

PROPERTY INSURANCE: RISK QUALITY ASSESSMENT

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What makes a company a 'good' insurance risk, and how can the insured reduce their insurance premiums? These questions are often asked as part of the property insurance auditing which Elciem completes as an independent risk management provider with FSA approval. This paper is aimed at answering the first of these questions and also explaining briefly why the second is outside the remit of independent auditing. To understand if a company is a well managed in respect of the risks that it faces, Elciem uses a number of tools including the measurement of inherent hazard against the risk management standards in place and the associated estimated maximum loss. This benchmarking tool enables locations in various types of industry (e.g. manufacturing of food, printing, retail, services, warehousing and chemical) to be measured against one another, and also enables the prioritisation of best practice risk management actions based on financial loss estimates.

There are a number of specific items within the benchmarking process that are used to examine the inherent hazard. One of these measures includes business interruption and an examination of the criticality for example of an item of equipment, process, plant, site or single source supplier. These items are often bypassed during standard safety assessments, but can have a major impact on financial profit generation if there is an unplanned interruption. This is one key reason why so many companies which have a serious fire do not start back-up, and even if they do, many go out of business due to failing to meet customer demands. The paper highlights the importance of the change management in any rationalisation process and how a detailed understanding of the business in the form of a contingency plan can be used to demonstrate a well risk managed organisation.

INTRODUCTION

What makes a company a 'good' insurance risk, and how can they reduce their insurance premiums? These are questions which are often asked as part of the property insurance and risk management auditing which Elciem completes as an independent risk management provider with Financial Services Authority (FSA) approval. This paper is primarily aimed at answering the first of these questions, and will detail the techniques which Elciem uses as part of the commercial property auditing service. The question relating to the reduction in premiums is outside the remit of the auditing that an independent consultancy would undertake, but the rationale behind this will also be reviewed.

The normal process of placing insurance in the commercial insurance markets is described, including the data route from the insured via the broker to the insurance

markets. The role of Elciem in preparing market accepted reports is highlighted and will indicate the importance of good quality data to the insured, broker and insurance markets.

A brief review of business interruption is made as following a major fire incident, many companies do not start back-up, and even if they do, many go out of business due to failing to meet customer demands. The importance of management of change (outside of a standard safety assessment) is highlighted for business critical equipment and processes.

COMMERCIAL INSURANCE MARKETS

To understand the process by which a risk is assessed in the insurance markets, it is useful to review the information data route from the insured all the way through to the insurance markets, where the underwriter will decide whether to accept the risk and determine the premium. The usual route by which a company places insurance with the insurance carriers is shown in the simplified Figure 1 below.

When a company purchases commercial insurances, the usual route is for an insurance broker to be appointed. The broker will advise the insured on the level of cover for various classes of insurance (for example employers' liability or property damage, business interruption or construction) and will then try to obtain the best level of coverage, for the insurance premium to be paid.

Dependent on the size of the risk, there can be numerous co-insurers at the primary level, attaching at various levels of the risk and then re-insurers behind each of the insurance companies. This is dependent on what treaty arrangements the primary level insurers have in place.

To enable the insurance company underwriters to assess the quality of the risk, a detailed site report needs to be prepared. This is normally undertaken by the broker (or the current insurer's reports are often utilised) shortly before the time of the renewal

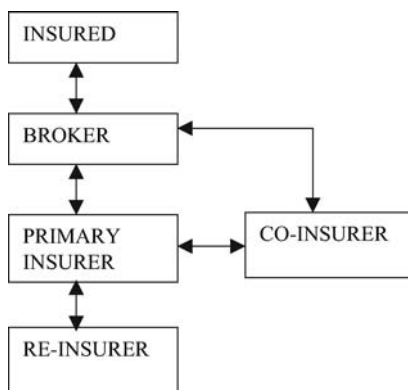


Figure 1. Details of the route of data from the insured to insurance carriers

of the insurances, where the quality of the risk and the required sums insured and coverage are reviewed and prepared within a market presentation. This presentation is circulated within insurance markets, the largest of which in the UK is in London. Often as part of the broking exercise there is a presentation of a risk to a market group of insurance companies by the insurance broker and current lead insurer.

If an insurance company decides to participate in an insurance programme, there are a number of items which the underwriter will need to consider. The underwriter will determine a price for the insurance, dependent on a number of factors, which include the type of the business, policy coverage, loss history and excess or deductible. A key part of the process is also the risk management programme which is agreed for property insurances at the time of renewal.

