

# RISK CONSULTING

IF'S RISK MANAGEMENT JOURNAL 1/2013



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# "Quality is my promise to you"

THIS IS my first editorial in Risk Consulting. Since the beginning of this year, I have been head of Business area Industrial at If. My predecessor, Morten Thorsrud, whom many of you have met, has moved on to new tasks within If. Taking the helm in the largest industrial insurance business in the Nordic region is obviously an exciting challenge. With a market share of over 30%, more than 500 employees, and a global insurance network, we are in direct contact with many of the businesses that contribute strongly to the prosperity of this part of the world, companies that are among the key factors making our countries among the best places to live in.

THE INCREASING complexity of the economy, with globalized operations and production processes that have long dependency chains, imposes new demands on an insurer such as If. We need to continue to work very closely with our clients to understand the new and familiar risks alike, and how to deal with them. A typical question of the day is how natural-hazards

losses, which have been at record levels in the first years of this century, will develop. Are they going to increase further? Which regions are the most vulnerable? How do you minimize the risk of these losses if you are planning to build a factory?

IF FACES hundreds of cases involving such concerns every day. And we do it, and will continue to do so, with the highest ambition: We constantly strive to be the best in the industry when assessing and pricing risks. We will continue to work very closely with our clients and help them make their operations safe and risk-controlled.

IF STANDS for quality. We will continue to do so. That is my promise to you as our client.

**NICLAS WARD**  
Head of Business  
Area Industrial



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# Good risk management requires openness

**A global water chemistry company operates in a strictly regulated environment, where safety matters do not allow for going solo. The goal is clear: the continuous improvement of risk management and safety.**

Most industry sectors, from paper mills and mining and power plants to food production, need water for their operations. The mission of the Finnish water chemistry company, Kemira, is to apply chemical and process-related expertise to helping increase the efficiency of energy, water and raw material use by water intensive industries.

The company is headquartered in Helsinki, with operations in 40 countries. Kemira's global market share of the company's focus areas is 8.5 per cent. The company's key customer segments include the pulp and paper industries, municipal and industrial water treatment, and the oil and mining industries. Across the world, Kemira's know-how is exploited in water treatment plants, pulp mills, oilfields, airports, and the food industry.

If a company's main product line is chemicals, its operations are strictly regulated by parties such as the authorities and business

partners. Partially for this reason, Kemira aims to ensure safety and risk management throughout its activities and one of the goals of risk management is to ensure that the same mistakes are not repeated. But is this even possible?

## ADDED VALUE TO BUSINESS FUNCTIONS

Pausing for thought, Timo Koskela, Senior Manager, Risk Management and responsible for Kemira's global risk and insurance management, gets down to specifics:

"At Kemira, safety and risk awareness can be seen in the attitude and operations of the company, from the management team to individual production sites and employees, and the company's business partners. It is vital to our company's continued operation. But wherever people are involved, there is the risk of human error. The aim is to identify and manage these risks in advance to the best of our ability. While errors cannot be completely eliminated, we can learn from them."

Risk management at Kemira aims to help the company develop its functions and ensure that it



Timo Koskela

has the capability to identify and handle any risks posing a threat to the company's operations. Timo Koskela, who assumed overall responsibility for Kemira's risk management in October 2012, emphasises the importance of practical action in risk management.

"Risk management must generate genuinely useful information for various business and support functions, and risk management thinking must encompass the entire organisation. We want to avoid doing things as a mere box-ticking exercise. In a networked world, risks may multiply in surprising



Kemira Rotterdam B.V. operates currently two business units, Hydrogen Peroxide (picture) and water treatment chemicals at the Europoort site. The site is located at an industrial and harbour area of Europoort near to the city of Rotterdam, The Netherlands. According to Kemira, Europoort site is a good example of a well-established and maintained risk management culture with continuous aim towards improvement.



ways and reflect strongly on the business operations of Kemira or our partners. Therefore, it is extremely important that risk management generates added value to our business units, and that we take risks seriously."

At Kemira, responsibility for the planning, coordination, development, training and monitoring activities of enterprise risk management (ERM) is borne by the risk management unit. A comprehensive risk management process is implemented in line with regulations by selected business units. In addition, Group ERM is conducted by the product safety unit, the environmental and product safety teams, and the Ethics and Compliance unit, for example.

#### **HIGH-RISK PRODUCTION PLANTS UNDER INTENSIVE MONITORING**

Kemira strives to control and reduce the risk of accidents related to its operations in a number of ways. One means of doing so is to use certified management systems for quality, the environment and occupational health and safety that comply with the international standards ISO 9001, ISO 14001 and OHSAS 18001. These help to guarantee continuous improvement in the safety of processes in production plants, for example.

The cornerstone of EHSQ management systems comprises the EHSQ policy and the standards on which production plant-specific practical instructions are based. EHSQ experts develop safety work, by providing staff training and performing audits on functions. For instance, preventive measures against occupational accidents include monitoring of work behaviour and the provision of safety training.

Audit reports are entered into a Group-wide information system through which audit observations can be disseminated throughout the organisation, while ensuring the realisation of corrective measures. This system also monitors Kemira's EHSQ key indicators.

Every three years, Kemira conducts special safety inspections of processes in production plants with the highest process-safety risks. The most recent inspection round was launched in 2012.

In addition to the company's





own actions, attention is paid at Kemira to the safety of its partners' actions, in order to ensure the responsible operation and successful management of risk of loss or damage by transport companies and suppliers of raw materials, for example. Long production and transport chains require commitment to the management of dependency risks by Kemira. Operations must continue without interruption, even if the operations of an important subcontractor are unexpectedly interrupted.

#### **OPENNESS IS WORTH THE EFFORT**

Kemira will transfer some of its operational risks to be borne by insurance companies. For the most

part, Kemira's insurance structure is based on the global Group insurance programmes administered by the Risk Management unit and the local insurances supplementing them. The selection of the insurance partner is heavily influenced by the partner's capacity to offer its services globally.

If has acted as the leader of Kemira's global property insurance programme since 2011, in addition to which the company bears its share of responsibility for Kemira's global liability and cargo insurance programmes.

In addition to global-level insurance expertise, Kemira expects its insurance partners to understand the customer's business operations. Another important quality is the ability to provide the customer

with relevant information on risks of loss and damage and the possibilities of avoiding them, as well as drawing conclusions on the basis of such information.

"Specialised risk management services and the ability to provide summation and analysis of loss data are important features of our insurance partners. Insurance cooperation comprises much more than the handling of insurance applications and claims. For example, the on-site risk observations and improvement suggestions made by a risk engineer are very valuable, bringing significant amounts of added value", comments Timo Koskela.

In accordance with regulations, property risk surveys have been performed at Kemira for years.



## KEMIRA EXPECTS ITS INSURANCE PARTNERS TO UNDERSTAND THE CUSTOMER'S BUSINESS OPERATIONS.

### NEW WINDS BLOWING IN THE CHEMICAL SECTOR

The chemical sector is under continuous change, as the result of changes to customer needs and demand, with the added challenge of changing official requirements, such as legislation on chemicals.

Regulations on chemicals enforced in Finland differ from those enforced in Brazil or China, for example. One of the major challenges in recent years has lain in the enforcement of REACH, the European Community Regulation on the registration, evaluation, authorisation and restriction of chemical substances. This new EC Regulation on chemicals and their safe use sets more stringent requirements for chemicals and, in respect of Kemira, it covers hundreds of substances.

Nanotechnology represents an interesting new opportunity in the chemicals sector. Minute particles with dimensions measured in millionths of a millimetre will help to make innovations such as next-generation cancer treatments, smart clothing and faster computers a reality. However, while nanotechnology offers many opportunities, it also involves new risks, arising from the use of a novel technology, which require thorough research.

At everyday level, the chemical sector's development can involve aspects such as shoe fashion. Shoes and handbags designed for Kemira by Finnish shoe designer Minna Parikka provide an example of the use of Kemira's product development work. Novel and environmentally friendly chemicals in leather tanning process are used in making these products.

MARI HÄTINEN

If's risk engineer visits around 10 plants each year, conducting the surveys together with a representative of Kemira. Observations and risk improvement recommendations concerning key risks are discussed with the management, as well as locally with the persons in charge at the plants.

"The added value arising from these external observations has been understood also at the highest level of Kemira's organisation, which has helped further the practical implementation of the planned risk improvement measures."

Safety improvement requires an open mind. Dialogue must be open between partners and with insurance companies, but another important role is played by the

organisation's own internal communications. In addition to the received recommendations, all parties must have the courage to tell others about severe near misses especially without the fear of being stigmatised, because without corrective measures, the same may happen again elsewhere with disastrous results.

"The internal flow of information is important beyond measure, and all companies probably require improvement in that area. Dissemination of best practices and lessons learned is not automatic in a company that is widely dispersed in geographical and cultural terms. A special emphasis must be placed on creating a sense of unity and openness."

# Assessment of recall risks

**When something goes wrong with a product, in a way that represents a potential risk to the consumer, a recall can result. Product liability insurance covers the injuries and property damages caused by defective and unsafe products to their users. But there is a lot at stake and many measures to take before the risk exposure due to the products still on the market has been removed.**

Recalls are typically related to a specific group of products. Foods and beverages, toys, electrical appliances, cars and car parts have all frequently been subject to recalls. But recalls are not limited to consumer products. Also heavy industrial machines or other business products may cause dangers to their users with a need to act. Because a recall can be very costly, many companies have bought insurance coverage for such events. In 2009, If introduced a new Nordic recall product, which was described in an article in issue 1/2011 of the Risk Consulting magazine.

In order to avoid recalls and obtain the correct insurance coverage, it is important to identify and assess the risk related to a recall. In If, we have developed a new tool for helping our clients in this assessment process, the "If Recall Risk Assessment Tool". This tool includes an assessment of several factors related to product recall, as well as a template for a crisis management plan to be deployed when handling product recalls. In practice the assessment is conducted through an interview with the company's managers and experts with the question set included in the tool.

Developed in 2011/2012, the risk assessment tool has been tested with several

clients. Now ready for use, this tool can also be used to help clients who are considering the purchase of recall coverage.

