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Weaving a Safety, Health and Environmental Vision into the Bottom Line of the Business

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Proving the Business Case

Introduction

> *"The measurement of safety performance is, I believe, industry's most serious problem, and it has been a stumbling block for many years. The measures we have used traditionally are often not reliable and thus invalid".*
>
> Dan Petersen "Measurement of Safety Performance" [(1)]

Firstly, in order to understand the view point that "The measurement of safety performance is, I believe, industry's most serious problem" we need to examine the current business case put forward by regulators for the introduction of new health and safety legislation. In conjunction with this we also need to clear understanding of the barriers which need to be overcome for safety to be viewed as a "bottom line" contributor to business success.

The basis of this paper was derived from concerns raised within a U.S. based, multi-national organization due to the costs of compliance with machinery based legislation and the potential for negative effects on production output. These concerns were raised during the process of compliance with the European Machinery Directive 98/39/EC *(modified by 98/79/EC [1998-12-07 OJ No L 331/1]).* Practical objections had been expressed by both experienced machine operators and production planners regarding continued efficient operation of the machines after the safety upgrades had been applied. A drop off in production output from the machines and increased downtime had already been observed where this guarding had been introduced. This observation reinforced a viewpoint within the organization that while safety was a "good thing" to practice, outside of cost avoidance derived from accident reduction; it would never be able to show a return on investment (ROI) for capital projects.

Regulatory Justification

Various cost impact studies (Regulatory Impact Assessments) are developed by many regulators such as the United Kingdom's Health & Safety Executive [2] – Worksafe Australia [3] and the United States Occupational Safety & Health Act [4]

> *"An RIA is a policy tool which assesses the impact, in terms of costs, benefits and risks of any proposed regulation" - UK Health & Safety Executive.*

These impact studies are primarily based on the direct cost of implementing regulations (Cost Benefit Analysis). Costs are primarily derived from the additional administration burden that a business could reasonably be expected to incur as a result. This includes initial risk assessment of the issues in the workplace, development of supporting documentation, development and delivery of training, additional personnel (including consultants) who may be required to implement the legislation. However, the indirect cost analysis associated with production output is not included. Direct cost estimates are then balanced against the reported and estimated cost impact (total losses) to society from incidents associated with the area to be legislated.

This data while valuable to governments and regulators to support their case for the introduction of new or improved legislation is of very little real benefit to individual business in terms of estimating the *actual* impact on productivity. In the area of machine safety, real costs to business are associated with the physical installation of mechanical and electrical systems, the down time related to the non production of the equipment while it is "off line" for retrofits to take place and the period for the operator and mechanics while they become familiar with new controls, switches or barriers. While these costs associated with hardware replacement and upgrades are quantifiable, as is the down time associated with the equipment very few comparisons appear to be conducted after the equipment is back in production to establish the impact on production output, either negative or positive.

Cost-benefit analysis is a technique for comparatively assessing the (financial) costs and benefits of an activity or project over a relevant time period. The technique has its origins in economic feasibility studies of public infrastructure projects such as dams and levees. Its use has grown concurrently with the increase since the 1970s in laws and regulations to protect health, safety, and environmental values.

Cost-benefit analysis (CBA) is now widely relied upon to justify the implementation of new laws and regulations. All major regulators are now using it in one form or another. To enable the making of clear and value added laws regulators need the best possible information at their disposal, including a clear picture of the social and economic consequences of developing such laws. The quality and cost of providing this information has been called into question by industry in recent years. The amount of federal money spent writing and enforcing regulations has steadily increased since the 1960s. Currently, the government spends nearly $19 billion a year, and employs more than 130,000 people on regulatory activities. (5) Poorly written, or defined laws, can lead to a significant financial burden on business. In many cases business does not understand the need to introduce new regulation in the area of health & safety, and as such sees the need to implement regulation as a pure financial burden. The use of the CBA data, while useful to regulators in justifying the need at a high level to write and implement new legislation does not

carry a convincing argument with the majority of business that are required to make the regulations at facility level.

