12), participants expect customers to be willing to do so only as long as this does not compromise their own convenience or comfort (see also Theses 17 and 38 on usage of cars).

Further interdependencies with Theses 22, 74, 80.

[Scenario I]: ...  
**new market opportunities** for sustainable products and services lead to a plus in gross national product of 5% per annum.

[Scenario II]: ...  
*high costs for sustainable products and services reduce productivity and profit.*



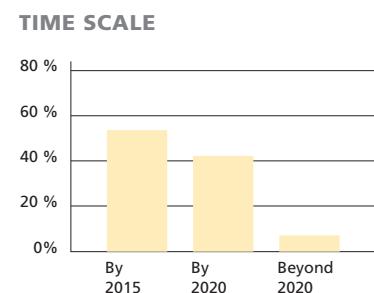
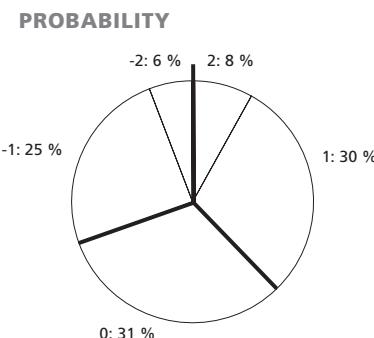
## Voting Results

At 38%, the number of participants who regard scenario II as more likely is higher than that for scenario I (31%). Scenario II is expected to manifest by 2015.

## Analysis & Context

Participants generally expect companies' profits to be negatively influenced by environmental costs, and thus regard environmental aspects and the costs of sustainability as a threat rather than an opportunity. Correlation with Thesis 18 (impact on companies' balance sheets) shows that participants are quite worried about losing profits, and believe that customers' willingness to pay more for "green" products (Thesis 12) does not balance out the costs incurred, e.g. by measures concerning companies' carbon footprint (Thesis 8).

Correlation with Thesis 21, which indicates that customers may be willing to pay more for certain products, but are generally believed to be less inclined to compromise on convenience aspects such as speed. Thus, only a certain part of the costs encountered by companies can be passed on to the end consumer.



Combined votes for the preferred scenario.

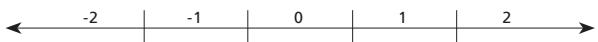
## REGIONAL ASPECTS



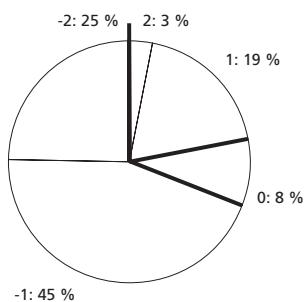
Industry experts from the Americas and Africa favor scenario II, while those from Asia favor scenario I.

[Scenario I]: ...  
emerging economies  
are **unable to reduce**  
**overall CO<sub>2</sub> emissions**,  
because market growth  
dramatically exceeds  
the volume of reduction.

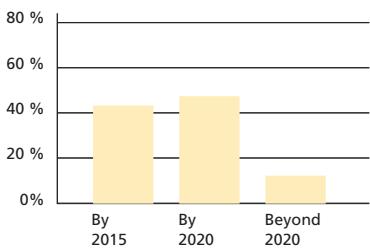
[Scenario II]: ...  
emerging economies **leap-frog several innovation cycles** in the reduction of CO<sub>2</sub> emissions and dramatically reduce theirs.



#### PROBABILITY



#### TIME SCALE



Combined votes for the preferred scenario.

#### REGIONAL ASPECTS



Participants from Asia and Africa mainly support scenario II; those from the Americas are divided.

#### Voting Results

At 70%, scenario I is clearly given preference over scenario II (22%). This is heightened by the fact that 25% of the participants strongly agree with scenario I. Most participants expect this development to manifest by 2015 or 2020.

#### Analysis & Context

Participants obviously do not expect emerging economies to be able to reduce their emissions significantly. Correlation with Thesis 11, where participants are relatively undecided about a possible shift in mentality in emerging countries as regards emissions.

Correlation with Thesis 72 (technological intelligence in China and Singapore) and Thesis 43 (growth of the Chinese economy) which indicate that, overall, participants expect considerable market growth in emerging economies, which outweighs any attempts to reduce emissions.

However, correlation with Thesis 72 also shows that, although technological and engineering intelligence will be based in China/Singapore, emerging economies' ability to leapfrog innovation cycles is doubted – at least with regards to emissions reduction. This indicates skepticism about emerging economies' ability to protect the climate and their political commitment to this issue.

*... outsourcing is out, insourcing is in, as the rising transport costs outweigh the advantages of low-cost countries.*

## Voting Results

The largest voting group (45%) considers this development “unlikely” or are even convinced (8%) that it will not become reality. However, 33% regard it as generally possible, while 22% see it as likely or definite.

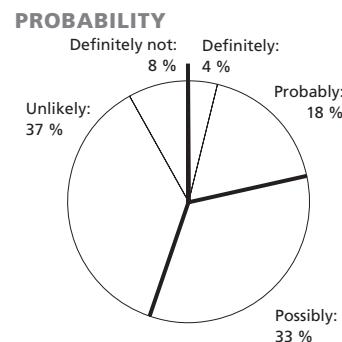
## Analysis & Context

Outsourcing is not a temporary trend but will prevail in the long term due to its economic benefits. Quite a high percentage (33%) of professionals voted “possibly” on this Thesis. Their vote may well indicate that while they currently would not align their strategy to such a scenario, they see it as a potential option.

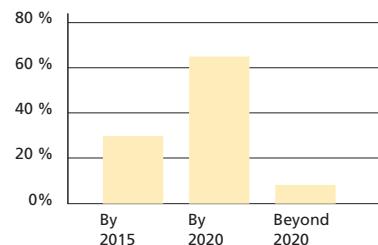
Despite the increase in costs for fuel (Thesis 1), outsourcing is still seen to be the more effective or economical option, outweighing higher transport costs. Correlation with Thesis 35 (manufacturers outsource as many areas as possible of the production line) shows that the outsourcing trend will continue and even gain in importance.

Also correlates with Thesis 20: Overall, the demand for convenience and comfort will outweigh the drive for ecofriendly production in the end. While the environmental aspects of outsourcing may have a stronger negative effect on the environment and cause more emissions, the (economic) benefits of outsourcing remain the deciding factor.

Professionals also expect customers to be generally accustomed to the amenities of globalization (see Thesis 14), which indicates that global transportation and manufacturing are still seen as long-term trends.



## TIME SCALE



Combined votes for “possibly,” “probably,” “definitely.” No specification when development was judged improbable.

## REGIONAL ASPECTS

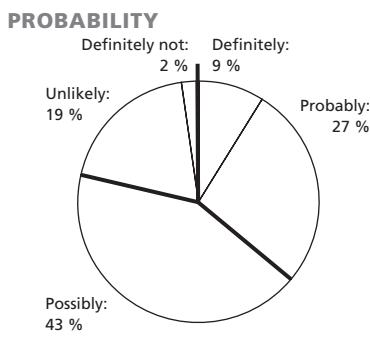


The Americas vote overwhelmingly “unlikely.”

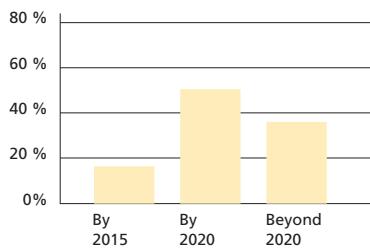
*... inner-Asian trade is the center of the global economy and far more important than the trade between North America and Europe.*

### Voting Results

The largest group of professionals (43%) views this development as possible. A further 36% regard it as likely. These voting groups expect this development to manifest in the medium term (by 2020). One-fifth (21%) do not expect such a development.



### TIME SCALE



Combined votes for "possibly," "probably," "definitely." No specification when development was judged improbable.

### REGIONAL ASPECTS



No significant regional variation.

### Analysis & Context

Asia's burgeoning economic market is set to become more important in future. However, the participants are unsure about the extent of this potential and possible restrictions to this trend.

Correlation with Thesis 43 (the Chinese economy ranks among the world's top three economies) underlines that the panel views the Asian market as offering substantial growth potential.

Correlation with Thesis 72 (Singapore and China become centers of technological intelligence) furthermore stresses the high potential and growth market (both economically and intellectually) that participants attribute to Asia. China and Singapore in particular will not just grow quantitatively but also qualitatively to become key players in the field of technology.

Further interdependencies with Theses 26, 31.

*... India is the world's center for technology and innovation; Indian products dominate the high-tech market and set the standard.*

## Voting Results

The majority (53%) deem this development unlikely. One-third (33%) consider it possible. Only 14% regard this development as probable or definite.

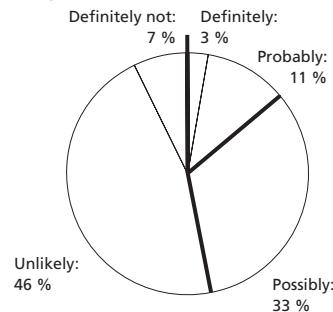
## Analysis & Context

The result indicates high skepticism regarding India as setting the standard in high-tech and innovations. Correlation with Thesis 25 (growing importance of inner-Asian trade) and Thesis 43 (growth in the Chinese economy) indicates that professionals nevertheless regard Asia as anticipating (and in turn offering) substantial growth potential.

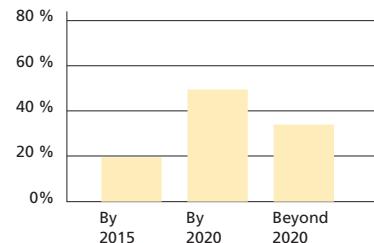
However, while participants regard Asia – especially China – as an economically potent continent, the majority of participants do not seem to extend their (technological) optimism to India (see Thesis 72, which shows that a massive increase in engineering expertise in China and Singapore is expected), despite India's situation being similar.

Further interdependencies with Thesis 27.

### PROBABILITY

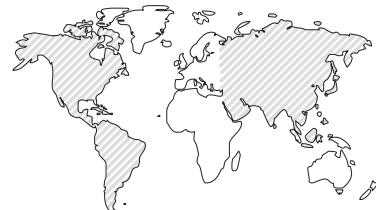


### TIME SCALE



Combined votes for "possibly," "probably," "definitely." No specification when development was judged improbable.

### REGIONAL ASPECTS



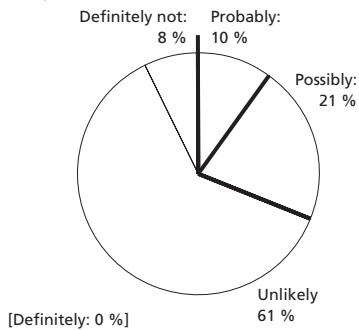
Participants from Asia and the Americas vote overwhelmingly for "unlikely."

*... Latin America experiences extensive economic growth and turns into one of the world's economic centers of gravity.*

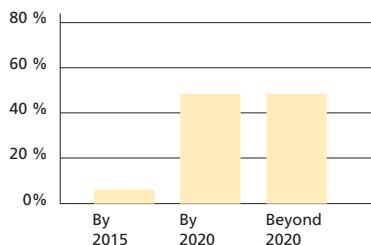
### Voting Results

A clear majority (69%) see such a development as “unlikely” or “definitely not” to be expected. Only 10% consider it probable; none of the professionals see it as definite.

#### PROBABILITY



#### TIME SCALE



Combined votes for “possibly,” “probably,” “definitely.” No specification when development was judged improbable.

#### REGIONAL ASPECTS



Industry Experts from Asia and from the Americas vote overwhelmingly for “unlikely.”

### Analysis & Context

Latin America does not offer high potential for investment or growth.

Correlation with Thesis 43 (economic growth in China), Thesis 28 (economic growth in Russia) and Thesis 26 (India as a center for technology and innovation) shows that of the BRIC countries, professionals single out China and Russia as (increasingly) important economic players, while they view India and especially Brazil/Latin America with more skepticism.

Correlation with Thesis 2 (importance of renewable energy) in turn indicates that although Latin America (and especially Brazil) possesses vast natural resources, these are not judged by participants as decisive factors in boosting Latin America’s economy.

*... Russia's vast natural resources enormously boost its economy.*

## Voting Results

A clear majority (57%) considers this development as probable or even sees it as definite. One-third (33%) regards it as possible. Those who envisage this development expect it to manifest in the medium to long term (by 2015 or 2020).

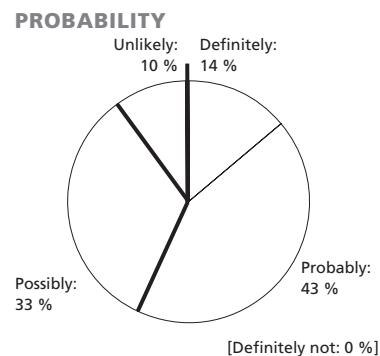
## Analysis & Context

Participants rate Russia's wealth in resources very highly. They also link wealth in resources to economic growth, which correlates with Thesis 1 (rising oil price) and the overall importance attributed to energy and energy costs as important economic drivers. Also see Theses 3 (nuclear energy), 45 (new propulsion technologies), and 7 (collaboration to shoulder energy costs).

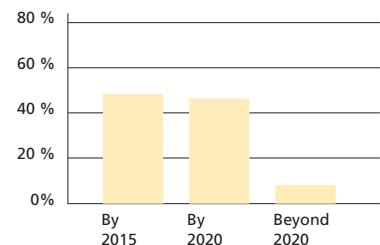
Correlation with Thesis 6 (quasi-monopolistic power over resources leads to power abuse and dictatorships) may indicate that participants are concerned about the political weight that such rich resources create.

Correlation with Thesis 27: The existence of resources and biofuels in Latin America will not influence economic growth in the Latin American region to the same degree as resources will affect Russia's economic growth. This may imply that resources such as oil and gas are seen as more profitable in the near future than biofuels, or that the political systems in the Latin American oil-producing states are viewed as profiting slightly less from their resources than Russia (which in turn reflects on the different political/economic systems).

Further interdependencies with Thesis 30.



## TIME SCALE



Combined votes for "possibly," "probably," "definitely." No specification when development was judged improbable.

## REGIONAL ASPECTS

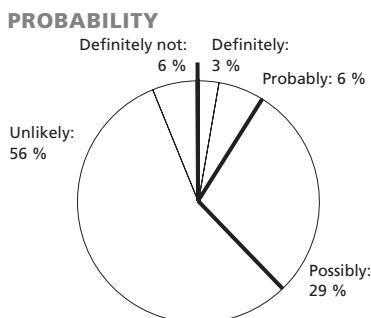


Asia and Africa vote overwhelmingly "probably"/"definitely," while the Americas overwhelmingly respond with "possibly," followed by "probably."

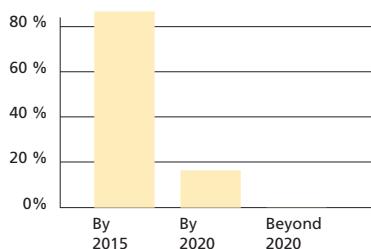
*... across the world, fear of terrorist attacks dominates life, increasing restrictions on the movement of people, goods, and information.*

### Voting Results

A clear majority regard such a development as “unlikely” to happen or “definitely not” happening (62%), while a mere 9% expect it. Nevertheless, almost one-third (29%) see it as a possibility.



### TIME SCALE



Combined votes for “possibly,” “probably,” “definitely.” No specification when development was judged improbable.

### Analysis & Context

Terrorism will not seriously affect the movement of goods or people.

In correlation with Thesis 79 (industrialized nations increase public surveillance because of terrorism), this indicates professionals’ overall confidence that new security precautions, technology, and devices will limit the threat of terrorism.

Generally, the expansion of public surveillance indicates that although terrorism still poses a threat, surveillance and technology might limit its overall effects.

### REGIONAL ASPECTS



Asia and Africa vote overwhelmingly “probably” and “definitely,” while the Americas focus on “possibly,” followed by “probably.”

*... it is clear that the financial crisis in 2007/08 was just the prelude to a series of financial disasters, which subsequently turn the global financial system upside down.*

## Voting Results

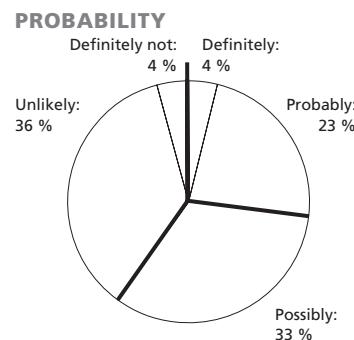
The largest voting group rejects this prognosis (40%). Those who deem it likely (27%) expect its realization in the short term, by 2015.

