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RISK MANAGEMENT VS. MANAGING RISKS

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RISK MANAGEMENT IS MANAGING RISK

INTRODUCTION

Of all corporate functions, managing risk is probably the least developed. Since its inception in the early 1960's, modern risk management has always struggled to be part of the strategic decision-making process of corporations and organizations around the globe. For too long, risk management has been equated with insurance; the most critical aspects of managing risk have been swept under the carpet of insurance with the convenient disclaimer, "Don't worry, it's covered".

Is it really? The people living along the Rhine River didn't believe it was covered when their environment was polluted by a chemical spill in 1987. People around the world didn't believe it was covered when the Chernobyl nuclear reactor incident occurred. Friends and relatives of people who get hurt or killed in fires don't believe it is covered. And corporations after suffering a major loss don't believe it is covered regardless of how broadly their insurance contracts might have been written.

In most organizations risk management, like marketing or finance, is a corporate function and should, like other staff functions, be an integral part of sound business decision making.

This discussion attempts to analyze why risk management should be further integrated into corporate culture and how the risk manager can best impact the bottom line of his organization.

Risk management is managing risk. Risk management as a corporate function can be defined as:

The science or art of identifying, analyzing and quantifying exposures to loss - on a consistent worldwide basis - and implementing a program aimed at minimizing the long-term cost of risk to an organization.

I'm sure most people involved in risk management will agree with this definition - maybe with a variation here or there. But this is ultimately what risk management is all about, regardless of whether the risk manager is American, English, French or German; regardless of whether the organization is a chemical corporation, a pharmaceutical firm, an automobile manufacturer, a tire manufacturer, a university or a real estate operation; and regardless of whether the exposure is property damage, business interruption, general liability, health or political.

Risk management is managing risk. Managing risk is the task of maintaining maximum control over identified and quantified exposures - in the most cost effective way - by involving the entire organization.

The entire organization includes the chairman of the board, the president and senior management, all the way down to the last person on the production line. Each of these individuals has to take an integral part of managing risk. Without management

support and without adequate training of personnel throughout the organization, managing risk becomes the impossible dream and the risk manager becomes "just the guy who buys insurance."

The following five factors are critical to achieving the best results from a risk management program:

1. Establishing a corporate risk management policy and issuing a statement, signed and adhered to by the president or chairman of the board. If an organization lacks such a statement, the first objective of the risk manager should be to establish one.
2. Including risk management goals with management's corporate objectives. The management of risk should be a permanent part of strategic planning.
3. Elevating the risk management function to a senior staff level. Risk management considerations in multi-national organizations should be part of all major strategic decisions, ergo the person responsible for risk management should be part of the strategic management team. Corporate functions in the areas of law, safety, acquisitions and divestitures are all part of risk management, and should be under the same leadership.
4. Communicating risk information throughout the organization.

5. Involving people throughout the organization in the process of reducing exposures on an ongoing basis.

While the first three points are critical, and a must to be dealt with by corporate management, the latter two represent the greatest immediate challenge to risk managers today.