In addition, the insurance company will also review the Estimated Maximum Loss (EML) that is likely to be incurred in the event of a single major incident in the business. This will determine what percentage of the risk the insurance company will be able or wish to write on the policy, and whether the policy can be written as a 100% line, or whether other co-insurers and re-insurers will be required to enable 100% of the risk to be covered.

The insurance company will want to limit their liabilities in the event of a major incident and as such, the basic theory of insurance is to spread the risk. Therefore in the event of a major incident or EML event from an insurer's perspective, there is unlikely to be a business critical impact on the capital assets and liquidity of the business. An alternative method is often to set a maximum upper Loss Limit on the policy.

There are often various perceptions of a type of business or class of business within insurance markets. These perceptions are based on a variety of factors, a limited number of which are listed below:

A) UNDERWRITING POLICY

Insurance companies will often target specific sectors of the market, to achieve a balanced book of insurance risks across a sector or type of business, or geographical area. Conversely, there are also times when insurers may decide that they do not want to insure a particular sector of the market or type of business.

This has occurred in recent years within the food industry, where there have been limited markets for risks containing internal construction consisting of combustible Polystyrene insulation. This is as a result of the number and severity of losses associated with this type of insulation, and in some instance insurers have required the insured remove this type of insulation in the short to medium term for non-combustible alternatives if an offer of insurances was to be made. This is referred to as a warranty or requirement condition of the policy of insurance. Alternatively the insured via the broker can try to obtain different insurance conditions for an alternative insurance market.

B) CAPACITY AND ESTIMATED MAXIMUM LOSS

An insurance company may only be able to write a limited line (say 10 or 20%) on a particular account due to the size of the EML, or Estimated Maximum Loss. The definition

and the calculation of the value is a key stage of any risk engineering type audit and provides key information to the underwriter on the potential exposures. There are several definitions of EML in use which can also be known as Maximum Foreseeable Loss or Probable Maximum Loss, but with significant differences in the basic definitions. The basic definitions ranging from a 'free burn' scenario to some limited but delayed intervention by the emergency services.

For example, which is the better perceived risk, one valued at £400 Million on one site, or one valued at £400 Million on two sites? The underwriter requires technical information to understand the risk as the higher exposure could be at the one with two sites. This could be as a result of product interdependency between the two standalone sites whereas the single site could contain multiple buildings or have firewalls installed to an EML reducing standard.

A further example of the importance of the information would be where the maximum loss for one of the businesses valued say at £400 Million maybe estimated at £100 Million or £300 Million by the surveyor at the time of the audit, and if the insurers maximum capacity available is £50 Million, the insurance company could carrier either 50% or only 17% of the risk.

C) SPECIAL PERILS

Special perils can consist of a variety of different events which can impact on the insured property. These can be split into natural perils and other man-made events.

Natural perils consist of a wide range of weather based incidents and include the following: Flooding, Windstorm, Subsidence, Rainstorm, Lightning, Volcano, Snow Loading, Earthquake and Tsunami. Other man made events, include issues such as Vandalism, Aircraft, Accidental Damage, Impact Damage, Rioting, Terrorism, Arson and other forms of malicious damage.

With an insurance company covering risks around the world, there may often be issues with placing insurances for a global business which has locations particularly in areas with high frequency rates and losses attributed to natural perils. Often within the re-insurance treaty for the primary insurer there will be an aggregate limit of the total sums insured that an insurer can write in one particular area. An example of this could be for earthquake in the Western coast of the United States of America. Upon the total cumulative aggregate being reached the insurer would then not be authorised to write a line on any further risks within the region, unless the re-insurance treaty was modified.

D) LOSS HISTORY

With the broking submission, placed in front of the underwriter at the time of the renewal of a commercial insurance package, normally is a set of claims data for the last five years. This indicates the number and size of claims made against a policy, and this data can be represented in a number of different ways. The data can often just detail claims made which were above the policy deductible, as there can often be a number of incidents in

a business which were below the deductible level and therefore no monies were paid by the insurer with the client losing the cost of the loss of the bottom line of their Profit and Loss account. Alternatively the data can be presented in number of losses in numeric loss ranges.