## Analysis & Context

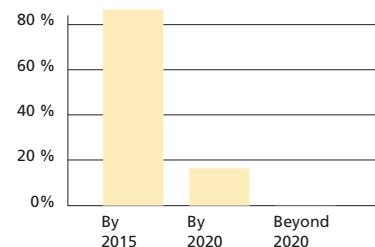
Most professionals view such drastic changes in the financial system as unlikely. However, 60% of professionals regard it as possible or likely that the financial crisis will have far-reaching consequences. Correlation with Thesis 43 (growth in the Chinese economy) indicates that, despite the economic uncertainty, the panel generally believes that at least some economies will overcome the challenges posed by the current financial crisis in the long run.

Correlation with Thesis 28 (Russia's wealth in resources) and Thesis 72 (technological intelligence and engineering expertise in China/Singapore) shows that two elements are crucial in successfully combating the effects of the financial crisis: natural resources (esp. fossil fuels) and education/technological expertise.

There is also a correlation with Thesis 42 (protectionist endeavors), which shows that one-third of professionals expect borders to be closed to trade. This, in turn, indicates that states will increasingly try and protect their national wealth by means of protectionism in the light of possible financial instability. Overall, the idea of a strong and more visible state is supported by this third of the panel.



## TIME SCALE



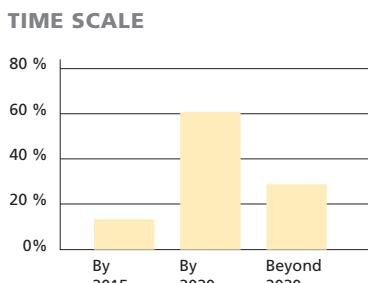
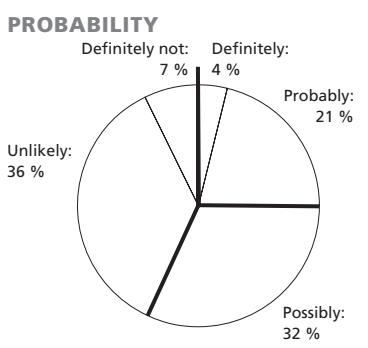
Combined votes for "possibly," "probably," "definitely." No specification when development was judged improbable.

## REGIONAL ASPECTS



The Americas vote "possibly," "unlikely," "definitely not," while Asia votes "possibly," "probably" and "definitely."

*... the EU has continued to expand and the inner-European market consists of 30+ member states (e.g. Turkey, Ukraine, Georgia, Kazakhstan, Russia) with equal rights.*



Combined votes for "possibly," "probably," "definitely." No specification when development was judged improbable.

#### REGIONAL ASPECTS



The Americas vote "unlikely" or "possibly," while Asia votes "probably," "possibly," "definitely."

#### Voting Results

The largest voting group does not expect this development (43%). One-third see it as a possibility, while 25% expect it to happen. Those who view it as possible or likely expect it to happen by 2020.

#### Analysis & Context

Most professionals do not expect the EU to expand as widely as the scenario suggests.

Correlation with Thesis 42 (protectionist endeavors) may suggest that, overall, nations will strengthen their national borders.

Correlation with Thesis 77 (people refer back to their regional roots) may suggest that participants see nations and states experiencing rather inward, nationalistic movements as opposed to them merging into one socioeconomic system such as the EU, at least in the medium term.

This also correlates with Thesis 72 (technological intelligence in China/Singapore), as the EU will fall behind in the nations' "war for talent." They may judge Asia's attitude to and investment in education and innovation as a guarantee for wealth and economic growth – with the EU and the US being overtaken by Asia. This also correlates with Thesis 25 (participants expect inner-Asian trade to become more important than trade between the EU and the US).

*... antiglobalization groups become ever more influential. They focus their activities on multinational companies, organize boycotts, and considerably shape public opinion.*

## Voting Results

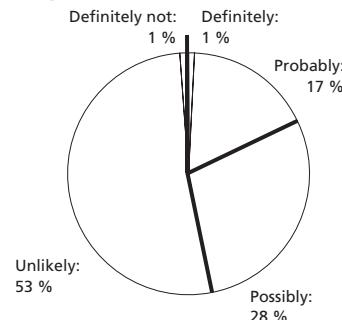
The clear majority (54%) do not expect this development. Only 18% expect it to manifest, while 28% see it as a possibility. Those voting groups who see it as possible or probable expect it to occur in the short term (by 2015).

## Analysis & Context

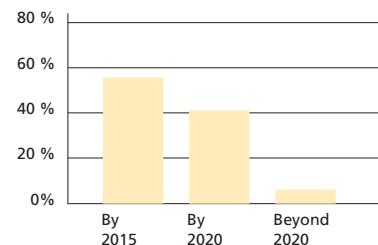
The influence of antiglobalization groups is of insignificant, marginal impact; it merely affects (and interests) a minority of the world's population. Correlation with Theses 54 and 55 (people are "always on" the Internet and "always together" online): Although online communication will considerably shape or influence future lifestyles, it is not expected to become a political platform for anti-globalization groups to organize boycotts or shape public opinion. Despite the anticipated availability of information, overall interest in antiglobalization is limited.

Although professionals expect social uprisings and an increased regional attachment (Theses 78, 77), they nevertheless expect this to only have a slight effect on the progress of globalization or the position of multinational companies. Instead, riots and uprisings shift back from the economical onto the political systems of the respective nation. Further interdependencies with Theses 42, 66, 76, 79.

### PROBABILITY



### TIME SCALE



Combined votes for "possibly," "probably," "definitely." No specification when development was judged improbable.

### REGIONAL ASPECTS



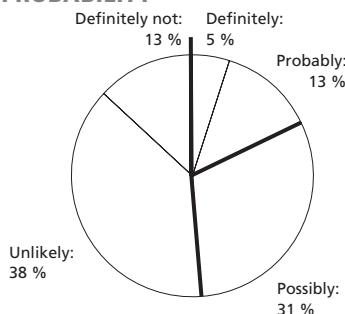
Asian votes are evenly distributed between "possibly"/"probably" on the one hand and "unlikely" on the other, while the Americas predominantly vote "unlikely."

*... intellectual property is protected effectively across the world.*

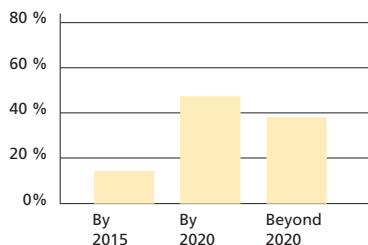
### Voting Results

The majority (51%) of the panel rejects this development, while 18% expect it to happen. Almost one-third (31%) regard it as possible. These voting groups expect it to manifest by 2020.

#### PROBABILITY

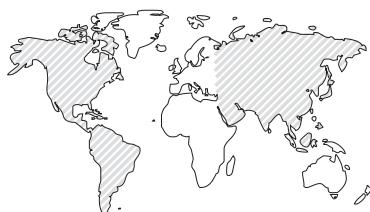


#### TIME SCALE



Combined votes for "possibly," "probably," "definitely." No specification when development was judged improbable.

#### REGIONAL ASPECTS



The Americas vote predominantly "possibly," "unlikely," "definitely not," while Asian participants are equally divided between "probably" and "unlikely."

### Analysis & Context

Panel participants generally do not expect intellectual property to be effectively protected across the world. This correlates strongly with the belief that the regulatory power of nation states and even international institutions is limited.

Correlation with Thesis 48 (decreased communication costs) and Thesis 46 (the Internet connects 100% of the world) suggests that participants see intellectual property as being threatened by the increasing importance (and persistently chaotic structure) of the Internet and the availability of information online (see also Thesis 54: people are "always on").

This also correlates with Thesis 64 (the Internet remains self-regulatory) in that the relative inability to control the Internet's content may further support the availability of information rather than the protection of intellectual property.

Further interdependencies with Theses 49, 51.

*... logistics providers can only survive if they form global alliances and collaborate closely, e.g. to develop new rail networks connecting Russia, Asia, and Europe.*

## Voting Results

A clear majority of participants (65%) expect this development, with one-fifth (19%) stating “definitely.” A further 21% regard this development as possible. Participants expect it to manifest by 2020.

## Analysis & Context

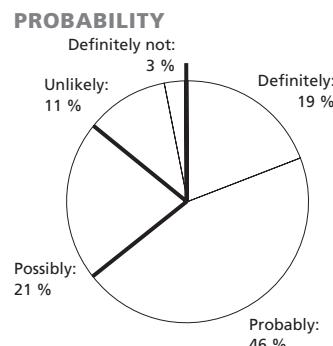
The panel clearly expects logistics providers to collaborate and form global alliances. A completely new concept of competition in logistics will be put in place.

Correlation with Thesis 7: Participants expect competitive companies to cooperate in order to shoulder increased energy costs. Whereas rising energy prices are the drivers for industries outside the logistics field, participants expect cooperation in the logistics industry to go beyond this by establishing and maintaining new transport routes.

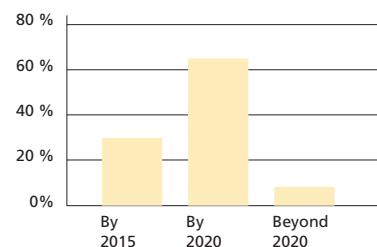
Thesis 39 (international logistics does not reach its capacity limits) shows that although professionals see logistics as a field for growth and expect benefits from the newly created global alliances, they clearly agree that collaboration will ensure survival in logistics.

Correlation with Thesis 41 (logistics companies expand their value chain) further serves to support the high potential that participants attribute to the logistics market and thus to economic growth for logistics companies.

Further interdependencies with Theses 35, 37, 40, 44, 49, 51.



## TIME SCALE



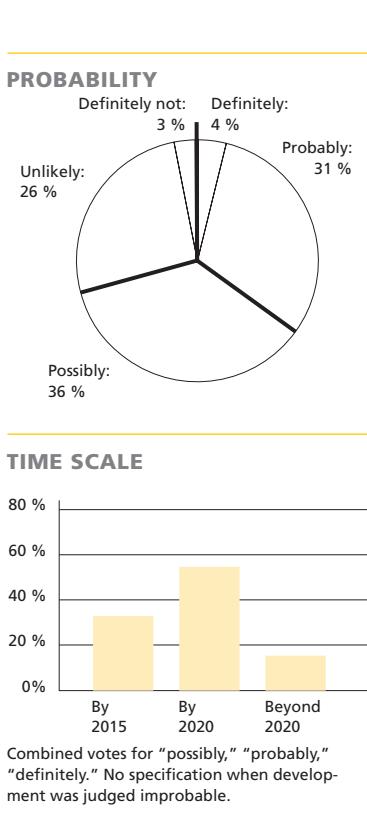
Combined votes for “possibly,” “probably,” “definitely.” No specification when development was judged improbable.

## REGIONAL ASPECTS



Africa votes predominantly “probably”/“definitely.”

*... it is standard practice for manufacturers to **out-source as many areas as possible** of the production line and sales, focusing merely on branding, marketing and communication.*



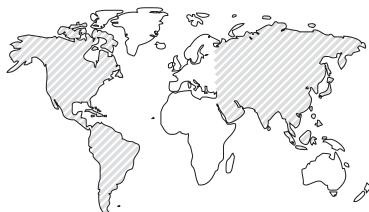
### Voting Results

The largest voting group (36%) sees this as a possibility, while a similarly large group expects this development to happen (35%), and 29% do not envisage such a scenario. Most professionals expect this development to occur in the medium term (by 2020).

### Analysis & Context

It is believed that the outsourcing trend will grow and affect even more aspects of business. Correlation with Thesis 41 (logistics providers enhance their value chain) in turn suggests that logistics companies are expected to benefit from this outsourcing trend. Furthermore, in correlation with Thesis 34 (global alliances in logistics), logistics companies need to be internationally connected and cooperate on a global level – which in turn would make them even more interesting partners as they expand their value chain by taking on areas of the production line and sales. Further interdependencies with Theses 24, 63.

### REGIONAL ASPECTS



The Americas and Asia give most votes to "probably."

*... private companies rather than states initiate and finance the development of large infrastructure projects in developing countries.*

## Voting Results

The largest voting group (43%) rates this development as possible, followed by 29% who do not envisage it manifesting, and 28% who evaluate it as likely. Those who rate it at least as possible expect it to happen by 2020.

## Analysis & Context

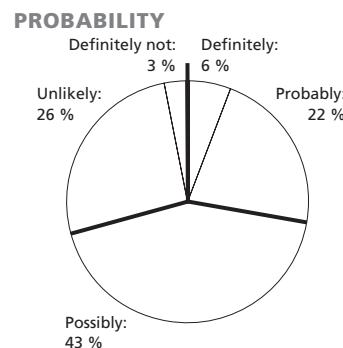
Opinions are divided on the future initiation and financing of infrastructure projects. Thus, an area that is traditionally regarded as the state's responsibility is seen as potentially becoming the responsibility of private companies. Taking development aid into account, this may open up new – possibly even profitable – options for companies.

Correlation with Thesis 15 (investment in infrastructure) indicates that professionals generally believe that investments in infrastructure will be made (which again may suggest business potential).

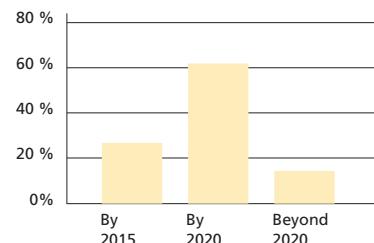
Correlation with Thesis 37 (infrastructure does not fail to keep up with the demands of modern society) further emphasizes this need for investment.

Correlation with Thesis 65 (growth of world population causes a shortage of resources): This may, however, also indicate that at least in some developing areas the panel associates responsibility concerning wealth and economic growth with companies rather than states.

Correlation with Thesis 17 (no new modes of transport) suggests that known methods of transport will be applied in the future expansion of infrastructure. Further interdependencies with Theses 19, 44.



## TIME SCALE



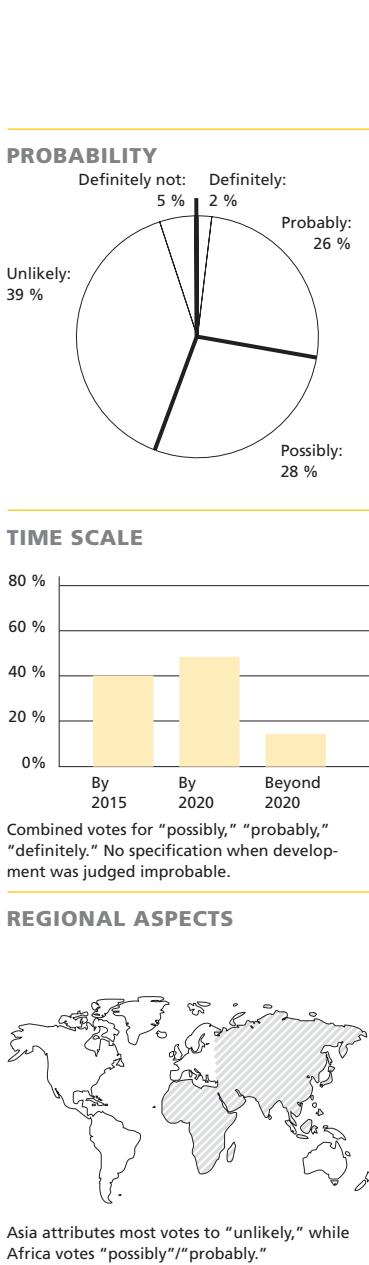
Combined votes for "possibly," "probably," "definitely." No specification when development was judged improbable.

## REGIONAL ASPECTS



The Americas attribute most votes to "probably"/"definitely," while Asia favors "unlikely"/"definitely not."

*... the expansion of the infrastructure (e.g. roads, rail networks, energy infrastructure) fails to keep up with the demands of modern societies. Serious bottlenecks occur, logistics companies are unable to keep their delivery promises.*



### Voting Results

The largest voting group (44%) does not expect this development. 28% expect it to manifest and another 28% see it as possible. Those participants who consider it at least possible expect its realization in the short or medium term (by 2015 or 2020).

### Analysis & Context

Most professionals do not expect the expansion of infrastructure to fall short of the demands made by modern society. This seems to offer promising prospects for the logistics industry – participants do not expect bottlenecks or a failure to keep delivery promises. There is also optimism about the ability to compensate bottlenecks by means of increased productivity and efficiency.

Correlation with Thesis 39 (international logistics does not reach its capacity limits) indicates that participants see logistics as offering a potential for growth.

Also, correlation with Thesis 41 (logistics providers enhance their value chain) illustrates that participants see the logistics industry's important growth potential.