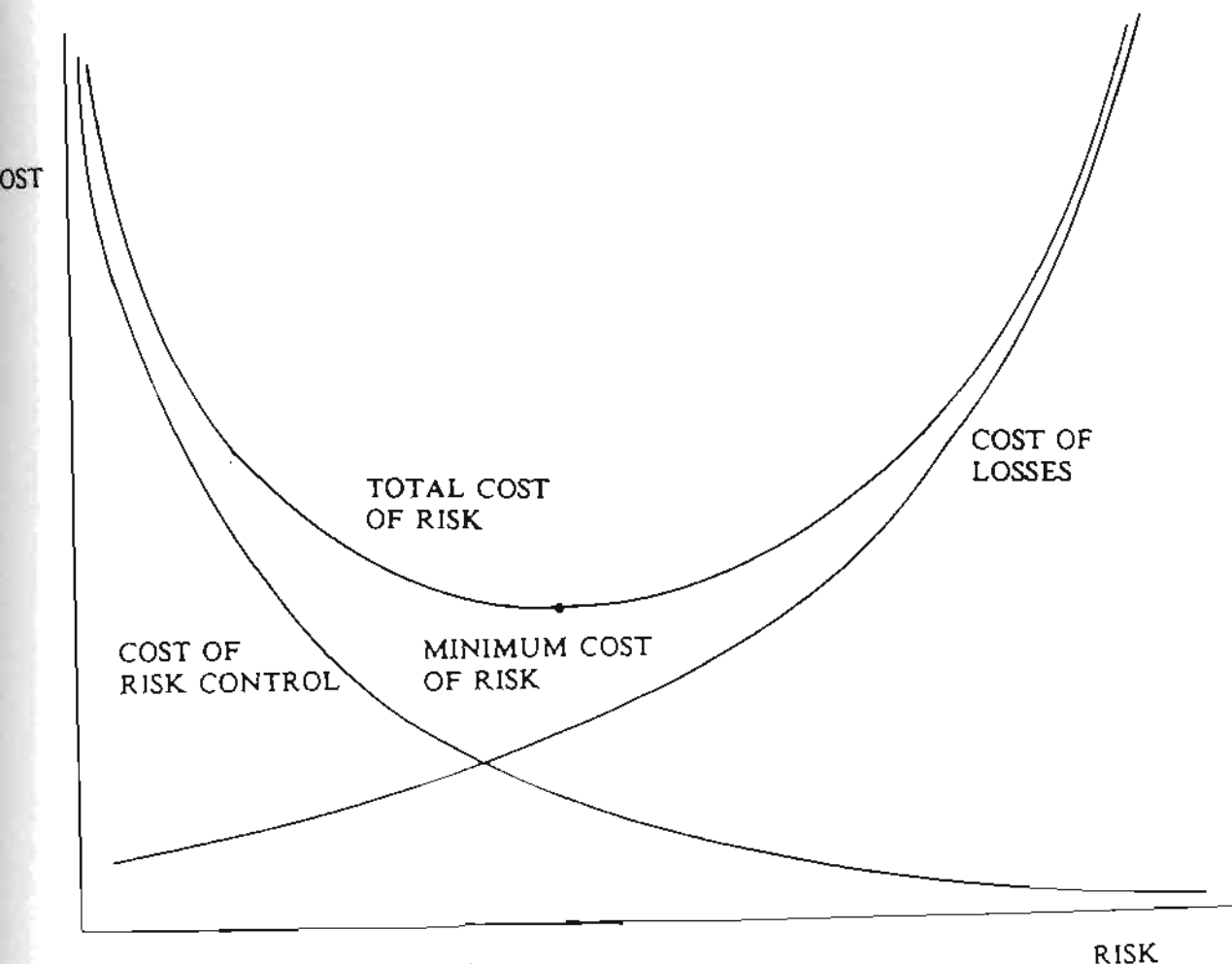
Following the definition of risk management the ultimate role of the risk manager is to: minimize the long-term cost of risk by involving the entire organization in the risk management process.

There are many definitions of cost of the risk. Mine is very simple. It is the sum of the cost of actual and perceived losses, risk control measures, and risk administration. The cost of risk control and risk administration usually can be readily identified during the budget process. Identifying the cost of losses is more complicated, it includes the cost of risk transfer vehicles (which is directly affected by insured losses); retained losses via deductible or the decision not to cover a peril; uninsurable losses; injuries or death to personnel; loss of key people after a major property loss; loss of market share as a result of downtime; loss of goodwill both in your market place and your organization; and, finally, the time management spends in getting operations back to normal after a major loss (instead of thinking about the corporation's future).

Within the cost of risk equation, there is an inverse relationship between the cost of losses and loss control measures: the higher the expenditure on loss control measures, the lower the cost of losses. Conversely, the lower the expenditure on loss control measures, the higher the cost of losses. Balancing the cost of losses and expenditures for loss control measures should minimize the long-term cost of risk. (Exhibit 1)

Minimization of Cost of Risk

EXHIBIT I



The Risk Management Process

To minimize an organizations long-term cost of risk the organization has to know its exposures, identify risk control measures and design a risk finance program - it doesn't come as surprise that modern risk management identifies these four basic elements:

