

# ANNUAL REPORT 2020/2021

Nürnberg Institut für Marktentscheidungen e.V.  
Founder and Anchor Shareholder of GfK SE

*Better*  
~~Good~~  
decision!



# Nuremberg Institute for Market Decisions – *Founder and Anchor Shareholder of GfK SE*

Nuremberg Institute for Market Decisions (NIM) is a non-profit institute that researches how market decisions of market participants change in the face of digital transformation. The goal of the research is to understand how consumers make decisions so that product and marketing managers can make better decisions in their marketing efforts.

## **CORE FOCUS: INTERFACE BETWEEN SCIENCE AND PRACTICE**

Part of our core focus is that we conduct research at the interface between science and practice. This is especially true in view of the constantly advancing digitalization of almost all areas of life, but also regarding the disruptive, global changes such as those triggered most recently by the COVID-19 pandemic.

## **INVESTOR: ACCOMPANYING THE TRANSFORMATION OF GfK SE**

In our role as anchor shareholder, we see it as our responsibility to accompany GfK SE in its economic transformation. Our history, role as shareholder and close relationship are also conveyed through the addition of *Founder and Anchor Shareholder of GfK SE*. As part of our research, we also work with GfK as a research partner where this is in our mutual interest.

## **MEMBERSHIP: A FOCUS ON PROFESSIONAL DIALOG**

We are currently expanding active communication with our members to intensify the professional dialog on market decisions. Membership provides access to relevant and current knowledge – such as through studies and research findings, the NIM Marketing Intelligence Review journal, or free participation in the NIM Market Decisions Day. We see our members as active co-creators and co-researchers who also give us ideas to further develop research topics. ✕

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## DEAR MEMBERS,

Viruses seem to be among the most incapable and incomplete biological structures. They are not living beings, they have no metabolism, they are not self-replicating and have no mechanism of cell division. And yet, a new type of virus, the SARS-CoV-2 or coronavirus for short, has had and still has a previously unimaginable influence on world events, the development of the global economy, everyday life and, in many cases, the health of people all over the world. SARS-CoV-2 has taken the lives of over three million people – based on the statistical data, most likely unrecorded, up to April 2021.

It is precisely the insufficient functionality and the dependency of the viruses that make them so dangerous, because they need a host to metabolize and to reproduce. And since viruses cannot survive for long in any one host, they ideally need a host that supports lively transmission to new hosts of the same species through frequent social contact by way of personal proximity and interactivity. In conclusion: This virus has found – at least for a considerable period of time – its ideal host in humans. The pandemic continues – and for longer than the experts had predicted.

## MAKING DECISIONS IN TIMES OF SARS-COV-2

In addition to the challenge of stopping the uncontrolled spread of the virus, the coronavirus pandemic has made another “pandemic” visible: the pandemic of false information and data. While fake news is annoying in many cases, “fake facts” such as whether masks help or whether the virus even exists have dramatic effects – even on those who don’t fall for the fake facts. It’s already not easy to make good decisions when the facts are objective but complex. Making good decisions becomes even more difficult, though, when misinformation is deliberately spread and scientific expertise is undermined.

The painful impact of the pandemic on people, society and the economy clearly shows how difficult, but also how immensely important, it is to make good decisions. SARS-CoV-2 required decisions to be made in the face of uncertainty, time pressure, lack of understanding of interdisciplinary causal relationships, lack of precedence and lack of transparency. Politicians, business leaders, renowned experts, as well as citizens, families, patients, and consumers have had to and continue to make decisions every day under these uncertainties.

Generally, to better research and understand decision-making processes and market decisions in particular, even under the greatest uncertainty, and thus to contribute to better quality of decisions, is and remains the core task of the Nuremberg Institute for Market Decisions (NIM). As already reported at the last general meeting in October 2020, we quickly addressed the challenges of the pandemic and published a coronavirus special

publication. We continued our active research projects and international cooperation with world-renowned research institutions and launched new initiatives. For example, in the reporting year we intensified our research collaboration with the MCM Institute at the University of St. Gallen, started a new collaboration with the interdisciplinary DISPOC Institute at the University of Siena and expanded our cooperation with the Institute for the Future in Palo Alto. (For more information about our network, see page 36 and 37).

In the past year, NIM moved into new office space, which we were not able to put into operation as planned because of pandemic related restrictions. We will only be able to fully take advantage of the new work environment with its innovative atmosphere of togetherness when we move past restrictions on social contacts and when we will be able to fully use the new space, especially the Decision Lab and workshop areas, for our daily work but also for seminars and professional interaction with our members.

**» To better research and understand  
decision-making in general and especially  
market decisions and thus, to  
contribute to better quality – even during  
times of the greatest uncertainty –  
is and remains the core task. «**







## AS ANCHOR SHAREHOLDER, WE CLOSELY ACCOMPANY THE ECONOMIC DEVELOPMENT OF GfK SE


The pandemic has also extensively affected the market research industry and its clients. Despite losses, especially in ad hoc business, and the loss of important data collection methods such as face-to-face interviews for a standardized USA print media panel by MRI, GfK SE has proven to be extremely crisis-proof and resilient. The core business in the Market Intelligence/Point-Of-Sale and Consumer Panel sectors showed stable development across the board and even achieved considerable growth in the Consumer Panel sector.

The restructuring of GfK in recent years, which has also resulted in considerable cost reductions, is now largely behind us. This also means that GfK SE has returned to an encouragingly positive profit development. The positive momentum also continued into the first quarter of 2021 despite the ongoing pandemic. The steady progress in new product development, coupled with a significantly improved cost structure, allows us to be cautiously optimistic about the ongoing economic development and profitability of the company.

As reported last October, NIM entered into a put option agreement with Acceleratio HoldCo (KKR) at a fair price, including rights to participate in future value growth. NIM e.V. exercised the first option of two possible tranches with an effective date of August 10, 2021. Neither this exercise nor a possible exercise of a future second tranche will affect our role as majority and anchor shareholder of GfK SE. This inflow of funds, however, provides our institute with the corresponding liquidity reserves to both fulfill our organization's purpose and to continue to responsibly accompany the promising development of GfK SE with great diligence and with longevity and sustainability in mind.

The COVID-19 pandemic has been an unforeseeable challenge in the past year. In this extremely demanding environment, the employees of NIM e.V. have done an outstanding job to serve the organization's purpose. On behalf of the governing bodies of NIM e.V., I would like to take this opportunity to express my unreserved gratitude to them. I would also like to thank the management of NIM, my colleagues on the Executive Board, the representatives of the Members' Council, our external partners and, of course, our members.

Sincerely,



**Manfred Scheske**  
President Nuremberg Institute  
for Market Decisions



# Making Better Decisions in a World Increasingly Shaped by Technology

The desire to discover patterns and causal relationships in the world and to anticipate the future with the goal of making better decisions has always been a part of mankind. The data used was initially anecdotal, and attempts were made to decide based on the stars or providence. Later, circumstantial evidence was collected and condensed into “laws of nature”. Finally, scientific methodology was developed, with the principle of falsifiability of precise hypotheses based on empirical evidence. The scientific method allows us to better understand causal relationships in the world and to separate fact from fiction. We can anticipate effects of various alternative courses of action through models and thus make better decisions.

The swift technological development of the last hundred years has produced achievements such as the Internet. Artificial intelligence enables us to interact with smart assistants in natural language. Smartphones mean that the world’s knowledge is accessible to us anywhere and at any time. Unlike our ancestors, we live in a luxury of abundance of information, but this also brings problems and disadvantages.

## **A PANDEMIC OF MISINFORMATION?**

The COVID-19 pandemic, for example, still has two fronts: On the one side, there is the medical fight against the spread of the virus through hygiene measures and vaccinations and on the other side, the fight against a pandemic of misinformation about the virus. This is spreading through social media and in some cases sabotaging pandemic containment measures. Misinformation can lead to bad decision-making with serious consequences.

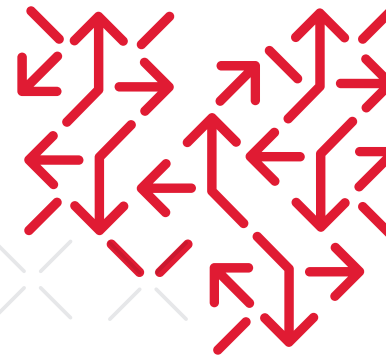
COVID-19 has polarized many societies, and trust in institutions as well as in our fellow human beings has been damaged. Our global survey of top young talent, the Voices of the Leaders of Tomorrow study (see page 21), conducted with the St. Gallen Symposium, also diagnosed a corrosion of shared reality. This is highly problematic. Because if we as societies are not able to have a converging discourse about what is fact and what is fiction, which data and sources we should trust and which we should not, then the empirical foundation for good decision-making is missing and reality becomes a matter of faith.



