

Requirements of Knowledge-Management in Industrial Organisations and the sector of Public Safety and Security: same or different?

Christian Lindemann, Christina Schäfer and Rainer Koch

Context conditions in Industrial Organisations and the sector of Public Safety and Security

As the worth of information nowadays still is hard to quantify, nobody will argue that having the right information at the right time has a significant influence to the success and productiveness of any organisation. As many organisations have figured about the relevance of information, they still only use a small part of the existing knowledge. This phenomenon is independent of the characterisation of the organisation. Studies show that only 30% of the existing knowledge in an organisation is actually used, while the respective knowledge is owned by individual knowledge carrier.

This work discuss the information and knowledge-management in both social and business systems like organisations in public safety and security(PSS) and technical service (TS).

PSS

- Conditions of the environment
- Physical and psychical pressure
- Fear of potential loss of human life
- Expected material damage

TS

- Determination of the ordinary production flow
- Raising complexity of products
- Potential economic loss triggered by machine stoppage
- Expected material damage

Crisis situations are generally a variance of the normal state what describe as "Exceptions as Norms".

Requirements of knowledge-management in the respective domains

Designing a KM- system a holistic view of the expected user and his context is inevitable. During an operation the role and therefore the tasks and responsibilities of responders may change. In this case the user needs other information to accomplish his duty and the system has to represent the dynamic role changing. In contrast to that assigning one role is sufficient for an employee in technical service, because even if his task varies his rights and responsibilities don't change during run time.

In this regard the context of the user is influenced by changes in the environment, is there any detection of a machine stoppage or does the situation go worth and more staff is required? A KM-system must noticed and publish such alerts to the user to help him understand the current development. Machine stoppage caused by an incident requires a structured course of action to get the "bug" fixed. In most cases the chosen method is "trial and error" which is time consuming and cost the enterprise a lot of money. Support with the right situation- and location-based information can advance the troubleshooting process. Furthermore enriching the offer with graphical illustrations will achieve the intelligibility. Enterprises with an international orientation go beyond and have to ensure the usefulness of information in other countries. Therefore overcoming linguistic and cultural barriers is a requirement for industrial technical service.

The deviating hierarchies of the respective organisation between various countries make it hard to simply transfer the KM. The need of a graphical representation is indeed essential to have an overview and the awareness of the situation. Information in this background are often geo-referenced, even it is indirect because they are coupled with affected objects. The position of responders, vehicles or noticed dangerous hazards is important to present the current problem in its entirety. In addition the documentation of the operation history is necessary. While civil defense organisations have a certain reporting duty the level of detail for the documentation in technical service belongs to the convention of the respective enterprise. Especially by capturing that kind of implicit knowledge a foundation can be realise to have useful solutions for upcoming events, that's why a KM- system has to face the requirement for operation reporting.

Requirements \ Domains		PSS	Industrial Production
Functional	dynamic role based concept	●	○
	Alerts: some kind of notification by changing status of the environment	●	◐
Visual	need of graphical illustrations	●	◐
	situation- and location-based visualisation and information	●	●
data and information based	possibility of language modification	○	◐
	high information quality	●	●
	reducing information overload	●	●
	intergration of external data	◐	◐
usage-oriented	documentation of the operation	●	●
	intergration in everyday workflow	◐	●
	education and training opportunities	●	◐
	self-explanatory and intuitive handling	●	◐

- Applies fully
- ◐ Applies
- ◑ Does not apply really
- Does not apply

Conclusion

- Related conditions and similar requirements
- Processes are knowledge intense and barely repeatable
- Time critical processes requires the systems to prevent an information overload
- Additional requirements in the PSS domain concerning differing context conditions and different consequences of actions
- Knowledge intense processes have to be studied and modeled carefully
- Process models and knowledge bases as well as the existing roles have to be exchanged to realise a holistic KM-solution