1. Risk assessment including identification and quantification
2. Risk control
3. Risk finance
4. Risk administration

RISK ASSESSMENT

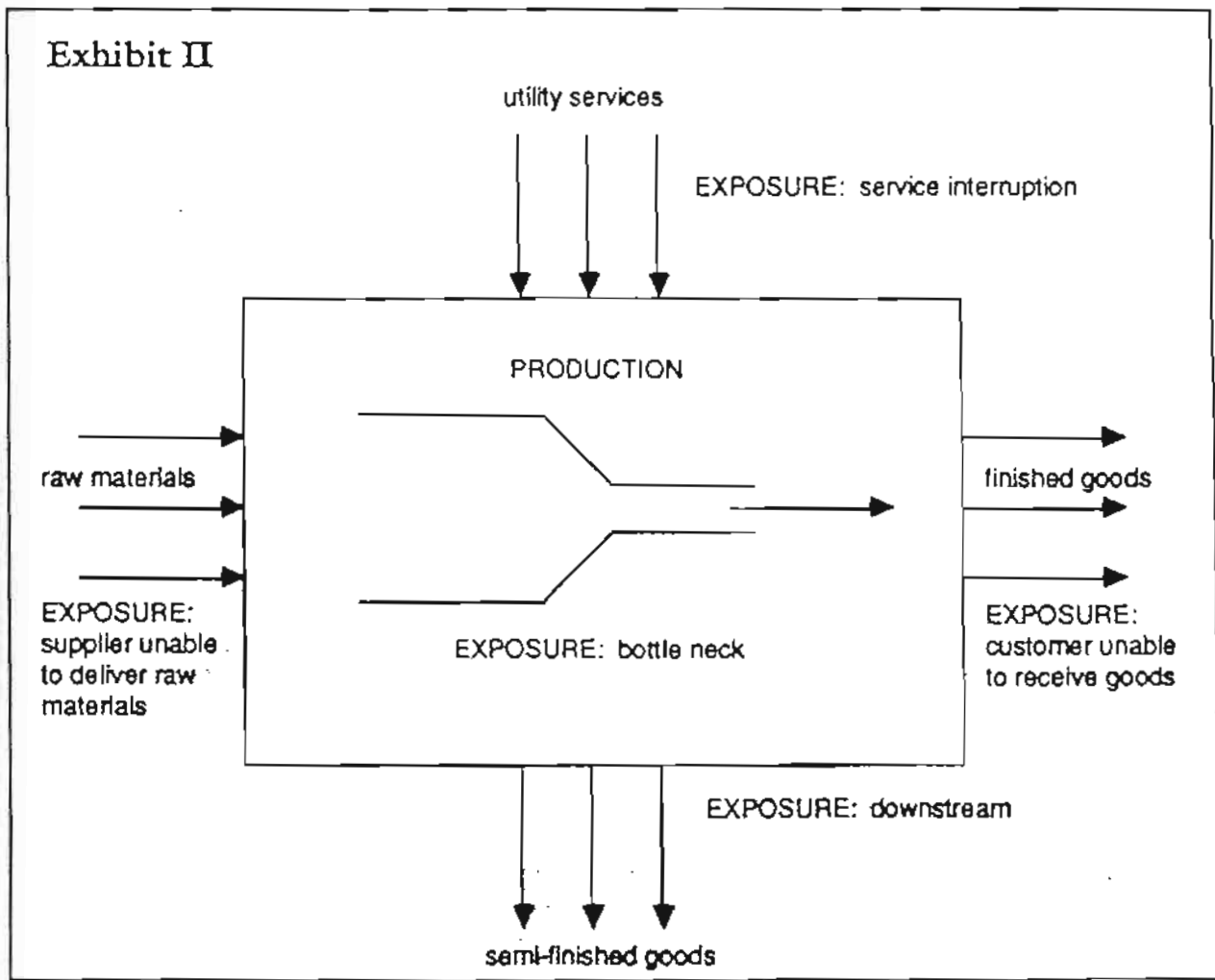
The identification and quantification of potential exposures to loss defines the type of risks that need to be managed. In other words, risk assessment maps out the field the risk management team will play on. It is intended to clarify the understanding, measurement, comparison, and evaluation of exposures. While this process can be utilized for all type of exposures - property damage, products liability, general liability, environmental, personal injury, etc. - the following step by step approach is designed for property damage and business interruption exposures.

