



Disruptive events and how policies can deal with them - A case study on e-collaboration and bottom-up collaborative foresight as potential tools for effective policy development

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***Abstract:** This case study on disruptive events shows that stakeholder involvement in policy foresight and thus policy development processes leads to results with a higher rate of acceptance, since the content is generated by the stakeholders itself throughout the process. The use of an e-collaboration platform (cbased) guarantees transparency and also enables a decentralized involvement of all interested individuals. It is moreover a very efficient way, to gather both qualitative but relatively inexpensive information. This process on disruptive events and policy reactions, documents how knowledge and expertise of a community can be tapped at low cost and transferred into an actionable strategy which is supported by the community*

***Keywords:** online-collaboration, e-participation, bottom-up, user generated content, policy making*

1. Introduction

This case study on disruptive events was part of the project “Österreich 2050 – FIT für die Zukunft” (Austria 2050 – fit for the future) that was implemented by the Austrian Council for Research and Technology Development. It is also the result of creative experimentation. This concerns both the topic as well as the process.

The process was thus open to everyone who was interested, and was open to participation throughout its full duration. It was divided into three phases. In phase 1, as part of an open, collective brainstorming on the web-based discussion platform www.oesterreich2050.at¹, 53 disruptive events were uploaded by 152 registered participants. These were analysed by the project team – that is, the authors of this article – summarised in a document and then again put up

¹ This is a customized version of the cbased participation platform (see www.cbased.com & www.discuto.io).

for discussion (phase 2). The document received exactly 300 comments and was voted on almost 600 times. In phase 3, opinions on controversial points were given in a survey, the results of which assist with the prioritising of potential disruptive events. In total, about 2,500 people visited the site and followed the discussion.

The 53 disruptive events clearly focused on events (intentionally or unintentionally) caused by humans. According to the views of the participants, the events may be recognisable but are either not tackled or are approached using largely ineffective instruments. Classic disruptive events (e.g. earthquakes, asteroid impact) only played very minor roles.

The focus of the evaluation here was not on the interpretation of individual events (e.g. asteroids, climate change, lack of resources), but on developing solutions and principles for dealing with disruptive events in general. As part of this work, we were also attempting to define what disruptive events are and to demonstrate the most integral problems in dealing with them, to analyse the results of the collective brainstorming from a meta-perspective and to draw conclusions from them. Through this process, four components points for dealing with disruptive events were found based on the results of the discussion process: Crisis and emergency strategies, dealing with complexity, improved societal decision making, and taking the system limits into account.

The paper is organised as follows: chapter 2 defines and categorises disruptive events, chapter 3 presents the results of the collaborative brainstorming using the categorisations. The likelihood and disruptive potential of these events is also presented. Chapter 4 summarises the results and insight from this exercise. A list of identified disruptive events is to be found in the appendix.

2. Definition and dimensions of disruptive events

Disruptive events permanently change our lives. The term “disruptive” means to break apart, to throw into disorder, to destroy. “Events” in this context are isolated events as well as ones that develop over a longer period of time. Disruptive events, then, are those that destroy or disintegrate existing things and replace them with something new. This can have negative as well as positive consequences. But what is significant is that they are difficult to predict and thus through ex ante measures can only be partly influenced (cf. Taleb 2008).

The American legal theorist and economist Richard Allen Posner (2004) divides negative disruptive events into four categories:

1. Natural catastrophes (epidemics, volcano eruptions, meteorite impact, etc.)
2. Scientific accidents or laboratory accidents (e.g. release of bacteria)
3. Unintended man-made catastrophes (climate change, nuclear accidents, social upheavals, economic crises, corruption, political structures, food shortages, “alien species”, etc.) and
4. Intentional, man-made catastrophes (cyber wars, terrorist attacks, etc.)