Thesis 52 (businesses run on the Internet) shows that although shipments are set to increase due to Internet sales, professionals generally expect logistics companies to be able to handle the increased volumes – at least as long as they cooperate with one another and form global alliances (see Thesis 34). Further interdependencies with Theses 15, 19, 36.

*... in individual traffic, the automobile, equipped with new and more efficient engines, remains the most important means of both mobility and transport.*

## Voting Results

An overwhelming majority of the panel (86%) expects this development, while only 3% regard it as "unlikely." Participants expect this development to happen in the short term (by 2015).

## Analysis & Context

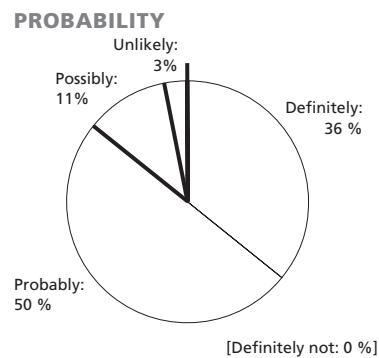
Individual mobility solutions are clearly favored: The automobile, equipped with new and more efficient engines, continues to be the most important means of mobility and transportation.

With respect to Thesis 17 it becomes apparent, though, that 61% of the participants consider car-free cities a possibility. This demonstrates that experts do not regard cars as the only means of transport, but as a useful alternative to public transport (especially in cities).

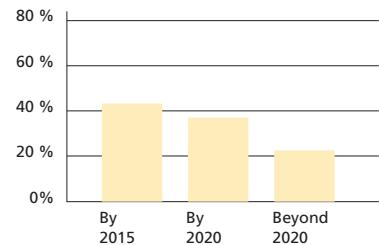
In correlation with Thesis 44, the insecurity about the future of railways shows that professionals still see the car as the preferred mode of transport.

However, the cars of the future will be more energy-efficient and equipped with new propulsion technologies (see Thesis 45).

Further interdependencies with Theses 11, 21.



## TIME SCALE



Combined votes for "possibly," "probably," "definitely." No specification when development was judged improbable.

## REGIONAL ASPECTS



High percentage of votes for "definitely" from Asia.

*... international logistics reaches its capacity limits as the costs for coordination, data collection, information flow, administration, and management increase complexity exorbitantly.*

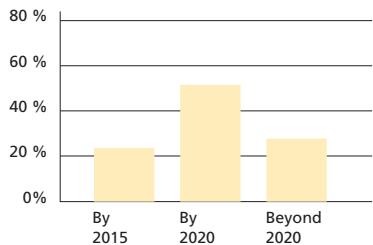
### Voting Results

The vast majority (75%) cannot envisage this development and view it as unlikely or out of the question. A mere 10% regard it as likely.

#### PROBABILITY



#### TIME SCALE



Combined votes for "possibly," "probably," "definitely." No specification when development was judged improbable.

#### REGIONAL ASPECTS



The Americas concentrate on "unlikely"/"definitely not," while Asian votes are relatively evenly distributed between all options.

### Analysis & Context

Professionals clearly see the logistics industry as overcoming a potential increase in complexity caused by growing data and coordination requirements. Correlation with Thesis 50 ("Internet of Things"), which indicates that in future radio tags will be embedded in goods. Although this may increase data complexity, the logistics industry is generally well prepared and well positioned for the future – and able to compensate growing complexity by means of more efficient logistics processes and structures. Correlation with Theses 7 and 34 (cooperation and global alliances) indicates that such cooperation offers a substantial basis for the logistics industry and its growth. Obviously, the panel sees technological development as being able to cater to this complexity.

This is furthermore emphasized by an overall belief that the www is not going to collapse due to an information overload (see Thesis 47). It shows the professionals' optimistic view that the Internet (and new technology) will be able to cope with the increased capacity needed.

Further interdependencies with Thesis 37.

*... logistics hubs are planned for ever shorter periods (e.g. merely for three months) to meet the growing demand for flexibility.*

## Voting Results

The largest voting group (41%) rejects this scenario and does not expect it to manifest. Almost as many participants, however, see it as a possibility (40%).

## Analysis & Context

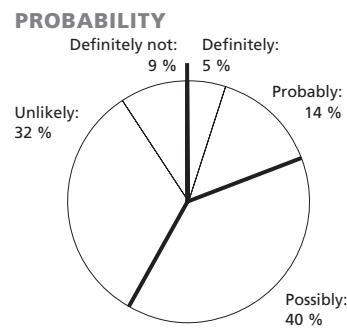
Although many professionals do not expect the planning of logistics hubs for ever shorter periods, roughly the same number see it as a possibility, while almost one-fifth regard it as likely.

This indicates that, overall, the demand for flexibility is regarded as increasing – but this increase may not necessarily result in shorter planning periods for logistics hubs.

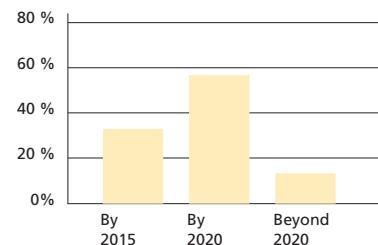
Correlation with Thesis 34 (logistics alliances) as far as cooperation is concerned, professionals see logistics companies facing an ever-growing demand for flexibility.

In correlation, Thesis 59 (flexible working teams) illustrates that, overall, the panel expects the demand for flexibility to expand further and affect different areas of (business) life, such as HR.

Further interdependencies with Theses 41, 50, 52.

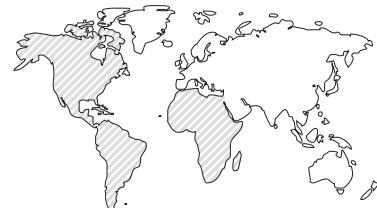


## TIME SCALE



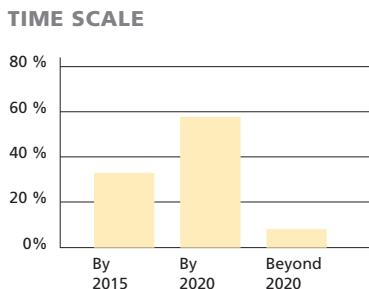
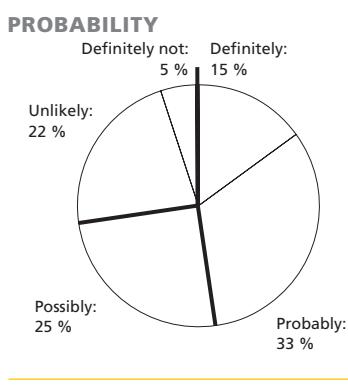
Combined votes for "possibly," "probably," "definitely." No specification when development was judged improbable.

## REGIONAL ASPECTS



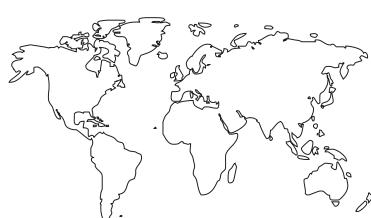
Most votes from the Americas for "unlikely," while Africa votes "probably"/"possibly."

*... logistics companies are no longer mere “carriers.” Instead, they expand their value chain, invest heavily in R&D, and take on industrial production, maintenance, and other tasks.*



Combined votes for “possibly,” “probably,” “definitely.” No specification when development was judged improbable.

#### REGIONAL ASPECTS



No significant regional variation.

#### Voting Results

The largest group of professionals agrees with this scenario (48%), and a further 25% see it as a possibility. Participants expect this development to manifest in the medium term (by 2020).

#### Analysis & Context

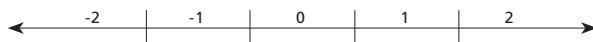
Logistics companies will become involved in new business areas and are expected to take on different elements of the value chain that go beyond transportation and shipment.

Correlation with Thesis 35 (companies outsource as many areas as possible from their production line) shows that the logistics industry is expected to profit from this trend – as long as it is well positioned globally (see Thesis 34) and able to offer a considerable degree of flexibility (see Thesis 40).

Furthermore, correlation with Thesis 81 (professional education offered by companies) indicates that education and R&D are crucial drivers for economic success and are therefore important fields for corporate investment – not just (but also) for the logistics industry.

Moreover, the panel’s general view is that logistics companies will invest heavily in R&D. Thus, the logistics industry is seen as a vanguard for innovation and a substantial driver of economic growth. Further interdependencies with Theses 37, 63.

[Scenario I]: ... protectionist obstacles are a thing of the past, as **global free trade** makes the unrestricted circulation of goods a global reality.



[Scenario II]: ... **protectionist endeavors** flourish and consequently close off a lot of borders to trade.

### Voting Results

The largest voting group (40%) is in favor of scenario I and expects its realization by 2020. 34% deem scenario II more realistic, while 26% are undecided between the two options.

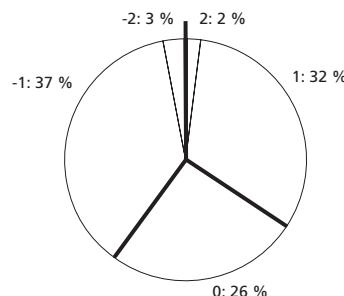
### Analysis & Context

Most professionals see scenario I as more probable, envisaging global trade without the restrictions of borders or customs.

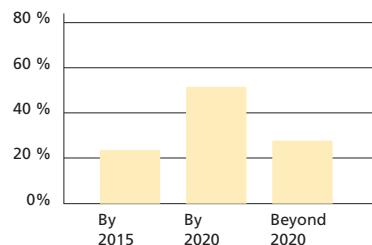
Correlation with Thesis 14 (global products still desired by customers) illustrates the overall belief that customers want to continue reaping the benefits and enjoying the conveniences of globalization – and that this will drive free trade.

This also correlates with Thesis 32 (influence of antiglobalization groups remains minor), which further emphasizes that the benefits of globalization outweigh its challenges (see Thesis 20, stressing that customers' decisions are based on convenience). Further interdependencies with Theses 30, 31.

### PROBABILITY



### TIME SCALE



Combined votes for the preferred scenario.

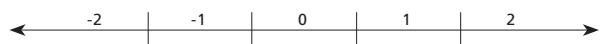
### REGIONAL ASPECTS



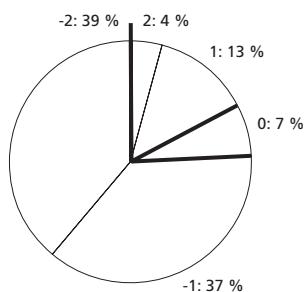
Most Asian and African votes support scenario I.

[Scenario I]: ...  
**the Chinese economy continues to grow and ranks among the world's top three economies.**

[Scenario II]: ...  
**due to demographic change (e.g. one-child policy), rising costs, and ecological problems, China witnesses a downturn of its economy.**



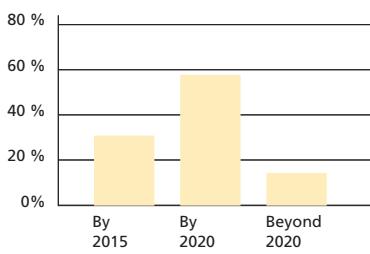
#### PROBABILITY



#### Voting Results

The overwhelming majority (76%) agree with scenario I and expect it to manifest by 2020. Scenario II has 17% support, while 7% of participants are undecided.

#### TIME SCALE



Combined votes for the preferred scenario.

#### REGIONAL ASPECTS



Most Asian and African votes support scenario I.

#### Analysis & Context

This result reveals a very optimistic view regarding the Chinese economy's development. Participants see China as a strong global player.

Correlation with Thesis 72 (technological intelligence in China/Singapore) stresses that participants see China as particularly well positioned for future economic growth.

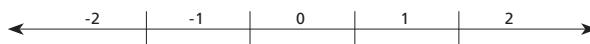
This is partly due to China's investment in education and especially its investment in technological and engineering expertise.

Correlation with Thesis 25 (inner-Asian trade) underlines the panel's optimism regarding China's development and portrays China as an important exporting region – especially (and increasingly) for the Asian market.

Further interdependencies with Theses 23, 26, 27, 30.

[Scenario I]: ... the widespread development of **new high-speed trains** along with limited air-transport capacity, heightened security, congestion of roads, and environmental issues make rail the most sought-after means of transport.

[Scenario II]: ... due to its lengthy planning and building periods as well as the non-uniformity of international rail systems, **the rail infrastructure reaches its limits** and cannot serve as a viable transport alternative.



### Voting Results

There is a tie between scenario I and scenario II, with 37% agreement for each. However, supporters of scenario II believe more strongly in this development (8% +2 vs. 3% -2). 26% are undecided on this matter. Nevertheless, supporters of both scenarios believe they will become reality by 2020.

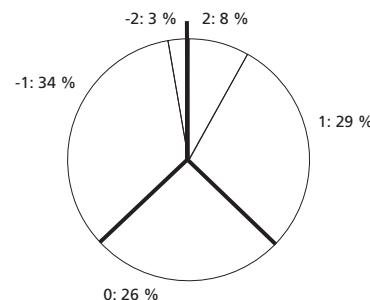
### Analysis & Context

This question needs to be high on the strategic planning agenda within companies, especially in the logistics industry. Interestingly, supporters of both scenarios expect this issue will be resolved by 2020. In turn, this means that the course that decides on the success or failure of the railway system's future will be set in the very near future.

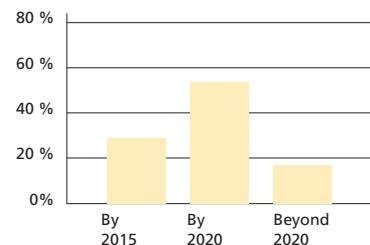
Correlation with Thesis 34 indicates that the logistics industry will play a major role in solving this dilemma by forming global alliances, which, in turn, result in the development of new rail networks. Overall, the logistics industry is expected to play a key role in developing a substantial railway infrastructure (see also Thesis 36).

Further interdependencies with Theses 1, 38, 65.

#### PROBABILITY



#### TIME SCALE



Combined votes for scenario II.

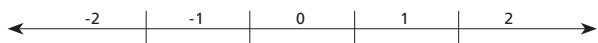
#### REGIONAL ASPECTS



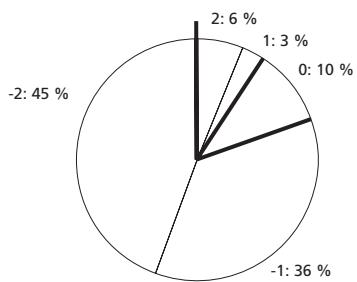
No significant regional variation.

[Scenario I]: ...  
***new propulsion technologies (fuel cell, hydrogen, etc.) are available.***

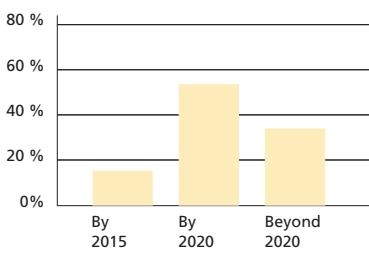
[Scenario II]: ...  
***new propulsion technologies lose importance because the resulting efficiency gains do not compensate enough for the rising transport and energy costs.***



#### PROBABILITY



#### TIME SCALE



Combined votes for the preferred scenario.

#### REGIONAL ASPECTS



Most Asian votes for scenario I.

#### Voting Results

A clear majority (81%) consider scenario I more likely and expect its realization by 2020. A mere 9% favor scenario II, while 10% are undecided between the two scenarios.

#### Analysis & Context

The drive to develop alternative propulsion technologies is strong – and it is a profitable field for investment. Therefore, innovation in this area offers high growth potential.

Correlation with Thesis 17 (no new modes of transport) shows, however, that participants expect the existing and known modes of transport to continue to prevail, while merely their propulsion technologies are exchanged or supplemented.

In correlation, Thesis 2 (renewable energy) shows that the scarcity (and thus also cost: see Thesis 1) of fossil fuels will be countered by new drives for efficiency (such as fuel cells etc.) rather than by renewable energies. This also correlates with Thesis 19 (innovative technology as the most important driver to combat climate change), which further reflects the panel's general belief in technology offering efficiency gains. In turn, these will help to overcome the challenges posed by both climate change and the rising price of fossil fuels.

Further interdependencies with Theses 28, 38, 58, 60, 62, 65.

*... the Internet connects 100% of the world's population, based on a new infrastructure (e.g. glass fiber, satellite, mobile devices).*

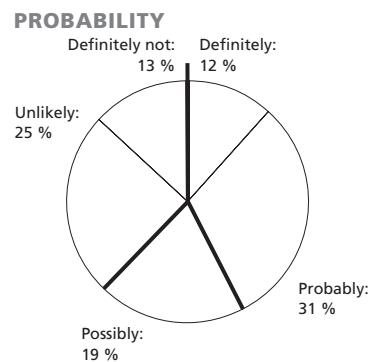
## Voting Results

43% of the professionals expect that this development will take place. A further 19% regard it as possible. Predominantly, these voting groups expect this development to manifest in the medium to long term, by 2020 or beyond. 38% of the participants, however, do not expect this development to occur.