» *What information consumes  
is rather obvious: it consumes  
the attention of its recipients.  
Hence a wealth of information  
creates a poverty of attention.* «

HERBERT A. SIMON  
AMERICAN SOCIOLOGIST

DR. ANDREAS NEUS  
MANAGING DIRECTOR AND VICE-PRESIDENT  
NUREMBERG INSTITUTE FOR  
MARKET DECISIONS



**» For a successful technology,  
reality must take precedence  
over public relations, for nature  
cannot be fooled. «**

**RICHARD P. FEYNMAN**  
AMERICAN PHYSICIST  
AND NOBEL PRIZE WINNER

#### **ARTIFICIAL INTELLIGENCE – OR: DO WE STILL DECIDE OURSELVES?**

We live in a world, where our behavior as consumers – at all levels of the customer journey and in our media usage – is increasingly digitally documented and analyzed. The flood of information also means that we need tools to filter the information we want to give our attention to. However, these tools such as search engines, algorithms, artificial intelligence (AI) and smart assistants are not neutral players in the market. They are typically offered by companies whose business model is also based on directing our attention and guiding our decisions toward higher profits. The latest NIM Marketing Intelligence Review (see page 16) takes an in-depth look at the question of where marketing ends and manipulation starts.

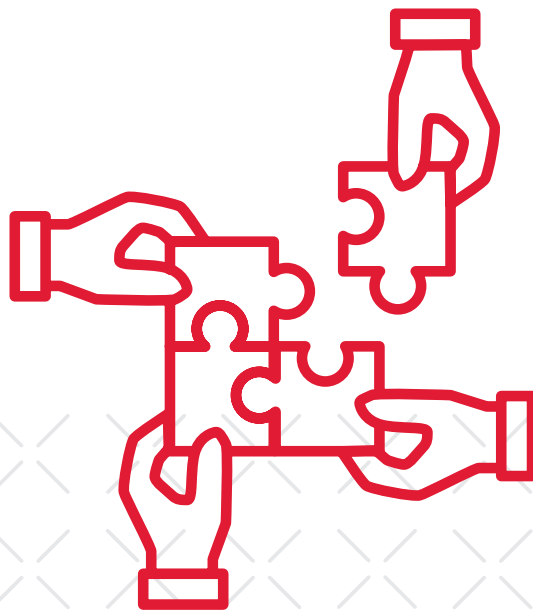
#### **MAKING BETTER DECISIONS**

One of the cornerstones of a functioning market is reliable information that is interpreted correctly. False information about a market, a need or the added value of a product may lead to higher profits for individual market participants in the short term, but it is detrimental to the economy overall. A consumer who is misled about the benefits of a product may make a purchase that is profitable for a supplier one time, but not a second time. A marketing manager who misjudges the market for a product based on bad data will incorrectly invest valuable resources. Thus, manipulation and misinformation in decision-making processes damage the market and ultimately all market participants.

Understanding how relevant players in markets – consumers as well as marketing and product managers – can make better decisions to reduce misallocation and enable sustainable value creation is therefore an important goal. NIM contributes to this scientifically, economically and socially important dialog with its research.

You can find an overview of our research projects starting on page 18. Together with the researchers of NIM, we would like to invite you to accompany us in this research with your expertise, your questions and your topics.

I would also like to thank our colleagues at NIM and our committess. Thanks to their committment we were able to keep the research and work of NIM running despite the pandemic. Of course, we hope to be back in our new offices on a regular basis soon. We look forward to welcoming you for a professional dialogue. ✕



» *The most promising means of achieving and securing any prosperity is competition. This alone leads to economic progress that benefits everyone, especially as consumers, and to eliminating all advantages that do not directly result from higher performance.* «

LUDWIG ERHARD IN "PROSPERITY FOR ALL"  
GERMAN POLITICIAN, ECONOMIST  
AND FEDERAL CHANCELLOR





**Join our  
Research Effort**

**Membership**

Membership in the Nuremberg Institute for Market Decisions (NIM) means active participation in the professional dialog on market decisions. To generate research ideas and facilitate mutual exchange, it is important to NIM that members have a high level of interest in how market decisions of market participants are changing because of the digital transformation or in times of disruptions, such as the current COVID-19 pandemic. Ideally, NIM members deal with these issues in business or in science and have sound professional experience or take on scientific teaching activities.

A NIM membership category called *Young Talent* was introduced in 2020. This membership is typically made up of university students who are exposed to market decisions as part of their studies. Young professionals as well as founders of start-ups who are active with this topic can also become a Young Talent member of the Nuremberg Institute for Market Decisions.

All members benefit from access to current and relevant knowledge on market decisions. This includes studies and research results often months before they are available to the general public. All members also receive the latest copy of the NIM Marketing Intelligence Review journal (see page 16). Membership also includes free participation in NIM Market Decisions Day (see page 17) as well as invitations to webinars and workshops on relevant topics and research results relating to market decisions.

On the following pages, we talk with our new member Prof. Dr. Martin Eppler to find out what fascinates him about market decisions.

## Prof. Dr. Martin Eppler

Full Professor of Media and Communications Management and Director of the Institute for Media and Communications Management at the University of St. Gallen, Switzerland

Member of the Nuremberg Institute for Market Decisions since 2021

Focus on teaching and research activities: Knowledge visualization, management communication, creativity in teams, data storytelling.

> *NIM researches how market decisions change due to new trends and technologies, and how people in markets can make better decisions. You have been a member of NIM since 2021. What interests you about market decisions in particular?*

What I find particularly exciting about the topic of market decisions is the question of how teams succeed in making balanced and forward-looking decisions in the face of high market dynamics, uncertainty and complexity, and how they can change these decisions, if necessary.

I am especially interested in the role of communication in organizations to bundle market knowledge and to be able to make better decisions together. I'm also passionately interested in avoidable decision-making traps created by known thinking errors.



- > ***You are the director of the Institute for Media and Communications Management at the University of St. Gallen and research and publish on issues related to data-based decision-making, management communication and data storytelling. What does your current research focus on and what research questions are you and the researchers at your institute pursuing?***

We are currently investigating, for example, how market knowledge, e.g., in the form of statistics and charts, can be brought into the forefront of decision-making bodies. To do this, we are developing interactive visualization methods that help decision-makers to jointly assess data in terms of their decision-making consequences. We are also trying to strengthen the analytics competence of decision-makers.

In another project, we are investigating the influence of interactive visualization in virtual decision presentations. This demonstrates: Standard PowerPoint presentations are often the worst form of virtual decision support. Interaction is also the key to better decision-making.

Finally, we are in the process of interactively visualizing regional innovation and high-tech clusters with partners from Denmark and France, so that decision-makers in politics, science and companies can make better strategic market decisions.

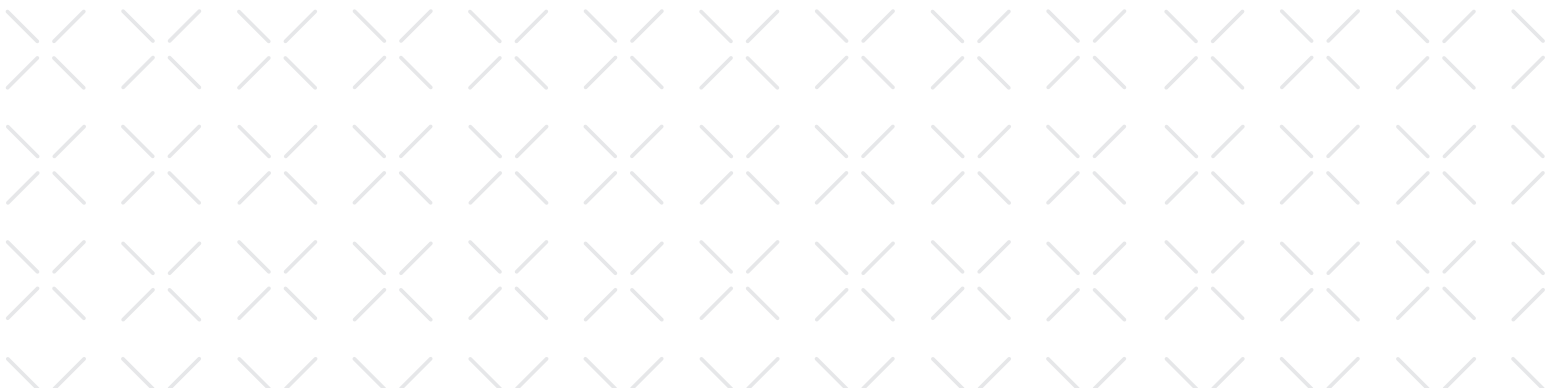
- > ***We are experiencing, especially against the background of the pandemic, a flood of fake news and fake facts and thus a breakdown of shared reality. What effects do you see from your experience and research, and how do fake facts, fake reviews and to some extent fake reviewers affect trust and decision-making in markets?***

It certainly leads to a lot of skepticism about internet content in general, which I think is justified. In my opinion, the crucial question is whether AI-supported authentication procedures are an effective way of solving the fake phenomenon. It is still too early to evaluate this conclusively. I was also surprised to read in NIM's Leaders of Tomorrow study that the younger generation sees fake news on social media as dominant: 90 percent of the students surveyed said they were frequently confronted with fake news on social media.

