OSH Research – Improvement of Research and Development: Quality Indicators and Criteria for Research and Development in the Field of Occupational Safety and Health

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Description

The sub-project 12 "Research and Development" was carried out in the project "Quality in Prevention" from 2004 to 2008.

Goals

The "Quality in Prevention" project's "Research and Development" sub-project had several goals:

- The quality assessment of research and development was used to identify where action was potentially needed in order to improve the quality of research and development.
- The qualitative results of this assessment were used to adapt the quality criteria for the research and development prevention service and to optimise them for the accident insurance providers' specific requirements.
- The interactions between the research and development prevention service and other prevention services were analysed in order to understand the relations between the prevention services.

Methodology

First of all, a literature survey was carried out to get to know relevant quality criteria for the area of research and development. An initial structured interview was used to interview several project managers about the quality of their projects (N=30). During the interviews, they were asked to give reasons for their assessment and identify areas which lend themselves for improvements. The experience gained from the pilot survey was used as a basis for the following surveys: For assessing the quality of research and development, the expectations regarding the quality of research and development projects (target value) and the quality of research and development (actual value) were to be assessed with the help of two questionnaires. The expectations of the prevention managers of the 25 German statutory accident insurers for the industrial sector (N=23) were captured to design the research and development projects. In addition, the research and development projects (N=161) conducted by the statutory accident insurance institutions between 1999 and 2002 were assessed by their project initiators. In order to identify where action was potentially needed, the target value was compared with the actual value. Additionally, the free-text answers regarding the evaluation of individual criteria and suggested improvements were analysed to adapt the quality criteria in research and development prevention service and to optimise them for the accident insurance providers' specific requirements. The final step was to identify the interactions between the research and development prevention service and other prevention services.

Quality assessment

The prevention managers' expectations of research and development are especially

high with regard to time management, co-operation, and practical relevance, while their expectations in connection with publications are significantly lower than for any of the other aspects. The project initiators' assessment of the research and development findings was uniformly positive, with all the evaluation criteria achieving a clear positive score. Four of the five quality indicators achieved a score of four on a five-point Likert scale. The highest scores were obtained by technical expertise (M=4.50) and cooperation (M=4.29). A comparison of the expectations of research and development with the actual evaluations of completed projects reveals that when it comes to technical expertise, publications, and co-operation, there is no or very little action required to bring actual quality in line with expected quality. It is only in the area of time management that weaknesses in research and development were ascertained.

Quality criteria

An analysis of the free-text answers regarding the evaluation of individual criteria and improvement recommendations derived thereof suggest ten basic questions that may be used to measure the quality of research and development and help to systematically bring about improvements.

While the general quality criteria can be used to evaluate research and development in its entirety, the specific quality criteria are applicable to many but not every aspect of research and development.

General quality criteria

- To what extent are the research and development outcomes a result of good scientific practice (research in advance, objectivity, reliability, validity and transparency? ("Technical expertise")
- To what extent are procedures and findings made public, e.g. in discussions, lectures and publications so that they are subject to critical peer review? ("Publications")
- To what extent do research and development projects have plans that include a description of the different phases and milestones, schedules, ideas for implementing the findings and an evaluation of the outcomes; to what extent is the project manageable in terms of both its timing and its content? ("Time management" and "Practical relevance")
- To what extent is the project initiator involved in project management, e.g. through regular discussions with a project working group? ("Co-operation")
- To what extent is the target group involved in the research and development project, e.g. through site visits by the project leader, interviews, etc. and to what extent are the target group's suggestions taken on board? ("Practical relevance")

- To what extent are research and development findings incorporated into other prevention services or practical services/products; to what extent does the use of research and development findings in other areas occur promptly? ("Practical relevance" and "Time management")

Specific quality criteria

- To what extent does the research and development project incorporate new and contemporary scientific thinking? ("Technical expertise")

- To what extent is the research and development project conducted in an integrated, interdisciplinary and international manner? ("Practical relevance", "Technical expertise", and "Co-operation")

- To what extent can the outcomes of the research and development project be used for methodology development, thereby forming the basis of other projects? ("Publications")

- To what extent are the research and development projects externally funded? ("Co-operation")

Interactions

The research and development prevention service interacted particularly strongly with the following prevention services: "Consulting", "Information, Communication and Information Material", "Company medical support and guidance on safety technology" and "Investigation". Furthermore, the "Quality in Prevention" project's "Interactions" sub-project found that the research and development prevention service has a very strong influence on other prevention services, but is itself only moderately influenced by other services (Zieschang, 2007). These findings suggest that the research and development prevention service is a key driver of all the other prevention services.

Conclusion

The research and development prevention service is (to be) evaluated and is (to be) systematically improved by taking into account the quality criteria listed before. Due to its diverse interactions with other prevention services the increase in quality for the research and development prevention service will surely pay off.

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