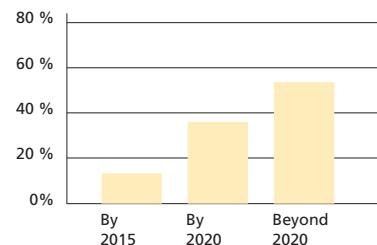
## Analysis & Context

The panel is largely undecided about the range of the Internet in future. If the Internet infrastructure covered almost the whole world, it might enable the populations of developing countries to participate in the global economy to a greater extent (correlation with Thesis 53). Also, niche products from economic peripheries could find markets via Web-based trade, giving new impetus to the variety (and price) of globally available products. Furthermore, a wide-ranging Internet infrastructure is expected to boost the flourishing of the www's marketing power (Thesis 52) and new forms of personalized marketing (Thesis 63). The divided opinion of professionals may indicate that while they generally attribute increasing importance to the Internet, their optimism is very much confined to industrialized countries and emerging economies.

Further interdependencies with Thesis 33.



## TIME SCALE



Combined votes for "possibly," "probably," "definitely." No specification when development was judged improbable.

## REGIONAL ASPECTS

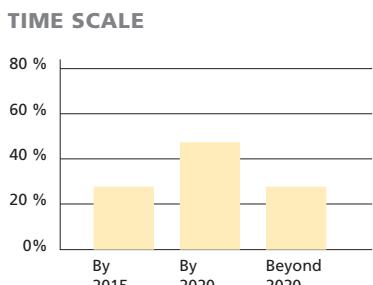
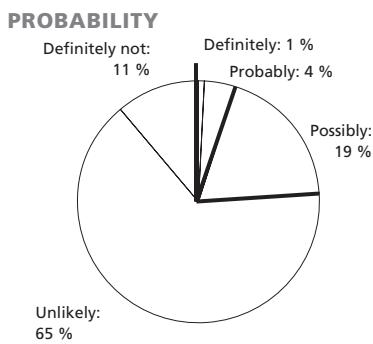


No significant regional variation.

*... the World Wide Web collapses under a global information overload caused by rapidly growing media applications, advertisements, and spam.*

### Voting Results

The vast majority (76%) consider this development to be improbable. One-tenth of professionals (11%) are convinced that it will definitely not happen and no more than 5% consider it likely.



Combined votes for "possibly," "probably," "definitely." No specification when development was judged improbable.

### REGIONAL ASPECTS



Asia and the Americas express even stronger disagreement with the scenario, voting higher on "definitely not."

### Analysis & Context

The participants are very confident that the World Wide Web will cope with growing applications. Neither the expected omnipresent usage of Internet applications (Thesis 54) nor the belief that the Internet will remain a largely uncontrollable medium (Thesis 64) endanger its technological stability. This optimistic outlook is particularly relevant for the logistics industry, as a robust www is a prerequisite for its modern services. Innovative logistics solutions also offer new standards of transparency. Furthermore, the Web enables future applications such as RFID and the "Internet of Things" (see Thesis 50), and the global provision of data, and program storage (see Thesis 49). Further interdependencies with Theses 39, 48.

*... all across the world, communication costs decrease extremely – information and telecommunications are available to everyone at any time and almost for free.*

## Voting Results

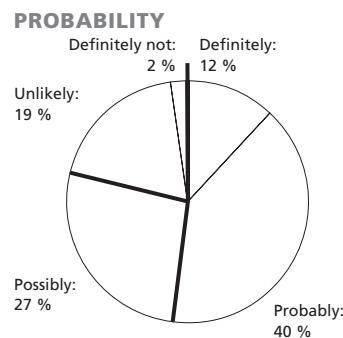
The majority (52%) consider this development to be probable or certain, while 27% view it as a possibility. Professionals expect it to take place in the medium term (by 2020).

## Analysis & Context

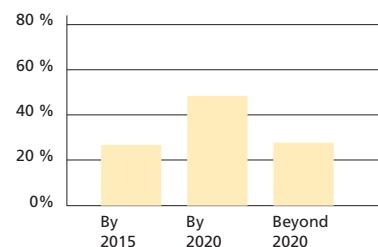
The voting results reveal a largely optimistic outlook on the future of IT, and correlate with the trust placed in the technological stability of the www (Thesis 47). Low communication costs will enable a knowledge and information society to develop further. This is an important prerequisite for the “Westernization” of consumption patterns among wealthy young elites in developing countries (Thesis 67), and for Asian countries to leap ahead and pave the way in developing technological intelligence (see Thesis 72).

Regarding the logistics sector, decreasing communication costs are particularly important to enable the profit-driven and profitable usage of applications within the “Internet of Things” (Thesis 50).

Further interdependencies with Theses 33, 53, 56.

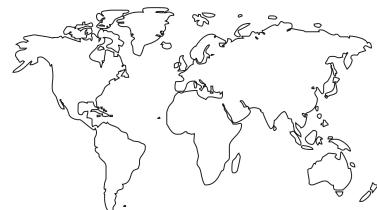


## TIME SCALE



Combined votes for “possibly,” “probably,” “definitely.” No specification when development was judged improbable.

## REGIONAL ASPECTS

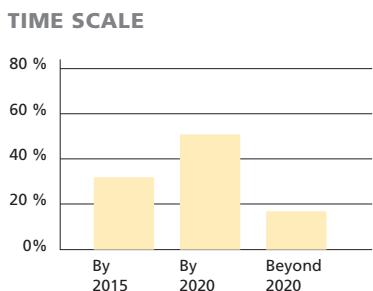
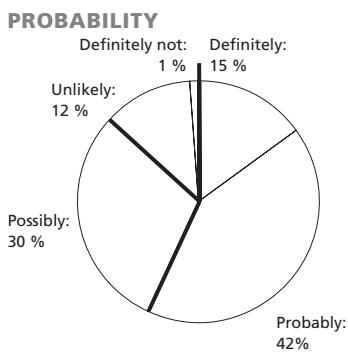


No significant regional variation.

*... data and program storage are provided not locally but on huge Internet servers, allowing for ever smaller and lighter devices.*

### Voting Results

The majority consider this development to be probable or definite (57%), while 30% regard it as possible. Its realization is expected in the medium term (by 2020).



Combined votes for "possibly," "probably," "definitely." No specification when development was judged improbable.

### REGIONAL ASPECTS



No significant regional variation.

### Analysis & Context

A Web-based information infrastructure with nonlocal data and program storage is regarded as the visionary IT infrastructure of the future. This is relevant to the logistics industry, as such an Internet infrastructure directly affects customers' demand for information (via tracking) in logistics. Information can be permanently retrieved, and the provision of information is an integral part of a convenience culture (see also Thesis 20 on the importance of convenience). Moreover, such a Web-based infrastructure offers entirely new opportunities for marketing. Nonlocal storage is also a significant technological basis for the closer cooperation envisaged between competitors (see Theses 7 and 34) and between clients and service providers (see Thesis 51).

However, increased security risks such as hacking and identity theft may represent a potential drawback to such a development. The threat to intellectual property may also impede the widespread introduction of a Web-based information infrastructure (see Thesis 33).

Further interdependencies with Theses 47, 56, 58, 60.

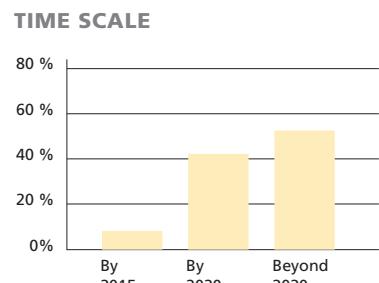
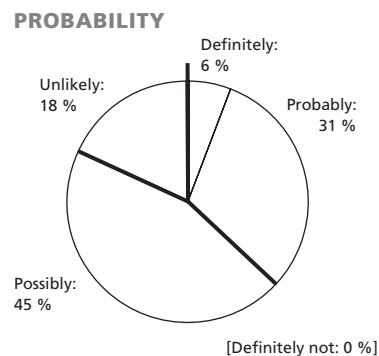
*... in the “Internet of Things” radio tags are embedded in all products and items, enabling them to communicate and navigate on their own, making each item traceable and connected to others.*

## Voting Results

37% of the panel regards the development as probable or definite. The largest voting group (45%) considers it a possibility. These voting groups generally believe that this development will come about in the long term (beyond 2020). 18% regard the development as “unlikely.” None, however, believe that it would “definitely not” come.

## Analysis & Context

The majority of professionals regard the wide-spread usage of “Internet of Things” applications as a possible or probable development. Some participants would probably need more information about such applications in order to make a more decisive judgment. Others might be skeptical about the usefulness and, in particular, the profitability of radio tags. However, it is considered realistic that “Internet of Things” applications will find wide-spread usage. These applications might also allow logistics providers to better meet growing demands for flexibility (see Thesis 40), and also offer whole new dimensions of transparency and security in logistics. Further interdependencies with Theses 39, 47, 48, 52, 56, 58, 60.



Combined votes for “possibly,” “probably,” “definitely.” No specification when development was judged improbable.

## REGIONAL ASPECTS

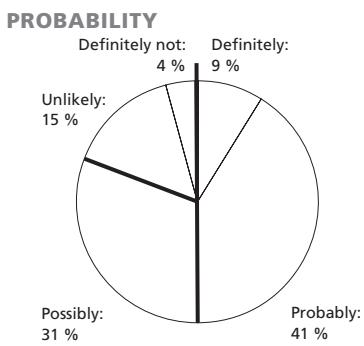


No significant regional variation.

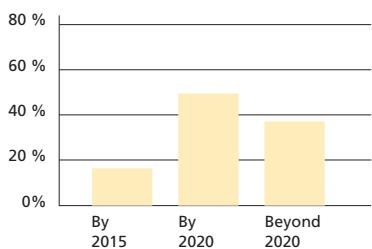
*... most business transactions are totally automated due to the connection of business databases. Clients and service providers cooperate closely on the basis of aligned integrated IT systems.*

### Voting Results

Half of those questioned (50%) consider the development as probable or definite and expect it to be realized in the medium term (by 2020).



### TIME SCALE



Combined votes for "possibly," "probably," "definitely." No specification when development was judged improbable.

### REGIONAL ASPECTS



No significant regional variation.

### Analysis & Context

The acceptance rate of 50% reflects the optimism regarding efficiency gains by connected business databases and a closer cooperation between clients and service providers. These can be predominantly realized through cooperation, which professionals generally expect will increasingly shape interaction between competitors (see Theses 7 and 34), and, more particularly, through IT-based cooperation such as business databases.

However, newly arising security risks may develop into stumbling blocks while the automated connection of databases may well further endanger intellectual property (see Thesis 33).

Further interdependencies with Theses 49, 54, 56, 58, 60.

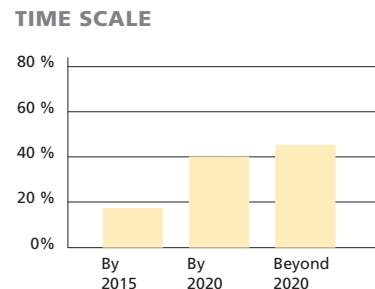
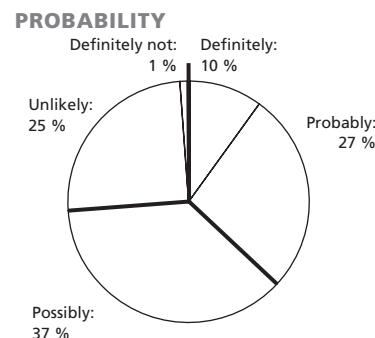
*... more than 3 billion people in the world run their businesses completely and more effectively than ever via the Internet, making use of the World Wide Web's marketing power; 50% of B2C transactions are carried out online.*

## Voting Results

27% of the participants rate this development as "probably," 10% even as "definitely." Most of the 37% of participants who regard the development as possible expect it to happen after 2020.

## Analysis & Context

Three-fourths of the participants regard it at least as possible that businesses will be completely run via the Internet and that the www will become an increasingly more important market space. Such a development would have far-reaching consequences for logistics providers, as they would have to ensure that Web-traded goods are delivered to the consumers. As the www's real-time experience might also alter consumers' mind-sets, consumers will most likely expect that logistics providers offer their services in an Internet-specific manner: quickly, conveniently, and transparently. As "Internet of Things" applications offer just these transparent logistics processes, professionals envisage them to gain significance (Thesis 50). The increased demand for flexibility is further underlined by professionals expecting the development of new strategies to meet the growing flexibility in international logistics (see Thesis 40). Further interdependencies with Theses 14, 37, 46, 53, 55, 56, 58, 60.



Combined votes for "possibly," "probably," "definitely." No specification when development was judged improbable.

## REGIONAL ASPECTS



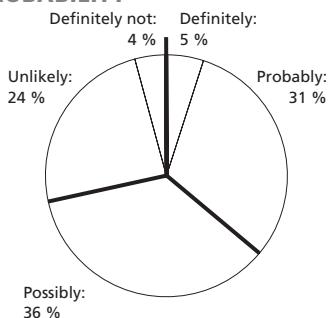
No significant regional variation.

*... rapidly expanding mobile infrastructures and free access to information let emerging economies catch up with Western societies.*

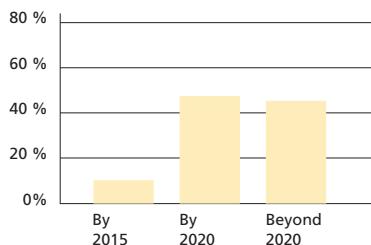
### Voting Results

36% of the participants regard this development as probable or certain to happen, while 36% regard it as possible. Mainly, these voting groups expect it to come about by 2020 or later. However, 28% do not expect this development to happen.

#### PROBABILITY



#### TIME SCALE



Combined votes for "possibly," "probably," "definitely." No specification when development was judged improbable.

#### REGIONAL ASPECTS



All African participants rate this development as "probably" or "definitely."

### Analysis & Context

More than one-third of the panel expects that a better Internet infrastructure may also lead to a more egalitarian distribution of knowledge, information, and wealth. Thus, not only industrialized and emerging economies will profit from the IT and communications revolution, but also developing countries. However, it might be predominantly the upper classes that will profit, grow, and subsequently adopt Western consumer behavior (see Thesis 67). Furthermore, the results correlate with the envisaged growth and spread of the Internet (Thesis 46) and its expected market influence (see Thesis 52). The availability of information, in particular, and its relatively low costs (see Thesis 48), will drive this change.

*... people are “always on” the Internet, surrounded by easy-to-use appliances and virtual “smart agents” automatically assisting the users in their daily activities, filtering information and serving as personal coaches.*

## Voting Results

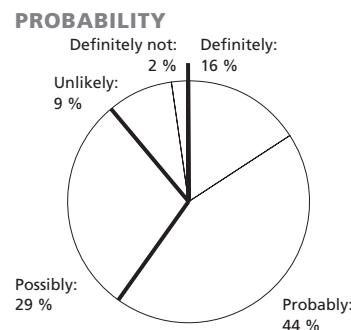
The clear majority (60%) consider this to be a probable or definite development and expect it within the medium term (by 2020), while a further 29% see it as a possibility. A mere 11% cannot envisage this development.

## Analysis & Context

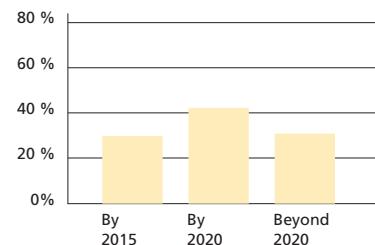
It is the dominant view that individuals will be “always on” the Internet. This has consequences for addressing consumers by means of marketing via IP as well as for consumers’ demand for convenience. Consumers will expect transparent tracking systems and fast delivery from logistics providers.

The fact that individuals will constantly experience real-time applications while using the Internet will also alter their mind-sets in terms of their service demands. People’s constant access to the Internet will also boost long-tail purchases which have a particularly high affinity to Internet shopping. This will alter our current concepts of (short-term) market success and profitability of products. Easy-to-use appliances will also offer new possibilities for developing products and services, particularly through the expected cooperation between consumers and service providers (Thesis 51).

Further interdependencies with Theses 32, 33, 47, 55, 56, 57, 58, 60, 62, 74.



