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The Future as Wild Card

A Short Introduction to a New Concept

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Futures studies at the beginning of the 21st century

Futures studies (or foresight) have experienced remarkable developments in the last two decades. They have departed from the planning optimism which characterized their earlier days and from far-reaching forecasts of the future. Thirty years ago, Herman Kahn sought to describe the coming two hundred years; by contrast, futures research today seeks to identify in quite pragmatic fashion feasible roads into a future which will be worth living. But futurologists have learned yet another lesson: There is always a chance that dramatic events change the whole image of the future, the way we think about it, the concepts we use and even the aims we try to achieve.

September 11, the collapse of the communist block and the first oil crisis are examples for such surprising and disrupting events. As discontinuities they lead to the failure of prognoses and, moreover, they represent even a challenge for scenario techniques.

Some remarks on methodological developments

Quite generally, from the viewpoint of the methods applied, futures research experienced a development in the 1980s and 1990s which may be characterized as a move toward “enhanced pragmatism”. Complex (but relatively rigid) formalisms such as analyses of interactions and certain other quantitative methods are used less frequently; sophisticated (and not so sophisticated) scenario techniques often take their place. Brainstorming techniques and various participatory methods such as futures workshops have also experienced a tremendous spread (Burmeister *et al.* 200).

In some regards – especially in the field of methodology – technology assessment (TA) has evolved along lines similar to foresight. Some observers speak of a “change in perspective” in recent years: TA is no longer primarily an advisory instrument for the legislative and executive branches with the purpose of limiting damage at the end of a technological development vector. Just as the major emphasis in foresight has shifted from forecasts to the design of desirable futures, TA today concentrates efforts on shaping technology at an early stage in the genesis of a technology (“creative technology assessment”). Among other aspects, this implies getting new groups of operatives involved – businesses, associations and various interest groups within society (“stakeholders”).

Pertinent developments are also to be seen in the philosophy of science. What has been overcome in particular is the traditional notion of the logical identity of explanation and prognosis, something which goes back to the beginnings of the philosophy of science. To put it simply: Even where a correct *post hoc* explanation can be supplied for a certain phe-

nomenon, it does not automatically follow that *ex ante* prognoses can also be submitted. In the field of logic we have finally been able also to take into account the fundamental difference between past and future – the irreversibility of the past together with the open-endedness of the future.

Even recent advances in such distant disciplines as the historical sciences can be set in relationship to futures research. In the topology of historical knowledge, history is no longer considered to be a finished object which we need only to uncover and, in accordance with Ranke's dictum, jot down "as is really was"; instead, it is seen as a construct. The historian uses today's traces from the past and his or her own conceptual instruments to collate individual findings and form a picture of the past – not entirely dissimilar to the futures researcher who observes current trends and uses his conceptualization instruments to construct a picture of the future. There are direct parallels to the new sub-discipline of counterfactual historical research which constructs pasts which never existed but which might have existed – in a way scenario techniques applied not to the future but to the past. Thus, for example, the Nobel Prize winning historian Robert W. Fogel examined the course which economic development might have taken in the United States if the railway network had not been created in the last century. Which effects would the absence of rail transportation have had on business and the economy?

Counter-factual questions of this type are resolved in a sort of scenario study. A historical scenario study such as this differs from a futurologic study in that not the present, but rather some point in time in the past, is taken as the starting point and that the historian always has at hand a reference model, a standard scenario, in the form of real history (Steinmüller 1999).

Among new theories of the last decades, the self-organization and chaos theories have undoubtedly had the greatest impact on futures research. Sometimes it might even appear as though chaos and self-organization were undermining the actual foundations of futures studies. According to certain popular interpretations, neither forecasting nor planning are feasible: minute changes in the initial situation can lead to major changes in the final results so that the consequences can no longer be estimated. The fact is that chaos theory, properly applied, makes possible a more precise demarcation between areas in which prognoses are possible and those where they are not – in each case within the framework of the assumed model of reality.