An example could be that over a 5 year period, there have been no claims on a policy with a deductible of £500,000, but that there have been 10 incidents each costing the company £100,000 for every event. In terms of risk perception, this could be presented as there being no claims over the last 5 years, but would the perception of the risk be different from one without any losses and one with a cumulative loss of one million pounds over the five years?.

Where there has been a major claim on a policy, then this will often be remembered by underwriters and other insurance professionals over the long term. This is a function of the experience of the underwriters in any particular insurance company, and the data they have at their disposal.

E) SECTOR LOSSES

Ratings (or Tariffs) have been prepared for underwriters based on actual loss history for specific classes of industrial businesses. These ratings indicate the percentage rate which should be charged for a particular type of industry. Examples of which would be plastics, metal working, food and textiles.

Historical loss data are available from a number of different sources, and these include confidential independent loss adjuster reports within an insurance company, historical loss records from broker presentation materials and also published loss data, such as in the FPA (Fire Protection Association) and government publications.

The analysis of the property loss data indicates that common root causes of fire continues to be Arson, Smoking, Hot-Work, Electrical and Control of Contractors. Other common root causes of significant losses include combustible storage (especially wooden or plastic pallets) against the side of a building and unprotected lighting over combustible materials. In higher hazard occupancies, maintenance continues to be a root cause of incidents and losses.

Where there are newer types of processes being introduced the availability of historical data may not be available and this is an example of where good quality data on the inherent hazards and the risk management standards in place can aid the underwriter in the perception of the risk and the quality of the risk, and thus the appropriate cost of the insurances.

PROPERTY INSURANCE AUDITING

What makes a 'good' insurance risk? This was the first of the questions raised in the introduction section and how can this information be presented to the underwriter, broker or insured.

Elciem is a risk management services provider with FSA approval. As an independent consultancy, there is an increased importance in client focus and this is generally

reflected in the “cradle to grave” approach, which starts with the identification of key risk exposures and results in a cost-effective strategy for improvement. This ensures companies continue to meet their customers’ expectations through improved robustness of production and business processes. However, our services are tailored to our clients’ requirements and these can range from pure risk engineering audits and the assimilation of risk data through to full business analysis exercises and continuity planning programmes. All aspects of a business insurance risk can be reviewed, including property, business interruption and liability.

If an independent consultancy for risk management is to be used, they should be credible. The credibility of our output and our insurance market recognition comes, in part, from our long-term strategic partnership with a lead London Market insurer and work as an advisor with some of the syndicates in the Lloyd’s insurance market. Elciem is recognised by a number of the retail, wholesale and reinsurance markets and has several FTSE 250 sector clients.

The primary focus of the site level audits completed is based on business protection and with this in mind, best practice risk engineering recommendations are made for the client. The basis for the recommendations being historical loss experiences, technical guidelines or reports (e.g. LPC, British Standards, FM, NFPA or the US Chemical Safety Board) and consultant experience and expertise.

The property auditing approach on-site is usually over the period of one or two days and consists of a bench top exercise to review the company, followed by a detailed site tour, finishing off with a review of any recommendations. Following the visit, a report is prepared which details the current status of the site operations with recommendations made to improve the risk to a best practice standard where appropriate. Further visits and updates on risk improvement recommendations are completed, along with technical workshops and special visits (e.g. meetings with fixed fire protection contractors, or business impact analysis studies).

As part of the report, a benchmarking study is undertaken which reviews the inherent hazard of the property and business interruption against the rating for risk management, which includes an element for the Estimated Maximum Loss. The output from this study can then be used to produce a quality rating graph where the risk management rating is plotted against the loss expectancy. This technique is found to be particularly useful when reviewing a large number of sites within the same group.

Each insurance company has its own variation on the rating system and benchmarking system, with some companies not assessing inherent hazard and/or business interruption. However, the general technique can be used to provide an indication of the quality of the risk. It should however, be highlighted that even if a risk achieved the top level of risk management grading, this does not mean the site will not suffer losses, but that the frequency of the losses should be lower.

The output from the benchmarking assessment is contained within the output report, which will also contain standard sections such as an opinion of risk, recommendations, loss history, loss estimates and details of construction, occupancy, human element programmes and any fixed protection systems in place.

The benchmarking assessment is used to show the current site rating and where the rating can improve to with the completion of the non-capital related items and the capital related items. In effect, this indicates to the client the quality of the risk and what the current deficiencies are.

