The challenge of corporate safety and security

M. Lanne & M. Räikkönen

*VTT Technical Research Centre of Finland*

**Abstract**

Large organisations need to control several different sectors of corporate safety and security including, for example, occupational health and safety, environmental safety, premises security, crime prevention, rescue operations and emergency planning, information security, and personnel security. All of these sectors contribute towards total corporate safety and security. The operating range of safety and security is quite wide and the responsibilities, activities and procedures connected with safety and security are often patchy, diverse, and at times even overlapping. Despite all this, corporations must also meet the new safety and security challenges: protection against terrorism, security of networked systems, and also demands for the corporate risk management. The future needs for security and safety management were studied in 2004 by undertaking a literature review and interviewing experts at VTT. Key questions of the study were: 1) how the term security can be defined, 2) which parties are involved in the security business, in research and development and in the general national security activities in Finland, 3) what are the future challenges, visions and research needs of security, and 4) how total corporate security management can be modelled. Another study in this area was performed by the first author in 2002–2004 while at the Tampere University of Technology. This study investigated the need for internal and external co-operation in organisations using questionnaire surveys (n=276) and interviews (n=70) with personnel dealing with safety and security in six different large organisations. This paper discusses the need for co-operation between the previously mentioned sectors in safety and security management. The main purpose is to initially model the range of corporate security, and the idea of total safety and security management. Based on all the research carried out, principles and ideas for connecting the safety and security sectors at the corporate level will be presented.

*Keywords: safety management, security management, co-operation, risk management.*
1 Introduction

1.1 Corporate safety and security

The terms safety and security are almost synonymous with each other, and they are often used interchangeably. However, these terms are slightly different. In dictionaries safety can be defined as freedom from danger, as the condition of being safe, or as a process which limits the risk of accident. Security can be defined as the extent of protection against some unwanted occurrence such as the invasion of privacy, theft, and the corruption of information or physical damage.

There are also different kinds of definitions of corporate security and safety. The terms corporate security and security management are usually used in connection with information security. The Finnish Board of Corporate Security [1] divides corporate security (and safety) into the following ten sectors:

1) Security of production and operations includes, for example, product liability; management of accidents, hazards, and loss situations; logistics security; preventive maintenance and security of services.
2) Occupational health and safety contains, for example, machine and equipment safety, hazardous substances, occupational health services, and activities that maintain working ability.
3) Environmental safety includes permit procedures, handling and storage of hazardous substances, waste management, and the protection of the atmosphere, water, and soil.
4) Rescue operations consist of rescue planning and training, fire safety of buildings, hot work safety and fire extinguishing equipment, automatic fire detectors, safety signs, and other technical resorts.
5) Emergency planning is based on ensuring defence-economic planning and emergency supplies in emergency conditions.
6) Information security includes, for example, information technology security, confidentiality agreements, background screening, security of data material, and protection of privacy.
7) Personnel security concerns mainly customers, other outside parties, and key personnel.
8) Premises security consists of structural security such as locks, fences, gates, lighting, burglary protection, etc. and security surveillance such as technical surveillance, access control, guarding, etc.
9) Security of operations abroad concerns risks of operations abroad and personnel safety at sites abroad.
10) Crime prevention includes means of managing crime risks directed at the company’s operations, personnel, and property.

The boundaries of these sectors are not quite clear and there are a lot of common activities in the sectors. In Finland the duties are still often divided on the basis of the above sectors. There are often a few different internal organisations or persons that have responsibilities and duties connected with safety and security. In a large company it is quite normal for there to be an occupational safety organisation, an emergency and rescue team, an
environmental and/or quality department, information and premises security personnel, maintenance personnel and a human resources department. Furthermore, there are external interest groups, such as authorities, partners, contractors, and external services providers. Occupational health care can be in the hands of an internal or external interest group. Top and line management and workers are also important interest groups that have many obligations in the area of safety and security issues.

The whole operating range of safety and security is quite wide and the responsibilities, activities and procedures connected with safety and security are often patchy, diverse, and at times even overlapping. For example, chemical safety is connected to occupational health, environmental safety, emergency planning, rescue operations, information security and premises security. The dispersion of occupational safety, environmental safety, emergency and rescue planning, and crime prevention is partly due to the dispersion of safety and security authorities, which are working in different departments of governance. There are also plenty of different experts and actors that are making new studies, standards and specifications for the different safety and security sectors. This paper discusses the need for a connection between these sectors in safety and security management. The main purpose is to initially model the range of corporate security, and the idea of total safety and security management.