- > ***How do you assess information overload? What should marketing managers do to filter out correct and important information and varying quality signals from the sea of data to make a strategic marketing decision?***

Since I wrote my doctorate on this subject in 1998, the topic of information overload has continued to gain a great deal of relevance, especially under the influence of social media and the Big Data revolution. One key, as you mentioned, is to pay attention to the quality of the information and data, and especially to the quality of the sources.

In addition to good selection or filtering and categorization approaches, interactive visualization is an ideal solution to avoid information overload. However, it is also important to periodically update your own visualization tools and to replace mind maps, pie charts or 2x2 matrices with better – because more powerful – approaches.





Dynamic diagrams, or dynagrams for short, are certainly a promising way to include even larger amounts of information in the decision-making process without paralysis by analysis.

- > ***Many industries suffer from increasingly fast product cycles and a high number of failed new product launches. In your view, what can product developers and marketing managers do to nevertheless avoid expensive bad decisions under higher time and margin pressure?***

Certainly, by preparing for biases, which are typical decision-making errors that easily and often happen under time pressure. It is worthwhile to a certain extent, for example, to deal with the confirmation trap, the planning fallacy, the overconfidence bias, or the groupthink effect to immunize one's own decisions against such thinking errors.

We have compiled a list of the most important decision-making traps at [bias.visual-literacy](https://www.bias.visual-literacy.org) and illustrated some of them with short video sequences. Currently, we are also trying to visualize the most important decision-making errors for management and marketing practice as a graphics checklist.

What generally helps to reduce bad decisions is, instead of brainstorming with immediate mutual influence and bias reinforcement, to first initiate brainwriting in the team. This is where you write down your data, opinions and experiences before discussing them. This has been shown to lead to more diverse perspectives of a decision.

- > ***What are the points of reference between your research and NIM's focus on studying decision-making by market players?***

I think there are many synergies between NIM and our institute. Currently, we are certainly united by our interest in decision-making errors and how to systematically avoid them, for example in marketing. I appreciate NIM's great research expertise as well as its distinctive practical approach.

- > ***Dear Prof. Eppler, thank you so much for your time and the exciting insights into your research.***



Additional links:

- > The MCM Institute: [mcm.unisg.ch](https://www.mcm.unisg.ch)
- > The Research Group of Prof. Eppler: [www.knowledge-communication.org](https://www.knowledge-communication.org)
- > The visualization portal to decision-making errors: [bias.visual-literacy.org](https://www.bias.visual-literacy.org)

# NIM Marketing Intelligence Review

Our journal is aimed at marketing managers and market researchers who are interested in new findings and developments in scientific marketing research. Twice a year, we prepare new relevant scientific findings from the most prominent international researchers in the field of marketing science in practically oriented, themed periodicals.

Issue 2/2020 is focused on The Reputation Economy. Nine contributions from international researchers take a comprehensive and differentiated look at digital reputation. Based on the importance of different rating systems for creating trust, bias effects, fake reviews and discrimination tendencies are also presented and discussed as to how these can be prevented. Other articles highlight, for example, the challenges of two-sided rating systems or motives of readers and authors of consumer ratings.

The current Issue 1/2021 deals with the dark sides of digital marketing. Eight essays span a broad range of topics from the unintended consequences of automated processing of personal data to the role of data-driven algorithms in the spread of fake news. Other topics in the issue: an interview with media researcher Douglas Rushkoff on the toxic effects of human dependence on technology, and solutions for how marketers invest in trusting relationships where customers voluntarily choose less privacy. ✕



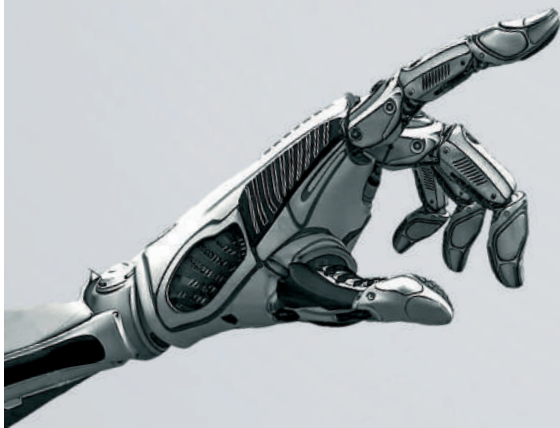
All NIM Marketing Intelligence Review issues are published in English and German at [www.nim.org/en](http://www.nim.org/en).

→ Decisions made by  
machines and humans

# NIM MARKET DECISIONS DAY



Online-Event  
1. July 2021



Decisions made by machines and humans – this is the topic of the NIM Market Decisions Day 2021. Top class speakers from science and practice analyze for example, how consumption and marketing change when machines make decisions or how people make (market) decisions even in the face of uncertainty. Due to the pandemic, the NIM Market Decisions Day is held as an online event. ✕



# Research Topics

Six research topics create the content framework of our research agenda and at the same time enable the structuring of the individual research projects.





### MARKETS IN TRANSFORMATION

How can system-level disruptions change the way markets operate?



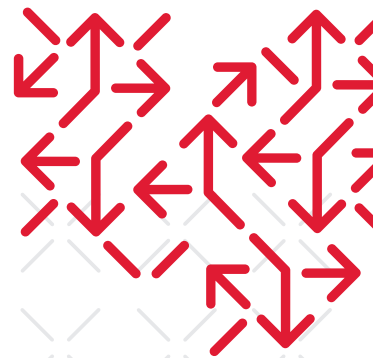
### MODELLING COMPLEXITY

How can new modelling and simulation approaches improve data-driven decisions?



### NEW TOOLS FOR DECISION SUPPORT

How can new technologies be used to empower decision-makers?



# Towards better decision-making practices

## Completed Projects



### The role of trust for markets and market decisions

Trust plays a decisive role in many economic decision-making situations. When we conclude contracts, we trust other people; when we make purchases, we trust that products deliver on their promises; and we often trust algorithms or technologies to help us make the right decisions.

But how do we decide whether to trust a person or a company when we know little about them? When little information is available about the other party, it is often personal characteristics, such as nationality, that serve as indicators of trustworthiness. One example of this is the country-of-origin effect: the origin of a product is seen as an indicator of its quality. For example, "Made in Germany" has long been considered a seal of quality.

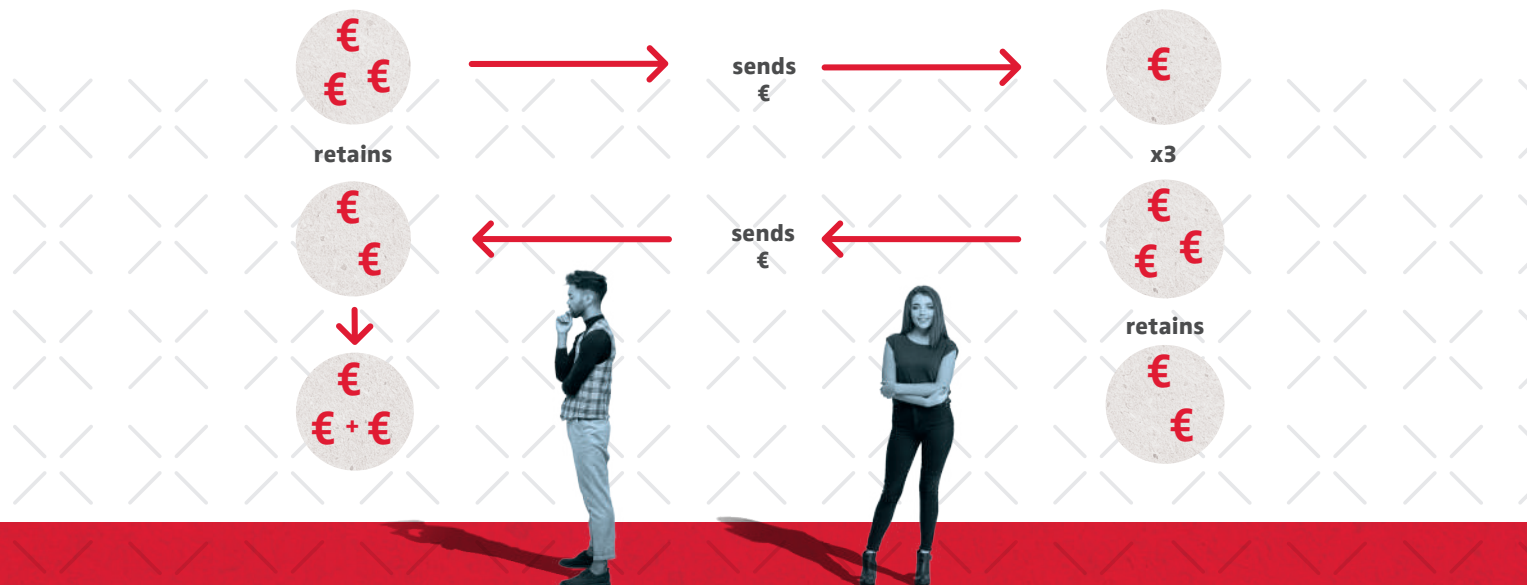
In several studies we investigated how trust is formed in anonymous interactions and how nationality plays into this.

