Project SEBRA Systems Perspective on Industrial Fire Safety – a study on fire safety organization and usability

At the industrial workplace, conflicts may occur between production and fire safety solutions, sometimes to the point where fire protective routines or installations are bypassed. A common answer to such issues is to strengthen administrative barriers such as rules, safety information and training. However, in an industrial organization where resources are already strained, even more checks and routines will only run the risk of aggravating the problem at hand. The problem could instead be viewed as an effect of poor design. In the construction process, there are no established ways to ensure that end-user needs are taken into account when fire protection is designed, and the construction project's main incentive is to keep the construction cost down. Instead, costs are pushed to the operational phase in the form of reduced production and lower safety levels.

Purpose and aim

The SEBRA project aimed to investigate preconditions for a well-functioning fire safety system, applying a systems perspective on work and safety. The focus was on understanding the human contribution to fire safety and how that can be supported

Methodology

Three main themes were explored through field work (interviews and observations) in Swedish industrial workplaces:

(1) How do operations and the staff interact with fire safety installations in everyday work

(2) What is the main focus of fire safety design, how is it carried out and how do the end results affect fire safety

(3) What are the success factors behind positive outcomes from fire incidents

Resultat

When a fire occurs at the workplace, a joint system of people and technology is activated to put it out. For this system to function, interplay between its different parts must be smooth. Formal fire safety work, however, focuses primarily on construction, regulatory compliance and fire protection installations. This means that success factors such as the personnel's professional knowledge, experience, adaptability, collaboration and creativity are made invisible.

In case of a fire, the industrial personnel are a large, but under-utilized, success factor. The combination of fire knowledge and process knowledge is critical. Today, highly automated industrial environments can be a threat to the important process knowledge.

The industry needs complementary methods to understand and cater for long-term operations in short-term change projects. This could lead to more sustainable fire protection installations and organizations.

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