This division can be generalised based on following three dimensions:

Length: Isolated event or longer lasting development

Cause: Man-made/human-caused or natural events

Intention: Intentional or unintended events

Evaluating whether a disruptive event is man-made and a development manifested over a longer period of time furthermore depends heavily on individual values and life circumstances. This is naturally also the case particularly when social developments are being evaluated. So, for example, an increasingly unequal distribution of income can be considered as destabilising for a society, or as an incentive to try harder and to likewise become richer through it.

Unintended events are – especially in the early phase – perceived differently. This applies to science, in which it often takes longer for alternative interpretations to be possible (see, for example, Kuhn’s studies on the paradigm shift, 1976), as well as also for individual perceptions. Some people have a pronounced sensitivity for new developments and changes in society.

3. Results and interpretations

The disruptive events uploaded on www.oesterreich2050.at were sorted into a matrix, which, on the vertical axis, distinguishes between natural catastrophes and man-made, intentional and unintentional events based on Posner’s classifications (2004). The horizontal axis distinguishes between the respective decision-making situations according to Diamond (2005) (see table 1). Each event has a unique number.

As can be seen in table 1, the disruptive events are distributed widely over the categories. Significant focuses can be seen with the unintended and intentional, human-caused/man-made, disruptive events (vertical). This is also verified by the British astronomer Martin Rees (2011): the main threat to the human species is no longer nature – as has been previously assumed – but humans and the highly complex systems created by humankind.

Table 2: Matrix from disruptive events and dimensions of decision-making processes (according to Diamond, 2005, Posner, 2004)

	Failure to anticipate a problem before it appears	Failure to perceive a problem when it appears	Failure to try to solve the problem after it is perceived	Failure to solve the problem after attempting to do so
Natural catastrophes				11, 10
Unintended, human-caused events	45, 20, 16, 13	48, 35, 26	51, 50, 42, 39, 38, 37, 36, 33, 28, 25, 23, 8	47, 46, 41, 40, 30, 21, 18, 12, 6, 5, 4, 1
Intentional, man-made events	44	49	53, 52, 29, 27, 24	34, 32, 31, 22, 19, 17, 15, 7, 3, 2

Source: own survey, n = 50

Note: the disruptive events corresponding with the numbers are listed in the appendix.

“Unintended events”, which describe processes that tend towards being diffuse, creeping processes and the evaluation of which is strongly dependent on individual values and perceptions, were frequently uploaded. The main issue here is not so much the disruptive events in the form of an ultimate escalation, but more the perception of a “potentially disruptive development”, the consequences of which are preponderantly evaluated as being negative (Table 2)

Table 2: Thematic categories and evaluations of disruptive events

Category	Number	Negative	Positive
Political and social change	11	52, 47, 48, 46, 42, 39, 37, 36, 33, 30, 25, 18, 12, 4	
Collapse – war	9	32, 27, 26, 24, 21, 20, 16, 2, 1	
Innovation – technology – knowledge	8	7	34, 32, 31, 19, 17, 15
Change of balance of power	7	53, 49, 45, 44, 38	
Resources	6	41, 40, 29, 28, 3	22
Climate	3	51, 50, 10	
Science-induced events	3	23, 6	8
Illness – epidemics	2	13, 5	
Natural catastrophes	1	11	
Total	50	42	8

Source: own survey, n = 50

Note: the disruptive events corresponding with the numbers are listed in the appendix.

The partly explicit, partly implicit evaluation of disruptive events is also depicted in table 2: 42 of 50 scenarios are clearly connoted as “negative”. On the one hand, this could indicate a fundamentally pessimistic assessment of future developments. On the other hand, it may also be related to the question of disruptive events, or the term itself, which tends to have negative connotations. Nevertheless, this representation also underscores the dissatisfaction with existing structures and the latent distrust of the adequacy of current instruments for dealing with disruptive events.

