INSIGHT 4.0

The Era of IoT needs a New Understanding of Transparency

By Hans-Georg Scheibe, Member of the Management Board, ROI Management Consulting AG

All rules, best practices and processes suffer from a fundamental paradox – they are nothing other than answers to questions asked in the past that we formulate to shape the future. This problem remains purely theoretical as long as the future does not differ significantly from the past. Rules formulated with sufficient openness allow a certain degree of evolutionary adaptation to changing circumstances. However, it becomes difficult when the future cannot be managed using the rules from the past. And that is exactly what we are experiencing today with the hyper-dynamism of the general political, economic and regulatory situation, with a changing understanding of efficiency, profitability and sector boundaries in the wake of digitalization, and with ever shorter "lead times" for products, services and business models – a list that we are all very familiar with and that goes on and on. In other words – disruption has reached our strategic agenda, our innovation task forces and also, to a degree, our factories, but not our management systems.

> "It's a matter of embedding the ability to deal with fuzziness and to detect patterns from unstructured data into what are in principle binary systems."

Management Systems: The Real World of Disruption

What appears at first sight like a bold proposition becomes very clear when we look at what is predominantly understood by transparency today. Guaranteeing a comprehensive and objective view of central performance indicators in operations, finance, marketing or HR has been a core task of management and management systems for decades.

But what do the data look like that are used as a basis for far-reaching decisions? They are, above all, structured data. We use them to measure sales by customer group, output per hour, or cans of soda per kiosk. As such, they are usually "hard" data that can be expressed in unambiguous units of measure, preferably in convertible currency. These data are almost always related to periods or points in time and are therefore usually based on the past. And finally, these data help us to engage with ourselves – as a company, division or department. Shared, interdepartmental and perhaps even inter-company KPIs are called for virtually everywhere, but almost never used.

Hans-Georg Scheibe,
Member of the
Management Board,
ROI Management
Consulting AG

Transparency 4.0

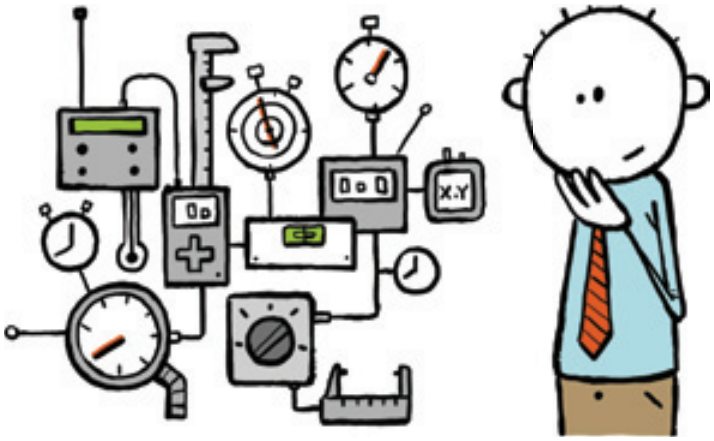
We could – polemically – call the transparency that we get from the use of such data models Transparency 1.0. The picture that we gain from it is not wrong – but it is, as in Plato's allegory of the cave, dramatically undersized. It has no potential to represent the reality in which companies have to act today, still less in the future.

This is why we need a new understanding of transparency that can integrate and process alternative data models – Transparency 4.0. Knowing what has happened so far is important – but not sufficient. Especially when the environment is undergoing rapid and fundamental change. We therefore need tools, methods and indicators that help us to understand how well our own organization is prepared to deal with impending challenges.

It also means embedding the ability to deal with fuzziness and to detect patterns from unstructured data into what are in principle binary systems. Of course, the indicators required for this do not allow any clear predictions to be made; instead, they point to trends and scenarios – besides 'yes' and 'no' there is also a 'perhaps'. In this process, transparency loses simplicity and precision but gains a closer relationship with reality and necessary complexity.

Technologies for Transparency

The basis for this is provided by systems that were not available to us in the past, or only in a very restricted form. This applies first and foremost to hardware elements whose performance has grown in inverse proportion to the fall in their price. These primarily involve sensors, the elementary material of the Internet of Things. They enable access to primary data that could not be reached in the past and thus open up new dimensions of transparency.



Another example is in-memory systems that store data direct in the main memory of the relevant system, thus allowing high-performance processing even with very large volumes of data. Fog computing approaches, where microprocessors are located on the periphery of the network and analysis and response competences are transferred to local terminal devices, also promise significant progress. This relieves data networks and cloud servers while substantially increasing performance and security.

New software technologies are also available such as databases that no longer require data to be structured, thereby greatly simplifying the collection and aggregation of data and creating the basis for big data resources to be used to add value.

What technologies that are already available can mean for a new understanding of transparency is demonstrated by the example of General Electric's "Digital Twin" concept, an approach that also shows how the business models of B2B and B2C markets are converging. GE creates a precise digital copy – an avatar – of each of its aircraft engines that exactly emulates its physical twin thanks to environmental and performance data transmitted by sensors. Extremely detailed individual profiles can then be developed when combined with the data of all the other aircraft engines, allowing analyses and forecasts of a previously almost unimaginable precision to be made – transparency of a new magnitude.

How much Complexity can we bear?

Overall, we can gain new insights into our business processes that only a few years ago seemed inconceivable, and we can analyze production networks, logistics chains, points of sale or any other area of a company with astonishing depth and closeness to reality. However, the core question remains: How much real transparency do we need and wish to have? Are we prepared to confront our well-oiled management systems with the demands of complexity, fuzziness and closeness to reality? On the other hand, do we have the discipline to avoid fully exhausting the infinite measuring and analysis potential and to concentrate on what is essential? We need to find convincing answers to these questions very soon if Transparency 4.0 is to become reality.

"Are we prepared to confront our well-oiled management systems with the demands of complexity, fuzziness and closeness to reality?"