Depending on the type of organization, this analysis should include, but not be limited to, all manufacturing, warehousing and distribution operations as well as all buildings, service centers

and other facilities. To keep the process consistent, the same organization using uniform evaluation methods should be engaged worldwide. Since it is extremely difficult for people to visualize a major loss at their facility unless they have experienced one firsthand, the input of an experienced risk control engineer is critical. Close cooperation between risk control engineers and people responsible for the operation and the finances of the organization is essential. As a rule, loss control engineers identify the exposures and the corporate staff assists in the quantification.

That Murphy's Law could prevail at one's own corporation is difficult to imagine. The executives at a major telephone company in North America would never have thought that their network would be completely out of service for nine days, take six weeks to be completely operational again, and create a loss of revenues in excess of \$45 million. Nor were they prepared for the problems this loss cost the company's customers and the resulting damage to the reputation of the organization.

EXHIBIT II illustrates the various steps required in a typical risk assessment.



RISK IDENTIFICATION

First, the flow of raw materials into the facility must be analyzed, including the effect of a loss at a supply plant. The potential inability of a single-source supplier to produce raw materials or deliver them to the site is considered a major exposure.

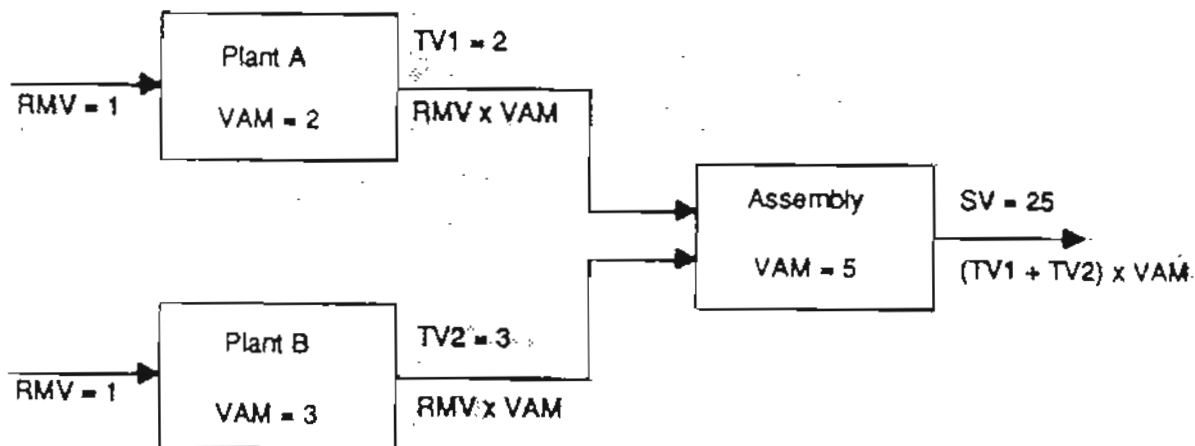
For example, a Taiwanese plant supplying a computer manufacturer burned to the ground weeks before the introduction of a new computer model, and there was no alternative supplier. In spite of a major effort to start production at another facility, the loss was in excess of \$12 million - mostly from extra expenses incurred in expediting shipment of the goods once production resumed. The organization had previously assumed there was no contingent exposures from suppliers.

Second, the reliability of services such as electrical power, steam heat, fuel, telephone, water, sewage, disposal, etc., and how their loss could affect the business must be reviewed. The probability and duration of possible service interruption should also be estimated.

Third, the production process itself has to be reviewed. Bottlenecks in the facility require careful attention. Critical equipment and equipment requiring long repair time need to be studied, as well as hazardous situations identified.

Fourth, the finished product risk needs to be reviewed. The loss of a customer's facility might prevent delivery of goods. Of utmost importance in the risk analysis of a facility is the flow of semi-finished goods, i.e. materials delivered to other plants within the same corporate family. The major exposure here is downstream business interruption (interdependencies). EXHIBIT III illustrates interdependencies between facilities.