As part of the study "On trust in honesty and volunteering among Europeans: Cross-country evidence on perceptions and behavior" from 2016, we were able to show that the origin of a person significantly determines how this person is assessed in terms of trust-related characteristics, such as honesty or how hard-working they are. People from northern European countries were assessed as being significantly more honest and hardworking than people from southern European countries, even by southern Europeans. The actual behavior, however, did not correspond to this assessment. This implies that (bad) decisions in international business relationships may be based on stereotypes.

In a follow-up study, we researched this question in more detail by having participants from Germany and South Africa play a simulated business relationship. There was, however, real money at stake.

In this game, the participants could send part of their monetary resources anonymously to other participants. The amount was tripled by us and any of that amount could be sent back anonymously.

### TRUST BETWEEN CULTURES





The amount that a person sent depended on the initial estimate of the trustworthiness of the other person – the amount sent back depended on the actual trustworthiness.

The only thing the participants knew about the other person was whether the person was based in Germany or South Africa.

The results show that perceived trustworthiness does not depend on the recipient's nationality.

Participants from South Africa and Germany each sent the same amount to German and South African participants. However, the amount sent back showed that German participants preferred other German participants and sent significantly less back to South African participants. The results make it clear that participants trusted each other equally regardless of the origin of the counterpart, i.e., they did not make decisions based on prejudice or stereotypes. However, the results also show that this trust can be abused. For example, participants from Germany sent significantly less back to participants from South Africa than they sent back to participants from Germany. Participants from South Africa, on the other hand, did not differentiate according to the origin of the counterpart.

The results suggest that whenever anonymous business relationships exist or little information is available about the other person, individuals are prone to misconceptions and therefore monitoring and reporting are appropriate.

**NIM Project Management:** [Dr. Matthias Unfried](#)

**Cooperation Partner:** [Sotira Petrou, University of Pretoria](#) // [Prof. Dr. Veronika Grimm, Friedrich-Alexander-Universität Erlangen-Nürnberg](#)

## FAKE FACTS AND TRUST IN NEW TECHNOLOGIES

The COVID-19 pandemic has clearly illustrated the dangers of fake news. Who can people trust when it comes to the reporting of facts and estimates? The study, "Voices of the Leaders of Tomorrow – Challenges for Human Trust in a Connected and Technology-Driven World," surveyed 620 Leaders of Tomorrow - young executives, young entrepreneurs and students from the global network of the St. Gallen Symposium.

90 percent of top young talent said that fake news predominantly circulates on Facebook, Twitter, etc. Traditional media such as daily newspapers are therefore by far at the top of their list when it comes to trusted media formats in the current COVID-19 pandemic: Over two-thirds of participants indicated that they very rarely perceive misinformation in newspapers. In second and third place were TV news on public TV channels and news magazines. The Leaders of Tomorrow also agree that the line between objective facts and subjective opinions is becoming more and more blurred: 53 percent see the blind trust that young people have for news spread by social media channels as an urgent problem, and 75 percent agree that their generation is not doing enough to fight fake facts.

Since new technologies will continue to create a huge range of digital possibilities in the future, the Leaders of Tomorrow believe several measures are necessary (and urgent) to strengthen trust in technology. These range from greater transparency about how personal data is used and comprehensive education on the risks and opportunities of technologies to creating new or strengthening appropriate supervisory authorities. Further results of the study can be found in the report on our [homepage](#). ✕

**NIM Project Management:** [Claudia Gaspar](#)

**Cooperation Partner:** [St. Gallen Symposium](#)



## Consumer decisions

### THE INFLUENCE OF THE DESIGN OF THE ANIMAL WELFARE LABELS ON CONSUMER DECISIONS – MISCONCEPTIONS DUE TO THE LINEAR REPRESENTATION OF NON-LINEAR RELATIONSHIPS

The demand for sustainably and socially responsibly produced goods and services has increased enormously in recent years. Labels are used to identify these types of products and thus help consumers to recognize them.

In doing so, the conscious design of such labels can steer consumer behavior in a certain, socially desirable direction. In behavioral economics literature, this is referred to as nudging.

Companies can also use the targeted design of labels to guide or influence consumer behavior. For example, the German retail or industry sector has introduced a label for meat products that divides animal husbandry into four categories.



Figure: Four tiers of food labeling as mapped in retail

The linear representation of the categories from 1 to 4 implies that the different characteristics of the label have a corresponding impact on animal husbandry. In fact, the relationship between animal husbandry and category of animal husbandry is not linear and thus may lead to an over- or underassessment of animal husbandry conditions by consumers.

In this project, we investigated the extent to which the linearization of the actual correlation led to a misconception of animal husbandry conditions and thus changed consumer behavior.

For this purpose, two conjoint studies were conducted with the Nuremberg University of Technology. In one of them, the products were labeled with the current animal husbandry label. In the other, the labels included the space per animal, thus revealing the actual relationship between label and animal husbandry.



Figure: Four tiers of food labeling included the space per animal.

Since all other product attributes were the same in both studies, we can measure differences in consumer behavior that can be attributed to the different label design.

The results show: In the group with the label with additional information on space per animal, a significantly larger proportion chose the products with the highest level of animal welfare ("housing type 4") and fewer chose the products from "housing type 2."

There is also evidence that even price-conscious consumers also tend to lean towards the more expensive products of "type 4" if they can understand, based on the visual depiction of the space per animal, the actual relationship between the label and animal husbandry.

NIM Project Management: Dr. Matthias Unfried

## ARTIFICIAL VOICES IN HUMAN CHOICES

Interaction with smart computer systems is part of everyday life for most people. Increasingly, interaction between humans and machines no longer takes place via screens, but by voice. Examples include the voice assistants of the big tech companies, which are always with us on our smartphones, or waiting to be activated via smart speakers. In this regard, we are concerned with the question of how the voice interface is changing interaction with machines in a shopping context, how customer behavior is changing as a result, and what implications this has for marketing.

In a first project, we investigated the impact of emotions in artificial voices on consumer decisions: Research has shown that emotion of the human voice can have a decisive influence on the sales process and can be transferred to the counterpart. The question arises as to what extent this also applies to artificial voices of voice assistants? Can they influence shopping behavior and attitudes and induce impulse purchases in the same way that emotional appeals by human salespeople can?

In a series of experimental studies, we exposed participants to three different emotions in an artificial voice: enthusiastic, happy, and neutral. The studies provide evidence, that: While a natural human voice is still preferred over an artificial one, because it is perceived as more natural and a higher social presence is perceived with it, there is no difference between an artificial and natural voice in terms of evoked emotion and excitement.

Regarding the impact on impulse purchases, the lab experiments with German participants show that they make more impulse purchases in voice stores than in purely text-based online stores. This is an incentive, especially for marketing, to increasingly rely on voice and voice output when designing online shopping experiences. The most impulsive way to shop is under the influence of an enthusiastic voice, although the shopping attitude is the most positive with a cheerful voice.

There is no difference between emotions in an artificial and a natural voice when it comes to the effects on purchasing behavior and shopping attitude. This can be especially relevant for implementing voice stores, since it means automatically generated, artificial speech can be used and individual recordings by a professional speaker are not needed.