1.2 Co-operation and teamwork

In an earlier study on safety management in universities it transpired that one of the most required actions in improving safety performance in universities is the enhancement of co-operation and teamwork in safety issues. It was found that co-operation affects many procedures in safety performance. The most obvious influence co-operation has is on communication, the flow of information, responsibilities, safety wisdom in safety sectors, goal setting and the decision-making process and emergency preparedness [2].

Also the environmental, quality, and human resources departments handle partly the same issues as the safety and security departments. In some organisations there is an integrated management system that includes quality, safety, and environmental issues. In practice there have been various methods for implementing integrated management systems and the success of the systems has also varied. [3, 4, 5, 6] According to Zwetloot and Bos [7], one of the benefits of integrated management systems is an increase in communication and co-operation. Furthermore, the benefits of a co-operative culture are related to the learning culture. Learning organisations aim at a shared goal through joint efforts [8].

2 Methods

2.1 Study 1

The purpose of this study was to define the security discipline and branch, and to discuss the future needs for security and security research in Finland. In
particular it addressed the following questions: 1) which parties are involved in security business, research and development and in general national security activities in Finland, 2) what are the future needs and requirements of security research in Finland, and 3) what are the future challenges and visions of security.

The study was carried out in 2004. The main research methods were a literature review and interviews which were carried out in groups of 2-4 persons. In total, 12 experts at VTT were interviewed. Interviews were mainly informal, but a set of questions were also made to support the discussion.

2.2 Study 2

Study 2 investigated the need for the internal and external co-operation in organisations using questionnaire surveys (n=276) and interviews (n=70) with personnel dealing with safety and security in six different large organisations: a shipyard, a port operator, an offshore construction yard, a pharmaceutical manufacturer, a faucet manufacturer and a real estate service provider. The survey was carried out by sending a questionnaire to 430 people responsible for different sectors of safety and security. The response rate was 64.9 %.

The results of the survey were analysed to determine what improvements in safety and security performance were generally needed. In the survey there were questions about co-operation, responsibilities, problem areas, organisational practices and cultural aspects. The results of survey were complemented with group interviews conducted in the corporations mentioned above. The number of people engaged in interviews was 70.

3 Results

3.1 Study 1: security field and its future research needs in Finland

3.1.1 Security field in Finland

There are many different parties involved in the security business, research and development and in general national security activities in Finland, i.e. companies, authorities, corporate bodies, associations, insurance companies, research institutes, universities and consultants.

At present around 550 private companies are carrying out security business in Finland. Some of the companies are large- or medium-sized and/or global, but most companies are very small with only a few employees and with business only in Finland. In the coming years, particularly the amount of small security management consulting companies is supposed to increase significantly.

The parent organisation of the Finnish companies in the security branch is Finnsecurity ry. As well as the supervision of the interests of companies, it also develops the safety and security management, organises seminars, fairs and courses, etc. The Finnish Board of Corporate Security strives for its part to emphasise the comprehensiveness of security for corporate management. The Federation of Finnish Insurance Companies is a trade association and a co-operation body for insurance companies operating in Finland. There are also
many other security-related associations and trade unions which all represent their own special interest areas.

Finnish authorities involved in safety and security are located in different ministries:

- Ministry of Social Affairs and Health: occupational health, industrial safety, radiation safety, etc.
- Ministry of the Interior: rescue operations, police, etc.
- Ministry of Trade and Industry: product safety, consumer protection, etc.
- Ministry of Defence: national and international security politics, etc.
- Ministry of Justice: investigating authority in disasters, etc.

There are also several research institutes and universities which are active in the area of safety and security research in Finland: e.g. VTT Technical Research Centre of Finland, Helsinki University of Technology, Tampere University of Technology, etc. In addition to the national research projects, most of the research institutes and universities also take part in international research projects as partners or as co-ordinators. Overall, security research in Finland is at present an emerging discipline that is under continuous development and change.