## THE IF RECALL RISK ASSESSMENT TOOL

The tool consists of the risk assessment of the company's products, loss prevention measures in use, crisis management planning and a model template for designing a recall plan.

The first area of the risk assessment questions is related to

- Identification of products that may be subject to a recall.
- Assessment of whether the company has comprehensive documentation on the various phases of production and/or import: design, production, raw materials, quality control, sales, purchase and sales contracts etc., so that the product can be easily detected, and for easy identification of the safety flaw in question.
- Ensuring that the company requires the liability, product liability and recall insurance certificates from its suppliers and contractors and retains them.

The second area deals with risks related to legal and regulatory factors. This is done according to the legislation in the actual countries involved.

Risk assessment related to international and national standards is the third area of consideration. Here, we investigate whether the company is certified according to quality standards and, specifically, whether such certification is related to the actual product types in question. This also includes an assessment of the company's quality organisation.

In areas four and five, we look at claims statistics in the actual industry and within

the company itself. Within the company, we examine possible recalls over the last ten years, at what kinds of products have been involved, whether the root causes have been analysed and recalls have resulted in any insurance claims.

Finally, we assess the possible economic impact of a recall of the company's products.

## LOSS PREVENTION MEASURES

Here we look at the company's procedures for the control and follow up of its subcontractors' and suppliers' quality standards. This includes control of the quality and compliance of components, as well as raw materials purchased from suppliers.

We also look at the company's contracts with its subcontractors and suppliers. Are these purchase contracts enforceable in practice? Do they contain liability clauses limiting the company's subrogation right in case the subcontractor's or supplier's product or service has originally caused the company's liability toward its buyers or consumers?

Finally, we look at sales contracts regulating the client's liabilities. This includes both the use of general conditions for product sales as well as possible limitations of liability concerning direct and consequential losses due to defective products.

## CRISIS MANAGEMENT

With respect to crisis management, we first check whether the company has an existing plan for handling of a recall situation. Often it is part of the company's wider crisis management or continuity plan. If such a plan exists, we assess its





27%

Clothing, textile  
and fashion items



21%

Toys



11%

Motor vehicles

content and whether the plan has been field-tested during the last year and is it regularly updated and revised. We continue with discussion on the results of any exercises and the further development of the plan.

If the analysis reveals any weaknesses in the plan, or there is no plan at all, we offer the company a template on which to build its own recall plan.

#### TEMPLATE FOR RECALL PLAN

If's Recall Plan Template suggests the formation of a recall team that includes the relevant representatives of the company. Depending on the structure of the company and the nature of its products, these may be the CEO, head of R&D, product managers, legal advisor and representatives of distribution and marketing. The recall team is in charge of successive updating and testing of the recall plan, as well as coordinating any actual product recall.

The template divides the recall process into multiple steps. First, the defect must be identified and the level of risk assessed. The recall plan should contain information on the relevant sources able to answer these initial questions, including an updated contact list of the relevant employees and parties capable of providing the recall team with the information it needs in order to take the necessary decisions.

Depending on the findings made during the first step, the recall team can now begin planning the recall. This is done in such a way that a smooth and professional recall of the product can be performed while ensuring that all relevant departments, customers, public authorities etc. are contacted at the right

time and in the appropriate manner. It is important to ensure that the company controls the information flow. Retaining control of information going out to the public may have a major positive influence on the effect the recall has on the company brand. With the correct handling, a recall can provide a way of showing the public that the company is acting responsibly and professionally and thus even strengthen the company image. Poor handling may have a devastating effect on a company brand. Contact information of the relevant media and a well-designed press release template are therefore important endorsements of a recall plan.

The recall plan should include a number of options to assist with the decision making during the recall process. Contact information of testing labs and return warehouses, as well as a list of repair possibilities and places for the disposal of defective products etc., should be attached to the recall plan, leaving the recall team free to concentrate on making the right decisions.

The recall process should be continuously monitored, to evaluate whether adjustments to the initial plan are needed or further actions required.

Upon the finalisation of the recall, the time has come to perform an evaluation and consider the lessons learned. Perhaps changes should be made to the product, production, quality processes, or the communication process between the parties involved.

We believe at If that through our new Recall Risk Assessment Tool it is possible to help our customers and If's own insurance professionals to understand the complex risks and consequences the defective and dangerous products cause.

#### Europe 2011 Dangerous non-food products withdrawn from the market and/ or recalled from consumers

##### EU-countries notified most cases

Spain (189 notifications)  
Bulgaria (162)  
Hungary (155)  
Germany (130)  
United Kingdom (105)

##### The most frequently notified products (2011)

Clothing, textile  
and fashion items (27%)  
Toys (21%)  
Motor vehicles (11%)  
Electrical appliances (8%)  
Cosmetics (7%)

##### The largest amount of dangerous products in 2011 come from

China (54%)  
Europe (19%)  
Unknown origin (8%)

Source: Europa.eu, the official website of the  
European Union

#### USA 2012

##### The largest amount of dangerous products come from

China 177  
USA 68  
Taiwan 18  
Mexico 8  
Vietnam 6

Source: Consumer Product Safety Commission



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# Complex accumulation risks

**The risk landscape is changing, and how companies cope with this growing complexity has become a key success factor. It is imperative that industry and insurance work together to manage this issue.**

The growing interconnectedness and complexity of the economic, technological and social environment present a range of challenges for the insurance industry and its clients. The trend towards ever greater globalization of production and trade and the emergence of new information and communications technologies offer tremendous opportunities for economic growth and innovation. At the same time, however, these developments have also produced increasingly complex interdependencies and risks. Whether it is covering the supply chain, protecting a company's data, or the search for a suitable investment strategy, managing complexity has long since become a key success factor.

Managing accumulation risks has also been made more complicated by these changing and emerging dependency structures. The course of losses is becoming increasingly difficult to predict and the triggering events cannot always be clearly identified. Domino effects and loss cascades can turn local events into losses of international significance.

## 9/11/2001 WAS A WAKE-UP CALL

Looking back, 11 September 2001 was a watershed event for the re-evaluation of risks: the horrific terrorist attacks

changed the world; many lost their lives. In addition, the attacks brought the new complexity home to the insurance world.

Not only was the scale of loss surprising, the aftermath of the attacks also led to insured losses in almost all classes of business. And the distribution of the claims burden was also surprising: of the approximately US\$ 32bn in claims payments, around 33% were for business interruption losses (including such claimants as airport duty-free shops affected by the grounding of aircraft). The attacks also caused turbulence on the stock markets, further impacting insurers' financial strength.

A second defining event for the perception of complex interdependencies was the subprime financial crisis. A combination of factors, each of which would have been critical in itself but not disastrous, interacted to result in the collapse of whole markets and a global recession. The restructuring of the regulatory framework has been strongly influenced by this experience.

These two events showed quite dramatically just how quickly complex reality can expose the limitations of generally accepted model assumptions and business practices. At Munich Re, we have had intensive discussions about what conclusions to draw for controlling accumulation risks from the growing interdependencies.

One thing seems clear: alongside the clearly determinable major risks, numerous low-probability high-impact events and combinations of events are gaining in importance. In his now famous book,

Nassim Taleb coins the phrase "black swans" to describe this type of rare but significant event. Diagrams 1a and 1b illustrate what the different situations mean in terms of handling accumulation risks.

## NATURAL CATASTROPHES REMAIN THE CENTRAL DRIVERS

In Figure 1a each large star represents a regularly recurring accumulation scenario classified as relevant. Windstorms, earthquakes or floods are the classic trigger events here. The historical evidence available facilitates estimation of the consequences and implementation of risk management measures.

The accumulation control process for such scenarios comprises the estimation of occurrence probabilities and potential losses, the setting of budgets, and regular monitoring of exposures in the individual lines of business. 2011 again showed how important it is to be up to date in this field in terms of analysis and processes in order to weather difficult years with many losses. Even in a changing risk landscape, major natural catastrophes and their direct consequences will remain the central drivers of large losses. If companies do not treat these aspects with suitable caution, then investigation of new and complex threats may very well be rendered superfluous.

Figure 1b shows the world outside the accumulation control process: each small star represents an event with a very low occurrence probability but a high accumulation potential. Applying the principle of proportionality, each individual event





could be classified as “too improbable” to justify the intensive use of resources for analysis and control. Before their actual occurrence, many experts would have no doubt placed the subprime financial crisis and 9/11 in this category. Things become problematic, however, if their high number makes it relatively likely that at least one of these “black swans” will occur eventually. Nassim Taleb argues that people are unable to cope with this

type of rare and complex risk. In order to achieve the feeling of “having everything under control”, they simply blank out the existence of these events in their daily work.

#### **IGNORING THINGS IS NO SOLUTION**

As “ignoring things” cannot possibly be a sustainable solution, the question is: what alternatives are there for dealing with such

an event cloud? Current discussions rarely get beyond very abstract recommendations: “Simplify”, “Prepare for the next surprise” or “Think the unthinkable”. As fitting as these recommendations may be, implementing them in practice is very difficult. A study by KPMG recommends that a strategic decision on dealing with complexity needs to be taken: “Embrace it as a spur to innovation and change” or “avoid it by keeping business pro-



cesses simple". For insurance companies, however, the scope they have with regard to this decision is limited. In an economic environment in which even the definition of "risk-free" assets is difficult, there are scarcely any havens to be sought in simplicity.

Moreover, a general approach of "keeping one's distance" from complex reality would involve becoming increasingly removed from our clients' needs. The boundary for insurable events is inevitably determined by the understanding and calculability of risks. This means that for many critical factors, such as coverage for supply chains, greater transparency is the first step necessary in the process of developing new insurance solutions. To achieve this, considerable efforts are required both from companies and from the insurance industry.

It is in any event advisable to be prepared for surprises when dealing with complexity. The ability to deal well with unexpected developments is closely linked to a company's own risk culture and organisational structure. Modern enterprise risk management includes many important elements of this: clear processes and responsibilities, an informed strategic decision on risk appetite for central risks, and transparency regarding the company's own portfolio and capital strength. All of these are fundamental aspects for reacting swiftly and effectively to surprises. The practice of not going right to the critical edge in setting limits and refining portfolio models so that they pay greater attention to tail dependencies already heeds the threat of extreme crisis situations.

