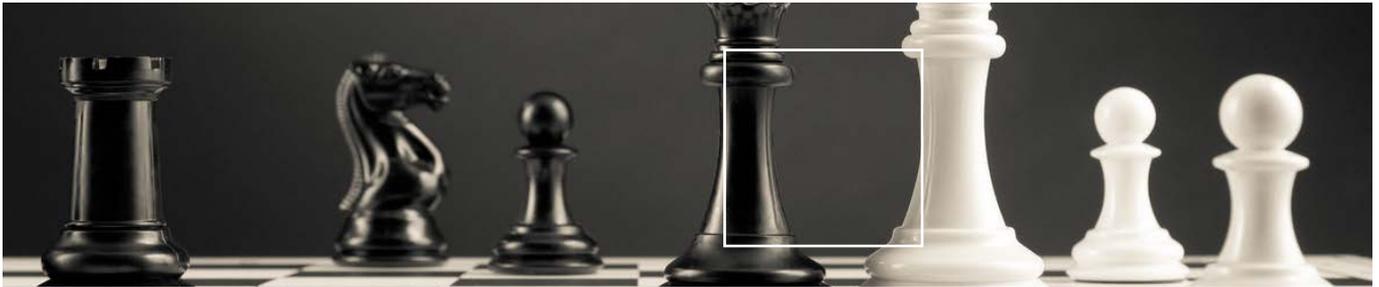


# Loss prevention framework for insurance companies

*An innovative approach to measuring and controlling risk*



Innovative, homogenous and structured risk valuation approaches have played a unique role in reducing risk exposure and uncertainty surrounding insurance companies. However, market resilience, lack of information and specialty business require a tune-up in subjective and swung risk valuations. A structured approach to risk evaluation of new and existing clients, based on a quantitative framework, can benefit a business by simplifying internal and external processes.

A holistic risk valuation approach requires objective and accurate estimations of the maximum possible loss (MPL) and the normal loss expectancy (NLE), which both rely on quantitative analysis. However, novel approaches to risk also emphasize the importance of risk prevention to benefit insurance companies' valuations. To support this methodology, a structured framework, based on both quantitative analysis and loss prevention, can provide a flawless tool for risk evaluation. This structured framework supports the insurance company, not only in the underwriting process of new clients by evaluating their risk profiles, but also in the optimization of their existing portfolios by prioritizing the areas of investment in the current business.

Insurance companies sometimes cannot afford or do not want to invest in the development of both structured loss prevention services and an objective tools. A quantitative framework approach would allow these companies to rely on effective risk evaluation processes. In addition to this, the tool targets insurance companies that lack effective and accurate valuation models and want to invest in upgrading their existing tools to exploit their maximum potential value.

In complex and embedded situations, in which market resilience, lack of information and an increasing number of specialty industries are the main threats, a quantitative framework is key to gaining the necessary knowledge to face risk evaluation. In fact, the framework gives insurance companies and first-hand users a homogeneous, 360-degree understanding of the situation, which is concise and objective at the same time, to make data-driven decisions. The benefits

of the tool are many: access to a wide range of information, in order to develop cost-benefit-based decision-making, knowledge acquisition, intergenerational transmission and maintenance.

**A loss prevention framework allows insurance companies to measure and mitigate risks**

Risk profiling has traditionally been carried out by insurance companies' experts, who counted on their personal experience to define strengths and criticalities of each site through desk analysis and site visits. However, this method is highly subjective and, therefore, it is not appropriate to compare different sites, especially if different experts carried out the analyses.

To overcome this problem, cooperation between insurance companies and their clients can prevent avoidable economic losses and reduce clients' risk exposure, which, in turn, benefits all shareholders – insurance companies, their clients and society. In fact, a better understanding of a client's risk exposure can help all involved parties:

- Insurance companies make data-informed decisions and define more adequate policies; they limit their own risk exposure and can, in turn, offer more competitive products than other companies that cannot assess risks as accurately.
- Clients are incentivized to improve internal risk management, in which improvements and good practices are acknowledged and reflected in the insurance premiums.

- Society and stakeholders as a whole are less exposed to risks; over time, businesses become more economically, socially and environmentally sustainable.