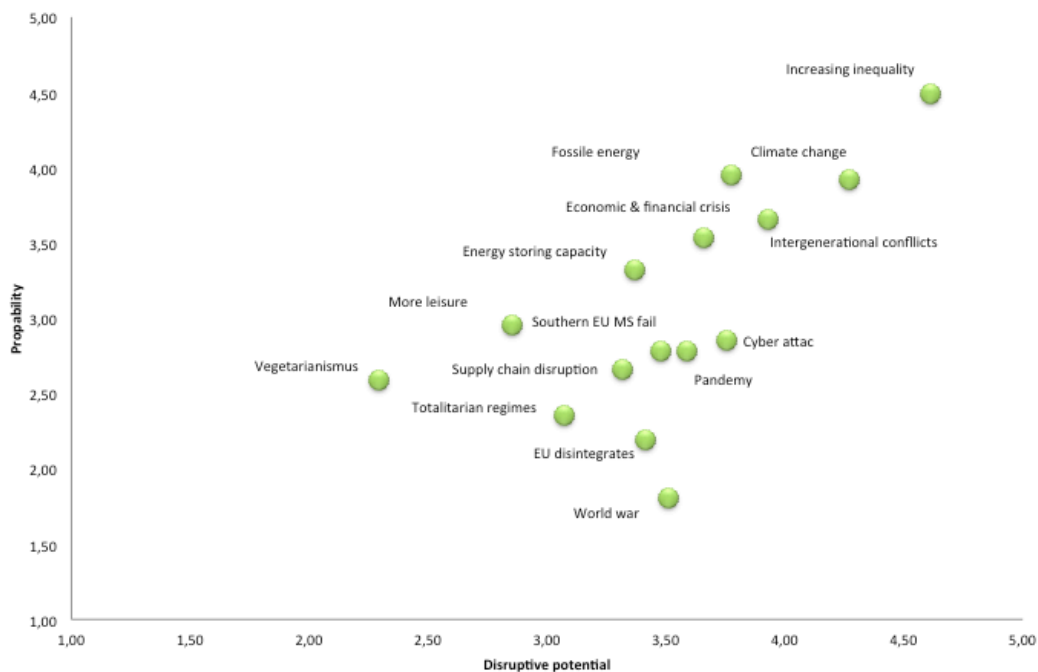
One central characteristic of six of the eight positive responses is the importance of technical innovations such as energy storage, e-mobility and atomic fusion. This very clearly reflects the hope or conviction that positive changes can be brought about using technology. This again shows that scientific and technical innovations are seen as being very important elements in solving social problems. Currently, great hope is invested in them, while political developments tend to be more sceptically evaluated. The subject of “social innovations”, on the other hand, was almost not brought up at all, even though the implicit demand for it is clearly shown as an important element

in the results.

The disruptive events raised in the collective brainstorming were condensed to 15 subjects based on a qualitative content analysis (cf. Mayring, 2007), and examined as part of a survey on their disruptive potential as well as on the possibility of their occurrence. As evidenced in figure 1, the disruptive potential and the possibility of the occurrence of the various events shown are clearly correlated. We can assume from this that the participants did not differentiate between these dimensions. Nevertheless, a certain prioritisation can be deduced from the results, according to which interventions regarding the growing divide between poor and rich, the climate change, the depletion of fossil fuels, the generation conflict and also the continuing financial and economic crisis are particularly urgent.

Cyber attacks, pandemics, the ungovernable European southern states, fracturing of the EU or a new world war may be allotted certain disruptive potential, but the probability of it happening is ranked rather low. Increased vegetarian nutrition is considered both less disruptive as well as not very probable.

Figure 1: Probability of occurrence and disruptive potential



Source: own survey, n=41

Of course, one also has to formulate strategies for dealing with singular disruptive events (natural catastrophes, laboratory accidents, pandemic, terrorist attacks, etc.), which can be applied at any time. This line of action will not be further discussed here, but will be picked up again in the conclusion.

4. Conclusions

The question of potential disruptive events is relevant because it leads directly to the most pressing issues humankind is facing at the moment. Although these issues are somewhat present in day to day discussion, they are frequently neglected in traditional decision making processes which focus rather on more focused topics or sectoral issues thereby neglecting the horizontal nature of our most fundamental problems and the flaws incorporated in collective decision making processes. Given the considerable challenges, it is less about technology and innovation, environmental or education policies, etc., than about solving skills and the ability to find basic societal consensus on the most pressing issues.

