



Process Safety

TÜV SÜD Process Safety · Mattenstrasse 24, CH-4002 Basel

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### Process safety transformation – process safety performance improvement

Process safety incidents are often caused by a combination of technical problems and human errors and multiple events or failures that coincide. That's why it is vital to regard process safety from a technical, but even more, from a people/ process point of view. The key factor for a successful process safety program is based on the company's will (resolve) for change from an audit based to a proactive process safety excellence driven organization. TÜV SÜD created a proactive process safety control system (figure 1) to support a company on its journey to process safety excellence (PSE). The system focuses on the behavioral change required to allow all employees to "live" the philosophy of process safety and continuous improvement.

#### Why to focus on process safety?

Despite increasing compliance driven and audit based efforts to make processes safer, most companies fail to give a convincing answer as to how safety excellence can be achieved in a proactive and controlled manner. The "Risk at the Core of the Organization" model (figure 2), developed by TÜV SÜD, enables a focus on all aspects which results into a high performance.

There is a strong base of a risk based safety culture supporting the different processes of design integrity, technical integrity, operational integrity, and emergency response. Those processes handle the issues and threats for safety, process safety, and

advantage is that everybody in the organization gets to know their most relevant risks and have that integrated into their daily business. Further, the performance management is then built upon the risk meaning the indicators are related to the risk in the plant.

The importance of a systematic approach of safety provisions is obvious looking at some devastating accidents in the process industry in recent years. If process safety fails, the consequences of one incident bear the potential to cause significant problems/losses like multiple casualties, environmental and economic damages as well as loss of human lives.

#### How can a company achieve process safety excellence?

The critical and most important success factor to achieve process safety excellence is having a risk based culture in all the aspects of your company. To achieve process safety excellence an effective and efficient transformation program will create a sustainable base. TÜV SÜD has acquired the expertise to create a proven transformation approach. The approach combines the strength of expertise in cultural change, performance management and sustainable implementation and on the other hand the comprehensive technical and safety know how of TÜV SÜD.

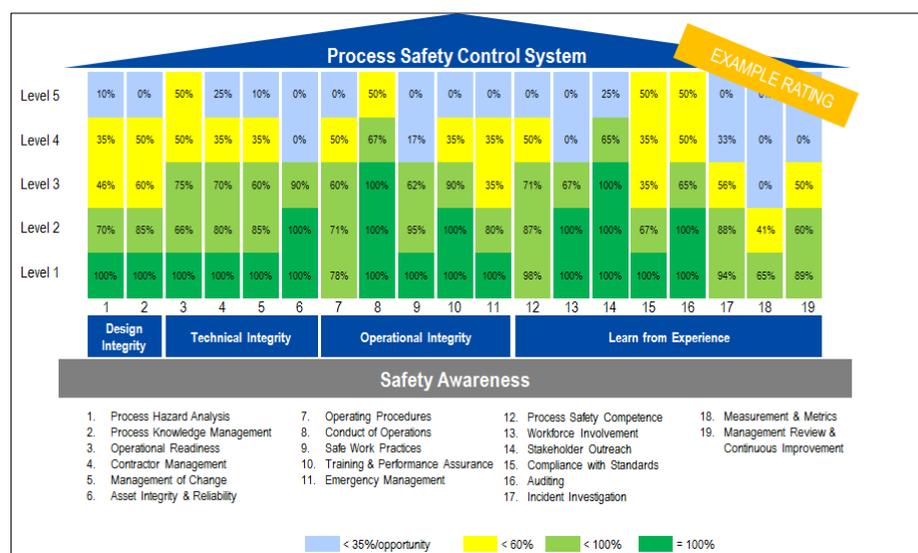


Figure 1: Process Safety Control System

A fully fledged and tailor-made transformation builds the groundwork for the realization of the behavioral change. The approach works like glue, linking the technical details to the human and management aspects. Using specific tools, the experts can assess a company's actual safety level to enable the organization, by application of world class procedures, to ascend the stairs to process safety excellence. The company's DNA is complemented with enhanced proactive safety behaviors delivered through the implementation of process safety.

asset integrity using the risk approach. It enables a focus in the organization on continuously managing the issues and threats based on the likelihood and consequences. The management system, based on the Plan – Do – Check – Act (PDCA) circle and using Measurement & Metrics (KPIS), enables a high performance.