Self-organization, as both a theoretical and a practical social concept, forces us to re-think futures planning once again. Practical futures research has for a long time now indicated that planning in the conventional fashion – pursuing a fixed course once it has been laid down –

is not feasible in our highly complex society. Incremental planning, which embraces step-by-step examination of goals and instruments and is always open to external influences and changes, continues to be a central concept in shaping the futures.

These brief comments were intended to provide a framework for the discussion of wild cards which will now follow.

Wild cards – “futurequakes”

In retrospect we can probably quite easily reach agreement that major catastrophic events such as the reactor accident at Chernobyl could be considered to be a wild card. Individual political events with grave consequences such as the terror attacks of September 11 might also be considered to be wild cards. One could probably even consider the collapse of the Soviet system to be a wild card; it was certainly a wild card for the prognosticators inside the Communist Block. Was the first oil crisis a wild card? Many would say so but we have learned that Shell was prepared for such an event. Consequently we must question whether this was truly a wild card.

Ten years ago, the CIFS (Copenhagen Institute for Futures Studies), BIPE Conseil (Issy-Les-Moulineaux) and the Institute for the Future (Menlo Park, California) suggested in a joint publication a definition for wild cards:

“A wild card is a future development or event with a relatively low probability of occurrence but a likely high impact on the conduct of business” (BIPE *et al.* 1992, p. v)

As a rule, neither the likelihood nor the impact potential will be known in advance; both will have to be assessed when identifying an event as a wild card. In regard to probability, a qualitative evaluation will as a rule be sufficient, determining that this is an event which is indeed improbable but not entirely impossible. In much the same way a qualitative estimate of the impact is sufficient for the identification of wild cards: potentially wide-ranging impacts are expected. The actual evaluation of the consequences, for which a wide variety of methodological instruments (borrowed from technology assessment, for example) might be considered, does not take place while identifying or selecting wild cards to be used in a scenario process but only later, in the step known as “analysis of the disruptive event”.

At first glance a wild card is something surprising, maybe even shocking, something which happens unexpectedly. Surprise is, however, a very subjective concept and therefore not suitable as a criterion. Nevertheless the question, “What might surprise you?”, is a good starting point for a wild card brainstorming sessions. The element of surprise disappears, however, during a closer analysis.

In any case, characterizing an event or development as a wild card depends upon the overall framework of the study being undertaken: a new mathematical theory which would make cryptography obsolete would, for example, have immense impact on the information and communications technologies sector; within the framework of a demographic study, however, it is irrelevant.

In a way, the definition of the three institutes plays down the real value of wild cards. Characterizing them by low probability and high impact misses a central point: The effect of a wild card is tremendous since it does not fit into our usual frame of reference, since it undermines our concept of the ordinary, normal way of things, since it makes the concepts doubtful according to which we regard the world.

Wild card change our frame of reference, our mental map of the world. This can be demonstrated by new words with new meanings after a wild card has happened: superterrorism, climate protection, or – to take some older ones – aids, stagflation, glocalisation. Therefore, wild cards do not only change reality but also, and perhaps even more deeply, or perception of reality and our concepts. As it is often observed, they re-write the future, but they re-write also the past. We look with other eyes to past developments. Did they give rise to the wild card? Which trends were in favor of it? Which “weak signals” already hinted at the wild card?

Take Chernobyl as an example. The Chernobyl disaster was not only one more reactor accident (of a yet unknown dimension), nothing like, say, the disaster of Harrisburgh (Three Miles Island). It was without any precedent since it changed the way most people are thinking about the “peaceful use of the atom”.

If the future is the space of our hopes and fears, our wishes and plans, or, more generally: our expectations, wild cards are shocks to this space. They are “futurequakes” changing all of the landscape of the future.

Approaches to systemization

There are lots of quite different wild cards: A sudden baby boom in Europe or a new epidemic, a break-through in high-temperature superconductivity research or a shifting of the Gulf Stream, political upheavals of all kinds, wars, assassinations, an end to Moore’s Law (ever increasing performance of computers), gene-tech hazards, a radio-smog panic and many, many more. In his catalogue Petersen (1997) lists 78 wild cards. We describe 55 wild cards in our recent publication (Steinmüller 2003).

Any of a number of different aspects may be used to systematize wild cards.