The majority of the identified and potentially disruptive events described in the public discussion process are man-made in origin: It is no longer natural events but highly complex systems that can lead to undesired events, or decision-making processes, that do justice to individual interests, but do not solve the pending challenges or are simply irrational. From the structure of the uploaded events, three fields of action can be identified, each having specific characteristics and needs:

- Reactions to “classic” disruptive events through crisis and emergency strategies,
- Dealing with complexity,
- Improvement of social decision-making processes and
- Accepting the limits of our eco-system.

Reactions to “classic” disruptive events

Contingency plans, dealing with critical infrastructures, civil protection measures, etc., which are not discussed here since established structures already exist which were not analysed are some of the possibilities to react to classic disruptive events. . This much can be said: this is not an abstract theoretical discussion; it is only a matter of time before an event occurs in which these precautions will be urgently needed. The development of crisis intervention plans, contingency plans and training of the population – also traditional civil protection measures – as well as dealing with critical infrastructure are by no means obsolete.

Building up a social “resistance” (see Gunderson – Hollings, 2002, Thompson, 2008, among others) is another more important area. This could mean the preventative protection of vulnerable populations (such as pensioners or people who live in particularly high-risk areas) or simply the strengthening of civil society. Just as important is also the strengthening of globally acting institutions for overcoming disruptive events. Establishing the World Health Organisation (WHO), which could play a co-ordinating role in the event of a crisis, is an example.. On a national level, institutions could be strengthened or established, which permanently deal with certain, potentially disruptive issues on an ongoing basis.

Dealing with complexity

The survey results and comments of the participants can be summed up in the principle statement that great complexity can basically be dealt with in a meaningful way. But this requires a change in perspective, the focus of which should be more on the analysis of the interdependencies and interconnections. The common practice of regarding individual policy areas independently of

one another is thus increasingly questioned.

Given the now ubiquitous complex systems, policy makers should seek to strengthen the positive effects of the different networks that characterise our world today. At the same time, measures must be implemented against the vulnerability of these systems. State authorities continue to play the central role in risk management. But civil society is challenged and also plays an important role.

Like all man-made phenomena, it is also possible to counteract complex systems. In general, this can work in two ways: on the one hand, policies could invest in better predictions in order to detect early signals of a possible disruptive event. On the other hand, existing systems could be effectively strengthened to deal with the events that occur..

Therefore, a first political approach might be to accelerate national and international efforts to better understand and predict potential risks. For this, initiatives and investments in complex systems research are needed – also from an Austrian perspective. On an international level, movement can already be seen in this direction, which includes the Cambridge Project for Existential Risks or the Oxford-based Institute for New Economic Thinking and the Future of Humanity Institute. These institutes were founded only recently. There are also numerous think tanks that deal with complex systems. In Austria, for example, the department for complex systems at the Medical University Vienna or the International Institute for Applied Systems Analysis (IIASA) in Laxenburg.

A second approach could entail increasing the focus on the multidisciplinary design of research projects. This should be the rule, not the exception, and should be accordingly implemented by research-support organisations.

Improving the societal decision-making processes

The following three dominant problems arose in regard to societal decision-making processes:

1. Extracting political and economic institutions – a situation where the elite extracts the surplus from the system and thus the incentives for development of individual talents and the introduction of innovations decreases.
2. The influence of special interests on decisions.
3. The dominance of short-term decision calculi, which leads to long-term irrational decisions. The fundamental decision-making capability of policies is not questioned.

There is no standard recipe for these problems, which are also of course discussed in other contexts. Nevertheless, it would still make sense to launch a discussion on some issues that seeks a general social consensus. These need to be organised by institutions outside day-to-day politics. This would have the effect that certain topics – potentially disruptive developments – would stay on the agenda in the long term and that the policies would not be all too erratic.