EXHIBIT III
Interdependencies



- RMV = Raw material value
- VAM = Value added multiplier
- TV = Transfer value of semi-finished goods
- SV = Sales value of finished goods

Interdependencies between various facilities and different divisions or in different countries are often overlooked, if risk management decisions are only made locally. For example, labor intensive operations are frequently domiciled in developing countries. Since these facilities are often the key to acceptable profit margins, the risk exposure in those countries must be clearly recognized, especially when materials flow back into other countries for further processing.

One risk assessment survey of a television manufacturer revealed an unprotected plant in Brazil valued at \$25 million, which produced parts vital to a U.S. assembly operation with sales of \$700 million. In addition to the \$25 million physical damage exposure, the U.S. facility was estimated to have a potential business interruption exposure of \$175 million in the event of a catastrophic loss at the Brazilian plant. Fortunately, this loss never occurred. Following the advice of the loss control engineer, the company installed a sprinkler system in the supply plant.

QUANTIFICATION

Once all the potential loss exposures have been identified, they must be carefully analyzed and quantified. Loss expectancies should be developed to evaluate and compare the normal loss expectancy (NLE), the large loss possibility (LLP), the probable maximum loss (PML), and the maximum foreseeable loss (MFL). NLE

is the loss expected from a given exposure if protection equipment operates properly and fire departments and other emergency organizations respond as expected. An LLP is called if the NLE exceeds \$1 million, usually requiring risk control action. PML is the largest loss expected from an exposure if the automatic sprinkler system is impaired, but all other forms of protection, including fire departments and emergency organizations, respond. MFL is the loss to be expected if all forms of protection are impaired (Murphy's Law at work). EXHIBIT IV illustrates a typical exposure analysis of a manufacturing facility identifying the physical exposures and quantifying them in terms of the normal loss expectancy, large loss possibility, and MFL.

EXHIBIT IV
Risk Assessment Summary

Location	Highly Protected Risk (Yea/No)	Value			Exposures						
		Property Damage (\$000)	Business Interrup (\$000)	Total (\$000)	Maximum Foreseeable Loss (\$MFL \$000)	Normal Loss Expectancy (NLE)(\$000)	Large Loss Possibility (LLP)	LLP Probability (\$000)	PML Theft (\$000)	Earthquake PML(\$000)	Flood Loss Expectancy (\$000)
Acme, NC	N	23,000	7,000	30,000	30,000	250	3,000	1	0	0	1,200
La Sarte, Spain	N	10,000	10,000	20,000	15,000	500	18,000	2	120	1,500	0
Orange, CT	Y	100,000	15,000	115,000	25,900	480	3,300	3	50	0	3,500
Walcott, NY	Y	128,000	31,000	180,000	30,000	400	1,500	4	0	0	900
Chile, NY	N	30,000	200,000	230,000	175,000	900	35,000	1	10	0	5,500
Anney, FR	Y	45,000	13,000	58,000	32,500	150	700	3	15	0	0
Brooklyn, NY	N	30,000	10,000	40,000	32,000	200	5,000	3	130	0	0
Cleveland, OH	Y	15,000	75,000	22,900	15,000	220	250	4	200	0	500
San Francisco, CA	N	70,000	12,000	82,500	78,000	500	10,000	4	0	33,500	1,500
Tokyo, Japan	N	25,000	15,000	40,000	125,000 40,000	350	125,000	2	5	15,000	850

* LLP Probability Key:
1. Imminent
2. High
3. Medium
4. Low

Quantifying the risk posed by the human element will reveal how effectively the organization's risk management philosophy has been implemented. Approximately 70% of all property and business interruption losses can be traced back to human failure (in other words, they would have been prevented if people had known what to do). In 1987 U.S. insured property and business interruption losses approximated \$18 billion and considering that uninsured losses are estimated to be at least of equal value, a total of \$36 billion of losses incurred that year. If 70% of these losses are linked to human failure, almost \$25.2 billion (.56% of 1987 GNP) could have been prevented through implementation of human element engineering. This fact suggests that risk managers have the opportunity to substantially reduce risk by involving people throughout the organization. This approach is consistent with contemporary management philosophy, promoted by such gurus as Dale Carnegie, Peter Drucker and Tom Peters, that says results are best achieved through involvement of people.