## TIME SCALE



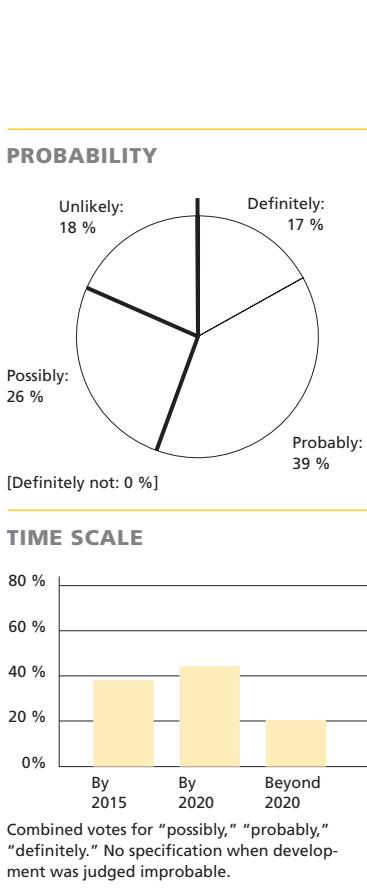
Combined votes for “possibly,” “probably,” “definitely.” No specification when development was judged improbable.

## REGIONAL ASPECTS



The “definitely not” voting group consists entirely of Asian participants.

*... people are “always together.” Web-based networks support friendships and “network families,” and matchmaking agents automatically connect people with similar interest and profiles – no matter where they are.*



### Voting Results

The majority (56%) support this view. In addition, around one-fourth (26%) regard it as possible. Most expect this to happen by 2015 or 2020.

### Analysis & Context

Four-fifths of the participants believe that future friendships and relationships will be largely Web-based. This voting result further illustrates professionals’ strong belief in a technological-social future, where individuals are “always together” and “always on” (Thesis 54), and use the Internet to effectively run their businesses (see Thesis 52).

This has consequences for HR developments, the importance of peer-to-peer advice and market research. The importance of Web-based “network families” also has a correlation with the blurring of more traditional values (see Thesis 75).

Further interdependencies with Theses 32, 56, 57, 58, 60, 62.

*... Web-connected interfaces make **private homes intelligent environments**, where temperature, aroma, personalized broadcasts, and information are automatically adjusted to the preferences of the inhabitants, at all times.*

## Voting Results

The majority (54%) believe that this development is probable or definite, a further 36% regard it as possible. Most expect it in the medium term (by 2020).

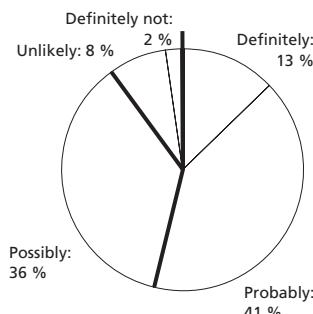
## Analysis & Context

Nine out of ten of professionals believe that private homes will be altered through Web-controlled automatic adjustments. This will influence individuals in their most private realm and further illustrates how important Web-based applications will become in private as well as public life (as further exemplified by Theses 48, 49, 50, 51, 52, 54, 55).

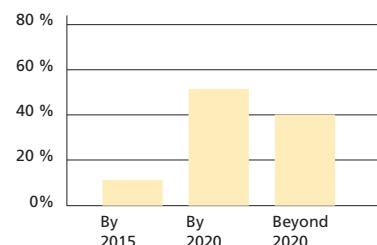
Consequently, logistic products and services will become part of individual and collective networks (see Thesis 55) with the private home as its center. This trend leads to rising consumer demands regarding convenience and transparency. This development offers new chances for individualized logistics services and demands higher flexibility.

Further interdependencies with Theses 57, 58, 60, 62.

### PROBABILITY

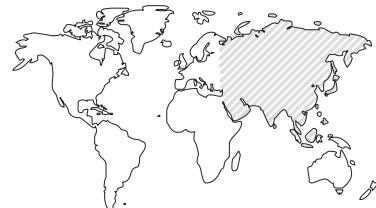


### TIME SCALE



Combined votes for "possibly," "probably," "definitely." No specification when development was judged improbable.

### REGIONAL ASPECTS

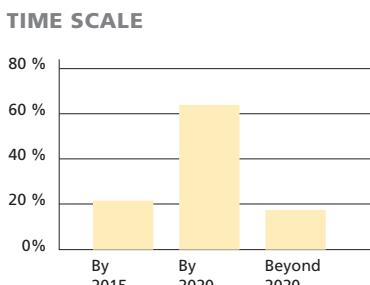
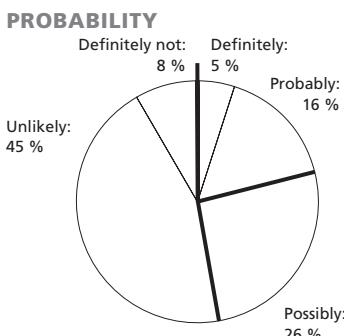


Asia expects this scenario even more, voting significantly higher on "definitely."

*... purchasing decisions are based on peer-to-peer advice (e.g. via the Internet); classical advertising is dead.*

### Voting Results

The majority of professionals (53%) do not expect this to happen, although 26% see it as possible. About one-fifth (21%) regard it as probable or definite.



Combined votes for "possibly," "probably," "definitely." No specification when development was judged improbable.

### REGIONAL ASPECTS



Asia votes differently: being less skeptical about the development and voting higher on "possibly" or "probably."

### Analysis & Context

According to the majority of the panel, classical advertising will not completely lose significance as a consequence of the expected increased importance of peer-to-peer advice. While people will probably live in a techno-social future, where they will be "always on" (Thesis 54), "always together" (Thesis 55), and will use automatic Web-controlled applications in their private homes (Thesis 56), it is nevertheless expected that classical forms of advertising will maintain a certain importance.

If companies wish to reach the widest possible audience, they will have to follow at least a two-way communication strategy. They will be challenged to mix peer-to-peer-focused forms of communication and advertising with classical forms.

*... language barriers no longer impede communication between people as real-time translation software is embedded in all communication devices.*

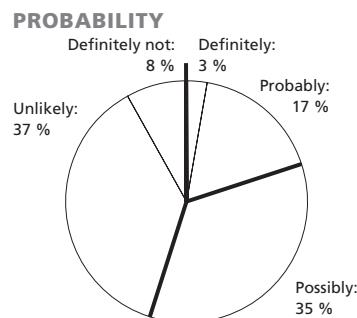
## Voting Results

While 45% believe the development is unlikely to happen, only 20% regard it as probable or definite. 35% of the panel regards it as possible. Those who envisage this development don't expect it to happen until after 2020.

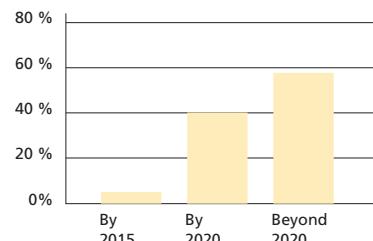
## Analysis & Context

Almost half of professionals are skeptical about the realization of developments as visionary and far-reaching as communication devices with embedded real-time translation software. This result correlates with the even stronger skepticism towards "personal fabricators" (Thesis 60).

Hence, while participants expect significant technological advances (Theses 19, 45) and a rising importance of the Internet (Theses 49, 50, 51, 52, 54, 55, 56), they do not expect technological revolutions that might turn the current economic and technological system upside down.



## TIME SCALE



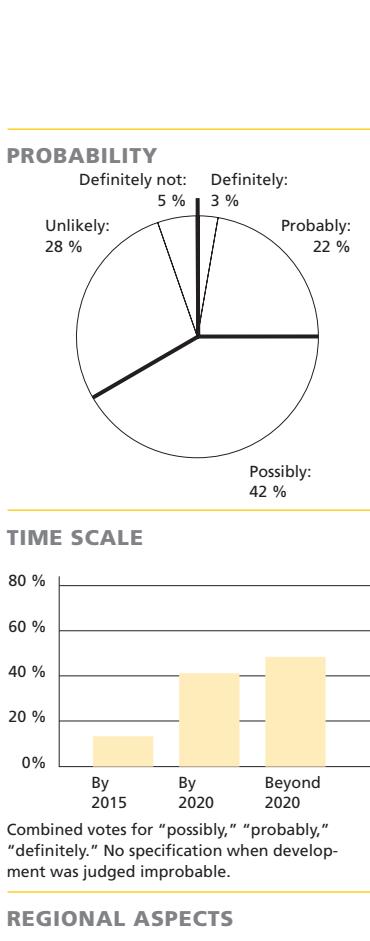
Combined votes for "possibly," "probably," "definitely." No specification when development was judged improbable.

## REGIONAL ASPECTS



Africa votes differently, as all African participants vote either "probably" or "definitely."

*... virtual companies assemble highly educated professionals on a freelance basis in flexible teams and on demand. Thus, **traditional company structures**, based on rigid work spaces and fixed working hours, are obsolete.*



### Voting Results

One-fourth of the panel expects that the described scenario will become reality, with a further 42% regarding it as possible. Predominantly, these voting groups expect it to happen in the long term (beyond 2020). One-third of the participants do not expect its realization.

### Analysis & Context

Participants are skeptical about short- and medium-term developments of virtual companies. But in the long term, they regard it at least as possible that working life and working environments will be profoundly altered and traditional company structures modified. Such a development will have far-reaching consequences for companies' HR efforts to attract employees with high potential.

An effective usage of virtual company structures and flexible teams is also a prerequisite to effectively realizing efficiency gains. Further, flexibility in staffing might be a central strategy to counter possible shortages in the labor market resulting from demographic change.

Further interdependencies with Thesis 40.



Asian participants are less skeptical and regard the development as comparatively more likely.

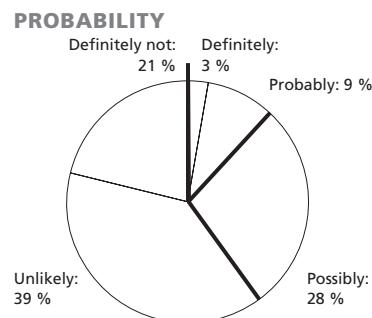
... “**personal fabricators**” that produce all kinds of plastic and metal items are installed in stores and households; users can download the specification for plastic toys, for example, online and have them produced and personalized instantly.

## Voting Results

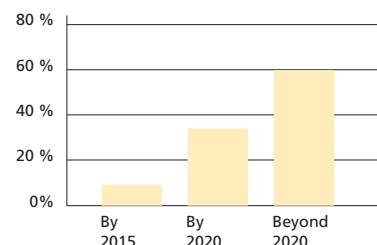
A mere 12% regard this scenario as probable or definite; 28% see it as a possibility. Most participants (60%), however, believe that it is unlikely to be realized.

## Analysis & Context

The vast majority are skeptical that a technology as visionary as a “personal fabricator” will be available by or beyond 2020. This result correlates with the skepticism towards real-time translation software embedded in all communication devices (Thesis 58). Although participants expect significant technological advances (Theses 19, 45) and a rising importance of the Internet (Theses 49, 50, 51, 52, 54, 55, 56), they do not expect technological advances that possess revolutionary potential and will overturn our current systems of production and transport.

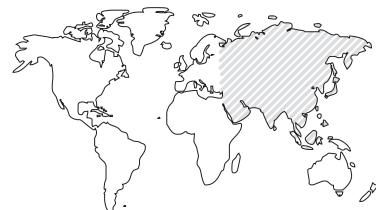


## TIME SCALE



Combined votes for “possibly,” “probably,” “definitely.” No specification when development was judged improbable.

## REGIONAL ASPECTS



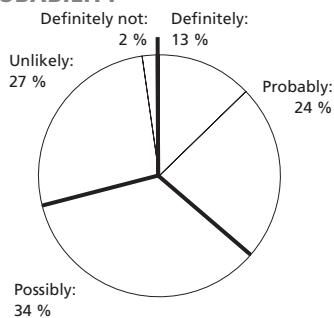
Proportionally more Asian participants regard this development as likely.

*... customers insist on a **human point of contact** and reject being addressed by computer voices, robots, or machines.*

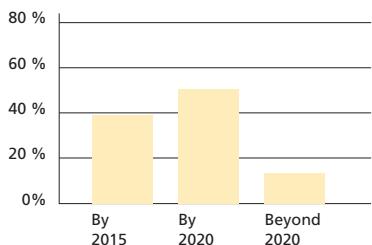
### Voting Results

37% of the participants agree with the described scenario and 34% regard it as a possibility. These voting groups expect this to occur by 2020. However, 29% disagree with the scenario.

#### PROBABILITY



#### TIME SCALE



Combined votes for "possibly," "probably," "definitely." No specification when development was judged improbable.

#### REGIONAL ASPECTS



Asia votes differently and disagrees more strongly with the scenario, voting significantly higher for "unlikely" and "definitely not."

### Analysis & Context

The voting result reflects the uncertainty about customers' mind-sets, i.e. whether or not they will insist on a human point of contact. Hence, professionals are divided about the mentality of customers. However, more than two-thirds believe that it is possible or likely that marketing via IP and automation will reach its limits as consumers will not accept the replacement of humans by robots or automated processes.

This result has far-reaching consequences for corporations' sales and marketing efforts and the future of the industry network. It further illustrates that customers may not be ready to accept new technological developments when these may be perceived as impairing convenience. In other words, logistics industries can only realize efficiency gains up to a certain limit: namely, they are restricted by the convenience demands of their customers.

Further interdependencies with Thesis 13.

*... all technical devices are extremely user-friendly, instruction manuals are superfluous. The increased convenience and instant comprehensibility considerably narrow the “digital divide” between young and old as well as between the qualified and the unqualified.*

## Voting Results

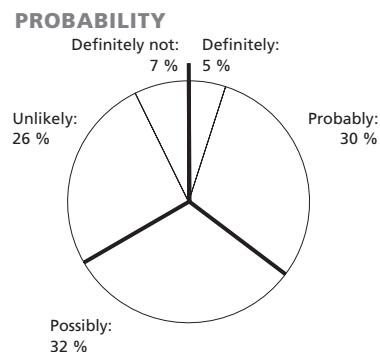
35% believe that the described scenario is likely; 32% regard it as possible. The majority of both voting groups expect its realization in the medium term (by 2020). However, 33% regard the scenario as unlikely.

## Analysis & Context

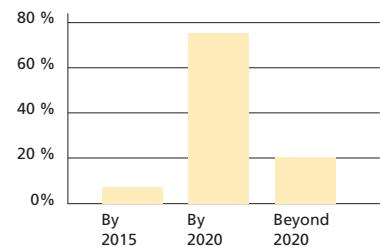
The participants are largely undecided about the user-friendliness of technical devices and the role this will play in narrowing the “digital divide” between age and social groups. While the participants are optimistic about technological developments (Theses 19, 45, 54, 55, 56), they are skeptical about the egalitarian power of technologies. In short: Technology evolves but does not give rise to far-reaching social changes.

This also correlates with Thesis 78, which indicates that professionals expect continuing social polarization and inequality – a situation they do not see as being counteracted by innovations in the field of information technology or increasing ease of use of technology.

Further interdependencies with Thesis 71.

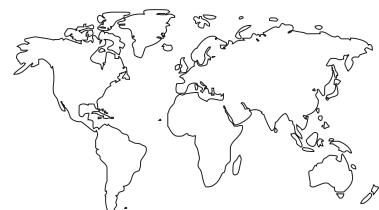


## TIME SCALE



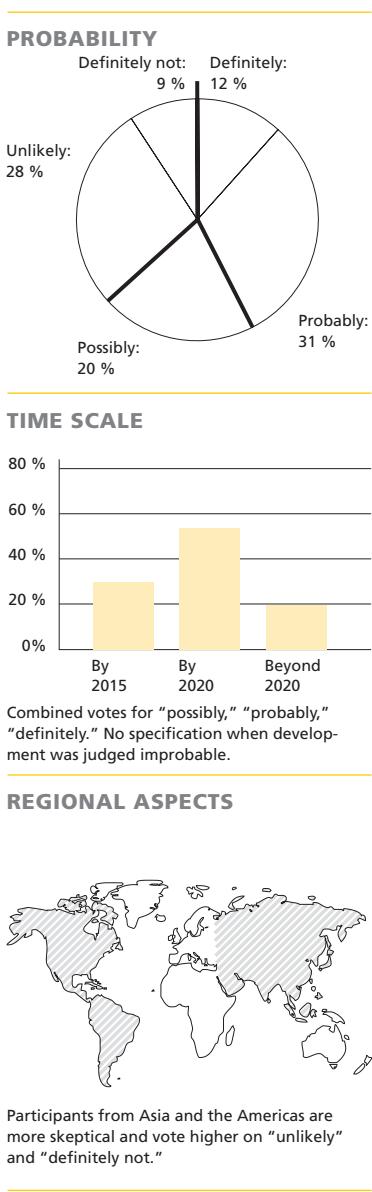
Combined votes for “possibly,” “probably,” “definitely.” No specification when development was judged improbable.