The cost to rectify any deficiencies may include capital, or require revenue expenditure say on a maintenance or training budget. The reader can then understand what is required to improve the quality of the risk. As such prior to an insurance renewal, there can often be a three way trade-off discussion held between the insured, broker and insurance underwriter(s), where timescales for improvement in the risk quality and the associated costs are reviewed prior to the formal renewal of the insurance.

The second question in the introduction section related to how can the insured reduce their insurance premiums? In general, premiums would normally be expected to reduce as the quality of the risk improved. However, within the insurance market the rates can nominally increase or decrease as a function of the amount of capital which is available for underwriters across the market to write business. This is often referred to as a 'hard' or 'soft' market, with a soft market being where prices are lowered due to there being an excess of capital investment available. Conversely in a hard market the prices are increased due to there being limited capital investment funds available.

As the premium is set by the underwriter in the lead insurance company, the underwriter will use the property insurance report as a basis for their calculation of the premium, and will also need to consider the costs of reinsurance where applicable and head office costs (including claims and risk management), as such he and she is responsible for the costs the insured will be paying.

As a risk engineering service provider, Elciem (and similar companies) can advise about the quality of the risk, but leave premium assessment to the insurance company. The completion of the improvements detailed within the risk engineering report are likely to assist in the decision making process for the insurance acceptance and premium. However, at the time of making the best practice recommendations (especially those requiring capital expenditure) no guarantees or either estimate can be made on the likely insurance cost reduction on the completion of the recommendations.

This can therefore cause problems for the client or insured as no cost benefit analysis can be completed to justify the capital expenditure pay back period on the capital expenditure proposal.

Where low cost recommendations are made which can have a significant impact on the risk quality, these are expected by all parties to be completed in the short term. Examples of which would be poor management standards for smoking or hot work controls.

Where significant capital items are recommended at the time of the audit, the broker at the time of the renewal will normally request a reduction (or perhaps no increase) in the insurance premium based on the completion of the recommendations, but this is then

dependent on the commercial deal which the lead underwriter is willing to accept during the negotiation process for the insurance renewal.

BENCHMARKING

The benchmarking tool that is used for property auditing measures the inherent hazard of the process operation against the risk management standards to determine an overall risk quality rating on a simple scale ranging from Unacceptable to Superior.

The benchmarking tool has been designed so as to be able to affect comparative analysis between different occupancies whilst at the same time being able to benchmark across an industry sector.

Inherent hazard factors include: occupancy, construction, fire load, arson, exposure, utility infrastructure and business interruption dependency.

Risk management factors include:

- a) *Management safe systems of work* for example, permit to work, change management, mechanical and electrical maintenance and smoking controls.
- b) *Controls of process hazards* for example, equipment design standards, control and instrumentation systems and emergency shutdown and protection systems.
- c) *Fire protection* for example, location of the nearest fire brigade, fixed fire protection, automatic fire detection system and fire system maintenance.
- d) *Construction and compartmentation* for example separation distances between structures and fire walls.
- e) *Organisation* for example security, business interruption and incident planning.

Each of the factors is measured against a set of standard rating scores to produce the output, which can be used to show the 'at survey' score and the impact of the 'partial' and 'total' completion of the recommendations made during the survey.

The final output from the assessment is normally in the form of a graph, with the loss estimate data used in conjunction with the benchmarking output. It is possible to show how the quality of the risk can be measured against the EML at the time of the survey and with the completion of the recommendations, see Figure 2.

BUSINESS INTERRUPTION

In the event of a major fire (or similar incident) at a premises, a company will normally be insured for business interruption. This is in the form of 'gross profit' over a set period of time known as the 'indemnity period'.

Gross profit is defined as, the amount by which the sum of the amount of the turnover and the amount of the closing stock and work in progress shall exceed the sum of the opening stock and work in progress and the amount of the uninsured working expenses. The indemnity period is the definition of time for which the gross profit is protected, as is typically between 12 to 24 months.