Arthur D. Little has developed a standard and objective framework that enables insurance companies to benchmark their clients' risks and improve their risk assessment capabilities. In fact, the loss prevention framework is designed to cover all the activities of an insurance company, from the client's relationship and data collection, to the assessment of the client's risk profile during the underwriting process, to the optimization of the existing portfolio. Below is the structure of the loss prevention framework in detail.



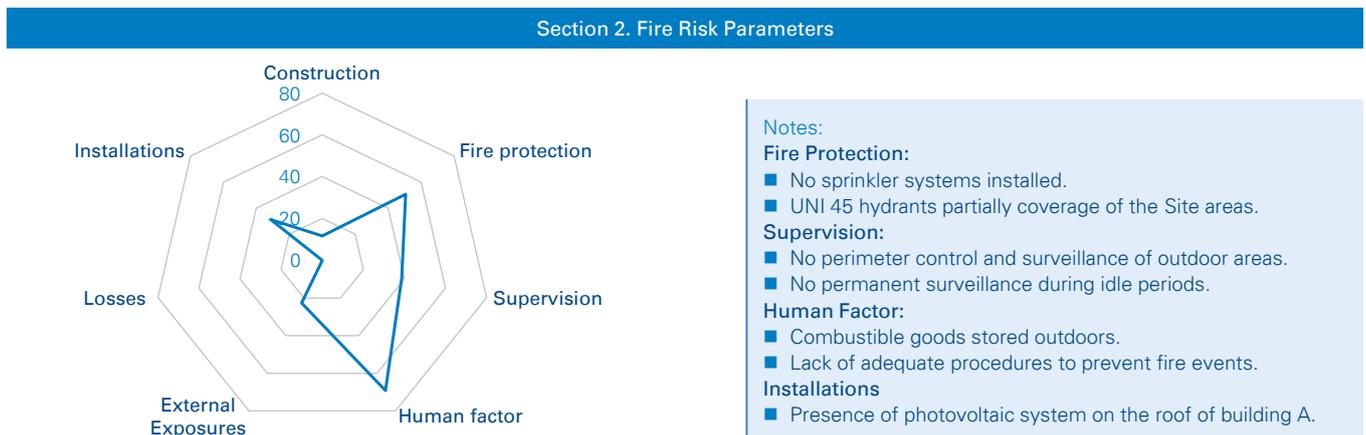
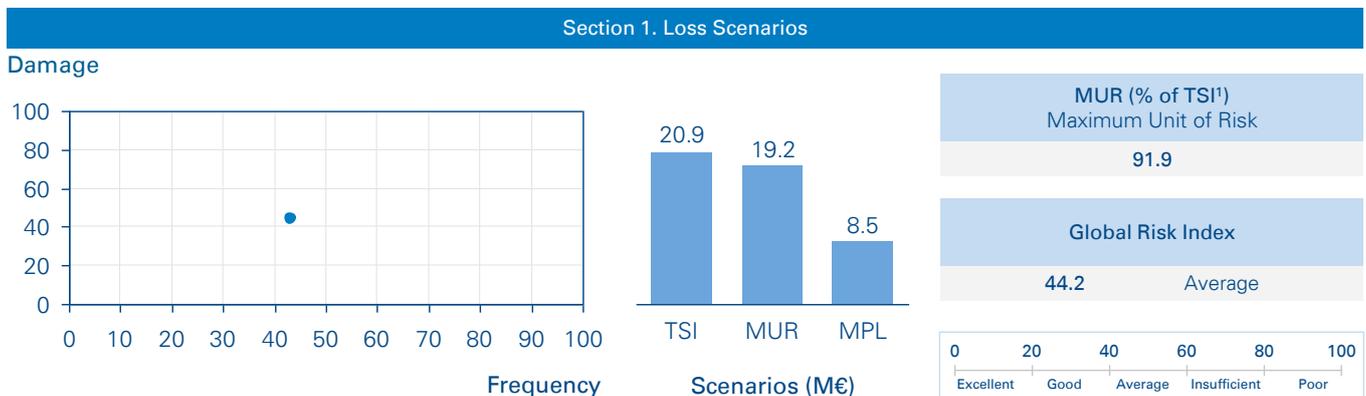
Source: Arthur D. Little

The framework is suitable for four areas of intervention: property, casualty, art and theft and Construction/Erection risk evaluation. Each one covers different accident categories; for instance, the property risk area covers fire, natural hazards (earthquakes, wind, hail) and business interruption.