However, in order to obtain concrete input for risk management from the mass of complex risks and make it easier to identify them, it is necessary to improve the understanding of individual risk drivers, their interconnections and the potential consequences. This is partly achieved by analysing the surprises that have actually occurred.

Since 2001, the whole insurance industry now sees the risk of devastating terrorist attacks in a completely different light in risk management terms. However, such reactions frequently come only after the first major loss and then at a time when many parties are working on ways to defuse the danger, such as through better safety precautions.

If we wish to understand the complex risk environment prospectively and beyond the confines of historical evidence, we are greatly dependent on expert knowledge – from a range of different business segments and disciplines. What has proved effective at Munich Re for new and changing risks is an interdisciplinary "emerging risk" structure which ensures a forum for this

topic up to Board level by way of defined processes, committees and reports. Our think-tanks and workshops also include members of our international organisation and external partners.

#### NEW APPROACHES HELP TO MASTER THE COMPLEXITY

In order to analyse complex dependencies, we have for several years now been investigating new methods to improve identification, selection and modeling of the resulting accumulation risks. One focal point of this work is to develop a platform which effectively links expert knowledge from a variety of disciplines to chains of events and makes this analysable. Given the large number of potentially relevant risks and the limited resources available, such an approach offers the opportunity to work with clients to develop a joint knowledge database on this topic.

All in all, cooperation and exchanges beyond the confines of one's own company are an important element for achieving progress. In recent years, new chairs have been established at universities and research projects launched to examine the issue of complexity. These focus not only on quantitative models but also on important work regarding the "human factor" in risk management or the issue of possible action beyond established control frameworks.

Despite the current exacting demands of day-to-day business, we regard the handling of complex risks as a key future issue for Munich Re and the insurance industry as a whole. It took decades for the present framework of risk management to be developed and become established. Expanding it to meet the challenges of growing complexity will also require a great deal of time and energy.

Another insight from the current crisis is that the reassuring idea of comprehensive "control" of all relevant risks is probably a thing of the past. Nevertheless, we see new approaches emerging – and not only at our company – that may result in significant progress. At this juncture, the much-cited "scope for new ideas" and cooperation both inside and outside the insurance industry are vital and rewarding.

#### JOACHIM OECHSLIN

Joachim Oechslein is responsible for Group-wide risk management in his role as Munich Re's Group Chief Risk Officer and Head of the Integrated Risk Management Division.

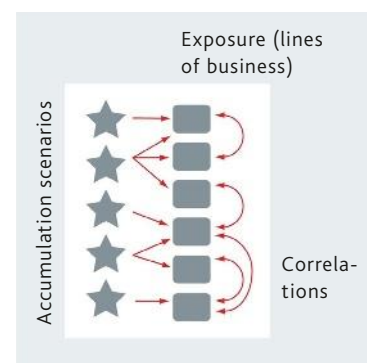
#### MARKUS WADÉ

Dr. Markus Wadé is Senior Risk Manager in the Integrated Risk Management Division's "Group Accumulation and Emerging Risks" team.

Earlier published in Munich Re Topics Magazine 2/2012

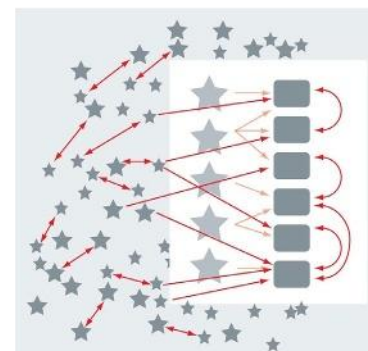
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SEQUENCES OF  
NATURAL CA-  
TASTROPHES IS  
ALSO BECOMING  
INCREASINGLY  
DEMANDING IN  
OUR GLOBALISED  
WORLD.//**

**FIGURE 1A: KNOWN  
ACCUMULATION SCENARIOS**



This diagram shows the "classic world" of accumulation control, in which each star represents a known major risk whose cause and effect are (relatively) straightforward.

**FIGURE 1B: THE WORLD OF  
"BLACK SWANS"**

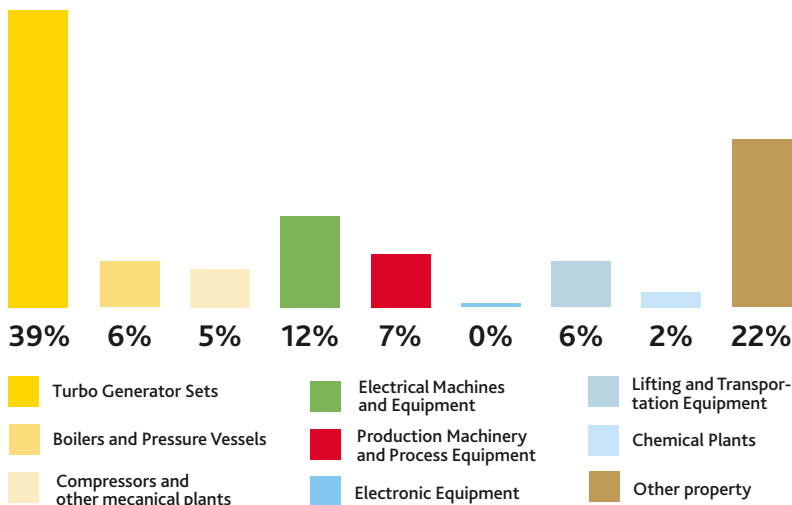


Here is the world of "black swans": many very unlikely, interdependent events which, however, can produce large losses.



# Rising losses in turbine units

FIGURE 1: LARGE CLAIMS 1990 MUS\$ (7 YEARS / 2004–2010) TYPE OF PROPERTY (%)



**There is a worrying trend in turbine and generator losses. Proactive maintenance, timely overhauls, up-to-date automation and protection systems, condition monitoring and training of operating personnel are in the key role in turning this trend.**

The International Association of Engineering Insurers (IMIA) collects on an annual basis statistical data on machinery breakdowns claims. This statistic accounts for a significant proportion of claims occurring in Europe, the USA and Japan. IMIA statistic shows that in the period 2004–2010 there were 497 machinery breakdown claims, for which losses exceeded 1 MUS\$ per claim. A total of 1 990 MUS\$ was paid in indemnification on these claims.

Figure 1 shows these large claims, divided by property type. By far the highest proportion of indemnification, i.e. 39 % (770 MUS\$) was paid for damage to turbines and/or generators (turbine generator sets). This is clearly the largest equipment item in this diagram.

Figure 2 shows the sum of annual paid losses and how it developed from 2004 to 2010. The rising trend for large losses in turbine units is clearly shown.

FIGURE 2: IMIA TURBINE GENERATOR SET LARGE CLAIMS MUS\$

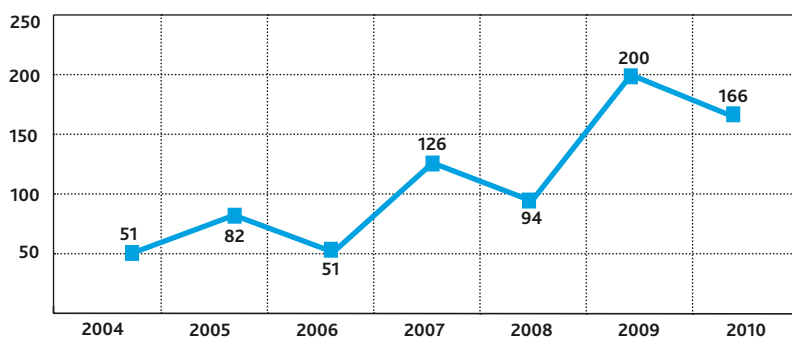


FIGURE 3: CLAIMS PAID PER TYPE OF LOSS IN POWER & ENERGY  
FIGURE 4: CLAIMS PAID PER TYPE OF LOSS IN PULP & PAPER

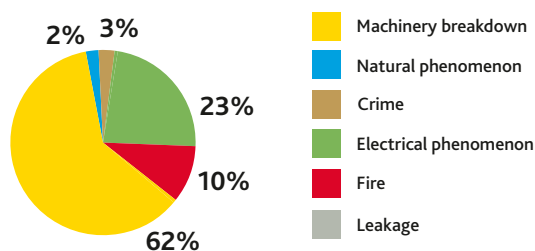


Figure 3

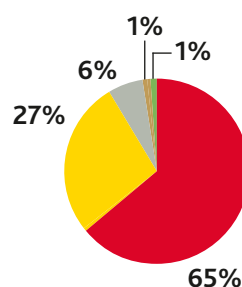


Figure 4

## POWER PLANT LOSSES

Figures 3 and 4 show all property and business interruption (BI) losses for If, in the power and energy sector and in the pulp and paper industry during 2006–2011. The power and energy sector covers power and heat production and distribution, as well as gas distribution.

It can be seen from figure 3 that machinery breakdown and electrical phenomenon losses represent 85% of all the losses in the power and energy sector. Majority of these losses are turbine unit losses.

In Figure 4 machinery breakdown losses represent 27% of all the losses in the pulp and paper industry. Majority of these losses are steam turbine losses.

The loss trend in these two sectors is similar to IMIA's statistics. The number and severity of turbo generator losses is increasing.

Business Interruption (BI) accounts for over half of the loss costs. Electricity purchased from the market during the loss period is many times

more expensive than before the loss.

A significant BI cost effect may come from feed-in tariff. Some power plants in some countries produce electricity at a fixed price, which is independent of market price fluctuations and is subsidized with state funds.

## PROACTIVE MAINTENANCE

An IMIA working group reviewed steam turbine failures worldwide. The events with highest frequency were “loss of lube oil incidents” while the highest severity events were “overspeed incidents”. “Blade failures” belong to typical higher frequency and higher severity events.

The extensive IMIA report highlights the importance of good operation practices: continuous monitoring of turbo generator operational parameters, disturbances, vibration levels, water chemistry and safety equipment.

One factor increasing the number of losses is the aging of the power plant equipment. A number of steam power plant units have clocked up over 300,000 operating hours, which is beyond their expected life time.