If costs of compliance are excessive, competitiveness is reduced because resources are allocated inappropriately, and in some cases the regulations are ignored. For example, regulations might require the introduction of expensive technical measures to reduce an exposure where simple organizational or administrative measures would be sufficient to bring about the same result. The current danger with CBA, especially in areas, such as Europe where in relative terms there is little experience of use, as compared to say the USA, is that the process can become bureaucratic and actually add little value to the development of sound laws. Business should be able to rely on CBA's as an important tool for the development of sound, cost effective, legislation. (6)

Given the above regulatory approach to the use of CBA's and the uncertainty of their outcome it is apparent that more emphasis should be placed on industry to develop internal methods of measuring the ROI of applied solutions. Where possible government funding could be provided to help support the studies, such information would be far more valuable to business, in the truest sense, to help them evaluate not only the potential "bottom line" negative impacts but also the positive benefits that can drive additional revenue to the bottom line in the most positive sense.

Financial Impacts

Reputational (share holder) impact through avoidance of being considered a bad actor, though not examined as part of the overall cost benefit equation in this study, is also a motivating factor for an employer when considering safety improvements in the workplace.

> *"Your reputation can be an important asset to your business. A good reputation helps you attract and retain customers. It makes it easier to recruit new employees and can improve* employee motivation*. It encourages suppliers to want to be associated with you."* (7)

An organization will often pay more for safety improvements than are required by regulation. This is because the organization believes this is the right thing to do, as well as being able to foresee the added commercial advantages in being perceived by the market as having an upstanding reputation for safety. The decision to spend is also often dependent on how prepared an organization is to risk harm and suffer consequential reputational damage, as well as legal liability and financial penalties associated with this.

This approach to safety, as a business function, rather than an "add on" system driven by regulators, elevates it to the same status as other business functions. This comes with the responsibility of providing a return on investment (ROI). One of the benefits of achieving this status is that funding for projects and programs can be more easily acquired if it can be seen as an investment, rather than just "spending money on safety". A budget for expenditure on a safety program can be prepared and put forward in exactly the same way as a proposal for e.g. a new piece of production equipment for the factory. The bottom line of such a proposal is to show that spending the money will have a positive effect on the company's profitability in the future.

Despite many countries and regulators assertions that safety functions are built into the everyday business operations of organizations, it appears from literature searches that this ideal often only exists in theory and in reality few organizations apply the principles of business case analysis to safety improvements. As typified by comments made in a study conducted in September 2004 by CNA, a U.S. based international insurance carrier specializing in Workers Compensation cover (employer's liability) for the U.S. Navy. This study stated (while comparing the current safety practices of such multi-nationals such as General Electric and Alcoa) "Industry leaders in safety tend to adopt an overall goal of zero: zero fatalities, zero lost workday injuries and Zero mishaps". [8] This study was compiled to align current Navy safety practices with those of industry While discussing building a "…business case for safety" this study does not mention applying return on investment techniques extensively used in industry to calculate financial pay back on projects. This is also supported within the European Agency for Health & Safety Work [9] and the U.S. by the American Society of Safety Engineers whose President stated in a 2004 press release,

> *"Many businesses do this. But if more were aware of the fact that it makes good business sense to protect people in the workplace and by investing in safety they would soon reap the rewards and realize job creation potential"*

For the Safety Function to be considered as a "normal" part of the business would be a major accomplishment in most organizations and as such provides us with a solid rationale to develop systems to assess the impact of safety measures, and the cost of accidents on the business. Additionally, the anticipated reduction in accidents brought about by implementing the safety measures would be considered a primary driver of this approach. Despite the obvious benefits that can be gained through this process the author found only one recent example of an attempt to align health & safety within business by measuring the effects on production. [10]

Additional ROI can also be demonstrated by the positive impact safety improvements exert on productivity. A UK based company, Foster Wheeler Energy, conducted a statistical study of construction performance records and safety improvements for a 17 year period, encompassing some 19 construction projects. Four financial indicators were used. [11]

- COST RATIO - (Total project control budget cost)/(Actual project cost)
- SCHEDULE RATIO - (Planned construction span in months)/(Actual construction span in months)
- SAFETY - (Actual or estimated exposure man-hours in millions)/(No of lost time injuries)
- PRODUCTIVITY RATIO - (Budget field man-hours)/(Actual field man-hours).

They found a 65% overlap between improving safety and improving productivity indicating that the cost benefits of safety are significantly higher than previously calculated using the model of reduced unplanned costs. This research showed that halving the Lost Time Accident rate produced a 6% increase in productivity.

