

„The seven step methodology needs to be put under close scrutiny“

MBFG GmbH & Co. KG's CEO Gert Irmeler on the imperative of a paradigm shift in risk management

HAVLICKOVA: Mr. Irmeler, your company's previous trade fair participations were quite unremarkable, compared to major competitors ...

IRMLER: Well, creative spirit and innovative strength are not related to physical dimensions.

HAVLICKOVA: I didn't want to doubt your intellectual skills, but maybe there is a lack of investor capital.

IRMLER: Don't worry about our capital resources. By the way: At least five of the largest global players have emerged from so-called garage companies. So it depends on the right solution, the right product at the right time. If you want, I would be happy to show you our garage.

HAVLICKOVA: Another time maybe ... So let's talk about the MBFG product 'CIMOS'. What is really new about this FMEA software?

IRMLER: At the beginning of the Nineties, an elitist and privileged group of people from sublime large companies was given the task of developing a new FMEA concept. We know what came out of it. At that time, the path was mapped out by existing own program concepts from one of the automotive big firms involved. This pseudoscientific precipitous birth was presented to the astonished audience as a "five-step process". After a thorough study of the "step methodology" with its algorithms, which often overshoot the target, we saw that we should follow the path that we've already chosen with CIMOS.

HAVLICKOVA: Great, just that doesn't answer my question ...

IRMLER: However, this preface is important in order to understand the structure chosen for CIMOS. The core thesis of the five steps, or - more recently - the 'seven step method' is based on the profound hypothesis that the failure mode at the focus level cor-



Irmeler, Dr. Havlíčková: „The Alignment runs at full speed into a dead-end street“

responds to the failure cause regarding the above level. This 'epochal sudden impulse' is as superficial as questionable, because the pursued identification of causes in Design FMEAs in the form of traceable failure chains downwards to individual components is absolutely uninteresting. Instead, the causal triggers in the design and planning of the focus element itself must be examined. And with regard to the malfunction impact assessment, failure nets also only provide sparse gains in knowledge because circular flows and interrelations of functions and failures, as well as the behavior of interacting mechatronical components, cannot be mapped in the form of hierarchical arrow diagrams. This does not even take into account the occurrence of undesirable risks with hazard scenarios independent of functions, as well as the failure behavior in the wake of usage time, under the influence of human factors or changing environmental conditions. To put it in a nutshell: Failure nets especially impress with a high level of additional workload. If you read the underlying compendium on the 'FMEA Alignment' carefully and impartially, you will find a number of contradictions in it. It runs at full speed into a dead-end street. The method should be put under close

scrutiny after painful application and field experiences with small and medium-sized enterprises (SMEs).

HAVLICKOVA: Apart from anything else, it is the association standard of one of the most important industrial sectors. Are you seriously calling into question such a prominent set of regulations?

IRMLER: CIMOS decidedly rejects the widely advertised linking of malfunctions across hierarchical system levels. However, the much-derided work in the nowadays discredited FMEA spreadsheets, embedded in the system structure, will be made possible again.

HAVLICKOVA: So back to the Stone Age at full throttle?

IRMLER: Not at all. What is the reason for this pathological aversion to FMEA forms?

HAVLICKOVA: Because working in forms is a backward role? The user gets lost in unstructured mental operations, without an overall view about the mesh of logical relations. 'Copy and paste', just like in the good old spreadsheet applications.

IRMLER: In the areas of DRBFM

and HAZOP, sensibly structured forms are still the undisputed instruments of choice. Forms systematically guide the user through processing of the various items. The column 'System/ Characteristics' allows, for example, a neat listing of the internal component functions.

Within the tree structure system only external functions are linked with each other and then imported into the form without further reflection. Another serious shortcoming of the 'Seven Steps', because - as is well known - a correct derivation of the component characteristics and failure modes must be based on internal system functions. Inadvertencies that are not questioned anymore. The failure effects are to be



FMEA results presentation
Counteractive measures built on sand

checked out next in the FMEA form. That makes sense, as it gives the analyst an opportunity to decide according to the significance whether associated failure cause analyses justify the time to be invested. In the case of the failure net system, the complete overview only emerges when each malfunction description has been entirely indicated in every tree level. It works according to the style of an all-in-one system.

HAVLICKOVA: In return, there is a rationalization effect by transferring all data from the trees to the FMEA forms.

IRMLER: The children's tale about the function and failure net Christmas tree, out of which - after elaborate decorating with interrelationships - an FMEA form is generated at any point by one mouse click, lets eyes shine brightly, but remains an infantile fantasy. By the way: If the steps three

and four regarding network structure creation, do not lead to any reliable results, this is equally detrimental to the 'evaluation' and 'optimization' steps based on them. Most possibly, risk assessments and counteractive measures then are built on sand. The present concept turns the perspective down from inductive to deductive and is counterproductive to the so-called 'scoping', the necessary limitation to the essential core. Therefore, it makes sense to determine the failure effects on the basis of component-usage lists and multi-level item catalogues, based on 'Anticipatory Failure Detection', contextually and target-oriented, instead of an unfiltered copy of previously created failure linkages. Why? Because, from an objective point of view, a hazard is much more than an unfulfilled target function, and it would be a fatal mistake to only have an orientation towards functions. For the reasons mentioned, CIMOS always identifies the root cause in relation to the focus level using 7M and Ishikawa methodology. We steadfastly keep to the proven. And that unfortunately is a novelty these days.

HAVLICKOVA: All things considered, however, it sounds like "old wine in new bottles".

IRMLER: Isn't a drop of old wine the noblest and most exquisite? The perfect companion for a top notch nouvelle cuisine. Seriously: Since the FMEAs in CIMOS are consistent for each system element and can be extracted from the component structure, they can be easily reused in related products and processes. A modular system with interchangeable standard FMEAs can be achieved. This is the real rationalization effect for the user. The vast majority of risk managers are being pushed to use the impracticable 'Seven Steps'. If a supplier wants to choose a differently designed system based on comprehensible benefits, the 'whip' of compliance is immediately pulled out and it will be demanded to take the 'recommended' system. Because of data compatibility, for example, and 'in general', otherwise minus points in the next audit are a threat. In a wide-ranging lobby environment, a genuine consulting and coaching industry has developed, which now lives very well from the artificial

hype surrounding the seven - step method. The universities that cooperate with large companies are all in the same FMEA monopolies boat, the officially so-called 'free teaching', according to the motto: 'He who pays the piper calls the tune'.

HAVLICKOVA: What a brilliant sweeping blow. You seem to please yourself in the role of Michael Kohlhaas.

IRMLER: Constructive criticism of exclusive claims is not a ragingly assault, but - hopefully - a stimulus for new ideas, the legitimate questioning of a decreed thinking model. We have to learn again to stay close to the customer with pragmatic solutions, in disruptive times.

HAVLICKOVA: How does the future of FMEA look like?

IRMLER: Difficult to answer. We can no longer afford further undesirable developments. FMEA applications are not supposed to be academic gadgetry from the ivory tower, no unworldly theorising that prove to be card houses in the storm of day-to-



Service vehicle
„Close to the client in disruptive times“

day business. In order to keep FMEA teams onboard with respect to the background of work intensification, we need usable tools for everyday operations.

HAVLICKOVA: Mr. Irmeler, thank you for this interview.

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