In the U.S. we have coined the term "human element engineering," which can be summarized as a comprehensive training program to increase understanding of risk management and improve awareness of exposures and loss control. EXHIBIT V shows a quantitative analysis of the human element exposure, which reveals attitudes towards risk control, housekeeping and general maintenance of a particular facility. This report is the true measure of how well an organization's risk management philosophy has been implemented.

EXHIBIT V

Human Element Summary

Location	Loss Prevention Inspections	Emergency Organization	Fire Protection Impairment Procedures	Sprinkler Valve Locking	Miscellaneous
Acme, NC	Satisfactory	Satisfactory	Satisfactory	Satisfactory	Satisfactory
La Sarte, Spain	Satisfactory	2/10/87	Satisfactory	Satisfactory	Satisfactory
Orange, CT	1/2/83	3/12/88	2/4/88	2/10/87	Satisfactory
Wolcott, NY	2/10/88 ^a	5/1/86	3/2/87	Satisfactory	3/10/86
Chille, NY	Satisfactory	2/11/87	9/9/85	Satisfactory	5/12/85
Anney, FR	Satisfactory	Satisfactory	Satisfactory	Satisfactory	8/9/87
Brooklyn, NY	3/11/87	Satisfactory	Satisfactory	1/3/85	Satisfactory
Cleveland, OH	5/12/86	2/12/86	6/6/89	4/12/88	Satisfactory
San Francisco, CA	2/3/85	1/3/85	8/1/89	3/11/87	7/12/88
Tokyo, Japan	Satisfactory	Satisfactory	7/4/86	Satisfactory	Satisfactory

RISK CONTROL

All risk control measures should be evaluated in terms of how a particular exposure would affect the organization without any risk transfer program. In deciding to protect against a loss the risk manager must ask, "Can the corporation afford to lose this facility?" One of the most frequent mistakes in risk

management is to weigh risk control measures against short-term savings in risk transfer costs. As previously stated, other key areas that need to be considered are sales, customer goodwill, market share, employee medical expenses, the environment, and retained losses (see cost of risk section). Risk control measures become necessary when the exposures identified during the risk assessment process are considered large loss possibilities (LLPs) - in most cases, exposures in excess of \$1 million. As a rule, the loss control engineer recommends ways to control the various exposures to loss. These recommendations include a description of how to minimize or eliminate a specific exposure, the cost to implement the recommendation, and the loss expectancy once the recommendation has been implemented (see EXHIBIT VI). The risk assessment should identify two different exposures: one with high-severity, low-frequency losses and one with low-severity, high frequency losses. For the former exposure, minimizing or eliminating the loss potential will probably be accomplished through physical protection; for the latter exposure, it will be accomplished through "human element engineering." Remember: every single small frequency loss has the potential to become a catastrophe.

EXHIBIT VI

Physical Recommendation Analysis by Facility

Location	Recommendation Date	Description	Loss Expectancies		Recommendation Cost	Priority	Recommendation Status	
			Before (\$000)	After (\$000)			Target completion Date (yr/month)	Status
Acme, NC	4/12/86	A.S. for build. 1	3,000	500	20	II	12/87	I
La Sarte, Spain	3/10/87	A.S. throughout	15,000	250	100	I	12/88	I
Orange, CT	7/11/88	Flam. liquids prot.	3,500	350	2	I		II
Wolcott, NY	4/3/86	Transformer Prot.	1,500	200	10	II	12/89	III
Chille, NY	8/12/87	A.S. in warehouse	35,000	500	50	I	4/89	II
Annecy, FR	5/9/88	In-racks needed	2,500	250	15	I	6/89	I
Brooklyn, NY	7/7/87	Halon for computer	5,000	500	25	I		III
Cleveland, OH	8/8/88	Combustion safeguard	250	50	1	III	9/88	I
San Francisco, CA	6/11/87	A.S. in building A	10,000	500	75	I	12/89	I
Tokyo, Japan	4/11/86	Fire pump needed	125,000	750	120	I	3/90	II

Priority key

- I Needed to qualify for HPR
- II Major exposure at HPR site
- III Best engineering advice

Status key

- I Agreed
- II Under study
- III Disagreement

There are four basic methods of risk control:

1. Risk avoidance
2. Loss prevention
3. Loss reduction
4. Risk segregation

In most cases risk avoidance is impractical unless it can be done without impairing or significantly increasing the cost of the operation.