A social consensus – which, for example, was possible in the use of nuclear energy in the past – also allows long-term priorities to be set and the broadening of the decision horizon – a central task set by the project “Austria 2050”. Thus, the priority of short-term planning horizons could be pushed back.

Fighting extracting political and economic institutions is an economic and socio-political necessity, if long-term prospering development is to be supported. The only groups that could be

against this would be those that have managed to install extracting arrangements and fear losing them or those that have already managed to accommodate their interest in the policy process.

The only decision-making processes that help against both these developments are those that are more transparent, more participatory and thus more open, as well as make it possible for the participation of everyone. This may be obvious, but in practice it is not necessarily easy. Here we need social innovations that change decision-making processes and provide a broader base. The critical point here is the influence on the decisions ultimately taken. Even now, we can “discuss everything”, get many involved in it, but still fully negate the results of the discussions in the actual decisions. This approach makes the disruptive developments all the more likely.

A serious reform effort towards long-term and participatory decisions could correct the impression that politics, on the one hand could tackle the problems, but on the other hand are unwilling to take the right decisions because they are far too considerate of powerful groups with vested interests.

Accepting the limits of our eco-system

This point resonated in the discussion but was not always clearly addressed was the system limitations of our ecosystem. It is adequately known that the earth represents a closed system and thus all resources are limited. In addition, on this level, the issue of distribution becomes conspicuous: who consumes how much of the limited resources? Both dimensions are currently not being taken into account enough in policy decisions. It is precisely the attempt to create an internationally binding set of regulations (Copenhagen 2009, Rio +20) that show the influence of vested interests. The most recent policy change in Europe i.e. lower energy prices to increase competitiveness – shows that we haven't yet understood this particular aspect. The probability that disruptive events will occur has thus significantly risen.

References

- Acemoglu, D., & Robinson, J. (2012): *Why Nations Fail: The Origins of Power, Prosperity and Poverty*, Profile Books, London
- Buchanan, M. (2013): *Fix Finance by Shedding Light on Its Complexities*. In: <http://www.bloomberg.com/news/2013-02-10/fix-finance-by-shedding-light-on-its-complexities.html>
- Casti, J.L. (2012a): *X-Events: Wie man sich auf den großen Zusammenbruch vorbereitet*. In: *Der Standard*, 29 May 2012 (Translation: Sabine Schmidt)
- Casti, J.L. (2012b): *X-Events: The Collapse of Everything*, Harper Collins
- Diamond, J. (2005): *Collapse: how societies choose to fail or succeed*, Penguin Books, London
- Foerster, H. von (2002): *Understanding Systems: Conversations on Epistemology and Ethics*. IFSR International Series on Systems Science and Engineering, vol. 17
- Gunderson, L. H., Holling, C. S., (2002), *Panarchy: Understanding Transformations in Systems of Humans and Nature: Understanding Transformations in Human and Natural Systems*, Island Press, Washington D. C.
- Janis, I. L. (1971): "Groupthink", *Psychology Today* 5:6, pp. 43–46, 74–76
- Kuhn, T. S. (1976): *Die Struktur wissenschaftlicher Revolutionen*, Suhrkamp, Frankfurt am Main

- Kurzweil, R. (2006): Singularity is Near, G Duckworth, London
- Mayring, P. (2007): Qualitative Inhaltsanalyse. Grundlagen und Techniken, Weinheim
- National Intelligence Council (2012): Global Trends 2030: Alternative Worlds
- OECD (2011): Future Global Shocks: Improving Risk Governance, Paris
- Olson, M. (1982): The Rise and Decline of Nations, Yale University Press
- Posner, R. A. (2005): Catastrophe, Risk and Response, Oxford University Press, USA
- Rees, M. (2011): From Here to Infinity: Scientific Horizons, Profile Books, London
- Stavins, R. N. (2011): The Problem of the Commons: Still Unsettled after 100 Years. In: The American Economic Review, February 2011
- Stavins, R. N. (2011): Experience with Market-Based Environmental Policy Instruments, Prepared for: The Handbook of Environmental Economics, Elsevier Science, Amsterdam
- Taleb, N. (2008): The Black Swan - The Impact of the Highly Improbable. Random House
- Thompson, M. (2008): Organising and Disorganising: A Dynamic and Non-Linear Theory of Institutional Emergence and its Implications, Triarchy Press, UK