1. Topic: The subject of the wild card, or the sector in which the wild card originates or upon which it will have direct impact (e. g.: technological wild cards, political wild cards).
2. Impact: Will the wild card have only minimal consequences within the framework of a given scenario or will it trigger an entirely new scenario? Such a differentiation between potent and less potent wild cards is possible only after completing the analysis of the consequences.
3. Plausibility: All wild cards are by definition unlikely but some are highly improbable, some are less improbable and some are simply not very probable (depending upon our assessment). Another differentiation carries greater psychological weight: some wild cards are plausible; they fit – although perhaps only after a preliminary analysis – the world view held by those who carry out the study. Other wild cards are not plausible; they go against intuition and common sense, without, however, being absolutely impossible. Seen from a methodological perspective, it might make sense to take even “impossible” wild cards into account because the demarcation (often fuzzy at best) between the possible and the impossible is based on the knowledge available at the moment and even on one’s personal view of the world.
4. Time scale: Here it would be necessary to differentiate between wild cards – which are sudden, unique events – and processes, *i.e.* improbable short-term, medium-term or longer-term developments.
5. Causes: One may distinguish between wild cards which occur without any preparation whatsoever – often in the form of accidents or catastrophes due to a chance coincidence of circumstances – and wild cards which are the result of longer-term processes – typically creeping catastrophes.

Wild cards, creeping catastrophes and chaos theory

Discontinuities in trends or structures represent a prominent group of wild cards. Like some sudden events, accidents or catastrophes, such breaks in trends or structures may be traceable to processes which transpire unobserved for some period of time because they have not drawn public or scientific attention to themselves. These gradual, unnoticed processes are “creeping catastrophes” in contrast to acute, catastrophic events (Böhret 1990).

The concept of “creeping catastrophe” was obviously coined with a view toward ecological damage which slowly accumulates; it may, however, also be made to fit a general theory of management for complex systems. Creeping catastrophes result from the interplay of

numerous causes. Since these causes are mostly unknown, since their causalities are complicated and interrelated, and their effects delayed, the instruments for evaluating the consequences (or those for “risk assessment”, too) are inadequate for creeping catastrophes. Creeping catastrophes thus culminate in events which are apparently indeterminate, unpredictable and confusing and which represent a serious problem not only for futures researchers but also for decision-makers and the political system as a whole.

Wild cards very often evolve in just the same way. For a while, they prepare in a hidden, latent form. Then, suddenly, they become manifest. Therefore wild cards are characterized by the fact that they take decision-makers in government or business by surprise – either as the result of a creeping catastrophe or analogous to them – and thus provoke non-systematic, inadequate and inappropriate reactions which are primarily “for show”. It is, of course, impossible to prepare for every conceivable wild card. But the discussion of wild cards in the course of decision-making or consulting processes and including them in futures studies or game plans can reduce the element of surprise when a real wild card does occur and can in general increase flexibility in responding.

In some respects the concept of wild cards forms the qualitative counterpart to the concept of chaos in the theory of dynamic systems. Like chaos, wild cards place limits on both prognostication and planning. Like chaos, they are the result of the inherent complexity of the system being analyzed and of its environment. Like the bifurcations in the chaos theory, they mark the beginning of new developments, diverging evolutionary paths. In addition, they may be interpreted as an expression of non-linear system behavior.

One conclusion of chaos theory is that non-linearities can lead to counter-intuitive behavior. A basic rule for futures studies is not to depend on that which is intuitively convincing, but rather to take counter-intuitive system behavior into account. This is possible, however (at least in part), by augmenting the study with a wild card analysis. Even when formulating multiple scenarios, a complementary wild card analysis can be helpful in testing the stability of scenarios or their susceptibility to interference by external influences or internal disruptive factors which had been neglected or disregarded. In the theory of dynamic systems, tests such as these are known as sensitivity analysis. As opposed to dynamic systems, however, it is hardly possible to vary individual parameters just slightly in scenarios. Wild cards are a much coarser instrument – but an instrument which can be used in qualitative studies.

Wild cards taken from science fiction?