The insurance payments in the event of a fire are however, only part of the equation, as the loss of supply of products to customers can have a significant impact on the ongoing

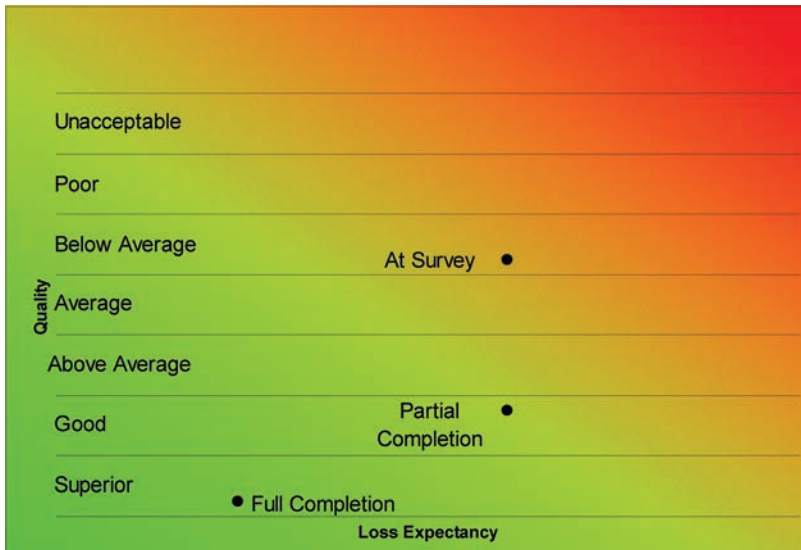


Figure 2. Quality rating versus loss expectancy

viability and long term success of the business. For some commodities the failure to supply in the short term can result in the loss of a contract (e.g. failure of a food making company to supply perishable goods to downstream customers), or even in the medium to longer term if supplies are re-instated there can be a loss in the confidence and the ability of a company to supply quality goods on-time. This can result in the loss of brand reputation and goodwill which results in a reduction in orders and thereby affects the long term viability of the business. A significant number of companies even with the full business interruption coverage which have a major incident do not start back-up and or close within the next three years after a major loss.

A key part of the property assessment is therefore the protection of the business, in the event of a major incident. The property risk engineering survey, is used to protect the assets of the ongoing business of the insured, but also to protect the capital assets of the insurers, as in the event of a loss both will face financial losses.

A business contingency plan is more than the company IT systems being backed up on tape and stored off-site. In the event of a major incident at your site, post the initial emergency plan stage what detailed plans does your company currently have in place to supply product to customers and are these plans routinely tested? The preparation for business interruption is part of corporate governance and can be used to demonstrate that a business has a pro-active risk management culture and organisation.

One of the benchmarks within the property risk inherent hazard assessment is business interruption exposure, and below are the key factors which are assessed within the benchmarking stage:

- Susceptibility to a business interruption loss
- Internal and external dependencies
- Critical facility
- Replacement and re-instatement times
- Utility dependency
- Seasonality

These simple benchmarks can be used to investigate the exposure to the business and for the justification of further works including in the development of formal business contingency plans. The actual business interruption plans and measures are reviewed within the response factors section and appropriate recommendations can be made, which upon completion will improve the rating of the risk.

This will also provide the underwriter with detailed information on the business exposure, which assists in the determination of premiums for Business Interruption after the initial review and acceptance of the property risk.

BUSINESS CONTINUITY PLAN (BCP)

A detailed business continuity plan needs to be produced in a methodical manner to ensure that all key issues are detailed. For specific property insurance purposes (as it can be expanded for other events) a business impact analysis is completed which produces a flowchart for the company which details where the gross profit at the group or site level is generated. A copy of an example is shown on Figure 3.

The specific areas which are covered are detailed below, with a few example questions:

- a) *Raw Materials* – List the key raw materials for all the products and detail the name of the suppliers and alternative suppliers for each of the key raw materials?
- b) *Main Processing equipment* – What is the replacement time for plant and equipment, and what is the gross profit of the products produced on each of the processes or production lines?
- c) *Storage and Dispatch* – What is the on-site and off-site supply stored to feed customers?
- d) *Computer Systems* – What systems are backed up, where are the tapes held and is any specialist computer code in use?
- e) *Customers* – Definition of the key customers for each product and % of gross profit for each.
- f) *Company Intellectual Information* – Definition of where this information is being stored, and what back-ups are in place.