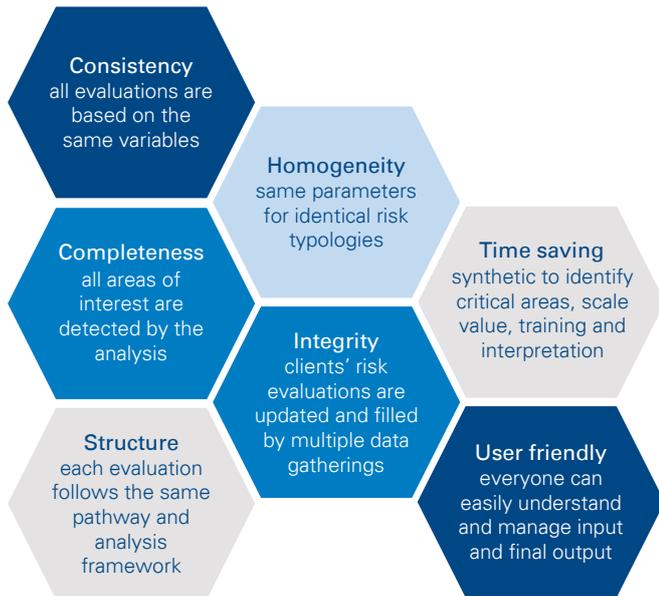
The possibility of developing specific tools for each type of risk makes the analysis consistent and reliable. Each risk is evaluated according to specific parameters, which have emerged differently according to the main variables that affect the risk identified and are included in the algorithm.

As for the operational features, the tool allows users to update the risk profile periodically according to new data gathering. Moreover, implementation impact of protection/prevention measures are simulated prior to the implementation. Finally, the possibility to develop a cost-benefit analysis provides efficient investment decision-making.

Data gathering is activated through dedicated loss prevention visits, analysis of past reports and evaluation of online questionnaires or checklists. The relevant advantages coming from the adoption of the framework are listed in the figure below:



1. Total Sum Insured  
Source: Arthur D. Little



Source: Arthur D. Little

Therefore, regardless of the chosen assessment method (engineer performing a survey or self-assessment), results are evaluated in the same way and the analyses are always easily manageable for everyone, avoiding multiple subjective interpretations of the same client's profile.

The analysis of the existing portfolio is essential to provide a complete overview of the entire business, focusing on the current investment strategies and evaluating the viability of the plans in action.

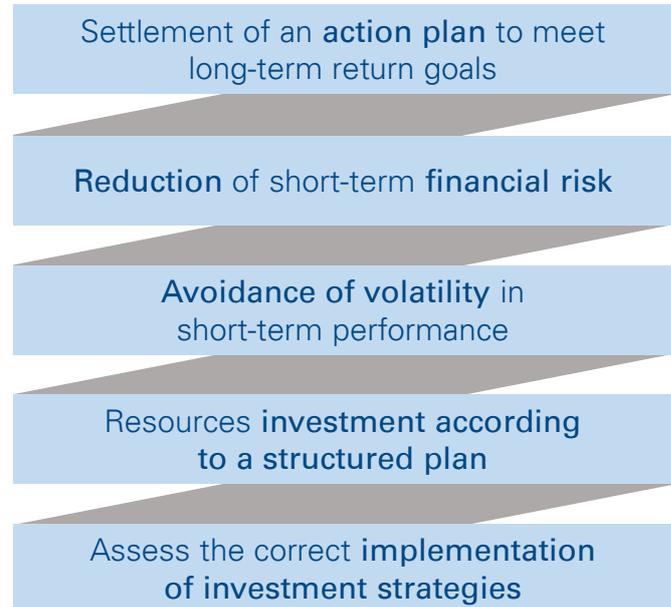
### Risk-based portfolio management

Thanks to the implementation of specific algorithms for risk assessment, an existing portfolio of different clients can be analyzed to highlight risk peaks or hidden criticalities.

The evidence of major risks or criticalities allows an insurance company to improve the combined ratio – the performance in its daily operations. This fine-tuning is possible thanks to investment decisions in the areas that need better risk coverage. Finally, the time schedule of the reassessment plan completes the risk-based portfolio's strategic management.

The main advantages coming from the analysis of the existing portfolio are shown in the figure.

A loss prevention visit (LPV) is a survey of the customer's site to be evaluated by the insurance company. The goal of site evaluation is to provide the insurer with an exhaustive description of the company's risk.