The most frequently used method of risk control is loss prevention, which primarily involves training. This approach yields significant results with little investment, most notably reducing the vulnerability to frequent losses. Internal and external training programs make employees aware of how their actions can increase or reduce the risk of loss.

If an exposure cannot be avoided or prevented, the severity of the potential loss needs to be reduced to acceptable levels. The best example of loss reduction is the installation of an automatic sprinkler system, which will not eliminate fires but will significantly reduce their severity. Loss reduction measures are usually the more expensive to implement, requiring substantial capital expenditures. But the cost is often minimal compared with the cost of a loss at an unprotected facility.

At an aluminum rolling mill, loss control engineers recommended the installation of a sprinkler system in the hydraulic oil cellars. Shortly after the sprinklers were installed a fire occurred in that area. Because of the sprinkler system the corporation reduced what could have been a several

hundred million dollar loss to a few hundred thousand dollars. By reducing the loss potential the corporation reduced their long-term cost of risk.

Risk segregation, the last method of loss control, involves physically separating operating units (e.g. if one production line is lost the other one will still operate) or constructing a backup operation if the main one fails. This measure is the most costly and should only be used as a last resort.

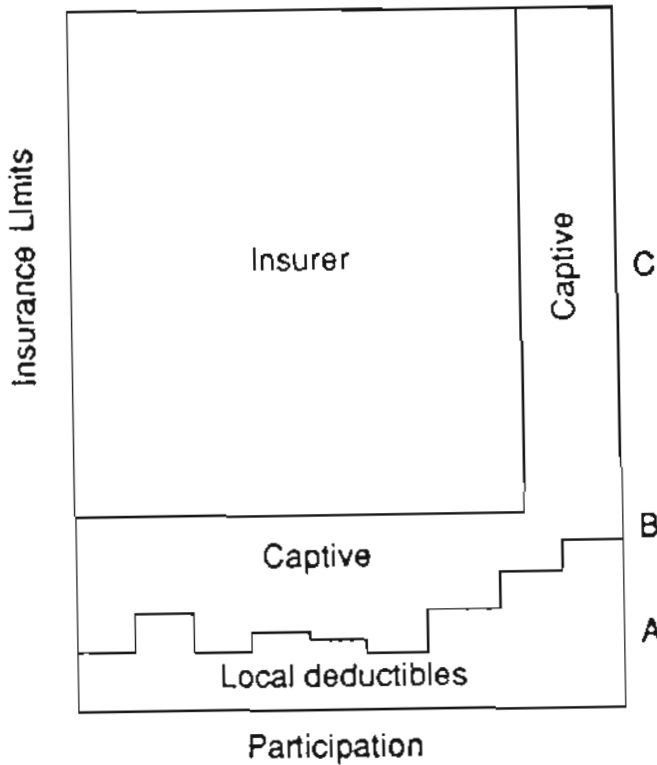
In order to analyze the expenditures necessary for risk control measures, a comparison should be made of loss expectancies before and after the implementation of a specific risk control measure. The recommendations should be prioritized and budgeted, to assure maximum return.

RISK FINANCE

The last and final step in the risk management process is the determination of the proper risk finance vehicles. Next to loss control measures, risk financing tools are the most difficult to select. When implementing a risk management program on a global basis, local customs, tariff ratings, non-admitted versus admitted coverages, self-insured retentions, limits, policy wordings, and loss funding mechanisms must all be examined.

The classic question of how much insurance at what cost should be guided not by how much insurance can be bought at the cheapest price in a given market environment; but rather by, what coverages and what limits and what self-insured retentions are the most effective to complement the total risk management concept of the organization. (Exhibit VII)

EXHIBIT VII
Global Program Structure



(A) Deductible should be set to absorb frequency losses.

(B) Captive participation should be to cover normal loss expectancies.

(C) Captive can also participate in the risk transfer with the insurer.

Risk transfer concepts should be developed by matching coverages to identified exposures (risk analysis), of course administrative ease should be considered as well.