Some old plants have still their original control systems, which can be operated only by experienced operators. For young operators with little experience the first signals of malfunction can be difficult to identify and a loss may occur before the right actions are taken. Training for personnel on an ongoing basis is therefore of utmost importance.

Recent years have shown that in many cases a starting damage has been discovered during an overhaul. The damage, which could have led to a serious damage, has then been repaired, without costly delay. Far too often the period between overhauls has been prolonged beyond the manufacturer’s recommendations and good practice. The reason to prolong the period may have been cost saving but the result has been quite the opposite, resulting in a serious machinery breakdown and high repair cost and production losses.

If has published a property safety regulations for turbine generator sets. These regulations stress the importance of proactive maintenance activities. These include electrical measurements of the generator and material inspections of the critical items of the turbine. The safety regulations give support to the power plant operator when planning a cost effective proactive maintenance programme, which is a key to a reliable and safe operation of the plant.

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## LESSONS FROM LOSSES

TEXT VICTORIA THOMASFOLK,

# A destructive

**If has over the years been involved in many claims due to turbine failures. They usually result in extensive property and business interruption losses, and in-depth knowledge is needed to settle these claims.**

One day the turbine in a pulp mill tripped for an unknown reason. The turbine was inspected visually and the quality of the lube oil was analyzed. After consulting the supplier of the turbine it was restarted successfully. The following day it tripped again only 30 minutes after a vibration measurement indicating normal vibration levels were taken. The restart of the turbine was not possible again due to high levels of vibration.

The turbine is a STAL-LAVAL type DM2070- NO B2310 from year 1978. No major modifications have been made. Last overhaul was done 2003 and next planned for 2013. The nominal capacity is 26MW, current inlet pressure 37 bar / 420 °C and back pressure 4,6 bar / 180 °C.

After inspections it was established that the three outmost blade drums of the turbine were damaged and had to be replaced. Overall this led

to a standstill of the machine of around 8 months. Unfortunately there are few suppliers available to replace parts in this kind of turbine. There are extremely few persons in the world with the right competence to handle these old Ljungström-type radial turbines.

## POSSIBLE FAILURE SCENARIO

Of utmost importance in a claim, especially a machinery breakdown claim is to understand the root cause of the failure. This is critical to avoid the failure from happening once more but also to be able to make a proper decision whether or not the claim is indemnifiable. In this claim the possible failure scenarios were:

### 1. Deposition of impurities on blades

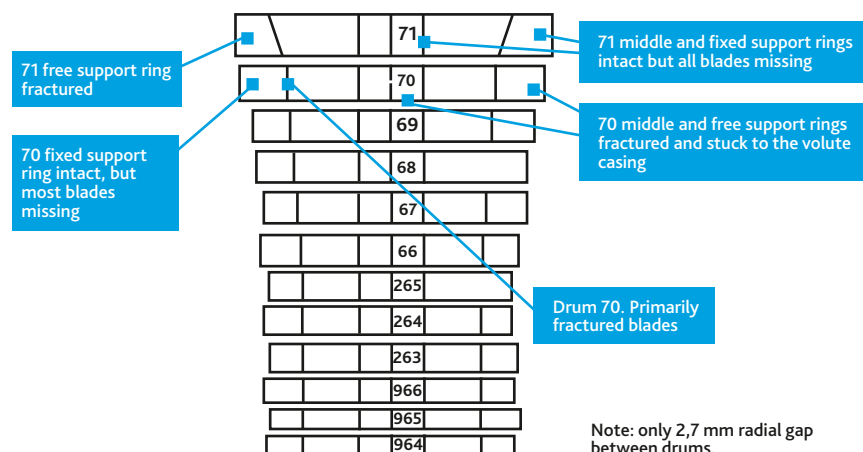
### 2. Standstill corrosion

Aggressive electrolytes form that lead to pitting corrosion when deposits dissolve as blades become wet.

### 3. Fatigue cracking of one blade on inner row (left in drawing) drum 70 due to pitting corrosion on leading edge.

The blade is twisted and bent and causes wear on adjacent drums and limited in balance.

**FIGURE 1: DAMAGES SUMMARY**





# turbine failure

#### 4. Fatigue fracture of second blade on drum 70.

This blade is torn off and the loose blade causes severe damages and more blade fractures in the same row. More than 40 blades are milled to grains.

#### 5. Outer row (right in drawing) of drum 70 bedomes loose due to the loss of blades in the inner ring.

#### 6. Mechanical damages and vibrations lead to fatigue fracture of free support ring of drum 71.

This leads to immediate loss of all blades of drum 71 and they are blown down the steam outlet.

#### 7. The two loose support rings relationships (the middle and the free rings) of blade drum 70 rupture and are thrown onto the volute casing.

### CONCLUSIONS

Over the years If has established good working relationships with the best experts in the field to be able to pinpoint the actual root cause of failures like this one. After very thorough examinations If, based on the external expert, came to the conclusion that:

- The primary cause of failure is most likely pitting corrosion that has developed over several years.
- The conditions necessary for pitting corrosion is believed to be related to impurity deposition on the blades. If blades become wet due to condensation during a stand-still the deposits may dissolve and create an aggressive electrolyte that triggers the pitting corrosion process.
- Pitting corrosion has caused fatigue fractures on at least two blades. The blade fractures have then damaged other blades and support rings on both drum 70 and the adjacent drums 71 and 69.
- The final collapse of the turbine was probably initiated by the fatigue fracture of the free support ring of drum 71 that



led to the rupture of two support rings on drum 70.

### AVOIDING SIMILAR LOSSES

The turbine had had its last major overhaul in 2003. After that the turbine has had 55000–60000 operating hours. The manufacturer's recommendation for major overhauls is after 45000–55000 operating hours. The overhaul for this age of turbine should be carried out every 6–7 years and not every 10 years as it was planned. The fatigue fractures could have been discovered some years ago if the turbine had had a major overhaul including modern NDT-inspections. This would have prevented the loss. But it is also possible that the fatigue fractures might have developed over a shorter period, i.e.

some months. However the probability that the fatigue fractures starting 1–2 years before the loss is higher than the start and development of fatigue fractures during some months. If there are many stops which increases the risk of pitting corrosion due to condensation it is even more important to do the overhauls on a regular basis. The steam quality is also of utmost importance in avoiding pitting corrosion.

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# Loss drivers in metal processing

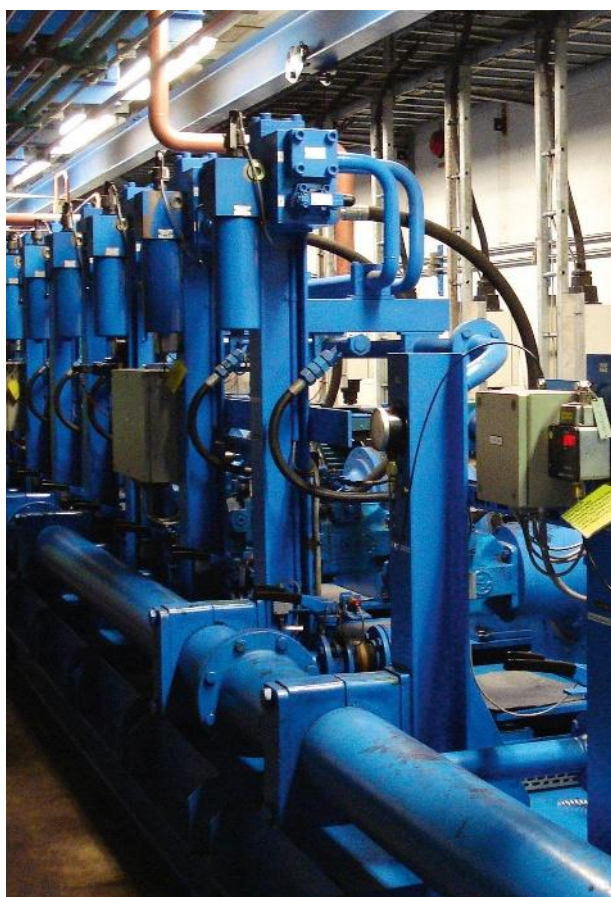
Despite continuous technological development the basic processes of the metal processing industry have long remained unchanged as have the risks and industry specific losses. The metal processing industry and its most significant loss drivers are presented here and the focus is on melting shops, casting plants, hot rolling mills, cold rolling mills, forges and on drawing plants.

## HIGH TEMPERATURE

The key feature of metal smelting processes is process temperatures that are high enough to ignite any combustible material. Fireproof materials used in furnaces and converters are subjected to heavy thermal loads and to wear and tear. Wear in brick work can be assessed and measured using various methods, but the erosion of bricks always remains unpredictable to a certain degree. For this reason, when planning the surroundings of furnaces, account must be taken of the assumption that molten metal could erupt from the bottom or side of a furnace.

One example of poor design was an incident where molten metal ran through a broken ladle gate into a control pulpit. After the destruction of the control system, the operator was unable to prevent or mitigate the loss in any way. In a better location, the control pulpit would have remained workable and the discharge would not have resulted in any major losses.

Even if no materials other than refractory are destroyed, production can be halted for a long period if the melting shop has not ensured the availability



Wherever hydraulic equipment is used, there is a risk of an oil fire. Replacing hydraulic actuators with electrical controls would remove this risk, but in many places, such a change is not possible.

of bricks. Certain refractory materials should be stockpiled on site. In the case of the most expensive and rarely needed materials, it is more economical to agree with the supplier on its commitment to keeping refractory bricks in stock.

Some refractory materials are designed to withstand constant high temperatures. If the temperature suddenly drops due to a process failure, the refractory bricks will crack. In such cases, it is most important to conduct a thorough analysis of critical functions, in order to ensure the backup

power supply and a sufficient level of protection. It is not uncommon for the main items to form the focus of risk analysis, while some minor issues such as cable routing and similar items are left out, even if they could be highly important.