Comparing the results from different countries in the study, it becomes clear that emotional voices influence the shopping behavior and shopping attitude of participants from the United Kingdom similarly to those from Germany. Comparing the U.S., U.K. and India, it is evident that Indian participants feel most comfortable with voice shopping overall, are most satisfied with the products they purchased, and spend the most, followed by the U.S. and U.K. Similar to our U.S. participants, they do not shop more impulsively when they hear an enthusiastic voice. For U.S. participants, in contrast, the emotion in the voice affects their attitude toward shopping, but not their shopping behavior itself.

Method: The influence of emotional language artificially generated with Deep Learning on shopping behavior was measured in cooperation with the Experimental Lab for Business Insights Nuremberg (ELAN) at the Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU). The realistic voice shopping experiments were carried out in the lab as well as online. The project included national, international and intercultural investigations with more than 4,000 participants in Germany, the U.K., India and the U.S. ✕

**NIM Project Management:** [René Schallner](#)

**Cooperation Partner:** Experimental Lab for Business Insights Nuremberg (ELAN) at FAU



## Decisions made by marketing and product managers

### THE VALUE OF STRATEGIC FORESIGHT IN A VUCA WORLD

In contrast to reacting to short-term developments in the business environment, strategic foresight is meant to help organizations anticipate long-term change for better decisions in the present day. But what is the value that strategic foresight can create for an organization? And what is the difference between an organization that uses foresight effectively and one that doesn't?

To find out, the Nuremberg Institute for Market Decisions and the Institute for the Future IFTF joined forces to conduct 400 personal telephone interviews with high-level executives from large Europe- and U.S.-based companies asking them about their current practices related to strategic foresight.

One of our key learnings is that the value of foresight is about being aware of the larger issues in the macro environment, those that go beyond the current short-term challenges, even if the impacts of those issues may be

felt on a time horizon that is longer than the usual 2-3 year planning cycles. When segmenting companies by their foresight performance we clearly saw that decision-makers from top foresight performers are more aware of the impact of e.g. climate change or the rising social inequality on their markets. In addition, we found some evidence that foresight allows organizations to better deal with major system-level shocks like the COVID-19 pandemic.

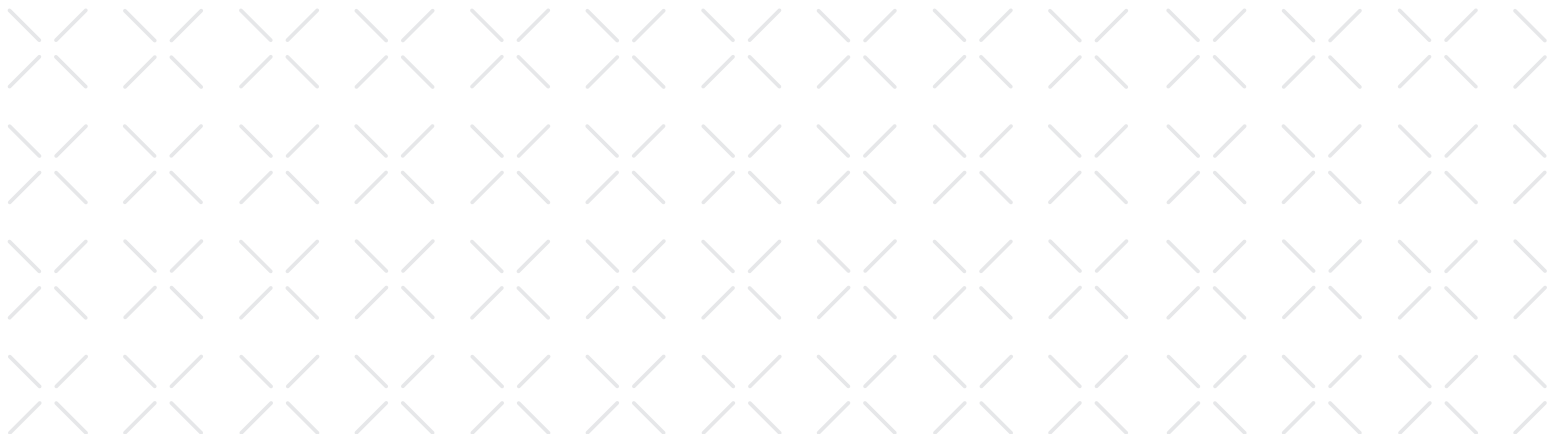
What surprised us is how little helpful typical sources of future information like trend reports or technology roadmaps are in strategic decisions from a manager's perspective. For example, only one third of the surveyed managers rated future scenario reports in their organization as helpful for their decisions.

Find the full report here: <https://www.nim.org/en/research/research-reports/research-report-value-foresight-vuca-world> and take the test to compare the value of foresight at your company with our sample.

Method: In cooperation with the Institute for the Future (IFTF), 400 senior executives from large European and U.S. companies were interviewed by telephone about their current practices regarding strategic foresight. ✕

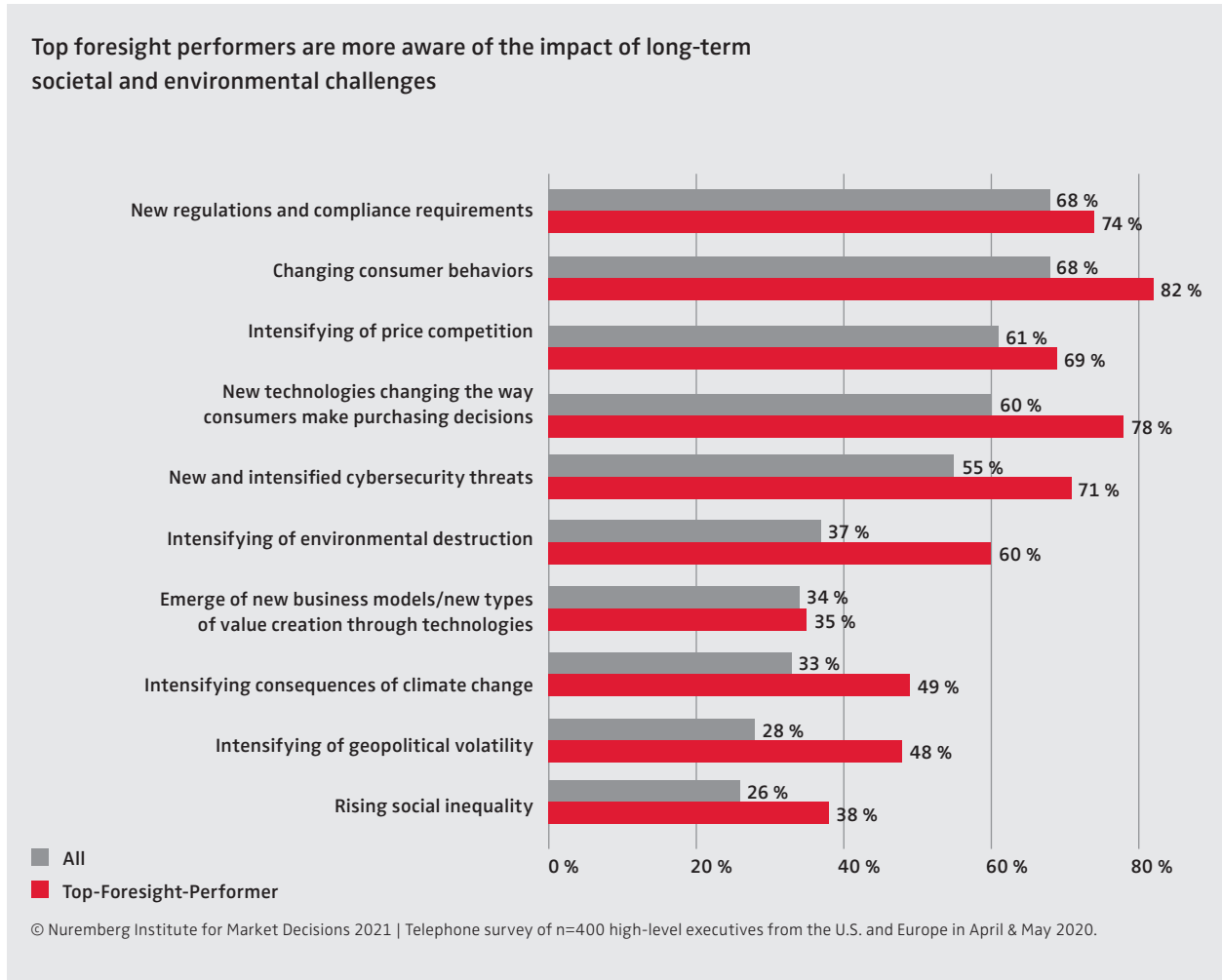
**NIM Project Management:** [Dr. Fabian Buder](#)

**Cooperation Partner:** [Institute for the Future, Palo Alto](#)

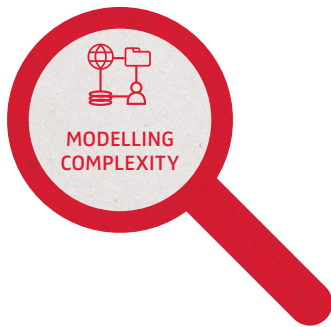


**Question:** To what extent will the following challenges directly or indirectly impact – either positively or negatively – how the market in which your company currently operates will look in the next 5–10 years?