The significance of security and security management for business and society is at present widely acknowledged in Finland and the security branch is growing strongly. One future challenge would be to harmonise the fractured field of all Finnish security parties and actors and to increase co-operation between them.

### 3.1.2 Interviews at VTT Technical Research Centre of Finland

At VTT, a total of 12 experts were interviewed during the summer of 2004 to determine their experiences and views on security issues. The discussion and interviews focused mainly on the situation of the security business, activities and research in Finland, but the global situation was also considered.

The potential key research topics (Fig. 1), which came up from the interviews at VTT are:

- Total corporate security management, safety management.
- Information security (particularly information management in the management point of view, use of risk analysis in case of information security).
- Personnel security (particularly persons' safe and secure ways of action).
- Reliability of security systems (particularly dependability and reliability analyses of security systems).
- Transportation security (particularly rail and sea traffic, security of food distribution chains).
- Security of infrastructure (particularly vulnerability of electrical networks, buildings, harbours, hospitals, etc.).
- Vulnerability of society, management of systemic risks (particularly vulnerability analyses and consequence analyses).
• Crisis management and rescue operations (particularly flow of information in chemical accidents, chemical, biological or radiological attacks: attack/risk scenarios).

Figure 1: Interview-Based Security Research Areas at VTT in the Research Field of Reliability and Risk Management.

Although the interviews were held only at VTT, it could be suggested that the key security research areas found in this study are quite the same among the other security researchers and parties in Finland. As mentioned earlier, security is a growing business and an emerging research discipline in Finland. Despite this, security and security management still suffers from conceptual complexity and its models and tools are inadequate. This need has also been recognised at VTT and it has recently initiated a Key Technology Action to formulate a Roadmap for research and development efforts in security management.

3.2 Study 2: quantity and need of safety and security co-operation on the corporate level

The results presented in this section concern the current level and need of internal and external co-operation in the companies. The relation between problem areas and need for co-operation is also shown. Comparisons are mostly made according to the percentage of the respondents in the survey. In some cases the average scale number is also shown, which provides information on the volume of co-operation. The scale is 1-3, where 1 means "a little" (co-operation or problems), 2 means "some" (co-operation or problems), and 3 means "a lot of"
(co-operation or problems). The respondents of the survey have individually chosen the number on the scale.

3.2.1 Internal co-operation
At the organisational level, the respondents in the survey co-operate inside the company mostly with the line management (46 % of respondents; co-operation volume on average 2.2) and with blue-collar workers (44 %; 2.3). The co-operation in question was mainly related to safety or security issues. Regarding the different safety or security parties, the respondents co-operate most with occupational safety personnel (82 %; 2.0) and with the rescue and fire safety personnel (55 %; 1.7). Over 40 % of the respondents also co-operate with the maintenance personnel and security (crime prevention and premises security) personnel in safety or security issues. About one third of the respondents also co-operate with human resource management, with chemical and environmental safety personnel, and with quality management.

The organisational level and the safety or security task of respondents have a statistically meaningful influence on responses. For example, line management and upper white-collar workers co-operate with many internal safety or security parties and more often than respondents at the other organisation levels. The nature of safety or security task affects the focus group of the co-operation.

Even if respondents co-operated most with occupational safety personnel and with rescue and fire safety personnel, they also hoped for even more co-operation with these same actors. However, only about one fourth of the respondents answered that they wished to have more co-operation with these parties.

3.2.2 External co-operation
Among external interest groups, the respondents in the survey co-operate most with occupational healthcare personnel (73 % of respondents). An average of 64 % of respondents co-operate also with one or more authority sectors and 50 % with one or more subcontractor sectors. The volume of external co-operation (about 1.6) was not as high as in the case of internal co-operation (over 2.0). Only the volume of co-operation with customers reached a level of 2.0.

About a third of the respondents would like to co-operate more with the occupational health care and authorities. A fifth of the respondents wanted to co-operate more also with the companies in the same area.

The organisational level and the safety or security task of the respondent have a statistically meaningful influence on responses. Naturally, blue-collar workers co-operate with many external safety or security interest groups less frequently than personnel at higher organisational levels. The nature of the safety or security task affects the focus group of the co-operation.