## OIL FIRES

Mineral oil and hot surfaces are a dangerous combination. Mineral oil appears to be a quite harmless and fire-safe fluid, because it does not easily catch fire at



Since the year 2000, global metal production capacity has continued to increase rapidly. However, following the plunge in demand in the autumn of 2008, there has been an oversupply of metal products. In times like these, long-term disruption of production resulting from damage or an accident may prove fatal to the future of a metal processing plant, making preventive action highly important.



room temperature in a pool. However, the situation is completely different (reversed) if a high-pressure pin-hole leakage makes contact with a hot surface. Under such conditions, mineral oil is as flammable as petrol. In fact, the combustion energies of different hydrocarbons are almost equal. Of course, LP gas ignites and burns more easily than hydraulic oil or bitumen, but once any of these substances come into contact with molten steel, they burn with almost equal intensity.

Experience has shown that hydraulic oils are likely to burn near critical equipment. In most cases, long pin-hole fires destroy all cables in the hall, at a minimum. The extent of property damage is fundamentally affected by how quickly the discharge of oil into the seat of the fire can be stopped. In the worst case, the emergency push button is not accessible in the event of a fire. Then, the only option is to open the main switches, but this can take so much time that the entire content of the container is pumped into the fire.

Some insurance companies present

loss prevention initiatives, which apply to hydraulic systems in excess of 400 litres only. This can give the impression that smaller hydraulic units are harmless. However, this is misleading. In most oil mist fires, only a few dozen litres of oil are discharged. Under such circumstances, the pin-hole flame has merely been the trigger for the fire loss. The actual loss results from damage to the items surrounding the fire and the destruction of key components.

#### APPARENT PROTECTION

Wherever the risk of an oil fire has been acknowledged, some preventive measures have been considered. In many cases, sales representatives are most willing to offer their assistance. They promote solutions that appear good but which, when considered logically, are utterly useless. An example of such successful sales pitches is the introduction of hydraulic fluids with higher flash points. Sales representatives call them inflammable fluids, which is very misleading – the flash point

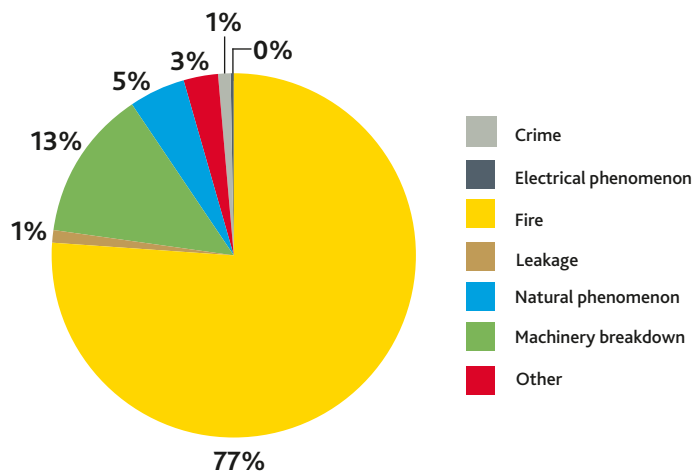
of such fluids is no more than a hundred degrees higher than that of mineral oils. This does not really pay off, since ignition sources are mainly hot metal surfaces well above three hundred degrees.

Fire extinguisher manufacturers have plenty of similar, useless equipment. It is therefore important that the plants' representatives contact insurance company experts before making any decisions. In this way, fire protection solutions can be analysed as a whole, taking advantage of the experience obtained from previous projects. It is also vital that occupational health and safety and overall process safety are taken into account.

#### ENDING THE LIFE CYCLE OF KEY MACHINERY

In addition steel making and metal processing plants are mainly single stream processes. High performance of key machinery is therefore important. This can be achieved by keeping critical components in stock. Heavy components, which are not worth keeping in stock, should

**FIGURE 1: CLAIMS PAID PER TYPE OF LOSS IN METAL PROCESSING (€)**



be inspected according to a scheduled inspection programme. For example, the frames of heavy machines may develop cracks, even though the machines themselves have lasted for decades without problems. As we all know, the risk of a machine breakdown is highest shortly after the machine is taken into use, at the end of its life cycle, and when the working load changes.

Old control systems also cause problems. If a single component breaks, the whole system often needs to be replaced. This requires that a new control system must be designed, manufactured, installed and tested, which can take several months. For this reason, renewal of key control systems is justified whenever the supply of old components is discontinued.

An essential part of metal industry processes involves the handling of process gases and hazardous chemicals. Each gas and chemical system must be checked using a recognized risk analysis method. The substances involved can be toxic, explosive, flammable or a pose risk of suffocation. When chemical handling systems are analysed, account must be taken of the hazards associated with each chemical. In particular, large amounts of acids are handled in pickling lines. Only acid resistant materials can withstand such an environment. Use of non-combustible and fire retardant materials in the tank structures and duct works of pickling lines is extremely important. If a fire spreads within such large tanks and duct works, it can be impossible to stop.

**//IF A SINGLE COMPONENT BREAKS, THE WHOLE SYSTEM OFTEN NEEDS TO BE REPLACED.//**



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## TYPICAL LOSS SCENARIOS AND LOSS EXAMPLES

### EXAMPLE 1

The water-cooled collar of an electric arc furnace fell into the furnace, with the resulting explosion destroying all controls and other items on the platform. The furnace suffered serious damage. In addition, the charging systems above the furnace were destroyed in the fire and the operators were seriously injured.

### EXAMPLE 2

A ladle gate was broken when the 100 ton ladle was in the casting position. Hot metal was discharged onto the caster and the bow, which were completely destroyed. Fortunately, the new casting machine, whose assembly was planned for the following summer, was already on site.

### EXAMPLE 3

A cold rolling mill, with emulsion as the rolling fluid, was stopped for maintenance. A spark from hot work ended up in the exhaust duct. The oil residues ignited and the fire spread downwards to the mill, which was seriously damaged.

### EXAMPLE 4

During cold rolling, rolling oil caught fire. The operator activated the mill's CO<sub>2</sub> system and the other system leading into the ductwork. The discharge into the mill extinguished the fire in the mill itself, but the other discharge failed because the gas had leaked out of the cylinders. As the fire in the ductwork continued, it spread back into the mill, which was damaged. Personnel were able to mitigate the losses, thanks to enforced fire fighting capabilities. The mill was re-started in a month.

### EXAMPLE 5

The CO<sub>2</sub> system of a new cold rolling mill was tested by discharging half of the total shot. Everything went fine. When the cold rolling mill caught fire for the first time, a full-scale shot was launched. Most of the nozzles became frozen and the mill was almost totally destroyed.

### EXAMPLE 6

Between 2007 to 2010, two annealing and pickling lines were totally destroyed in a fire and a number of serious ignitions occurred. The causes of the fires have not been identified with any certainty. Static sparking, friction between rolls, smoking, electric failure and similar issues are the most probable causes.

### EXAMPLE 7

A bolt from the ventilation duct of a mill drive became loose and fell into the motor. The windings in the rotor and stator were damaged.

### EXAMPLE 8

A conventional CO gas bell was refilled after shutdown. The refilling was conducted without inert gas. Air and CO-gas were fed in for 30 minutes, in order to ensure that there was no longer an explosive mix of gases. Due to a series of human errors, the lead-through time was shorted than expected. When the CO-burners were ignited, the flames spread to the gas bell, which exploded.

# Commercial crime is on the rise

**Commercial crime cases always seem to be on the rise. The World Economic Forum has identified Entrenched Organised Crime as a global risk. Combating fraud seems to involve a never-ending war.**

Methods used to commit acts of fraud develop alongside the opportunities presented for doing so within companies. Although global economic transactions in trade and supply chains, organised crime and cyber crime are changing the typical patterns of criminal acts, many classic aspects are often involved. However, through robust compliance and risk management practices, companies can remain at the forefront of fraud prevention and limit their exposures and losses.

## COMMERCIAL CRIME IN RECENT STUDIES

In its report on occupational fraud in 2012, the Association of Certified Fraud Examiners (ACFE) found certain regional differences in methods of committing fraud, as well as many common trends. This survey, which broadly defines fraud as including many types of financial crime, is based on 1,388 examined cases, and interviews with the companies involved in 96 countries. Survey participants estimated that a typical organisation loses 5% of its revenue to fraud. This implies an annual loss totalling USD 3.5 trillion, calculated based on Gross World Product.

The median loss was USD 140,000, while some 20% of all losses exceeded one million dollars in value. An average of 18

months was required for the detection of fraud. As in earlier studies, almost nine out of ten cases concerned the misappropriation of assets. However, clearly larger losses were caused by corruption and financial statement fraud. In general, corruption is viewed by participants all over the world as posing the most common threat.

The study also reveals the variety of methods used by perpetrators, from skimming incoming cash, or downright stealing it, to sophisticated methods involving bogus shell companies with falsified documentation, of directing money out of a company. Most fraud was committed by persons working in accounting, at operational level, sales, executive/upper management, customer service or purchasing.

Victim companies can belong to any industry. Banking and financial services, public administration and manufacturing led in terms of the number of cases, and mining, real estate and construction in terms of the size of the median loss. Manufacturing represents 10% of all cases with a median loss of USD 200,000.

The study also revealed interesting facts about fraud detection. The most common way of uncovering a crime is a tip off by an employee. Other important factors are management reviews and internal audits. External audits, on the other hand, very seldom lead to the unveiling of such crimes, perhaps due to such audits' concentration on systemic and

structural issues, rather than individual transactions and details.

Many trends are confirmed by another study conducted by KPMG. Typical fraudsters work in management or even senior management, with access to sensitive information and the possibility to

override controls. They have served the company for a fairly long period and are aged 35 to 45.

Detection mechanisms were similar. While tip-offs by whistleblowers and via hot lines are important, pure chance is a surprisingly typical means of

discovering fraud. An alarming finding in this study was the rapid increase, to 74%, of cases involving the exploitation of weak internal controls. Such findings suggest that control mechanisms are in need of improvement.