Percentage of cases answering “Strong impact” or “Exceptionally strong impact.”







## New Methods

### QUANTUM PROBABILITY – OR WHAT QUANTA AND CONSUMERS HAVE IN COMMON

Making human behavior more predictable and thus enabling better market decisions has always been the aspiration of economists, but of course also of market researchers and managers.

Models help to predict human behavior. However, these are often only an approximation of reality. The well-known traditional probability calculation, which indicates how likely certain events occur, fails more often when it comes to predicting those events that depend on human action.

Since people do not always behave in the way calculated by traditional models. Rather, spontaneous deviations and biases in decision-making that cannot be calculated in advance, referred to as decision biases, become apparent in reality.

So far, these biases in thinking and acting can be proven experimentally, but there is no model that can be universally applied for decision prediction.

In physics, scientists also face the problem that what is being studied does not behave as thought: In quantum physics, unlike in traditional physics, elements do not behave as we normally predict. On the contrary, it seemed that from an external point of view, they were random events. Quantum probability was thus developed as a new way of calculating probability in physics. Here we saw parallels to human decision-making and investigated quantum probability as a way to predict market decisions.

One characteristic of quantum probability is worth mentioning: Traditional probability assumes that a person has fixed preferences that can be measured with certain accuracy. Quantum probability takes the approach that humans do not have predetermined opinions to start with. It assumes that human preference lies somewhere undecided between possible alternatives. Only when a person must make a decision does they form a specific opinion.

We have succeeded in developing a model that simultaneously accounts for multiple decision biases considered in a modeling challenge, and thus can model behavior in more situations than before. Evidence that quantum probability can contribute to better prediction of human decision behavior was obtained by applying our model to the challenge dataset.

In practice, use of the new models could be considered in choosing between different investment decisions. However, as with all completely new approaches, several examinations, such as validation, must first be conducted. Specific recommendations on when and how to use quantum probability models are therefore not yet possible.

**NIM Project Management:** [Holger Dietrich](#)





# For better decision-making



## NEW PROJECTS ON OUR RESEARCH AGENDA [PROJECT DESCRIPTIONS]

### De-biasing decision-making in marketing management

**[MOTIVATION]** In contrast to the traditional model of homo economicus, humans are not rational value optimizers when making decisions. In this respect, managers who make decisions for their organizations are not much different from customers who are guided by presumed irrational motives when making purchases. People are biased or influenced in decision-making – consciously or unconsciously – and perceive information through a filter of personal experiences and preferences. These decision biases can be major obstacles in any decision-making process.

Therefore, in the project “De-biasing Management Decisions” we identify the most important decision biases for corporate decision-makers in the context of specific decision styles. Based on this, methods for companies to identify these biases will be developed and at the same time strategies will be shown for how biases in decision-making can be reduced in a targeted way.

**[METHOD]** To this end, high-ranking corporate decision-makers from the U.S. and Europe were interviewed by telephone about the biases they observe in colleagues and themselves, as well as their impact on everyday corporate life. In addition, extensive information on decision-making styles is collected.

**[RELEVANCE]** The array of instruments that was developed allows decision-makers to determine their own risk potential due to decision-biases depending on their decision style. By measuring specific decision styles, it is possible to draw conclusions about which types of decision-makers are particularly at risk from which biases, which makes it possible to develop specific counterstrategies. ✕

**NIM Project Management:** [Dr. Fabian Buder](#)

**Cooperation Partner:** Prof. Dr. Martin Eppler and Christian Muntwiler, Institute for Media and Communications Management, University of St. Gallen





## Human-computer interaction

Technologies and intelligent computers are progressively taking over important tasks, whether apparent or unnoticed in the background. Digital assistants such as Cortana, Alexa or Siri are increasingly becoming a natural companion in our daily lives.

Artificial intelligence-based systems also support decision-makers in situations where they must make economic decisions, such as decisions about consumption or investments, by making recommendations based on historical data and algorithms.

It can also be observed that digital assistants are increasingly being made more human: they are given names, a voice or imitate human behavior. Many chatbots, for example, use natural language and emojis or show empathy.

We are therefore investigating different aspects of the interaction between humans and computers in various projects:

- > How does interaction with (intelligent) artificial assistants change our decision-making behavior?
- > Do expectations or social preferences change through interaction with artificial assistants?
- > How can the use of artificial agents be encouraged?
- > What role do human characteristics play in the use and acceptance of artificial agents?





## Social preferences in human-computer interaction and the role of anthropomorphism

**[MOTIVATION]** Social preferences, such as fairness or altruism shape our attitudes, world views and expectations, and therefore our decisions – especially when interacting with other humans.

Increasingly, we are confronted with decisions made not by a person but by an algorithm. It could be a loan that is denied or a flight that is canceled because of overbooking. In some cases, judges even rely on algorithms to make their rulings.

We now want to clarify to what extent people's decision-making behavior changes when they are confronted with supposedly unfair decisions that were made by computers rather than humans. And what influence do increasingly human-looking digital systems have?

**[METHOD]** We are addressing these questions in a series of studies. In an initial experiment, we investigated how perceptions of fairness and related decisions change when people interact with a computer instead of another human, and what effect a human computer voice has in this context.

For this purpose, a simplified negotiation game, the "Ultimatum Game," is carried out. Participants receive an offer, either from a human or a computer, which can then be accepted or rejected, depending on whether it is perceived as fair or not. If the offer is rejected, both parties go away empty-handed. This allows differences in social preferences to be measured depending on whether the offer is made by a human or a computer. We measure the influence of human characteristics by transmitting the allocation by voice instead of text in another variant.

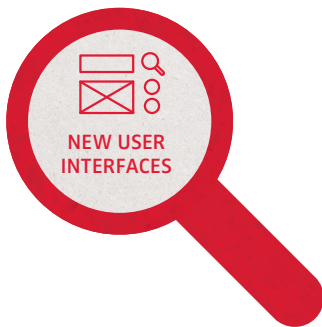
A second study is conducted in virtual reality, expanding the experiment by giving the computer not only a voice but also a virtual body in the form of an avatar.

**[RESULTS]** Not all data has been collected yet – initial results show that unfair offers are more likely to be accepted when made by a computer. This proportion increases when the computer is given a voice.

**[RELEVANCE]** Our studies aim to gain fundamental insights into social interactions with machines and how social preferences and behavior patterns change when interacting with computers instead of humans. We are also investigating how human characteristics of computer systems affect human decision-making behavior. These findings will then be used for further studies in an applied economic context. ✕

**NIM Project Management:** [Dr. Matthias Unfried](#)

**Cooperation Partner:** [Sotira Petrou, University of Pretoria](#) // [Prof. Alessandro Innocenti, University of Siena](#)



## The role of anthropomorphic digital voice assistants in (emotional) financial decisions

**[MOTIVATION]** Digital voice assistants – such as chatbots on support websites – are more common in everyday life and are an important interface in human-computer interaction. Current research indicates that voice assistants more positively affect users if they are designed to be more anthropomorphic, i.e., more human. Therefore, in a current study, we are researching how the use of voices is perceived as an anthropomorphism feature in voice assistants. Secondly, we research whether anthropomorphic voice assistants are more accepted on platforms with particularly emotional decisions, e.g., donations or prosocial microcredits, than on platforms with non-emotional decisions.

**[METHOD]** We use laboratory experiments to answer these questions. Experiment participants are randomly assigned to either an emotional or a non-emotional decision situation. Furthermore, the voice assistant is presented in three different ways: purely text-based, using an artificially generated voice, or using a pre-recorded human voice. In each of the groups, we measure the willingness to donate, the satisfaction of the participants, and the willingness to visit the platform a second time.

**[RESULT]** The final results are not yet available, but following our hypothesis, we expect anthropomorphic voice assistants to lead to greater acceptance and trust among participants, especially on platforms with emotional decisions.

