# Learning Organizations in High Reliability Industries

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**Abstract**

Humans make mistakes. Sometimes we learn from them.

In a High Reliability Organization we have to learn before an error leads to an incident (or even accident). Therefore the “human factor” is most important as most of the time the human is the last line of defense.

The “human factor” is more than communication or leadership skills. At the end, it is the personal attitude. This attitude has to be safety minded. And this attitude has to be self-reflected continuously. Moreover, feedback from others is urgently needed to improve one’s personal skills daily and learn from our own experience as well as from others.

1. **Introduction**

Whom of us has never exceeded a speed limit? Who hasn‘t ever forgotten an appointment? Errors and mistakes like that usually go by unrecognized and without major consequences. In high reliability environments like cockpits, oilrigs or control rooms of a nuclear power plant, however, the slightest carelessness can lead to a catastrophe.

The only way to reduce sources of error and potential for mistakes is to address them openly without sanctioning them! Only this way can we obtain valuable information on weak points inherent to an organization, which enables us to reduce the quota considerably.

Moreover, every single person working in such an environment has to be motivated continuously to avoid breaking any rule. The “human factor” is the last line of defense for safe operation.

1. **Why do we make mistakes?**

Theoretical abstracts about error management define many reasons for humans making mistakes. Some of them just happen and it will be difficult, if not impossible, to avoid them. Others are made simply because it might be easier doing something against the standard operating procedure. In addition, most of the time this does not result in problems but offers reaching goals even faster. At the end, we benefit from breaking the rules.

Whenever we are able to solve a task successfully, we learn something. If we break a rule without experiencing any problems, we learn that this is a short cut saving us time, money etc. The probability is high, that we will do the same again in a similar situation. And if we are successful again, we learn again…

1. **The “human factor” and the error rate**

Within every high reliability organization, almost everybody is feeling responsible for safety. Therefore, most errors are not made deliberately. In many times we do not even know that we just did something wrong. Until somebody tells us – and we do not start to argue but accept this an opportunity to learn something.

In 2001, a German airline studied the main reasons for safety related incidents [1]. As a major result the factor “social”, meaning the relationship between the members of a team, was a contributing factor in nearly 80% of the incidents. In other words, a well-functioning team reduces the risk of an incident by a factor of 5.

However, what is needed for a well-functioning team? The aviation industry did define competence criteria for flight crews [2]:

Technical knowledge is needed as well as procedural skills. Besides these, each crewmember has to prove interpersonal skills. These are “communication”, “leadership”, “workload management” and “situational awareness and decision making”. Every crewmember is obliged to “consider suggestions of others, even if one does not agree”. Moreover, “every crew member takes initiative to be an active and constructive part of the team.”

Whenever the team spirit is positive, it will not only be possible to learn from mistakes with the goal to avoid them in the future. In addition, it will be a personal goal of everybody to avoid mistakes and reach the highest level of safety possible. K.Weick and K. Sutcliffe [3] define three elements of anticipation:

1. Preoccupation with failure
2. Reluctance to simplify
3. Sensitivity to operations

All of these elements address the most important input for safety:

1. **Our personal attitude**

Whoever is working in a high reliability organization has to question ones attitude continuously. Mental preparation on the way to work (“what am I expecting for today”) is as helpful as reflecting the day on the way home (“what went good/wrong today and why?”).

But at the end, the most effective way to challenge ones attitude is asking for feedback from others. Debriefings after special tasks are needed as well as regular feedbacks on our daily performance. These feedbacks have to include our interpersonal skills. It is easy to talk about technical deficiencies or complicated procedures. Feedback on our own behavior is not always easy to get – but in a Learning Organization, everybody has to learn. And, with regard to safety, there is nothing which has more influence than the human factor.

1. **Conclusion**

A Learning Organization in a high reliability industry has to focus especially on the attitude of its employees. A positive team spirit will lead to open discussions about errors and problems. This helps everybody to improve one’s personal skills continuously.

The human factor is not about communication or leadership tools only. At the end, it is about the attitude of every single person.

**6. References**

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