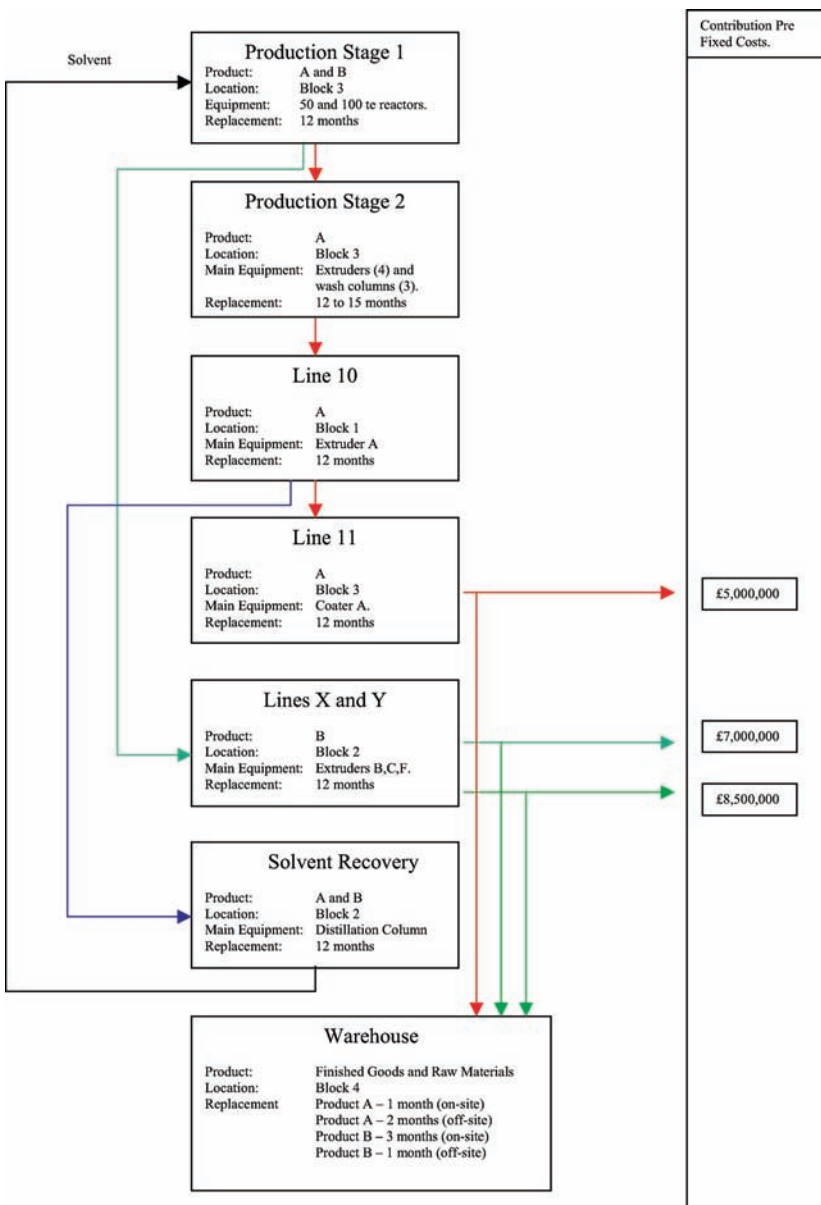


Figure 3. Example of business interruption gross profit flowchart

- g) *Utilities* – Electricity, Gas, Water, Effluent Treatment, Cooling Water and Air Compressors, define the effect of a loss of each utility and alternatives.
- h) *Interdependencies* (group) – Is this operation supplying goods or services into another group site and what are the implications of a supply disruption, and what production alternatives are available.

IMPORTANCE OF CHANGE MANAGEMENT

The change management process within operating companies usually focuses primarily on the safety assessment post a modification. However, changes of equipment supplier or raw material supplier can also have a significant impact of business exposure. An example of this would be if a multi-source single company supplier of a key raw material has to be changed following a closure of the original supplier to a single source supplier with a single site. Would this change go through a change management process? Where would the review be carried out on the implications to the business in terms of the implications of the loss of supply caused by the new supplier. The risk assessment if completed may indicate that more stock needs to be held or alternative suppliers obtained.

The above issue highlights the importance of routinely reviewing a business contingency plan post completion, to assess if any significant changes have occurred and what the implication of these changes are if they have not already been determined.

CONCLUSION

The process of quality data collection for the use of preparing a property insurance type report has been detailed. These data can be used to benchmark the current risk quality of a business operation and highlight post improvements what the overall risk quality rating can be improved to, with the associated reduction in the current estimated maximum loss.

The ability of a company to prepare and maintain an up to date detailed business contingency plan, demonstrates to underwriters that the organisation has a risk management based culture, and provides a positive perception of the overall risk.

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