How to achieve excellence in operational performance using a risk management approach? We deploy a methodology, for that is to integrate the existing knowledge of the hazard analysis into the work processes and link it into the performance management. The

The TÜV SÜD process safety philosophy / methodology is based on the idea of barrier management and risk management behavior. On the one hand, we co-construct with our clients the operating process safety model (structure and management system) including an integrated risk management which is required for an effective and efficient realization of Process Safety Excellence.

On the other hand, we enable people in the organization to become successful with a risk management mind-set owning the operating model with their hearts and minds. The main target of the end-to-end implementation is that employees start to "live" process safety in their



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Figure 2: Risk at the Core of the Organization

day-to-day operations and the technical processes reach the desired safety level. In this way, the idea of PSE will be sustainably implemented in the DNA of an organization.

To achieve process safety excellence, we as TÜV SÜD don't do traditional change management but focus on sustainable transformation (figure 3) which is built into the program approach and is part of our combined DNA. A sustainable transformation starts with two success factors: human and system in a well-balanced way.

### The result of the process safety transformation

You always need to keep in mind that process safety incidents are rarely caused by a single catastrophic failure, but rather by multiple events or failures that coincide. It is useful to consider process safety as the outcome of a wide range of technical, management and operational disciplines coming together in an organized and structured way. Therefore, the introduced process safety control system,

based on five safety barriers, has been developed to support a company on its journey to process safety excellence. The end-to-end implementation approach enables a company to improve their specific safety issues and to realize the change to a process safety excellence driven company. After a successful transformation, the risks of the plant are integrated in the heart of the safety and operational performance. The combined expertise in TÜV SÜD as well as their specific tailor-made tools and procedures are holistic success factors for the sustainable implementation of process safety. Combining the introduced management framework and the end-to-end implementation as glue of technical and human aspects embeds Process Safety Excellence as a sustainable part of the company's culture.

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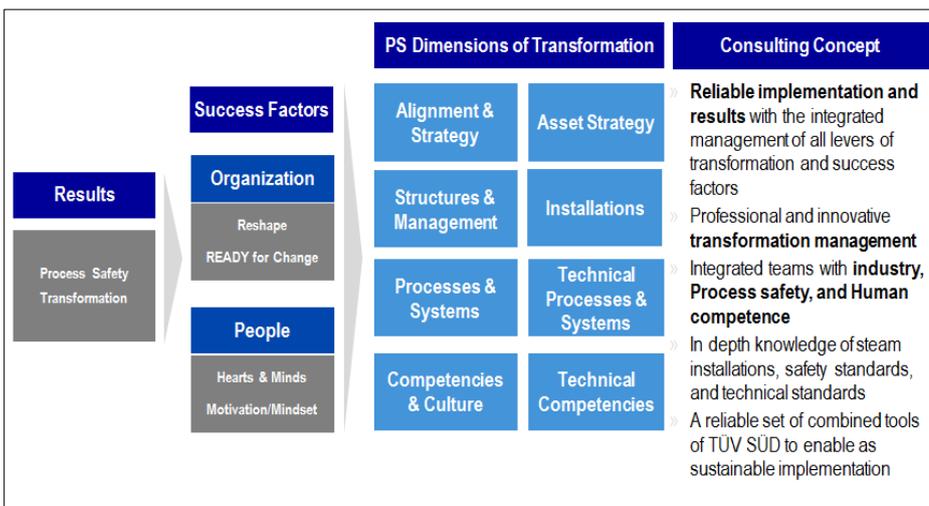


Figure 3: A sustainable transformation