A September 2000 report by the Japan Industrial Safety and Health Association (JISHA) [12] found that the costs of workplace safety measures result in a saving of 2.7 times the investment. A survey carried out on basis of 139 replies from mainly JISHA associate members in the manufacturing industry found that the cost of safety investments for hardware (equipment, machinery, facilities, etc) and safety activities are paid back and rewarded through the reduction

of occupational accidents (2.3 times return on the investment) on the one hand and through improved productivity (0.4 times return on the investment) on the other.

The report also calculated some estimates of potential savings at the level of the Japanese National economy which in theory could be obtained if the savings at the company level were projected at the macro-economic level. These savings amount to an estimated US$ 107 billion in total of which an estimated US$ 62 billion for the reduction in the risk of occupational accidents and an estimated US$ 45 billion for improved productivity gains. The total saving of US$ 107 billion corresponds to 2.2% of the GDP of Japan.

It clear that significant benefits can be utilized from the application of sound safety & health controls as outlined in this brief extract from the article: *Measuring Safety's Return on Investment* [13] that was published in the American Society of Safety Engineers Professional Safety Journal, highlighting savings that companies attributed directly to their safety & health programs,

- On August 29, 2001, Liberty Mutual Insurance Company released a report titled: A Majority of U.S. Businesses Report Workplace Safety Delivers a Return on Investment. The Liberty Mutual survey shows 61 percent of executives say $3 or more is saved for each $1 invested in workplace safety.
- A SH&E Director for an environmental services company in Massachusetts reported that its tracking data indicated $8 saved for each dollar spent on a quality SH&E program.
- A coal mining company in Charleston West Virginia has attained a competitive advantage through investment in SH&E programs. The company claims its worker compensation rate is $1.28 per $100 in payroll as opposed to its competitor's rate of $13.78.
- Fall protection program implementation reduced one employer's accident costs by 96 percent - from $4.25 to $ 0.18 per person-hour
- Implementation of an OSHA consultation program reduced losses at a forklift manufacturing operation from $70,000 to $7,000 per year
- Participation in OSHA's Voluntary Protection Program has saved one company $930,000 per year and the company had 450 fewer lost-time injuries than its industry average
- A SHARP (Safety & Health Assessment & Research for Prevention Program) participant reduced its lost workday incidence rate from 28.5 to 8.3 and reduced insurance claims from $50,000 to $4,000 through decreases in both direct and indirect losses through a reduction its number of back and shoulder injuries.
- Implementation of an improved safety and health program reduced Servicemaster's worker's compensation costs by $2.4 million over a two-year period
- A manufacturer using a state consultation program reduced its worker's compensation modification rate from 1.7 to .999, and saved $61,000 on its worker's compensation insurance premiums\OSHA VPP sites saved $130 million in direct and indirect injury/illness costs in 1999.
- OSHA's Office of Regulatory Analysis has stated: …our evidence suggests that companies that implement effective safety and health can expect reductions of 20% or greater in their injury and illness rates and a return of $4 to $6 for every $1 invested...

In their 9/2001 article titled: *Measuring Safety's Return on Investment*, Susan Jervis and Terry R. Collins, make the argument that there is a direct correlation between a company's performance in safety and its subsequent performance in productivity and financial results. They pointed out that

in the Forbes 1999 Financial Rankings, among those listed ten of the most-successful U.S. businesses were participants in the OSHA VPP program.

Therefore, information derived from literature searches establishes two points, 1. at a high level, it is clearly understood that significant business benefits can be achieved by the application of sound safety solutions, and 2. it can be shown that despite this view point very few quantitative workplace level studies have been completed to evaluate the potential for return on investment.

Current "business of safety" cases tend to rely on reactive "avoidance" of costs as opposed to bottom line benefits. As such the current business case for safety relies on lagging indicators, while still recognizing the positive impact that safety investment can have on a workforce and society in general. Therefore, significant opportunities still exist within business for "safety" to be fully integrated into the functions of an organization.