## REGIONAL ASPECTS



No significant regional variation.

*... marketing is taken onto a whole new level of personalization as people all over the world willingly share their private data – the “transparent” customer is standard.*



### Voting Results

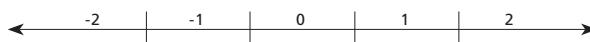
43% of professionals regard this scenario as likely; a further 20% believe that it is possible. These voting groups largely expect it to occur in the medium term (by 2020). 37%, however, regard the development as unlikely or out of the question.

### Analysis & Context

The largest panel group expects that customers will be willing to share their private data and that this attitude will lead to ever more individualized forms of marketing. The professionals regard it as unlikely that regulatory bodies, e.g. nation states or supranational institutions, will be willing or even able to protect private data effectively. This view correlates with the expectation that the Internet will remain a self-regulatory, largely uncontrollable medium (Thesis 64) rather than being strictly controlled. If a larger amount of data and more detailed information is available, companies will also be able to cooperate more closely with customers to develop new products. In turn, consumers may demand that companies also operate more transparently: If they share their data, they might expect the same from companies. In particular, large logistics providers with a huge number of customers will possess considerable bodies of data and may thus face major changes in their current positioning, as this may allow them to enter into new parts of the value chain and take on such elements as data trading and market research (see also Theses 35 and 41). Further interdependencies with Thesis 46.

[Scenario I]: ...  
**the Internet is strictly regulated and controlled by state authorities.**

[Scenario II]: ...  
**the Internet remains a self-regulatory, largely uncontrollable medium, based on the trust of its users.**



## Voting Results

68% of the participants favor scenario II and 23% even strongly support it (+2). These voting groups expect it to happen in the short term, as soon as 2015.

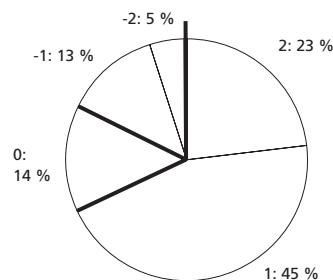
## Analysis & Context

Participants expect that the Internet will remain a self-regulatory area and may therefore continue to offer various opportunities for marketing and cooperation between corporations and consumers. Selling niche products via the Internet may thus become an even more important strategy. On the other hand, Internet trade may be blocked by higher security requirements.

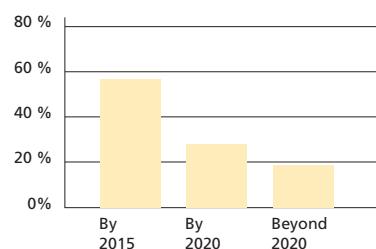
Generally, however, professionals do not expect the Internet to be seriously impaired (see Thesis 47), but rather envisage its growing importance and crucial impact.

Further interdependencies with Theses 33, 63, 70.

### PROBABILITY



### TIME SCALE

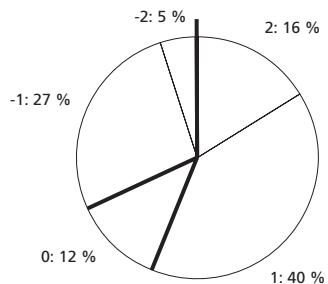
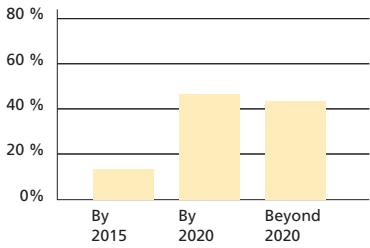


Combined votes for the preferred scenario.

### REGIONAL ASPECTS



Asia supports scenario II even more strongly with high responses for "+2."

**PROBABILITY****TIME SCALE**

Combined votes for the preferred scenario.

**REGIONAL ASPECTS**

Asian professionals vote differently and mainly expect scenario I to occur.

*[Scenario I]: ... due to growing wealth and industrial population patterns in emerging economies and developing countries, the world population ceases to grow and stabilizes at between 7 and 8 billion (compared to the 2008 world population of approx. 6.7 billion).*

*[Scenario II]: ... the global population continues to grow, causing a dramatic shortage of resources and environmental damage.*

**Voting Results**

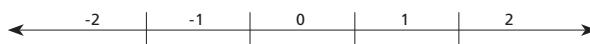
The majority (56%) favor scenario II and 16% of the professionals even believe strongly in this scenario. The opinion leaders expect the scenario to manifest in the medium to long term (by or beyond 2020).

**Analysis & Context**

Companies should be prepared for the consequences of an increasing world population. As a shortage of resources is expected; developing, emerging, and industrialized countries will all face the challenge of searching for alternative energy sources (see Thesis 2). From a strictly economic point of view, the scenario presents an optimistic outlook for industrialized countries, and especially logistics companies: A growth in the world's population will result in a rising need for logistics services. However, for the developing world, this scenario is entirely pessimistic as conflicts and problems will increase. This scenario is consistent with the socially pessimistic view that social polarization will increase (Thesis 78). The expected lack of resources will boost the search for technological innovations such as high-speed trains (see Thesis 44) or new propulsion technologies (Thesis 45). Further interdependencies with Theses 36, 68.

[Scenario I]: ...  
**the scarcity of talented young people causes aging Western societies to fall behind economically.**

[Scenario II]: ...  
*industrialized countries effectively compensate for supply problems on their domestic labor market by **immigration from developing countries**.*



### Voting Results

The clear majority (59%) of the panel favors scenario II. Of this group, most expect this development to manifest in the medium term (by 2020). 27% support scenario I.

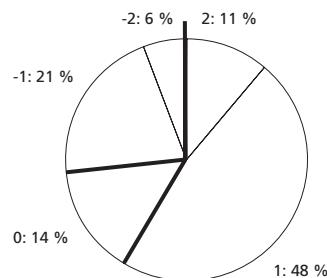
### Analysis & Context

Professionals consider globalization as a chance for industrialized countries to rectify the shortage of skilled personnel. Such a development will provide one solution to demographic change. The experts are positive that the globalization process will continue to expand and boost the economy. They also believe that it will not be obstructed by antiglobalization groups (see Thesis 32).

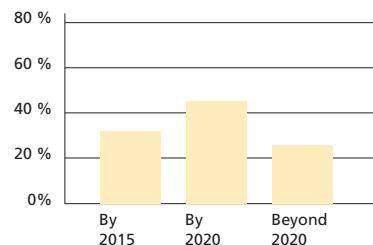
In this scenario, companies play a decisive role in the training and integration of migrants. The well-educated and "Westernized" elite in developing countries (see Thesis 67) are likely to be the primary target group for companies from industrialized countries.

Further interdependencies with Theses 72, 81.

### PROBABILITY



### TIME SCALE



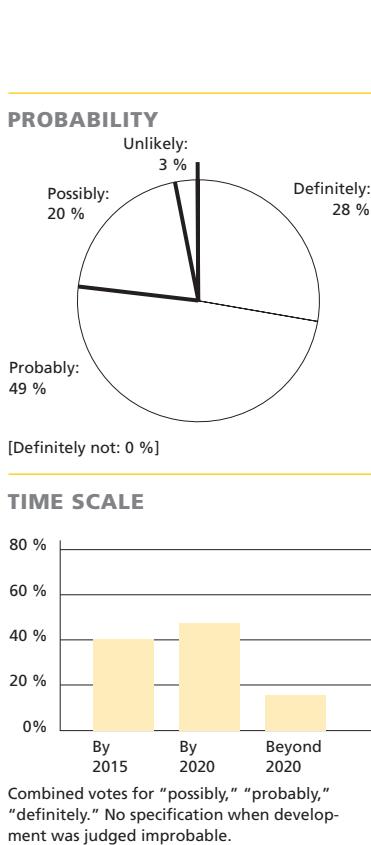
Combined votes for the preferred scenario.

### REGIONAL ASPECTS



Industry experts from the Americas and Asia favor scenario II even more strongly than European and African professionals.

*... a growing class of wealthy young elites in developing countries aligns its consumption patterns to those of Western industrialized countries and creates a high level of demand for consumer goods.*



### Voting Results

The largest voting group regards this scenario as probable (49%) and a further 28% even regard it as definite. The development is expected to manifest in the short to medium term (by 2015 or 2020). Only 3% regard it as “unlikely.”

### Analysis & Context

The very high approval rate illustrates that the topic of growing wealth and altering consumption patterns in developing countries is definitely on the professionals’ strategic agenda. Thus, developing countries will turn into important future markets for consumer goods. This development is particularly important for logistics contractors as they will be the ones to connect these up-and-coming markets with the world market. Furthermore, the above-mentioned young elite will be an important point of reference for companies’ HR departments in order to compensate for supply problems on their domestic labor markets (see Thesis 66).

Correlation with Thesis 77 indicates that although professionals see consumer behavior as being heavily influenced by Western countries, they nevertheless expect an overall return to regional customs.

Further interdependencies with Theses 48, 53, 76.



No significant regional variation.

*... in emerging economies, the social and economic gulf between urban and rural areas increases dramatically, with megacities expanding on infrastructure while rural areas hardly develop at all.*

## Voting Results

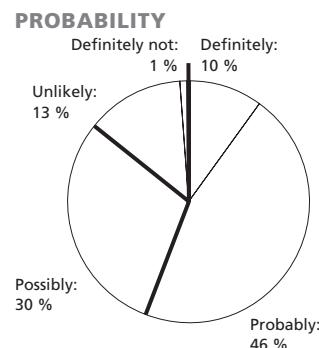
10% of the professionals definitely expect this development to occur, while a further 46% regard it as probable. 30% believe that it is possible. The supporters of this development expect it to manifest in the medium term (by 2020). 13% regard the development as “unlikely,” and a mere 1% see it as out of the question.

## Analysis & Context

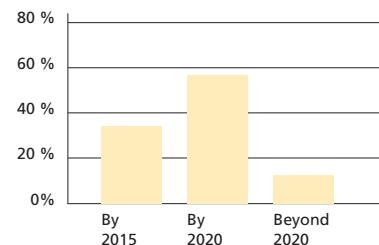
In emerging economies, only a chosen few will benefit from economic prosperity. However, future growth is expected to have polarizing rather than problem-solving consequences. This non-egalitarian prospect also ties in with the social exclusion of the over-70s (Thesis 69) and increasing social polarization (Thesis 78). Further correlation highlights that a dramatic shortage of resources and environmental damage is expected (Thesis 65).

Logistics providers, in particular, need to develop strategies to cater for such megacities without entirely losing sight of rural areas. This may well affect existing cost and profitability calculations for emerging regions.

Further interdependencies with Thesis 69.



## TIME SCALE



Combined votes for “possibly,” “probably,” “definitely.” No specification when development was judged improbable.

## REGIONAL ASPECTS

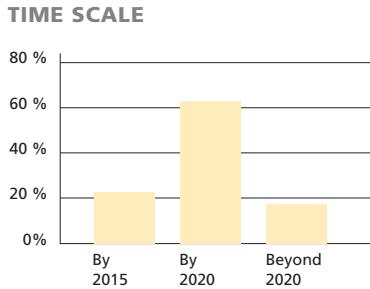
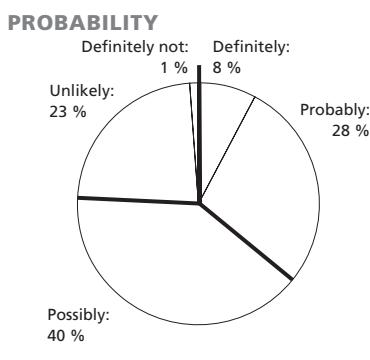


Professionals from the Americas are less convinced; they regard it as probable or unlikely.

*... generation 70+ becomes the new poor in emerging economies as they are increasingly cut off from society.*

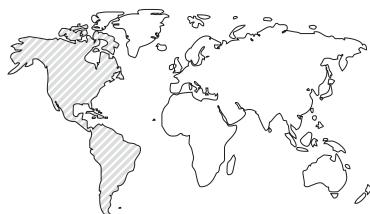
### Voting Results

The participants are divided on this question. The largest group of professionals (40%) regards this development as possible, followed by a total of 36% for “probably” and “definitely.” These voting groups expect this development to manifest in the medium term (by 2020). One-fourth (24%), however, regard this scenario as unlikely.



Combined votes for “possibly,” “probably,” “definitely.” No specification when development was judged improbable.

### REGIONAL ASPECTS



Industry experts from the Americas vote significantly more often for “unlikely.”

### Analysis & Context

Professionals see it as likely that demographic change will lead to an impoverishment of the aging population in emerging economies. This result clearly correlates with the prospect that social polarization (Thesis 78) and the gap between urban and rural areas will increase in emerging economies (Thesis 68). Furthermore, the development correlates with the skepticism about the elderly being active and technology-savvy (Thesis 71).

Thus, a peculiar scenario can be envisaged: The impoverished elderly face a small elite group of well-educated young people.

Further interdependencies with Thesis 73.

*... to avoid a “clash of cultures” and segregation, industrialized countries successfully implement a global Marshall Plan for education.*

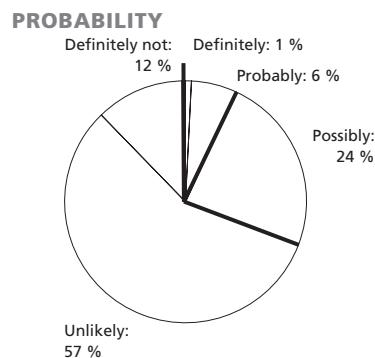
## Voting Results

The vast majority of professionals (69%) regard this scenario as unlikely. A mere 7% expect it to manifest itself.

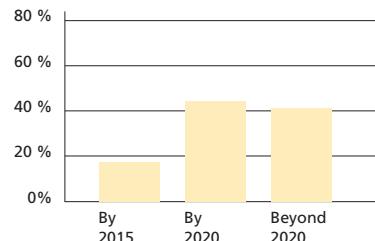
## Analysis & Context

The “clash of cultures” – and with it intercultural conflicts and segregation – will not be a thing of the past. However, supranational education programs initiated and implemented by industrialized countries will not offer a way out. This skepticism about state solutions correlates with the expectation that the state’s ability to regulate important areas such as the Internet is limited (Thesis 64).

The envisaged segregation and cultural clash will also lead to growing social polarization and, as a consequence, to social unrest and riots (Thesis 78), which are also anticipated by the panel.

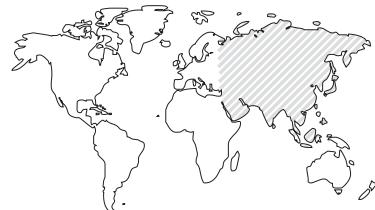


## TIME SCALE



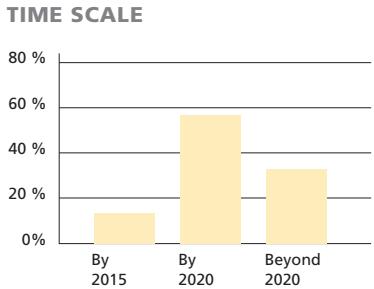
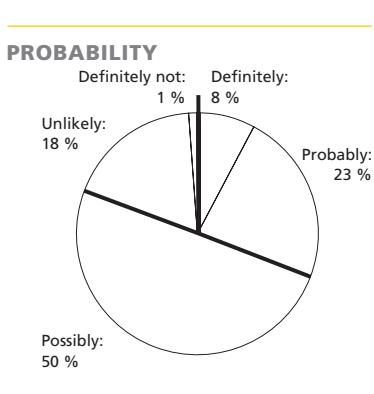
Combined votes for “possibly,” “probably,” “definitely.” No specification when development was judged improbable.

## REGIONAL ASPECTS



Asian professionals regard this development as more likely.

*... aging populations in industrialized as well as emerging economies (e.g. China) lead to substantial growth in new markets, the elderly being active, technology-savvy and mobile.*



Combined votes for "possibly," "probably," "definitely." No specification when development was judged improbable.

#### REGIONAL ASPECTS



No significant regional variation.

#### Voting Results

The largest group of professionals (50%) considers this development a possibility. 31% regard it as probable or definite. These voting groups predominantly expect the development to manifest in the medium term (by 2020). One-fifth (19%) do not regard this development as likely.

#### Analysis & Context

Opinions about the economic potential of demographic change are divided. For the majority of professionals, it is not clear exactly how aging populations will participate in social (see Thesis 69) and economic life. It is doubtful whether companies can exploit new markets based on demographic change. However, almost one-third see the elderly as an important consumer group. Companies would then need to invest in product and marketing innovations in order to attract this generation, which has purchasing power and likes to consume. The development of "healthstyle" products will be particularly important (Thesis 73).