Utilizing the established risk analysis, self-insured retentions should be carefully selected. Risk retentions could also be referred to as the willingness of an organization to share its own risk. An organization needs to decide how much risk it is willing to accept. The financial advisors of many corporations wouldn't hesitate to tell the investment department to invest in stocks or funds with potential downsides risks in the multi-million dollar range. Yet the same financial people resist accepting a \$500,000 or \$1 million self-insured retention.

The educational value of a properly picked self-insured retention level is significant. As discussed earlier, all levels of corporate management should be included in the risk management process. The willingness to accept a self-insured retention that might have an impact on the bottom line of an operating division is the best measure of whether a risk management philosophy has been adopted by that operating unit.

There are a variety of ways to deal with self-insured retentions: from a straight deductible, a franchise deductible or a loss funding mechanism, to profit sharing agreements and the most fashionable one of all - the captive.

As a rule, self-insured retentions should cover all losses in what is considered the frequency loss area. The principal philosophy is that an insurer can never manage and administer high-frequency losses in as cost-effective and efficient a manner as the organization itself. The obvious reasons are that an insurer has to add premium taxes and adjustment fees, and has to calculate commissions and administrative expenses. (EXHIBIT VIII shows a cost comparison between an insured and self-retained loss)

EXHIBIT VIII - COST OF LOSS COMPARISON

<u>Expense</u>	<u>Transferred Loss</u>	<u>Retained Loss</u>
Loss cost	1,000	1,000
Local Premium Tax	50 (5%)	0
Commission	150 (15%)	0
Administrative Cost	150 (15%)	70 (7%)
Adjustment Fee	30 (3%)	0
Total Cost	1,380	1,070

Finally, the limits of liability have to be determined. In today's world, broad blanket limits should be established wherever possible. Again, using the risk assessment method, a quick cross-reference approach will show whether the limits provided are adequate to cover the exposure.

Once the organization has determined the scope of coverage, the level of self-insured retentions, coverages, and limits, the risk manager must select the proper vehicle for risk transfer. Historically, insurance and risk managers have spent most of their time on this stage. Historically, insurance and risk managers have neglected risk assessment and risk control. Historically, insurance and risk managers didn't have to deal with these issues because "IT was covered."

In the future IT must be defined, because as organizations become more complex and values more concentrated IT might be just too big to be covered.

In the future risk transfer will still play a major role, but only after considering exposures and risk control.

In the future the decision will be who can best assist the organization to reduce and minimize the long-term cost of risk - not who can provide insurance the cheapest; after all cheapest insurance without risk control could be the most expensive way of managing risk.

SUMMARY

The risk manager's ultimate challenge is to carefully balance the three elements that compose the total cost of risk. The process involves carefully selecting the methods to minimize or eliminate the risk, delicately adjusting the level of self-insured retention, and minimizing the uninsured and uninsurable losses through carefully designing a risk transfer vehicle. This process involves nothing more than what corporations do in all their decision making: a cost benefit analysis. In risk management we call it minimization of cost of risk.

Risk management is nothing but managing risk. To manage its risks an organization first has to do everything to understand them in as much detail as possible. Next a careful plan has to be established on how to prevent or minimize losses and ultimately the extent of coverages, limits, and deductibles has to be designed. But the best plan for total risk management concept will not work unless the risk manager clearly communicates to the organization the extent of all its exposures and how to deal with them. In an ever changing world of uncertainties, a world of mergers and acquisitions, a world of rapid expansions, and a world of fierce competition, in other words in the world of the 90's the risk managers role is to add stability. This risk manager of the future needs to be a people person, a motivator, and a communicator. The risk manager of the future realizes that risk

management results are achieved through other people; that managing risk is everybody's business, and everybody in the organization does it (some just seem to be doing a better job than others).

The ultimate realization however, is that managing risk is not a physical action but a state of mind present in every individual throughout the organization. By getting the organization involved in the strategic management of risk, by winning people over, by convincing senior management of the impact you can make on the bottom line; by challenging your risk management services providers to be more than insurers or insurance agents you can elevate your position to where it belongs - senior staff member.

I believe that the accident at Chernobyl, the spill into the Rhine River, and uncounted other losses can be prevented - remember 70% of all losses are human failure - it's up to you, the risk manager, to make it work.

Things do not happen in this world - they are brought about.

John M. Hay