Cyber crimes have seen major increases in recent years, a trend which can be expected to continue through the new opportunities that arise as business is more extensively based or conducted through electronic communication. A recent study by PwC concentrated on such risk, collating the views of almost 4,000 respondents from 78 countries. It shows that cybercrime now numbers among the top four economic crimes. Respondents revealed that there are major gaps in control mechanisms, regular formal reviews, security training and response plans, even though reputational risk is a major element in the case of cybercrime. Of the

**//TYPICAL FRAUDSTERS WORK IN MANAGEMENT WITH ACCESS TO SENSITIVE INFORMATION AND POSSIBILITY TO OVERRIDE CONTROLS.//**





respondents, 56% believed that the most serious fraud consisted of “internal jobs”. Almost 1 in 10 reported cases involving losses of over USD 5 million.

An interesting observation concerned the manner in which external perpetrators are dominating crimes in financial services and insurance, while internal ones are pre-eminent in engineering and construction, pharmaceuticals and manufacturing industry in particular.

In a more local study, the Central Chamber of Commerce of Finland interviewed 1,681 company managers in Finland on crime security and risk management. Once again, they found that businesses have experienced an increase in crime since the previous study in 2008, and this trend is expected to continue.

#### **ARE THERE HIGH RISK ACTIVITIES OR CIRCUMSTANCES?**

In the insurance industry, we have identified risks lurking in decentralised organisations with foreign subsidiaries. This tendency is even more emphasised after mergers. When a company grows through acquisitions in other countries, the acquisition needs to be integrated quickly and determinedly with the processes and controls of the entire group. The transformation period exposes the unit to wrongdoing: the existing management is tied into intensive interaction with the group management, until the unit has been fully integrated. Cultural differences may also pose challenges when operating in areas where businesses are vulnerable to organised crime or corruption. However, traditional fraud may remain the most common type of crime.

Small branch offices or subsidiaries are sometimes left under the management of a small team with extensive authority – a dangerous combination. The main operation in a Nordic country may include several mechanisms, from a certified management system to management reviews, with the branch unit being trusted to manage itself. If the operation includes locally arranged bank accounts, it is even more difficult to follow up money transfers.

The construction industry and large projects are exposed to corruption and other criminal attempts, since creating the necessary controls for temporary organisations is difficult. When many suppliers, connections and large sums of money are in question, control may slip under the pressures involved.

In general, the danger of fraud in-

creases alongside the number of suppliers. Typical instances of fraud are committed through collusion with an external contact at the supplier or client, in the form of false billing and kick-back schemes.

Economically straitened periods and environments also place control mechanisms under pressure. If a company does not retain sufficient risk management resources and fails to upgrade and improve its systems in line with the development of the business and its processes, controls will deteriorate. This leaves gaps and deficiencies. Fraudsters tend to take advantage of the new opportunities that present themselves in such circumstances.

## RISK MANAGEMENT MEASURES

A company must ensure minimum controls against crime throughout its operations. These include internal and external audits, with specific attention paid to fraud detection. As in other risk areas, direct management reviews are important. In large companies the Corporate Governance model sets up the top management of the risk controls through requirements on the audits and risk management in general. The practices are then monitored by the independent Audit Committee.

To avoid the overly broad and comprehensive exercise of authority in the sensitive handling of accounts and decision-making, it is recommended that duties be segregated. No one should be able to engage in significant transactions while acting alone.

However, mechanical controls are insufficient. As always, the best results in business management are achieved when the corporate culture as a whole is quality and prudence oriented. Senior management plays a vital role in the long-term development and communication of the corporate culture. This can include policies on issues such as ethics and codes-of-conduct, and on handling observations of corruption, as well as instructions and training on fraud detection. A clear message, promoting an honest corporate culture characterised by integrity and zero tolerance of misappropriation, should be sent.

Most fraud cases involve internal perpetrators, acting alone or in collusion with outsiders. Employees and managers should be selected carefully. There

are also “red flags”, patterns typically connected with fraud. Examples are employees living beyond their means or using drugs, and employees under strong pressure at work. All personnel should be

educated to recognise such signs. Confidential reporting practices should form part of easily available, systematic control. In some countries, anonymous hotlines have proven efficient. The most common way of detecting fraud is through tip-offs from

other employees or whistleblowers in one’s own organisation. In sound organisations, a proactive HR function will lend assistance in assessing employees’ stress situations and supporting staff before unfortunate consequences occur.

Suppliers and contractors should also be screened before contracts are signed. This forms part of the standard for ensuring the quality, reliability and financial standing of an applicant. As with quality, transactional behaviour must be followed up for each supplier.

Special skills are required with respect to cybercrime. Opportunities for fraud depend on the IT systems in use, with methods of detection being applied within the system itself. Because such risks evolve continuously, risk management efforts should reflect process and system development.

Prevention is the cheapest method of fighting crime. After a fraud is detected, many other costs besides the actual loss occur: investigation, time invested in co-operation with the authorities and the pure legal cost of the process, including recovery efforts. In public investigations, the company’s reputation is also at stake.

## COMMERCIAL CRIME INSURANCE

It is possible to insure against crime as part of a risk management strategy. If’s Global Crime Insurance covers direct financial losses due to a crime, when the purpose is personal financial gain for someone other than the Insured, or with the direct intention of causing the Insured loss. This covers crimes committed by the policyholder’s own employee or a third party. Costs related to the recreation of data and the investigation itself are also covered.

Exclusions reflect the limits of loss coverage. Among other issues, these include consequential or indirect losses, investment losses, shrinkage, immaterial property right losses and securities trading losses.

**//CYBER  
CRIMES HAVE  
SEEN MAJOR  
INCREASES  
IN RECENT  
YEARS.//**

Do you want to discuss about commercial crime risks and your company's insurance needs further? Our underwriters are there to help you.

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For additional information, see:  
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# Adjusted risk management required

## in the Russian business environment

**Investment in Russia by western companies has been increasing in recent decades. In 2011, foreign direct investment stock in Russia exceeded US\$457 billion.**

Nordic companies are also investing in Russia, mainly in search of new markets and competitive production costs. However, the local business environment undoubtedly differs from Nordic companies' home markets. Among other issues, political, historical, environmental and cultural factors create a scene offering huge possibilities to companies, as well as posing major risks.

In the autumn of 2012, If conducted a study of hazard risk management in the Russian operations of large Nordic companies. This study consisted of 13 expert interviews conducted with Nordic companies operating in Russia, as well as a literature review and interviews of If experts. The study revealed that risk factors in Russia differ from those in the Nordic home markets. Risk management and loss prevention work must therefore be adjusted to the Russian business environment.

Partly boosted by foreign investors, systematic risk management is now developing strongly in Russia. However, while outlets and settings in Russia and the Nordic countries may seem similar,

they are not identical. This makes local knowledge vital.

### RISKY BUSINESS IN RUSSIA?

Russia is traditionally considered a business environment with relatively high risks – and high potential. However, for most companies in Russia market risks are the main concern. Despite the complexity of operating worldwide in very different countries and environments, hazard risks are generally viewed as fairly easy to control and manage. This is more a question of volition and determination, of how well hazard risks are identified and handled.

Broadly speaking, hazard risks are firmly under control in the Russian subsidiaries of large Nordic companies. While certain characteristics of the Russian business environment, such as its more rudimentary infrastructure, form part of a unique risk map for companies, Nordic firms have identified these risks and made an effort to manage them. Most companies interviewed consider the costs of risk management in Russia an inherent part of the country's business environment.

### HIGH STANDARDS

In general, large Nordic companies have a highly developed safety culture and

high risk management standards. Additionally, in most cases they seek to define risk management standards, including group-level insurance cover, globally for their subsidiaries. Foreign subsidiaries are typically responsible for risk management operations on a local basis, but the overall framework is established and steered at parent company level.

In Russia, local authority safety requirements are very strict in some respects, especially those concerning occupational and fire safety. Moreover, whereas in the Nordic countries the risk management framework is more reliant on recommendations, in Russia many requirements are statutory. In addition, substantial official supervision in Russia further assists companies in achieving a certain risk management level. However, many Nordic companies point out that the officially required level is insufficient for them.

### RISK FACTORS

The interviews indicated that legal risks, dependencies on local suppliers and customers, transportation risks and infrastructure are considered key challenges in Russia. Legal risks in particular, such as unpredictable demands by regional and national authorities and the related unwieldy bureaucracy, are a source of trouble and costs for companies. Al-



though criminality is also considered a huge risk, most companies interviewed had successfully managed this risk by investing in security.

Local management is viewed as a critical factor in risk management – not least due to the very hierarchical nature of Russian organisations. The companies interviewed found themselves currently able to recruit highly competent and proficient managing directors in Russia. Liability risks or risks related to facilities were not considered fundamental. In general terms, while the Russian business environment was deemed unpredictable, Nordic companies have mainly learned to cope with it.

#### **HOW TO IMPROVE RISK MANAGEMENT LEVELS?**

Implementing the desired risk management strategies and actions in Russian subsidiaries requires determination. Delivering a risk assessment document to a local company is insufficient in terms of implementing risk management. The Russian subsidiary must understand that the parent company desires a certain risk management level and is willing to invest in this.

Based on the expert interviews conducted in large Nordic companies, a company must attend to the following issues when seeking to enhance its risk management level in Russia.

##### **1. Train local personnel in risk management actions**

Many companies have noted that their Russian organisation is unfamiliar with systematic risk management procedures. Know-how related to preventive maintenance is often rather poor. Steps should therefore be taken to understand the background of employees and invest in training, when necessary.

##### **2. Double check protection systems**

It is important to remember this in any country. Some companies have reported that, in their Russian subsidiaries, protection systems are established as required, but may not be functional – rather like a fire hose unconnected to the water mains.

##### **3. Implement risk management at local management level first**

Russian organisations tend to be more hierarchical than their equivalents in the Nordic countries. The easiest way to implement risk management in an organisation is therefore to exploit the local managing director's authority. It is also thought that, in Russia, managers are more financially oriented and cost-aware. Financial arguments, such as calculating

**//THE STUDY RE-VEALED THAT RISK FACTORS IN RUSSIA DIFFER FROM THOSE IN THE NORDIC HOME MARKETS.//**







repayment periods on safety investments, could be used to emphasise the financial perspective of risk management investments. The Nordic companies reported that, on average, Russian managers are highly motivated with respect to risk management.