About the Author

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Hannes Leo has been analysing innovation activity in the economy, sectors and companies for more than 20 years. His main focus of interest is on innovation, industrial, research and technology policies, information and communication technologies, telecommunication and regulation, creative industries and internet-based participatory decision-making processes. Since June 2010, he has been manager of the community-based Innovation Systems GmbH (cbased - www.cbased.at), co-founded with Alfred Taudes, which designs and executes participatory decision-making processes. He also works as an economic policy advisor for national and international clients. Hannes Leo began his career following his studies in commercial science at the Austrian Institute of Economic Research (WIFO, 1990-2007), where he was responsible for several major projects (e.g. competition report of the GD companies, Sectorial Innovation Watch, tip), coordinated the research area industrial economy, innovation and international trade, and also, between 2005 and 2007, was acting head. From January to April 2008, Leo was manager of the Institute for the Study of Labor (IZA) in Bonn. Leo is a delegate at the Consultative Commission on Industrial Change (CCMI) of the European Economic and Social Committee (EESC) and member of the United Nations Economic Committee for Europe (UNECE), Team of Specialists on Innovation and Competitiveness Policies (TOS-ICP) and lecturer at the Technical University Vienna. Hannes Leo was a guest researcher at the Science Policy Research Unit (SPRU, University of Sussex, Brighton, 1994), at the Istituto di Studi sulla Ricerca e Documentazione Scientifica, (CNR, Rome, 1995), at Office of Telecommunications, London (OFTEL, 1996) and at the University of California, Berkeley (Prof. Varian, 2001).

Johannes Gadner

Johannes Gadner has been on the team of the RFTE's secretariat since 2007. He is acting manager of the secretariat and manages the preparation of the annual report on Austria's scientific and technological performance. Another main responsibility is coordinating projects in the development of long-term oriented strategic processes. After the completion of the RFTE's Strategy 2020 in August 2009, Gadner assisted in the development of the strategy for the Federal Government for Research, Technology and innovation (FTI) while working for the FTI secretariat of the Federal Chancellery, especially created for him. Johannes Gadner grew up in Berlin, Zurich and Vienna, where he matriculated in 1989. Following his studies at the University of Vienna, the Free University Berlin and at the University College London (UCL)

he graduated from the Department of Science and Technology Studies, University of Vienna. From 1997, he first worked as a research assistant at the UCL and then as assistant at the Institute for Philosophy at the University of Innsbruck, participating in the set-up of the department for Knowledge Organisation. In 2001, together with an interdisciplinary team, he co-founded the Institute for Knowledge Organisation (IWO) in Vienna, where he dealt with epistemological and methodological questioning, mainly the evolution of socio-cultural knowledge systems as well as the societal acceptance of (technical) innovations. Before his involvement with the RTFE, Johannes Gadner worked as a science and research advisor for the Green party faction in political decision-making processes at the Austrian National Council.

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Andreas Gemes born in 1981: since 2010, he has been working as a consultant at AUSTIN Pock + Partners GmbH and advises companies and public establishments on strategic questions. Prior to this, he was in quality management at the Austrian Agency for Quality Assurance (AQA) and as a research co-ordinator at the University of Graz. In 2008, he was awarded a doctorate in History and European studies at the University of Graz. He is currently finishing his post-grad MBA studies at the University of Economics in Vienna and the Technical University Vienna.

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Wilhelm Geiger originally graduated as a chef and later studied sociology at the University of Vienna and economics with a special focus on socio-economics at the Vienna University of Economics and Business. He is experienced in market research, advising and also in the creative sector (food design). From 2010 to 2011 he worked at the Ministry of Life (BMLFUW) and since then has been particularly interested in the sustainability of processes, products and services. He was recently responsible for the development and establishment of a sustainable catering line as well as various certification projects. Currently he is involved with the evaluation process of the Austrian Eco Label. He joined Community-based Innovation Systems GmbH (cbased) at the beginning of its inception.