**[RELEVANCE]** The results should help managers make more targeted decisions when selecting, designing and deploying voice assistants. For example, the use of anthropomorphic voice assistants could be worthwhile when making emotional decisions. ✕

**NIM Project Management:** [Dr. Matthias Unfried](#)

**Cooperation Partner:** Prof. Dr. Jella Peiffer, University of Giessen



## Trust in AI-based decision systems

**[MOTIVATION]** We live in an age of information. With technological breakthroughs in computing power and artificial intelligence (AI) in recent years, intelligent algorithms are now increasingly capable of taking over the tasks of human decision-makers, providing an effective means of managing information. Recently, it has often been observed that decision-makers reject the use of AI in their decision-making. This phenomenon poses significant challenges to companies and allows us to look for reasons and suggest ways for improvements.

**[METHOD]** Using an incentive-based experiment, we address the question of which factors increase or decrease trust and acceptance in AI-based decision systems. In an online setting, participants complete a task for which they have the choice of using an AI for support. All participants receive the same task but different introductions to the AI. This allows differences in participants' acceptance behavior to be observed.

**[RESULT]** The study is in the process of collecting data. If our assumptions are correct, different strategies will increase acceptance toward AI, while others will decrease it.

**[RELEVANCE]** With the results of the study, we want to create awareness that not every AI-based decision-making system is unconditionally accepted by decision-makers. Additionally, the results of this study are intended to guide managers who are thinking about implementing AI in their organizations by comparing and suggesting different implementation strategies to overcome resistance. x





# Selected Publications 2020/2021

## 2021

Gaspar, C. & Dieckmann, A. (2021), Young but not Naive: Leaders of Tomorrow Expect Limits to Digital Freedom to Preserve Freedom, NIM Marketing Intelligence Review, vol.13, no.1, 52-57. <https://doi.org/10.2478/nimmir-2021-0009>

Buder, F.; Pauwels, K. and Daikoku, K. (2021), The Illusion of Free Choice in the Age of Augmented Decisions, NIM Marketing Intelligence Review, vol.13, no.1, 46-51. <https://doi.org/10.2478/nimmir-2021-0008>

Gaspar, C.; Dieckmann, A.; Neus, A.; Kittinger-Rosanelli, C. (2021), Voices of the Leaders of Tomorrow: Challenges for human trust in a connected and technology-driven world. Nuremberg Institute for Market Decisions & St. Gallen Symposium

Seuss, D.; Hassan, T.; Dieckmann, A.; Unfried, M.; Scherer, K. R.; Mortillaro, M.; Garbas, J., (2021), Automatic Estimation of Action Unit Intensities and Inference of Emotional Appraisals, IEEE Transactions on Affective Computing. <https://doi.org/10.1109/TAFFC.2021.3077590>

Buder, F. & Dieckmann, A. (2021): How top young talent strives for purpose – why purpose beyond profit is a competitive advantage in the battle for the best minds. In: Controlling, Special Issue 2021/1.

Scherer, K. R.; Mortillaro, M.; Dieckmann, A.; Unfried M. & Ellgring, H., (2021), Investigating appraisal-driven facial expression and inference in emotion communication, Emotion, 21(1), 73-95. <https://doi.org/10.1037/emo0000693>

Buder, F. (2021): The Value of Foresight in a VUCA World. Results from a Survey of Organizational Foresight Capacity. Research Report, Nuremberg Institute for Market Decisions

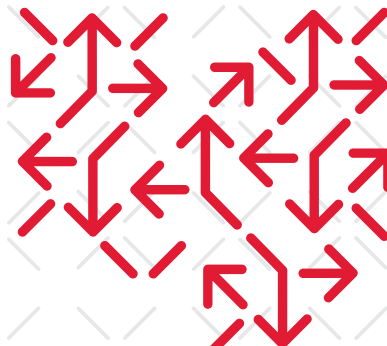
## 2020

Buder, F.; Dietrich, H. & Stoltenberg, B. (2020): Business Challenges for the 2020s. Short Report, Nuremberg Institute for Market Decisions

Buder, F.; Stoltenberg, B.; Kahdemann & D., Dietrich, H. (2020): Broken Promises and Real Achievements of Artificial Intelligence. Short Report, Nuremberg Institute for Market Decisions

Dieckmann, A., & Unfried, M. (2020), Thrilled or Upset: What Drives People to Share and Review Product Experiences?, NIM Marketing Intelligence Review, vol. 12, no. 2, 56-61. <https://doi.org/10.2478/nimmir-2020-0019>

Kaiser, C. & Schallner, R. (2020): The tone makes shopping an experience, planung & analyse, 2/2020.



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*» Whenever you see a  
successful business, someone once  
made a courageous decision. «*

*Peter F. Drucker*  
U.S. ECONOMIST







## NETWORK



NIM fosters active dialog and cooperation with experts from science and practice, innovators, think tanks and start-ups both in Germany and throughout the world. They include the following:



### BERLIN-INSTITUTE FOR POPULATION AND DEVELOPMENT

The Berlin Institute for Population and Development and NIM have been conducting joint research for many years on various studies, such as “Europe’s Demographic Future. How regions develop after a decade of crises.”



### CASS BUSINESS SCHOOL-CITY, UNIVERSITY OF LONDON

For the study “Adoption Rates for Contact Tracing App Configurations in Germany,” NIM collaborated with researchers from the Cass Business School-City, University of London, who have previously conducted research of this topic in the UK (Wiertz et al., 2020).



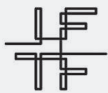
### CENTRAL UNIVERSITY OF FINANCE AND ECONOMICS

Since 2014, NIM has been cooperating with the Business School of the Central University of Finance and Economics (CUFE) in Beijing. NIM operates an experimental laboratory with CUFE, in which, among other things, joint research is conducted on “Social Norms in Human-Computer Interaction and the Role of Anthropomorphism.” As part of the cooperation, NIM also offers a two-week summer school program at CUFE on “Strategic Foresight and Decision-Making in International Markets.” This allows NIM researchers to gain first-hand insight into China’s dynamic development and also talk with the students about methods and results.



### FRIEDRICH-ALEXANDER-UNIVERSITÄT ERLANGEN-NÜRNBERG (FAU)

NIM (formerly the GfK Verein) established the GfK Department for Marketing Intelligence at FAU in January 2007.



INSTITUTE FOR THE FUTURE

### INSTITUTE FOR THE FUTURE

The Institute for the Future (IFTF) is a non-profit think tank based in Palo Alto, California and the world’s leading organization for future-oriented thinking. IFTF and NIM have been cooperating as research partners since the end of 2019 and carry out joint research on “Future Ready Organizations.” The results appear in the article “Measuring the impact of strategic foresight – results from a survey of organizational foresight capacity” (F. Buder, 2020), published in “Towards Future Readiness – A Playbook for Building Foresight Capacity.”



### JUSTUS-LIEBIG-UNIVERSITY GIESSEN

NIM is researching the project “Emotional Arousal and Social Sharing: A Study with Movie Trailers” jointly with the chair of Prof. Dr. Jella Pfeiffer at the Justus Liebig University Giessen to analyze the extent to which emotional arousal is linked to the need to share information with others.



### KIT

In partnership with KIT, CITEC (Bielefeld) and the University of Southern Denmark, NIM investigated the use of virtual reality (VR) technologies in virtual supermarkets (Meißner, M., Pfeiffer, J., Peukert, C., Dietrich, H., & Pfeiffer, T. 2020). In another study conducted at the KD2 lab, NIM investigated the effects that emotional excitement has on the voice and the need to communicate.



### ST. GALLEN SYMPOSIUM

The St. Gallen Symposium is the world's leading initiative for intergenerational debates on economic, political and social developments. NIM and the St. Gallen Symposium have been cooperating since 2014 on the study "Voices of the Leaders of Tomorrow." Each year, top talents from many countries are surveyed on economic and social issues. The focus of this year's study was "Human Freedom and Choice in the Light of Technological Change."



### NUREMBERG UNIVERSITY OF TECHNOLOGY

We are researching how the design of sustainability labels affects preferences and consumer behavior as part of master's theses and research projects jointly with Prof. Dr. Florian Riedmüller from the Nuremberg University of Technology.



### UNIVERSITY OF PRETORIA

Workshops and doctoral seminars on experimental economic research, decision theory and behavioral science were established in 2012 and are part of the cooperation with the University of Pretoria, South Africa. In addition to training, the collaboration also includes joint research, such as the project "Social Norms in Human-Computer Interaction and the Role of Anthropomorphism."



### UNIVERSITY OF SIENA

In a joint research project with Prof. Alessandro Innocenti at the University of Siena, Italy, NIM is exploring the extent to which human traits in computer agents promote anthropomorphism and influence decision-making behavior in human-computer interaction. Specific focus is on the voice as a communication medium for computer agents as well as computer agents with virtual avatars. Prof. Alessandro Innocenti is head of the Department of Social, Political and Cognitive Sciences and coordinates the two experimental laboratories LabSi (Laboratory of Experimental Economics) and LabVR UNISI (Laboratory of Experimental Economics).