**4. Do not punish employees for losses or dangerous situations**

Some Nordic companies have found that Russian employees cover up losses or dangerous situations rather than reporting them to management. Learning from losses forms part of effective risk management and it should be made clear to all employees that reporting dangerous situations will not lead to punishment, but to action to improve safety.

**5. Minimise employee turnover**

Finding and retaining committed and skilled workers is a challenge in major Russian cities, especially

in St. Petersburg and Moscow where there is a labour shortage. High employee turnover could lead to the impairment of risk management and safety know-how in an organisation, not to mention other problems. Companies should therefore invest in employee commitment. Many of the companies interviewed offer benefits to long-term employees, as well as an attractive working environment, reliable salary, high occupational safety standards and good training possibilities. If employee turnover is high despite such actions, companies must invest in the training of new employees in risk management and safety work.

**6. Perform surveys and inspections**

Occasional site surveys and inspections are recommended, to ensure that risk management actions are taken regularly. External consultants are considered to have more authority than representatives of

the parent company. Since regular testing of fire extinguishers and other safety issues are typical black spots in Russia, particular attention needs to be paid to these.

**7. Tie bonuses to fulfilment of risk management recommendations**

Tying employees' bonuses or part of their monthly salary to the execution of risk assessment was recommended by many of the companies interviewed. This concerns both management and employees at all levels. In this context, money is a good motivator.

**8. Adapt local best practices regarding security**

Risk management in Russian companies has traditionally been very security oriented and many Western companies have relatively large security resources in Russia. Because criminality is considered a significant risk in Russia, it is advisable to adapt local security prac-





tices. Many companies reported that Russian employees are not as loyal to their employer as those in the Nordic countries and malpractice among employees is deemed relatively common. Strong control over employees therefore seems to be standard in Russia.

#### 9. Invest in good relationships

Investing in good relationships and building trust with local employees is important. Good relationships with local authorities are likely to lead to the easier and faster settlement of problem situations. Many companies have certain key persons with good networks, and this eases and smoothens the company's activities. However, it is crucial that this does not lead Nordic companies to compromise on their principles – in Russia, personal relations are simply regarded as very important.



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## NORDIC BUSINESS INVESTMENT IN RUSSIA CONTINUES TO GROW

"Russia continues to be an interesting market for our Nordic industrial clients," says Andrei Bogdanov, CEO of If Russia.

"Our client portfolio, which is based on Nordic investments, is expanding pretty steadily by ten per cent a year. We see companies already present here making new investments, as well as newcomers making their first entry into the country."



**Andrei Bogdanov**

If's operations in Russia date back to the mid 1990s, when a representative office was established to serve Nordic corporate clients.

Today, If is the only licensed Nordic insurer registered in Russia and can provide the full range of insurance cover for its clients.

If has 22 employees in Russia. These have expertise in areas such as underwriting, claims and risk management.

Russian staff are supported by If's Nordic claims experts whenever needed, for example in the case of large and complex claims.

The Russian office is located in St. Petersburg.

"It would be totally pointless for us to have more than one office here," laughs Andrei Bogdanov.

"In a country covering nine time zones, we would need literary thousands of offices to cover the whole country."

"Instead, we use our partnerships with other Insurance companies in Russia's remote regions. We also have professional claims handling partners, who operate a network covering the entire country."

The business focus is wholly on If's Nordic clients.

Some 90 per cent of the portfolio is generated through global programmes, typically written in the Nordic countries.

The rest comprise local Russian business, where a Nordic If customer makes an investment not covered by the usual insurance programme, but involving a local tender in which If competes with local insurance companies.

Nordic companies are often rather cautious about entering the Russian market.

"Many clients begin by introducing one or two business lines in St Petersburg, in order to learn more about the Russian market," explains Andrei Bogdanov.

"Newcomers really need to understand that the business culture differs between Russia and the Nordic countries."

"A company entering Russia for the first time often has no idea how to deal with this. So, when a customer plans to start a business here, we try to be engaged in the process at the earliest possible stage, in order to help with all kinds of questions, not just insurance."

"If everything goes well, the next step for the client often involves the launch of operations in Moscow. Following this, the business can finally begin to grow in other regions of the country."

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# Managing business travel risks

*How does the world seem in the eyes of a business traveler today?*

Thousands of business journeys are made daily, many get there and back safely, yet some end up losing a suitcase, a few with stomach ache or flu, some might even have their passport or wallet stolen. When we look at business travel in 2013 and beyond, these risks are unlikely to disappear. On the contrary, they are here to stay. These are also the most likely risks one would encounter when embarking on a journey, whatever the destination.

Daily news broadcasts have brought the civil unrest that has developed in the Arab world to everybody's attention. In addition to this, Europe, Asia, Africa and South America all have their restless areas, which are likely to continue to be higher risk areas in the near future. Perhaps unlike before, this has now become more important for the business traveller to be aware of and prepare for when travelling to such areas.

Also, natural catastrophes are an important risk to bear in mind, when travelling in areas where storms, floods, earthquakes and volcano eruptions are part of daily life. Many analysts have claimed that natural catastrophes are on the rise. The world's leading reinsurance company Munich Re's statistics of natural catastrophes worldwide between 1980 and 2012 supports this view, Figure 1. What is important is the effect they have on the economy and on peoples' lives due to increased population density, economic

activity and companies increasingly locating their operations in risk-sensitive areas.

## WHAT SHOULD COMPANIES DO TO MANAGE TRAVEL RISKS?

Even when your people travel domestically they do in fact face daily risks, let alone the risks they face when they embark on a plane to Central Africa. This is something every traveller as well as the risk, safety and travel managers should be constantly aware of. Of course the probability of a catastrophic earthquake occurring in the Nordic countries is practically zero, but incidents do happen; luggage gets stolen, people become sick, and trains can even derail, so you and your travellers need to be prepared.

Managing travel risks simply means building a systematic way of preparing your people to travel. This means making sure that they and your whole organisation knows what the risks are, is able to avoid the risks and knows how to react in the event of an emergency. A company should take a more holistic view, but at the same time the company must be able to identify the needs at the individual traveller level. This translates into travel reservations, guidelines, training and education, checklists, online health and security information, continuous updates on conditions and much more. For all of this to come together, a company needs



to set-up a dedicated co-operative forum comprising the various elements of travel risk management expertise, which will be designated the authority to develop and implement travel risk management measures. The forum must also be empowered with a clear mission and action plan, which gives it a mandate to take travel risk management forward.

## CRISIS MANAGEMENT PLANNING – AN IMPORTANT BASIC TOOL IN TRAVEL RISK MANAGEMENT

In the event of a crisis of any kind, there tends to be chaos and disorder. In travel risk management one needs to avoid this





and prepare by making a plan and setting up the processes for both normal and crisis situations. When a plan has been made, it needs to be practised with those involved in setting up a crisis management organisation, communication and other functions.

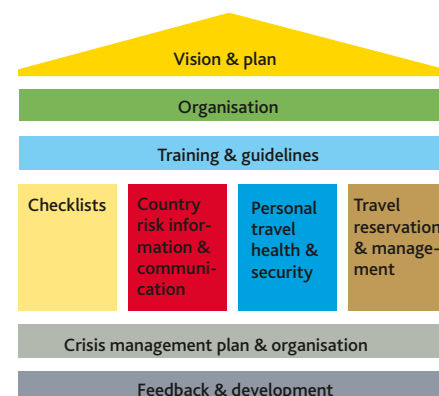
From the traveller's perspective, an insurance company is usually the best first contact in case of an emergency, especially in medical cases. For If, the emergency centre partner is SOS International, which has a 24/7 worldwide call service and can assist people in more than 40 languages. Some companies also have their own internal emergency call centres, which alert internal risk and safety experts

and advise the travelling personnel when the emergency is not a medical case. Furthermore, some companies have assigned each operating country a safety and crisis management coordinator, who travellers can contact and who updates country plans, communicates risk information and trains people in safety and risk awareness.

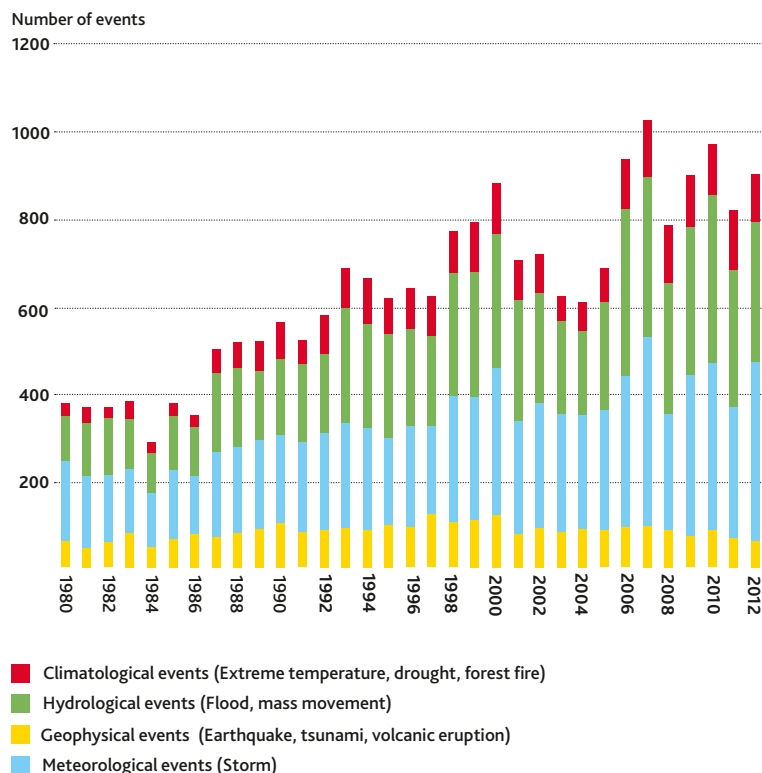
#### **BUSINESS TRAVEL NAVIGATOR – INSIGHT OF STRENGTHS AND DEVELOPMENT AREAS**

If Industrial Risk Management experts have created an assessment model, through which we are able to review the current situation of your businesses travel

**FIGURE 2: BUSINESS TRAVEL NAVIGATOR ASSESSMENT FRAMEWORK**



**FIGURE 1: NATURAL CATASTROPHES WORLDWIDE  
1980–2012**



Source: Münchener Rückversicherungs-Gesellschaft, Geo Risks Research, NatCatSERVICE, 2013

risk management in just couple of hours together with your help. The assessment is conducted by If's expert, who compiles a Navigator report with improvement recommendations. With these recommendations you are able to further improve your organisation's travel risk management and build a solid foundation for normal daily operation as well as crisis situations.