Also, the importance of offering self-explanatory, user-friendly technical devices (see Thesis 62) for the elderly may present interesting market potential.

*... technological intelligence is at home in China and Singapore rather than in Europe or the USA; Asian countries educate far more engineers than Western countries.*

## Voting Results

39% of the professionals agree with this scenario and 10% even expect it to definitely happen. Another third (32%) regard it as possible. These voting groups expect the development to manifest in the medium to long term (by 2020 or beyond). 29% are skeptical and regard it as unlikely or reject it completely.

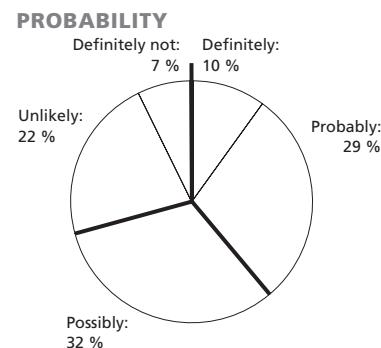
## Analysis & Context

In the long run, China and Singapore are expected to outpace Western industrialized countries in a core field of economic growth: technological intelligence. China's economy will not only grow quantitatively (Thesis 43) but also qualitatively. As a consequence, its economic growth will cease to be predominantly based on exports of bulk goods. Instead, it will center on investing in and fostering technological expertise. Clear correlation with Thesis 25 on the importance of inner-Asian trade, which sees the focus of trade shifting to Asia.

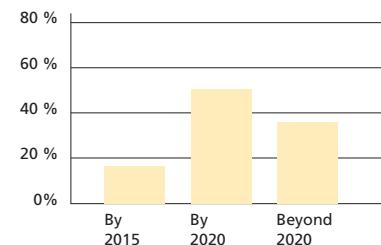
This result further correlates with the skepticism about India assuming a dominant technological role (Thesis 26). China and Singapore are Asia's center of gravity – and Asia's center of intelligence.

For Western companies, this means that Asian engineers present a significant and steady pool of appealing employees. In the worldwide "war for talent," HR professionals will increasingly focus their attention on these regions, partly to compensate for supply problems in their domestic labor markets (see Thesis 66).

Further interdependencies with Theses 23, 30, 31, 48.



## TIME SCALE



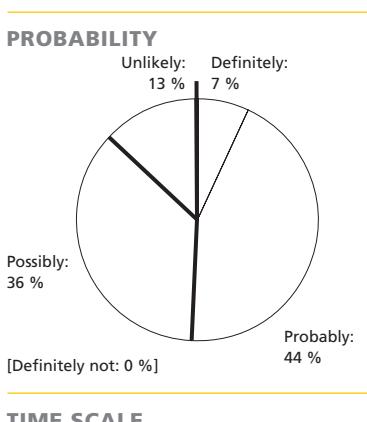
Combined votes for "possibly," "probably," "definitely." No specification when development was judged improbable.

## REGIONAL ASPECTS



All African professionals regard this development as "probable."

... “**healthstyle**” dominates private consumption in Western societies, the market for performance-enhancing **psychoactive drugs and anti-aging medication** experiences a lasting boom.



#### REGIONAL ASPECTS



No significant regional variation.

#### Voting Results

The majority (51%) agree with this development. A further 36% of the professionals regard it as possible. Supporters of this development expect it to manifest in the medium term (by 2020). 13% view the scenario as “unlikely;” none, however, answered “definitely not.”

#### Analysis & Context

“Healthstyle” will play a crucial role and is expected to strongly influence consumers’ demands and mind-sets. New markets will emerge. However, professionals believe that this trend will bypass considerable groups within the older generation (see Thesis 69) as well as those increasingly cut off by social and cultural divides.

This result again indicates participants’ optimistic overall view regarding technology and innovation: The implications of old age and stress can and will be solved by medical engineering and not by lifestyle changes. This also correlates with the expected acceleration of life (see Thesis 74).

In addition, consumers specifically prioritize convenience: People long for comfort, and medical solutions are seen as providing the desired comfort and convenience.

Further interdependencies with Theses 4, 71, 75.

*... the “higher, faster, and further” of modern societies is replaced by a desire to slow down the pace of life.*

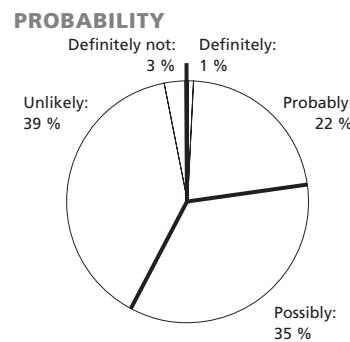
## Voting Results

The largest group of professionals (42%) regards this development as unlikely or rejects it completely. 35% regard it as possible and 23% expect it to manifest.

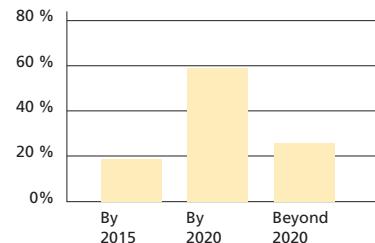
## Analysis & Context

The dynamic development of our modern, success-orientated society into a “bigger, better, faster, more” society will continue. There is a clear correlation with the increasing demand for “healthstyle” products (Thesis 73) – individuals look for solutions to be able to cope with the ever-increasing pressure. This outlook is connected with consumers’ convenience mind-set: If they experience a faster pace and are surrounded by real-time applications (Thesis 54), they want their deliveries as fast and as close to real time as possible (Thesis 21). Their tolerance for slow service becomes increasingly limited – they want to receive their orders as quickly (and transparently) as possible.

Further interdependencies with Thesis 75.



## TIME SCALE



Combined votes for “possibly,” “probably,” “definitely.” No specification when development was judged improbable.

## REGIONAL ASPECTS

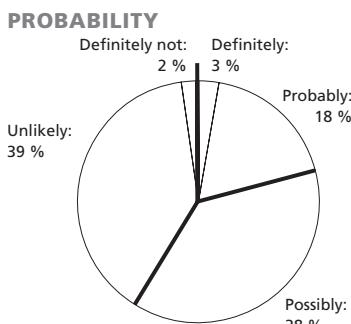


No significant regional variation.

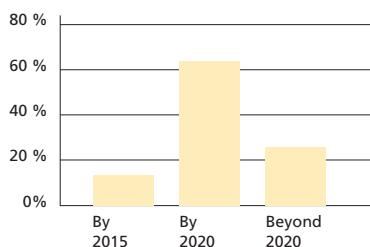
*... Western societies experience a growing awareness of values and spirituality, as well as a yearning for orientation, boosting religion and spiritual practices.*

### Voting Results

The largest group (41%) of opinion leaders rates this development as unlikely or out of the question. A further 38% regard it as possible. 21% of the professionals view it as probable or definite and expect the development to manifest by 2020.



### TIME SCALE



Combined votes for "possibly," "probably," "definitely." No specification when development was judged improbable.

### REGIONAL ASPECTS



No significant regional variation.

### Analysis & Context

A return to religion and values is not expected in Western societies. Rather, the "higher, faster, and further" (see Thesis 74) of modern societies continues. In correlation, "healthstyle" becomes more important, shaping lifestyles and consumer demands (Thesis 73).

As a consequence, individuals in Western societies focus on the body rather than the mind.

Further interdependencies with Thesis 55.

*... companies adapt HR, marketing, strategy, and production to local markets and customs – global standardization is dead.*

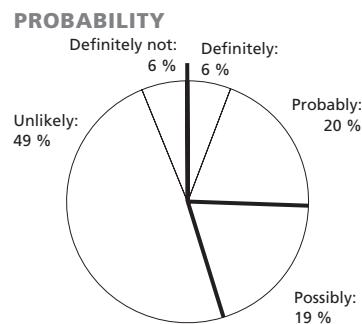
## Voting Results

The majority (55%) believe that this development is improbable. 19% regard it as possible. About one-fourth (26%) regard the development as probable or definite and expect it to manifest in the medium term (by 2020).

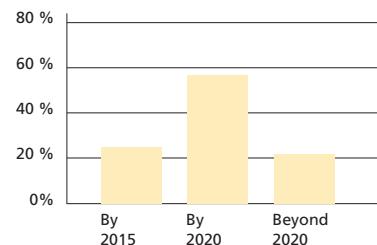
## Analysis & Context

Worldwide standards will continue to affect companies' actions and strategic agendas. Multinational companies can continue establishing global and standardized agendas for their HR, marketing, strategy, and production efforts. If at all, companies only need to orientate themselves to local markets in the short term (see Thesis 77); in the long run, global standardization is inevitable. This scenario correlates with the expectation that a growing class of wealthy young elites in developing countries will "Westernize" their consumption patterns (Thesis 67). Despite the voting results for Thesis 77 (increasing reference to cultural roots and customs), professionals do not seem to expect purchasing patterns to be affected by people concentrating on their cultural background. Rather, people will still expect (and demand) the amenities offered by globalization (see Thesis 32).

Further interdependencies with Thesis 78.



## TIME SCALE



Combined votes for "possibly," "probably," "definitely." No specification when development was judged improbable.

## REGIONAL ASPECTS



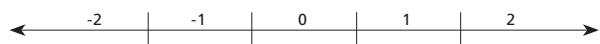
Professionals from the Americas vote differently and regard this development as far more likely.

[Scenario I]: ...

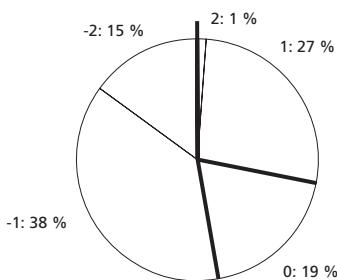
*... in search of security and orientation, people all over the world increasingly refer back to their regional and cultural roots and customs.*

[Scenario II]: ...

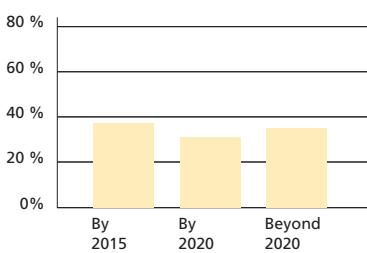
*as an effect of globalization, different cultures, mentalities and religions merge into one universal one-world culture with a single value system.*



#### PROBABILITY



#### TIME SCALE



Combined votes for the preferred scenario.

#### REGIONAL ASPECTS



No significant regional variation.

#### Voting Results

The majority of professionals (53%) support scenario I. However, they are divided on when this development will manifest, with a slight majority expecting it in the short term (by 2015), followed by many who envisage it happening beyond 2020.

#### Analysis & Context

Many individuals will increasingly refer back to their regional and cultural roots and customs. One reason for such growing insecurity may be increasing social polarization, leading to a renewed class society (Thesis 78).

However, the consequences for companies remain limited: neither will they have to wholly adapt their business agendas to local markets (see Thesis 76), nor will they be increasingly targeted by antiglobalization groups (see Thesis 32).

Further interdependencies with Theses 31, 67.

[Scenario I]: ...  
the social polarization  
within emerging economies and industrialized  
countries continues to  
increase and leads to a  
renewed class society.

As a result of the growing  
inequality, social  
unrest and riots are  
commonplace.



[Scenario II]: ...  
the middle class in both  
emerging economies and  
industrialized countries  
increases; the gap between  
upper and lower classes  
narrows considerably.

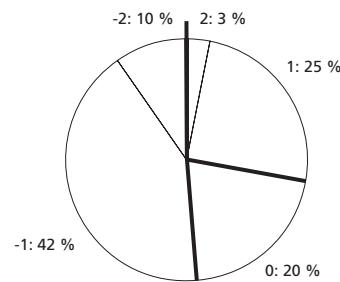
### Voting Results

The majority (52%) support scenario I and expect it to manifest in the medium term (by 2020). Slightly more than one-fourth (28%) regard scenario II as more likely.

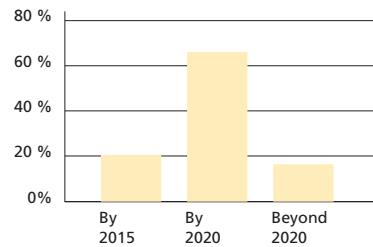
### Analysis & Context

In emerging and industrialized societies, the social gap will continue to grow. While the upper strata will profit from the distribution of global wealth, the status of the middle classes is endangered. Regarding emerging economies, this prospect clearly correlates with the widening gap between rural and urban areas (Thesis 68) as well as the negative outlook for a global Marshall Plan for education (Thesis 70). Although social unrest is expected to be commonplace, professionals view its impact on the spread of globalization and the success of multinational companies as limited (see Theses 32 and 76). Further interdependencies with Theses 6, 62, 65, 69, 77.

#### PROBABILITY



#### TIME SCALE



Combined votes for the preferred scenario.

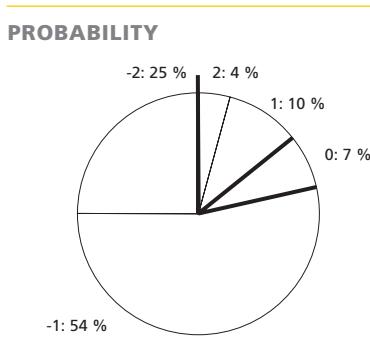
#### REGIONAL ASPECTS



A significantly higher percentage of the industry experts from the Americas vote for scenario II.

[Scenario I]: ...  
*a fear of terrorist attacks prompts Western industrialized nations to increase surveillance of the general public. Passports contain information on the genetic code.*

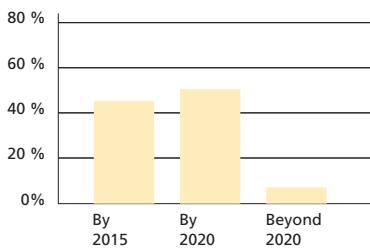
[Scenario II]: ...  
*civil rights movements successfully resist moves to increase public surveillance, preventing the introduction of further security measures. Civil liberty is considered more important than security.*



### Voting Results

The majority (79%) support scenario I, and one-fourth of professionals even believe it will definitely happen. These voting groups suggest it will manifest in the short or medium term (by 2015 or 2020). Merely 14% regard scenario II as more likely.

### TIME SCALE

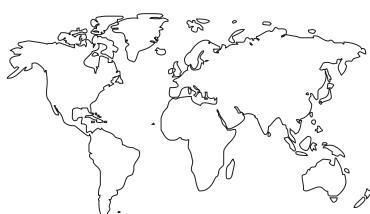


Combined votes for the preferred scenario.

### Analysis & Context

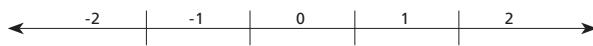
Surveillance of goods and the general public will increase, but will not considerably restrict the global economy (Thesis 29). The threat of terrorism is not regarded as endangering growth. In correlation, the influence of civil rights activists is rather limited and does not significantly affect global corporations (see also Thesis 32).

### REGIONAL ASPECTS



No significant regional variation.

[Scenario I]: ... following new consumer orientations, companies embrace a **triple bottom-line approach (People, Planet, and Profit)** and focus on social and environmental issues as top criteria for stock markets.



[Scenario II]: ... **profit maximization** continues to be the ultimate goal for companies. Corporate social responsibility programs are only undertaken for marketing reasons.

### Voting Results

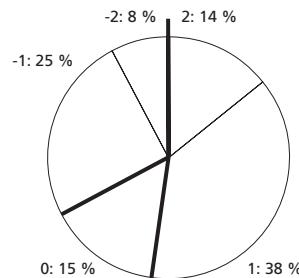
The majority of professionals (52%) regard scenario II as realistic and expect it to manifest in the short term (by 2015). One-third (33%) support scenario I.

### Analysis & Context

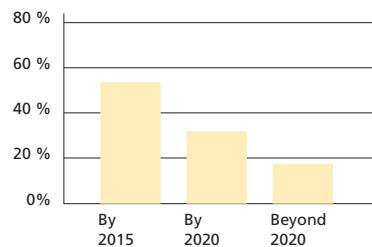
The goal of profit maximization will continue to be the most important part of strategic business agendas. In correlation, price and convenience are crucial factors that ultimately influence purchasing decisions (Thesis 21).

As companies' profits will also be compromised by a dramatic increase in ecological costs (Thesis 18), it is questionable as to what extent they will be willing to invest in the development of a triple bottom-line approach.

#### PROBABILITY



#### TIME SCALE



Combined votes for the preferred scenario.