Conclusion

In simple terms, cost-benefit analysis (CBA), or in business terms Return on Investment, is a comparison (often a calculation) of the estimated financial costs associated with an action and the estimated benefits this action is likely or intended to produce. Following a calculation, if the benefits to be gained outweigh the costs of implementation then this is considered to a positive return on investment. Almost all business decisions involve some measures of costs versus benefits assessment. Many governmental decisions related to regulatory development in health & safety are also based on CBA [(14)]. It could be argued that without accurate data from business, as to the actual impact of the regulations on business, the CBA used to justify regulation can cause significant negative financial impact on business which more than offsets the reduction in hazards (and consequent injury avoidance) that it was meant to address. This is one reason why the private sector should be more efficient at addressing this issue than government, given that their aim is to make money! However, business often sees this regulatory climate as adding little value and consequently regulations are often poorly implemented. This is despite the fact that ninety-five percent of business executives report that workplace safety has a positive impact on a company's financial performance according to the findings of *The Executive Survey of Workplace Safety announced by the Liberty Mutual Group*, provider of workers compensation insurance in the U.S.A. [(15)]

All regulatory compliance involves costs, while the benefits, when they exist, can be hard to assess. While direct outlays and expenditures within business are readily tabulated, converting subjective values (such as injury avoidance) into monetary equivalents is difficult to achieve. Most economists would argue that economic efficiency, measured as the difference between benefits and costs, ought to be one of the fundamental criteria for evaluating proposed environmental, health, and safety regulations. Because society has limited resources to spend on regulation, cost-benefit analysis can help illuminate the trade offs involved in making different kinds of social investments. In this regard, it seems almost irresponsible to not conduct such analyses, because they can inform decisions about how scarce resources can be put to the greatest social good. Cost-benefit analysis can also help answer the question of how much regulation is enough. From an efficiency standpoint, the answer to this question is simple: regulate until the incremental benefits from regulation are just off-set by the incremental costs. In practice, however, the problem is much more difficult, in large part because of inherent problems in measuring marginal benefits and costs. In addition, concerns about fairness and process may be

important non economic factors that merit consideration. Regulatory policies inevitably involve winners and losers, even when aggregate benefits exceed aggregate costs. [16]

Many benefits associated with the implementation of safety & health regulations into the workplace have yet to be proven, they have only been assumed. In part, this is because of a possibly lower return on investment threshold and the proposed number of factors needed to be considered in completing cost-benefit and risk assessment. As a result reforms in health & safety legislation have generated considerable debate and controversy. [17] A more dynamic financial assessment of proposed regulation would be expected to significantly change how government agencies develop and implement certain types of regulations. Arguments over the merits of various proposals centers on the practicality and usefulness of mandating the use of the measures introduced by the regulations. Often conflicts involve around questions of what is sufficient, rather than should the regulations even exist.

It is clear that business is in the best position to evaluate the effectiveness of regulation in the achievement of its goal in effectively establishing a sound financial argument to reduce its own cost burden. Unfortunately, failure to eliminate or control hazards can be costly to an organization. [18] Most managers know the direct wage costs of injury absence but are often not in a position to understand additional or "hidden" costs. Numerous attempts have been made to calculate these "hidden" costs. Research in Australia has shown that the estimated hidden costs can vary between 0.5 and 20 times the wage or salary costs [19] this variation was both between and within countries. In an unpublished survey conducted in Australia, employers estimated that hidden costs were between nil and 3.5 times the wages paid for unskilled or semi-skilled workers.

It is difficult to establish a choice of any one ratio for estimating hidden costs. Rather it is better to derive hidden costs for each situation or, at least, each company or organization. The items that constitute the greatest proportion of "hidden" costs include:

- overtime,
- over-employment (extra staffing),
- training,
- supervision,
- employee (labor) turnover,
- waste and rework
- lost production time, and
- reduced productivity.

There are other cost items that may be significant in specific situations and that should be taken into account:

- warranty costs,
- maintenance,
- product and plant damage, and
- equipment downtime (due to injury incidents).

Lowered profit and reduced investment opportunities for the organization are the end results of unnecessary costs due to poor or unsafe working conditions. Relevant costs need to be included in

an analysis to enable a comparison between occupational health and safety funding requests and competing funding demands. To do this the costs due to occupational injury, and consequent reduced productivity, must be calculated and the relative importance of the costs determined for each workplace. This is the rationale behind safety cost benefit analysis associated with lost time injuries.

Uncontrolled exposures to hazards in the workplace may cause employee injury and illness and lost time. Health & safety professionals are more likely to obtain line management commitment to eliminate or reduce equipment or process hazards if they communicate both the health risk and associated health hazard costs. Managers who understand both health hazard costs and health risk are better equipped to make a decision on whether to eliminate or control a hazard related to their equipment or process. [20] Very few metrics exist in businesses today that accurately reflect the upfront costs of implementing safety systems.

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