Annex

Table 1: Disruptive events, as suggested by the users

No.	Disruptive Event (DE)	User	Probability
1	Disruption of global supply networks	alfred_t	very probable
2	Massive cyber attack	alfred_t	probable
3	Extortionate shortage of raw materials	alfred_t	improbable
4	Pension expenses as a ticking time bomb	ziggy stardust	very probable
5	Small dose, high effect?	Finstergrün	probable
6	Financial meltdown, the second	STefanT	probable
7	Medicine 2.0	Phil	probable
8	New forms of investments - Are they allowed to do that?	Finstergrün	probable
9	26 letters - the solution for everything?	Finstergrün	Very improbable
10	Nature hits back	herodot	very probable
11	Meteorite impact	herodot	probable

12	Demographic change in Europe	Mantschilein	probable
13	New infectious diseases	jo	probable
14	What is the world's path, or the course of events?	Skalicky	-
15	Corporate foresight for more disruptive innovations and as Orientation for disruptive events???	ActienGesellschaft	very probable
16	Political revolutions and upheavals	ActienGesellschaft	very probable
17	Atomic fusion instead of division and oil	Werner Engel	probable
18	Consequences of inequality	ziggy stardust	probable
19	Confluence of knowledge	Firehorse	very probable
20	Food supply	Fritz Gloxer	improbable
21	Breakdown of information sources in the Internet	Fritz Gloxer	probable
22	Change of dietary habits (change to vegetarian diet)	MOMUS	probable
23	Avarice becoming ever cooler ...	Werner Engel	very probable
24	Third world war	Hardy Hanappi	probable
25	Austrian university crisis	M.	Very improbable
26	Information overload foundation for new superstition and de-socialisation	Rupert Puntigam	very probable
27	Economy constantly needs to be RESET!	Rupert Puntigam	very probable
28	Breakdown in the global food supply chain	JE	very probable
29	Raw materials oil US competition	Fred	very probable
30	Public institutions lose credibility	Mantschilein	probable
31	Energy turn-around	Rupert Puntigam	very probable
32	Electro-mobility	Rupert Puntigam	very probable
33	EU fracture	DIPo	-
34	Electricity becomes economically storable in high storage density	DIpol	probable
35	Networking leads to collapse	Keal	very probable
No.	Disruptive event	User	Probability
36	Social revolution through atomisation	ziggy stardust	probable
37	Renaissance totalitarian dictatorships. NEW: Technological power becomes world power	Hubertus H.	very probable

38	Universal language English	Rupert Puntigam	very probable
39	STOP reinventing the wheel in education	Rupert Puntigam	improbable
40	Mobility urgently needs liquid fuels with extremely high energy density - 40000000 J/kg and more	Bruno Lindorfer	-
41	Water conflict	Nelson	very probable
42	Huge deceleration of the world from 2050	Bruno Lindorfer	probable
43	What can Austria learn from Disruptive technologies from the famous book by Prof. Clayton Christensen The Innovator's Dilemma?	Bruno Lindorfer	-
44	England could introduce slavery again	M.	probable
45	2050 advanced civilisation in Africa and separatism in Europe	M.	very probable
46	Fearful and conservative currents see a boost and hinder innovation	unbequeme Stimme	probable
47	Corruption destroys state	unbequeme Stimme	very probable
48	Ubiquitous computing and synthetic biology change "humanism"	hochgerner	very probable
49	Online trade needs greater control	M.	probable
50	Return of the wolves and bears to Upper Austria, Lower Austria, Salzburg	M.	-
51	Migration influx from the south	healthup	probable
52	Youth changes and creates NEW THINGS - old ...	Rupert Puntigam	-
53	Intellectual property theft	M.	very probable