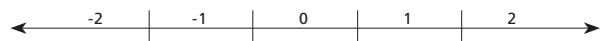
#### REGIONAL ASPECTS



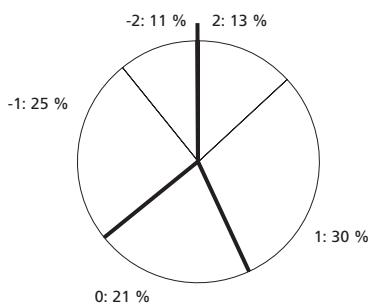
African professionals' support for scenario I is significantly stronger.

*[Scenario I]: ... professional education is organized mainly by companies, offering tailored training and education courses to educate the experts and specialists they need.*

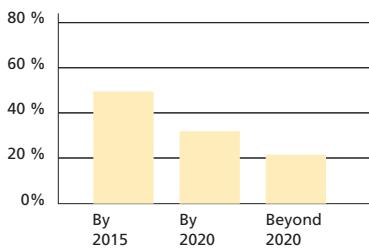
*[Scenario II]: ... state-funded universities are the principal and most important institution in the education of young people.*



#### PROBABILITY



#### TIME SCALE



Combined votes for the preferred scenario.

#### REGIONAL ASPECTS



Asian professionals vote differently, mainly supporting scenario I.

#### Voting Results

The largest voting group (43%) regards scenario II as more likely. These professionals expect it to manifest in the short term (by 2015). However, 36% support scenario I.

#### Analysis & Context

State-financed universities will continue to be the most important educational institutions. However, the importance of private companies may increase due to future developments in this sector. Thus, the training and further education of employees will become an increasingly important factor in corporate strategies. Companies are expected to take a more active role in education, as the state is seen as underperforming and no longer able to guarantee the necessary level of education. Companies also need to better integrate the rising numbers of employees that are expected to immigrate from developing countries (see Thesis 66). Education will be particularly important in this process, and business training will increasingly be regarded as a crucial asset in the “war for talent.” Particularly when investing in education in developing and emerging countries, companies will not just act out of charity or to boost their PR. Instead, they will invest in education as an investment in their own future.

Further interdependencies with Thesis 41.



# **Panel of Specialists**

Allan, John

Member of the Board of Management  
Deutsche Post AG

Appel, Dr. Frank

CEO Deutsche Post AG

Beckmann, Dr. Clemens

Managing Director Deutsche Post World Net  
Inhouse Consulting

Berger, Dr. Stefan

Corporate Strategy Unit, Linde AG

Bohlken, Ingo

Chief Marketing Officer Mail Germany,  
Deutsche Post AG

Bolz, Prof. Dr. Norbert

Institute for Languages and Communication,  
Technical University of Berlin

Burrus, Daniel

Founder and CEO Burrus Research Inc.

Busch, Dr. Andrej

Member of the Divisional Board Marketing DHL  
Parcel Germany, Deutsche Post AG

**PANEL OF SPECIALISTS**

Dobbie, Charly  
Executive Vice President Global Network  
Operations, DHL Express

Edwards, Bruce  
Member of the Board of Management  
Deutsche Post AG

Glaser, Peter  
Director Production Planning Logistics, Daimler AG

Goh, Dr. Mark  
Director Industry Research,  
The Logistics Institute Asia Pacific

Göpfert, Prof. Dr. Ingrid  
Chair of Business Studies and Logistics,  
Philipps University of Marburg

Graham, Charles  
CEO Global Aviation, DHL Express

Griffiths, Tim  
CEO Williams Lea

Hedrick-Wong, Dr. Yuwa  
Economic Advisor, MasterCard Worldwide

Heitmann, Dr. Herbert  
Senior Vice President, Head of Global  
Communications, SAP AG

Israel, Samuel  
CEO DHL Global Forwarding Latin America

Jha, Prof. Dr. Raghbendra  
Executive Director,  
Australia South Asia Research Centre

Kagermann, Prof. Henning  
CEO SAP AG

Kerschbaumer, Dr. George  
Executive Vice President Commercial, DHL Express

Klaus, Prof. Peter  
Chair of Business Administration and Logistics,  
University of Erlangen

**PANEL OF SPECIALISTS**

Minx, Prof. Dr. Eckard  
Head of Research Division “Society and Technology,”  
Daimler AG

Mullen, John  
Member of the Board of Management  
Deutsche Post AG  
(until 25th February 2009)

Nicolai, Joaquin  
Research Division “Society and Technology,”  
Daimler AG

Obermann, René  
CEO Deutsche Telekom AG

Paludan, Johann Peter  
Director, Copenhagen Institute for Futures Studies  
(CIFS)

Pfohl, Prof. Dr. Dr. h. c. Hans-Christian  
Institute of Business Administration,  
Technical University of Darmstadt

Radermacher, Prof. Dr. Dr. Franz Josef  
Institute of Computer Science, University of Ulm

Rosenberg, Rob  
Executive Vice President Human Resources,  
DHL Supply Chain

Scheurle, Walter  
Member of the Board of Management  
Deutsche Post AG

Schwartz, Peter  
Founder of Monitor Global Business Network

Speh, Prof. Thomas  
Institute of Supply Chain Management,  
Miami University, Oxford, Ohio

Stölzle, Prof. Dr. Wolfgang  
Institute of Logistics Management, Research, and  
Transportation, University of St. Gallen

ten Hompel, Prof. Dr. Michael  
Director, Fraunhofer Institute for Material Flow  
and Logistics (IML)

**PANEL OF SPECIALISTS**

Ude, Hermann  
Member of the Board of Management  
Deutsche Post AG

Wildemann, Prof. Dr. Dr. h. c. mult. Horst  
Institute of Business Administration – Management,  
Logistics and Production,  
Technical University of Munich

Wippermann, Prof. Peter  
Institute of Communication Design, University of  
Essen; Founder and Director of Trendbüro

# Index

KEY TERM	PAGE
<b>A</b> Advertising	33, 51, 114, 124
Aging	37-38, 41-42, 133, 136, 138, 140
Alliances	62, 101, 104, 111
Alternative propulsion technology	54, 68, 95, 105, 112, 132
“Always on”	30-31, 46, 121-122, 124
“Always together”	33, 99, 122, 124
Antiglobalization	29, 99, 109, 133, 144
Automobile	37, 45, 84, 105
Avatars	48
<b>B</b> B2B	48, 64, 91
B2C	52
Big Brother society	39
Bottlenecks	57, 82, 104
<b>C</b> Carbon footprint	24-25, 43, 75, 84-85, 89
Censorship	32, 131
China	23, 29, 37, 65, 110, 138-139
City logistics	54, 62
“Clash of cultures”	35, 40, 137
Class society	36, 144-145
Climate	18, 20, 22-25, 41, 43, 52, 54, 65, 72, 78, 83, 86, 90, 112
“Cloud computing”	58, 63-64
CO <sub>2</sub>	20, 23-26, 43, 52-55, 75, 77, 90
Comfort	45, 65, 88, 91, 140
Communication	32-33, 46-48, 61, 64-65, 80, 99, 102, 113, 115-125, 127, 131
Communication costs	32, 48
Convenience	63, 65, 81, 87-89, 91, 109, 112, 116, 119, 121, 123, 128-129, 140-141, 147

<b>C</b>	<b>Consumption</b>	37, 42-43, 51, 65, 75, 79, 81, 86, 88-89, 104, 115, 130, 134, 140, 143
	Conventional fuels	19-21, 45, 52, 62, 68-69, 73, 76, 80, 95, 97, 112
	Cooperation	17, 31, 53, 58-59, 64, 72, 74, 101-102, 104, 106-107, 116, 118, 121, 130-131
	Corporate social responsibility	44, 55, 87, 147
	Customer	9-10, 14, 17-18, 24, 34, 40, 43-45, 47-55, 58, 60-66, 79, 81, 83-84, 87-89, 91, 109, 116, 128, 130
	Customer contact	115, 128, 131
	Customer service	79, 89, 115, 128
	Customs	34, 40, 63, 109, 134, 143-144
<b>D</b>	<b>Data sharing</b>	47, 64, 130, 146
	Delivery	54, 56, 61, 88, 104, 121, 123, 128
	Demographic change	37, 110, 126, 133, 136, 138
	Developing countries	22, 35, 38, 76, 103, 113, 115, 120, 132-134, 143, 148
	Dictatorship	21, 73
	“Digital divide”	129
	Diversity	50
<b>E</b>	<b>Ecofriendliness</b>	45, 65, 79, 87, 91
	Education	13, 28, 35, 39-40, 54-56, 97-98, 108, 110, 133, 137, 139, 148
	Efficiency	21, 24, 57, 59, 64, 86, 104, 106, 112, 118, 126, 128
	Elite	35, 37, 115, 133-134, 136, 143
	Emerging countries	90, 148
	Emissions	23-26, 43, 52-53, 75, 77, 82, 90-91
	Employees	54-55, 61, 126, 139, 148
	Employment	53, 126, 148
	Energy	18-24, 44, 53, 55, 65, 68-70, 73-74, 76, 95, 101, 104-105, 112, 132
	Energy costs	53, 74, 95, 101, 112
	Engineering	28, 90, 93, 110, 139-140
	Environmental protection	54, 72, 74-75, 77-79, 81-82, 86-90, 111, 147
	Epidemics	38-39, 61, 71
	“Ethical” products	44-45
	EU	22, 98
	Europe	20, 23, 41, 43, 83, 92, 98, 101, 139
<b>F</b>	<b>Financial crisis</b>	26, 29-30, 44, 97
	Flexibility	41, 52, 57, 62-63, 107-108, 117, 119, 123, 126
	Fundamentalism	40-41
<b>G</b>	<b>Global economy</b>	27, 71, 92, 94, 96-97, 109-110, 113, 146
	“Global warming”	24-25
	Globalization	22, 27, 29, 34, 40, 55, 91-95, 99, 109-110, 120, 125, 133-139, 143-145

<b>G</b>	“Green” products	25, 44-45, 79, 87-89
	Growth	19-20, 22, 25, 28-29, 35-38, 40, 51-53, 57, 60-62, 65, 87, 90, 92-95, 98, 101, 103-104, 106, 108, 110, 112, 135, 138-139
<b>H</b>	Health	41-42, 71, 140-141
	“Healthstyle”	41-42, 138, 140-142
	Holographic communication	33, 80
	Human point of contact	48, 80, 128
<b>I</b>	Immigration	37-38, 133, 148
	India	23, 27-28, 93-94, 139
	Individualization	46, 49-50, 52-53, 60, 63, 65
	Industrialization	22
	Industrialized countries	22-23, 26, 29-30, 33, 35-38, 40, 44, 70, 113, 132-134, 137, 139, 145-146
	Inequality (social)	35-36, 73, 129, 145
	Information technology	80, 113, 115-126, 128
	Infrastructure	27, 32, 37, 56, 59, 62, 77, 82, 103-104, 111, 113, 116, 120, 135
	Inner-Asian trade	27, 92
	Innovation	17-19, 23, 26, 28-29, 39, 46, 49, 52-54, 62, 71, 80, 86, 90, 93, 98, 108, 112-113, 116-117, 119, 121-125, 127-129, 131, 138, 140
	Intellectual property	61, 100, 116, 118
	Intelligent homes	123-124
	Internet	30-34, 37, 43, 46, 49-52, 54, 56-58, 61-63, 65, 100, 106, 113-124, 127, 131
	“Internet of Things”	31-32, 56-57, 61, 114-115, 117, 119
<b>L</b>	Languages	125
	Latin America	94-95
	Lifestyle	79, 99, 140, 142
	Logistics	18, 22, 24, 31, 51-57, 59-64, 66, 83-84, 88, 96, 101-102, 104-108, 111-112, 114, 116-117, 119, 121, 123, 128, 130, 132, 135
	Logistic hubs	62, 107
	Long-tail	50, 121
<b>M</b>	Marketing	20, 34, 47, 50, 61, 102, 113, 116, 119, 121, 128, 130-131, 138, 143, 147
	Marshall Plan for education	39-40, 137, 145
	Mobility	45, 105, 111
	Multinationals	99, 143, 145

<b>N</b>	Nationalism	40
	Networks	20, 30-33, 50, 56-58, 61-62, 101, 104, 111, 122-123, 128
	New markets	52, 62, 79, 85, 89, 138, 140
	New poor	135-136
	Northwest Passage	23, 83
	Nuclear energy	20, 69-70, 76
<b>O</b>	Offshoring	26, 60, 66
	Oil	19-21, 52, 62, 68-70, 95
	Outsourcing	26, 59-61, 66, 91, 102, 126
<b>P</b>	Packaging	60, 63
	Peer-to-peer	33, 50, 122, 124
	“Personal fabricator”	49, 125, 127
	Pipeline	62
	Piracy	61
	Poverty	30, 35, 37, 135-136
	Price	19-20, 38-39, 44-46, 52, 68, 70, 78, 87, 101, 112-113, 147
	Privacy	30, 46, 123, 130
	Production	19, 21, 34, 44, 49, 56, 60-61, 65, 91, 102, 108, 127, 143
	Productivity	89, 104
	Profit	19, 22, 25, 27, 37, 44, 50, 52-53, 55, 59, 63, 72, 89, 115, 120, 147
	Protectionism	30, 97, 109
	Psychoactive drugs	41-42, 140
	Public opinion	99
	Public surveillance	96, 146
	Purchasing	33, 44, 51, 65, 79, 81, 87-89, 124, 134, 138, 143, 147
<b>R</b>	Rail	62, 68, 101, 104-105, 111
	Real-time	46, 53-54
	Recruitment policy	37
	Religion	34, 40-41, 142, 144
	Renewable energies	21, 68-70, 76, 112
	Research and development (R&D)	54, 60-61, 108
	Resources	17, 19, 21-22, 54, 59, 64, 68-69, 73, 86, 94-95, 97, 132, 135
	RFID	56-57, 114, 117
	Riots	35-36, 61, 99, 137, 145
	Risk management	61
	Robots	47-48, 128
	Rural areas	37, 135-136, 145
	Russia	28, 62, 95, 98, 101
<b>S</b>	SARS	38, 71
	Security	18, 26, 30, 34, 38-40, 60-61, 65, 75, 79, 89, 114, 116, 118-119, 121, 123, 132, 141

<b>S</b>	Service	22, 25, 42-45, 47-48, 50-51, 53-54, 58, 60-61, 63-66, 75, 79, 89, 114, 116, 118-119, 121, 123, 132, 141
	Shortage	22, 37-38, 68-69, 73, 103, 112, 126, 132-133, 135
	Simplicity	45, 58, 63-65
	Singapore	26, 28, 92, 139
	“Smart agents”	31, 46-48, 51, 121
	Spam	32, 114
	Speed	53-54, 65, 98-99, 111, 132, 141
	Spirituality	142
	Standardization	143
	Supply chain	52-53, 56-57, 97
	Sustainability	53, 72, 74-75, 78-79, 81-82, 84-85, 87-89
<b>T</b>	Technology	17, 20-21, 23-24, 28, 32, 38, 45-47, 49, 54, 56, 80, 86, 92-93, 96, 105-106, 112-114, 116, 119-125, 127-129, 138-139
	Telecommunications	46, 80, 113, 115-117, 119-125, 131
	Terrorism	38-41, 96, 146
	Trade	26-27, 29-30, 33-34, 51, 62-63, 81, 92-93, 97, 109, 113, 119, 131, 139
	Traffic	45, 57-58, 96, 105, 112
	Training	42, 54-56, 133, 137, 139, 148
	Transparency	43-44, 47, 56, 58, 63, 65, 75, 114, 117, 119, 121, 123, 130
	“Transparent” customer	47, 130
<b>U</b>	Unemployment	29
	University	56, 148
	Unrest	28, 36, 40-41, 61, 137, 145
	Urbanization	23, 36-37, 62, 77, 84, 105, 135
	USA	23, 28, 41, 139
	User-friendliness	129
<b>V</b>	Value chain	60-61, 66, 91, 102, 108, 130
	Values	17-18, 31, 34, 40, 43, 45, 55, 63, 122, 142, 144
	Videoconferences	33, 80
<b>W</b>	War	21-22, 34, 56
	Water	21-22, 73
	Western society	32, 35-36, 38-39, 42, 120, 133, 139, 140, 142-143
	Working environment	80, 102, 118, 126, 141
	World population	22, 113, 132
	World Wide Web (www)	30-34, 37, 43, 46, 49-52, 54, 56-58, 61-63, 65, 100, 106, 113-124, 127, 131
<b>Z</b>	“Zero-emission city”	23, 77



**CONTACT**

If you have any questions or comments about  
the study, please contact us at:  
[firstchoice-info@deutschepost.de](mailto:firstchoice-info@deutschepost.de)

Deutsche Post AG  
Corporate Communications  
53250 Bonn, Germany

Printed on Cyclusprint / Recymago,  
100 % recycled paper.  
The paper bears the „Blauer Engel“ ecolabel.