### ZOLLHOF – TECH INCUBATOR

ZOLLHOF – Tech Incubator is the digital center for high-tech start-ups and corporate innovators in Middle Franconia. Founded by renowned companies and public partners, ZOLLHOF provides support to more than 50 start-ups and 10 companies in areas related to innovation and entrepreneurship. Inspired by ZOLLHOF's mission, a cooperation was started with the aim of researching and working on the challenges of digital transformation through knowledge exchange and joint events (e.g., workshops).

# Balance Sheet

## as of December 31, 2020



in € thousand (rounding differences possible)	12/31/2019	12/31/2020
<b>ASSETS</b>		
<b>NON-CURRENT ASSETS</b>		
<b>Property, plant and equipment</b>		
Land and buildings	130	46
Other equipment, business and office equipment	257	272
	<b>387</b>	<b>319</b>
<b>Financial assets</b>		
Investments	39,201	39,201
	<b>39,588</b>	<b>39,519</b>
<b>CURRENT ASSETS</b>		
<b>Receivables and other assets</b>		
Trade receivables	21	16
Other assets	55	29
	<b>76</b>	<b>45</b>
<b>Bank balances</b>	<b>13,828</b>	<b>12,483</b>
	<b>13,904</b>	<b>12,528</b>
<b>PREPAID EXPENSES</b>	<b>2</b>	<b>35</b>
	<b>53,494</b>	<b>52,083</b>
<b>EQUITY AND LIABILITIES</b>		
<b>EQUITY</b>		
Other retained earnings	53,086	50,703
<b>PROVISIONS</b>		
Other provisions	289	1,171
<b>LIABILITIES</b>		
Bank borrowings	1	1
Trade payables	70	122
Other	48	85
	119	208
	<b>53,494</b>	<b>52,083</b>



# Income statement 2020



in € thousand (rounding differences possible)	2019	2020
Sales	100	16
Membership dues	189	172
Other operating income	25	2804
	<b>314</b>	<b>2,992</b>
Expenses for services procured	- 555	- 131
Personnel expenses	- 1,607	- 1,583
Amortization and depreciation on intangible assets and property, plant and equipment	- 47	- 68
Other operating expenses	- 2,195	- 3,237
	<b>- 4,404</b>	<b>- 5,019</b>
Income from investments	0	0
Other interest and similar income	0	0
Interest and similar expenses	- 57	0
Income taxes	0	0
<b>Net income</b>	<b>- 4,147</b>	<b>- 2,028</b>
Taxes	- 355	- 355
<b>Net profit/loss</b>	<b>- 4,502</b>	<b>- 2,383</b>



# Nuremberg Institute for Market Decisions and GfK SE

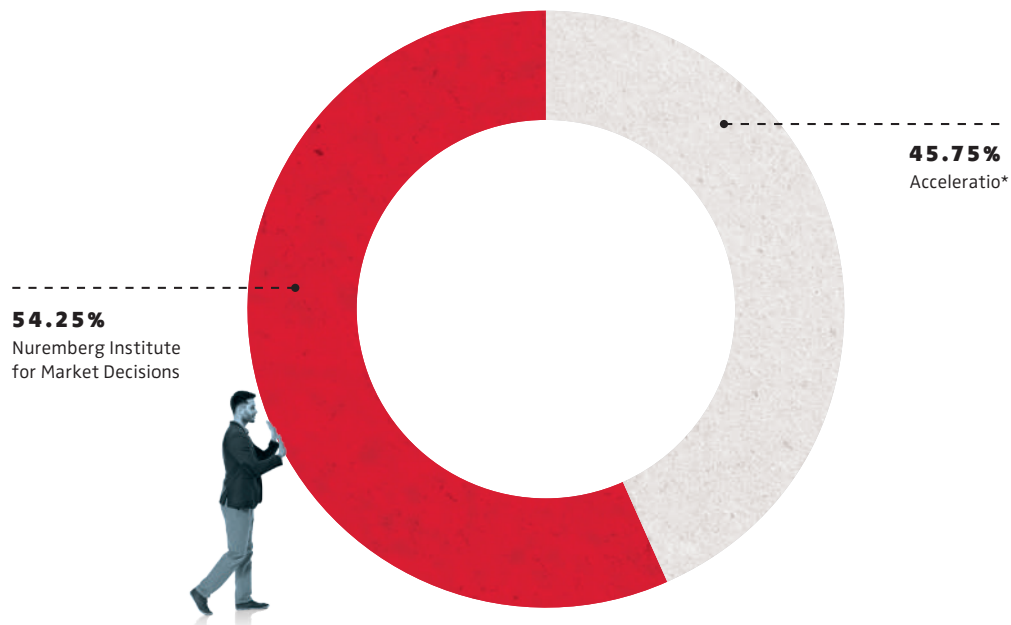


## NUREMBERG INSTITUTE FOR MARKET DECISIONS

*Founder and Anchor Shareholder  
of GfK SE*

In addition to its research work on how consumers, marketing and product managers can make better decisions in markets, the Nuremberg Institute for Market Decisions is also the anchor shareholder of GfK SE with a 54.25 percent shareholding (Status: June 2021).

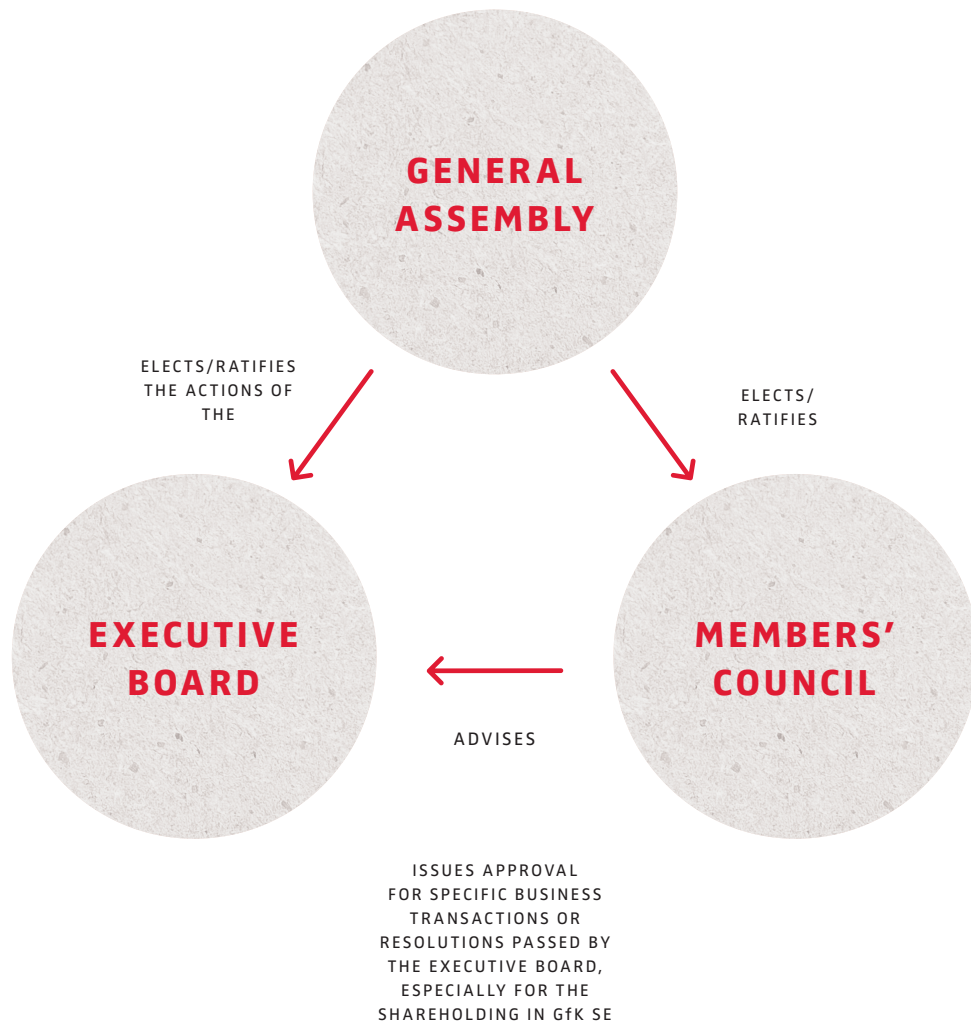
## SHAREHOLDER STRUCTURE



As of: June 2021

\* Acceleratio Holdco Sàrl and Acceleratio Topco Sàrl

# The Committees of the Nuremberg Institute for Market Decisions







# LEGAL NOTICE

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