3.2.3 Interdependency between the problem areas and the need for co-operation
The linear function between the problem areas and the need for co-operation was tested with Parson’s correlation coefficient. The coefficient received the value 0.763 and the significance value (p=0.000) was under the significance level that
had been set \( (p=0.050) \). Therefore, a positive linear function could be seen between the problem areas \( (P) \) and the need for co-operation \( (N) \). The linear function was described by equation (1) obtained through regression analysis:

\[
N = -10.676 + 0.37 \times P
\]

(1)

Using the Chi square test, it was shown that almost in all the safety and security issues there was a statistically significant or very significant relation between the problems and the needs for co-operation. Interdependency could not be shown in such safety or security issues where only a low number of respondents saw problems or a need for co-operation.

The number of problems correlates more clearly with internal co-operation needs than with external co-operation needs. Parson's correlation coefficient for internal co-operation needs and problems was 0.886 while for external co-operation needs and problems it was 0.584. This means that the problems can explain 78% of the variety in internal co-operation needs and 34% of the variety in external co-operation needs. Of the 48 different safety and security-related issues, the respondents in the survey most often mentioned housekeeping and tidiness as problem areas. Table 1 presents ten safety or security issues where respondents see most problems.

Table 1: Most often mentioned problem areas \((n=276)\).

<table>
<thead>
<tr>
<th>safety or security issue</th>
<th>need of int. co-operation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>percentages of respondents (%)</td>
</tr>
<tr>
<td>housekeeping and tidiness</td>
<td>63.0 %</td>
</tr>
<tr>
<td>hazard identification and risk assessment</td>
<td>59.4 %</td>
</tr>
<tr>
<td>use of personal protective equipment</td>
<td>58.0 %</td>
</tr>
<tr>
<td>occupational hygiene</td>
<td>51.4 %</td>
</tr>
<tr>
<td>instructions for acting in an emergency</td>
<td>50.7 %</td>
</tr>
<tr>
<td>investigation of near-miss cases</td>
<td>50.7 %</td>
</tr>
<tr>
<td>maintaining of work ability</td>
<td>48.9 %</td>
</tr>
<tr>
<td>accident prevention and preparedness</td>
<td>48.6 %</td>
</tr>
<tr>
<td>getting information about dangerous situations</td>
<td>47.1 %</td>
</tr>
<tr>
<td>air conditioning</td>
<td>46.0%</td>
</tr>
</tbody>
</table>

4 Discussion

According to Study 1, security is at present a growing business and an emerging research discipline in Finland. Despite this, the models and tools of security and security management are still inadequate and the harmonisation of fractured field of Finnish security parties and actors is also recommended. These needs have been recognised at VTT and it has recently initiated a Key Technology Action to
formulate a Roadmap for research and development efforts in security and security management. To conclude, future challenges and visions of security in Finland will include, among other things, research and development in the following areas:

- Total corporate security and safety management
- Information security
- Personnel security
- Reliability of security systems
- Transportation security
- Vulnerability of society, management of systemic risks
- Crisis management and rescue operations

According to the survey in Study 2, an increase in safety and security cooperation was needed in the company level mostly in the case of issues that were seen as most problematic (risk assessment, tidiness, personal protective equipment, reporting of near-miss cases, and emergency training). For example, in the risk assessment process there are possibilities to co-operate more across corporate safety and security sectors' borders. The assessment of different kinds of risks and planning of improvement actions in a manner benefiting all areas of safety and security requires integration. The integration process will lead to increased co-operation between people responsible for different sectors of safety and security. By integrating several different corporate safety and security sectors (occupational safety issues, rescue operations, crime prevention and environmental safety) to same risk assessment process, it is possible to avoid the extra work and inconsistent improvement resorts caused by successive and separate risk assessment processes targeted to different sectors of corporate safety and security.

Between the companies that participated in Study 2 there were clear differences in evaluating co-operation. In the companies that are "forced" to co-operate with external interest groups, because of a strong dependence on customers and subcontractors, the meaning and appreciation of co-operation was clearly higher. When co-operation was seen as a useful way to improve operations, there is already a shared experience of successful methods. Hence, the appreciation of co-operation seems to relate to the organisational culture [9]. The successful co-operation between different corporate security and safety sectors requires interiorizing of the idea and benefits of co-operation and participation in the company level.

References