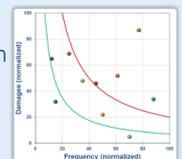
Source: Arthur D. Little

### Analysis of main loss scenarios and development of recommendations

The analysis attempts to bring the client's risk level into focus to compare risks on different production sites and identify those requiring risk reduction measures. The insurer aims to spread good practices and synergies among several sites and simulate the effect of a protection system and prevention maintenance on the overall risk. Finally, the insurer evaluates the relationships between risk exposure and future business priorities.

#### Case study: fire-risk analysis of a multi-site client

The client operates in the manufacturing sector (plastic components), with production sites in Italy, Germany and Turkey. It faces specific threats due to natural-hazard exposures.



The insurer needed a complete picture of the property's fire risk for the entire perimeter (10 main sites).

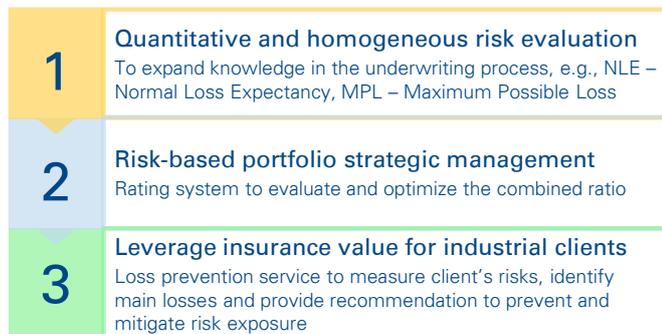
We analyzed the available reports (from brokers and other insurers) together with the loss history, and selected three sites to be surveyed. Afterwards, we developed a specific checklist to gather data from the non-inspected sites.

The result was a complete description of the risk, with evaluation of the main scenarios (MPL, NLE).

We determined global risk indexes and the most critical locations.

The quantitative framework is essential to evaluate the risk profile of possible new clients in the underwriting process and optimize the existing portfolio; loss prevention visits contribute in both analyses.

The introduction of the framework in an insurance company provides multiple benefits, not only from an economic, but also organizational and brand-image points of view, both directly and indirectly. In the figure below are the main benefits of adopting the framework.



Source: Arthur D. Little

## Conclusion

Introducing the loss prevention framework in insurance companies translates directly into claims cost reduction and portfolio optimization, and indirectly into better services to clients.

The quantitative framework, along with our expertise in the insurance practice and in clients' industries, provides both the advanced tools and the latest insight to approach loss prevention and risk exposure. It reduces vulnerability and the severity of the associated risk.

Loss prevention visits can benefit both the risk exposure of possible new clients and the risk of current clients, while the development of dedicated tools to risk analysis enables evaluation of clients' risk profiles in the underwriting process. Finally, the analysis of the existing portfolio helps the insurance company to optimize the combined ratio and investment decision-making.

The essential product of insurance – protection, usually in the form of money when things go wrong – has few obvious substitutes. Insurers have built huge customer bases as a result. Investment revenue has provided a reliable boost to profits. This easy life led to a complacent refusal to modernize. The industry is still astonishingly reliant on human labor. Underwriters look at data but plenty still rely on human judgment to evaluate risks and set premiums. Claims are often reviewed manually.

– The Economist

## Contacts

### Belgium

bamberger.vincent@adlittle.com

### Central Europe

doemer.fabian@adlittle.com

### China

russell.pell@adlittle.com

### France

bamberger.vincent@adlittle.com

### Hong Kong

smith.andrew@adlittle.com

### India

srinivasan.srini@adlittle.com

### Italy

milanese.stefano@adlittle.com

### Japan

harada.yusuke@adlittle.com

### Korea

lee.kevin@adlittle.com

### Latin America

casahuga.guillem@adlittle.com

### Middle East

kuruvilla.thomas@adlittle.com

### The Netherlands

eikelenboom.martijn@adlittle.com

### Norway

mackee.diego@adlittle.com

### Singapore

harada.yusuke@adlittle.com

### Spain

portal.jesus@adlittle.com

### Sweden

kilefors.petter@adlittle.com

### Turkey

baban.coskun@adlittle.com

### UK

eagar.rick@adlittle.com

### USA

guzman.rodolfo@adlittle.com

## Authors

Fabio Matera, Emanuele Salvador

## Arthur D. Little

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