Wild cards can be found in a number of ways. The most obvious is to identify them with the usual creativity methods – workshops and brainstorming. Another means are surveys. But

polling experts presumes a very high degree of openness to unconventional thinking and this may not always be the case. A further possibility is to make use of historical analogies, to evaluate comparable situations, to ask which events or developments acted as wild cards at that time, and to construct analogies for the present situation. Finally, science fiction is available as a reservoir for wild cards. Due to the high density of ideas which this kind of fiction contains, it is advisable here to evaluate stories which are similar to the topic being dealt with in the study. Science fiction authors ultimately place great value on surprising their readers with new ideas, some of which might be suitable for consideration as wild cards. Since, however, only a very small portion of science fiction is really original in character and certain motifs are repeated *ad nauseam*, this approach may prove to be quite tedious in practice.

From a theoretical point of view, at least two parallels can be determined between wild cards and the role of innovation in science fiction. On the one hand, both concepts imply a deviation from the conventional world, or from the mainstream future. On the other hand, the “What if ...?” principle which many authors use in their writing corresponds in part to an impact assessment.

Ideally, science fiction scenarios exhibit a number of advantages when compared with futurologic scenarios. Science fiction scenarios are as a rule detailed, complex and holistic plans for the world which include day-to-day living and everyday human needs and behavior patterns along with emotional aspects. Finally, science fiction writers are not bound by questions of technical (or social) practicality and thus can be particularly vivid when depicting desires, goals and concerns in their scenarios. One could even argue that science fiction writers – because they take into account everyday human behavior patterns and by way of example include at least speculatively the options for abusing any given technology – have a more correct (more complex!) view of people and technology than some futurologists. Naturally the great majority of science fiction does not satisfy this ideal model. In spite of this, it may very well be worthwhile to examine science fiction for wild cards.

Practical aspects

In general, wild cards can fulfill several functions in a scenario development process:

- They can, as has already been mentioned, be used in order to estimate the susceptibility of a scenario to external disruptions.
- They can be used to compensate for potential weak points in the conceptual framework (mental map).

- They can help those who devise and use scenarios to recognize alternatives and to be open-minded in regard to unexpected developments.
- Ultimately, they can also be used to counteract certain wide-spread faults – such as a shortage of imaginative capacity, predominance of wishful thinking or fixation on catastrophic scenarios (“hyper worst case thinking”).

What are the criteria for selecting suitable wild cards? There is no all-embracing answer to this question and one can indicate only a few general rules based on experience and which are intended above all to obtain additional information through a wild card analysis.

Firstly, the wild card must be appropriate to the problem. A wild card needs not necessarily to stem from the central topical area of the study but it should nonetheless be associated with it. Wild cards which would be entirely without consequences will not uncover any additional information. Secondly, a wild card should be as original as possible, should be something which has not already been taken into account in another form; its consequences should not be immediately apparent. Thirdly, one should also think about wild cards which (in accordance with conventional thinking) are at the far edge of that which is just barely possible.

A few fundamental rules can be formulated for dealing with wild cards, too:

- The analysis should not be limited to one or two wild cards. This would cause too much attention to be paid to a single direction; the plausibility or transparency of the study could also suffer.
- “Negative” wild cards, those which presumably would not support the scenario which has been constructed but rather would undermine it, should be given priority consideration (as a test for the stability of the scenario). More incisive analysis may, however, demonstrate that “supportive” wild cards can also have interesting counter-intuitive consequences.
- In addition to wild cards with a strong contextual reference to the topics stated for the scenario, it is advisable also to consider those which imply a change in the peripheral conditions, its environment.
- In order to avoid potential prejudices, it may be useful – especially when identifying wild cards – to incorporate outside expertise into the study, either through interviews or by way of a workshop.

Let me close with a brief, non-technical estimate of probability. In accordance with the definition, the probability of any single wild card occurring will be so small as to be negli-

ble. But the number of wild cards rises rapidly as we look farther into the future. Where there is a sufficiently large number of wild cards, the probability that no wild card will occur, *i.e.* the probability that the standard scenario will prevail, tends to zero. In the long run, our future will be shaped by wild cards.

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