Business Travel Navigator consists of ten different areas. The assessment starts with a discussion on vision and planning, going to organisational basics and co-operation, training and other assessment areas. The assessment framework is depicted in Figure 2. It also describes a basic system for travel risk management.

By year end 2012 the Navigator had been tested in Finland with several clients and many more were expecting our experts to come and analyse their situation. Starting from 2013, the Navigator is fully ready to be utilised in other Nordic countries, since all the material is in English as well.

In November 2011, a Navigator assessment was completed at Stockmann plc, a major Finnish

retail business group. "The assessment process was easy and straightforward. The report we received gave us a clear indication of our development needs and it was also easy to use as a basis for choosing a new travel agency partner", explains Pirkko-Liisa Linkomo, Head of Business Travel at Stockmann plc. "I highly recommend this assessment, especially when it's a free-of-charge risk consultancy service provided by our insurance partner If", says Linkomo.

In April 2012, a Navigator assessment was completed at Valio Ltd, Finland's biggest dairy company. "The assessment got us thinking more deeply about travel safety as a whole and we really didn't miss a thing," said Valio's risk manager Päivikki Savola. She congratulates If on completing such a versatile assessment and warmly recommends the assessment to other companies.

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## TRAVEL INSURANCE CAN SAVE YOU

Max, a German engineer, travelled to India on business – a trip, which almost proved fatal. Luckily, his employer had taken out worldwide If Business Travel insurance for all staff travelling on business.

One night, Max began to feel ill. His colleagues became worried and took Max to the local hospital. It soon became clear that Max would have to stay in hospital for treatment.

### HELP FROM SOS INTERNATIONAL

Max was carrying an If travel insurance card with the contact information of If's partner, SOS International. The hospital called SOS, whose emergency centre contacted If's weekend-duty team expert and checked the validity of Max's insurance coverage.

SOS's specialist physician contacted the doctor treating Max in India and heard that Max had suffered a mild heart attack. He would urgently need balloon dilation (angioplasty), or possibly heart bypass surgery.

Business Travel insurance compensates for medical expenses incurred during business trip. It also reimburses the costs of transferring the insured to his or her home country or the nearest possible location for further treatment, whenever a medical assessment concludes that treatment at the travel destination is not possible. Travel expenses for a return journey by one close relative, to and from the insured, can also be covered if the insured's life is considered to be in danger.

### FLIGHT HOME

SOS analysed the quality of the local hospital and possible locations in which the operation might be performed. Being unconvinced about the standards of the local hospital, and because transport from India could be arranged as early as Sunday morning, SOS concluded that, under the circumstances, Max should be transferred to his native Germany. Treatment and recovery would also be easier in Max's home country, with his family on hand and matters being handled in his own language.

The estimated cost of the flight came to 35 000 euros. Upon being contacted, the hospital in Max's home town confirmed that he could be admitted for further treatment upon his arrival in Germany.

On Sunday, the stricken engineer was transferred to Germany on an ambulance flight organised by SOS. An angioplasty was performed the next day, following which he made a full recovery from the operation and became fit for work within four months.

This is how If's Business Travel insurance works.

**LESSONS FROM LOSSES 7/2011.**

**TUUKKA PULKKINEN**



# Operating environment of logistics, and the human factor

**What is the human factor's contribution to loss or damage and how can the associated risk be reduced? This question requires continuous attention in risk management. Owing to the development of technology and automation, it sometimes seems that we tend to pay less attention to this issue. However, identifying this risk is essential.**

Training, professional skills, quality awareness and, above all, the right attitude towards the task are prerequisites for successful performance. However, this is not all: a high-quality work performance also requires the right operating environment.

The development of occupational safety has considerably reduced the risk of occupational accidents. Certain industries, such as the oil industry, not to mention the nuclear industry, have been pioneers in developing the operating environment of human activities and in preventing losses.

Investing in an operating environment that guides and gives instructions is vital, particularly in the field of logistics. We are all familiar with the way in which insufficient signage and instructions can easily lead to confusion, and even result in dangerous situations in a new environment. The logic of the language used on signposts and for guidance is not always clear to the user.

The importance of the functionality

and safety of physical logistics can easily be seen in production plant and terminal areas. At such sites, special attention must be paid to risk management.

In a recent inspection of a terminal, which we conducted with a customer in Central Europe, we noticed boulders in the middle of a card yard, placed there to serve as a traffic island. The boulders were supposed to keep incoming and outgoing traffic apart and prevent them crossing into each other. The solution seemed very effective, and we were told that the benefits were that after a driver had collided with a boulder once, he or she was sure to bear the rules of lane driving in mind. This is how we too were taught to pay attention to our surroundings – until the 1960s and, unfortunately, sometimes thereafter.

Another example is a story told by a customer about a quality audit at their subcontractor's site in the Far East. The machine manufacturer had continuously noticed bends in the pipes supplied. At the audit it turned out that the damage to the pipes had been caused by forklift traffic at the plant. Placed on pallets, the pipes had simply collided with obstacles in the plant's passageways.

When the auditor asked what they would do to correct the situation, they said that the forklift operator responsible for the damage would be fired. "Wrong answer," said the auditor and continued that he would ask the same question every morning during his visit, and

expected to have the right answer by the time he was ready to leave. The situation was becoming tortuous, as the "right" answer and the solution to eliminating the problem failed to appear. Replacement of the forklift operator or operator training were not accepted by the auditor as solutions. On the last morning the issue was discussed again, and the subcontractor laid "its last card" on the table: it timidly suggested that it would stack the pipes on the pallet in a different manner to ensure that no pipe ends would stick out of the load, thereby reducing the risk of collision in the narrow passageways of the plant. "Right answer," was the auditor's comment on this. After this, no bends were found in the pipes supplied.

SUCCESSFUL LOGISTICS requires cooperation and cannot be based on the idea that everyone only takes care of their own responsibilities. Back in the days when containers and other transport units were introduced, a good rule of thumb for loading was to do so in such a manner that goods could be unloaded without causing damage at the destination.

Readiness to view each case from the point of view of the various participants in the logistics chain helps us to understand the challenges faced by the other party. Our examples of the terminal operator and the boulders, and an operator's impatience with truck transports from different countries getting lost in the terminal area, may increase our un-



derstanding somewhat. However, perhaps there would have been some room for improvement, for example, in reporting procedures at the gate and driving instructions, as well as in markings for driving lines, terminal buildings and loading places. We cannot improve things by punishing and setting traps; such methods should be a thing of the past.

In our cooperation with the transportation company, we have achieved very good results by using a Navigator-type risk analysis form for the loading and unloading operations of vehicles. Questions are drawn up from the driver's point of view, i.e. how do I as the driver manage the loading or unloading of a raw material load at the plant. Today, transportation companies may have hundreds of unloading and loading sites, where the driver usually works alone. When conducting risk analyses, we have found that on-site instructions are highly diverse and often defective. Even finding your way to the loading or unloading place at the site may prove difficult. Keeping written instructions for the various sites with you

in the cab is impractical, due to the high number of sites. The operating environment should therefore guide and instruct the operator.

THE AIM of good logistics is to deliver the goods intact and on time to the consignee. As part of the logistics chain, people are not machines. However, thanks to their professional skills, they can perform much more challenging tasks than any machine. In the same way as good traffic control directs traffic streams, the operating environment should provide operators with instructions and warnings, thereby maintaining vigilance and sometimes even stopping critical operations before they are executed, to ensure that they are carried out correctly.



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# Changing of the guards

## *New head of Industrial*



**NICLAS WARD**  
Head of Business  
Area Industrial, **SWE**

NICLAS WARD took office as the new head of If's Industrial Business area on 1 January 2013. Ward has been with If for 12 years and is now also a member of the If Business Management Group. He is a 41-year-old married man with two children who lives in Stockholm. When not working, he goes skiing, plays golf, or reads bedtime stories to his children. He succeeds Morten Thorsrud, who has been appointed as head of Business area Private at If.

## *Ettala retires as editor-in-chief*

AFTER 11 YEARS as editor in chief of Risk Consulting Juha Ettala left his post in the spring as he retired from If. The magazine you hold in your hand is the last he was responsible for.

"The role as editor is pretty far from my regular duties as a Head of Risk management so it has been an exciting and interesting experience", says Juha Ettala.

"I want to extend a big thanks to everyone who participated in Risk Consulting, being interviewed, as writers, contributing with ideas on themes and articles. Without you, this magazine hadn't existed!"

Juha Ettala has been succeeded by Ulf Bäckman, Head of internal communication at If, and a journalist by training.



**Juha Ettala**



**Ulf Bäckman**



## *Risk Management Day*

IF'S RISK Management Day provided straightforward information on the changing international operating environment of companies, and the relevant risks. More than two hundred participants attended this afternoon seminar in Helsinki.

The keynote speaker at the event was Björn Wahlroos, Chairman of the Board of Directors at Sampo Group. He highlighted need to accelerate investments in order to steer the economy in the right direction.

In addition, for example dependency risks and personal risks in international business were discussed in the seminar. Read more about the themes on this issue of Risk Consulting Magazine.

## APPOINTMENTS



**ANNE NEGÅRD**  
Head of Marine &  
Casualty Under-  
writing **NOR**



**KRISTINE BIRK WAGNER**  
Nordic Head of Liability  
Claims in Commercial &  
Industrial **DEN**



**JOHNNY JENFORT  
HANSEN** Head of  
Property Under-  
writing **DEN**



**LAURA RASTAS-  
JANSSON** Nordic  
Head of Risk Manage-  
ment **FIN**



**FRÉDÉRIC PICARD**  
Property Under-  
writing Coordinator  
**FRA**

*Kemira: Risk management  
thinking must encompass  
the entire organisation.*

