Managing stakeholder perceptions of risk and opportunity in social infrastructure projects using a multimedia approach

Martin Loosemore*

Faculty of the Built Environment,
University of New South Wales,
UNSW Sydney NSW 2052, Australia
E-mail: m.loosemore@unsw.edu.au
*Corresponding author

Abstract: While the construction industry has developed sound technical skills in dealing with risk, its ability to deal with the human perceptions of construction risk is less well developed. One of the key questions which now faces every organisation operating in the construction industry is not just whether it is managing its risks effectively, but also whether it is managing its wider responsibility to society and whether it is communicating this effectively. This is even more important in planning, designing, constructing and operating social infrastructure projects where connections to the community are particularly strong. It is in this context that this paper critically analyses traditional approaches to risk management in the construction industry. It argues that a new approach is needed which recognises the social, political, psychological and cultural complexity of risk. Multimedia offers a solution to this need and a case study of a new multimedia approach to risk and opportunity management (see http://www.risk-opportunity.com) is presented to show how this can be achieved in practice.

Keywords: risk; communication; perceptions; stakeholders; conflict; social infrastructure.


Biographical notes: Martin Loosemore is a Professor of Construction Management at the University of New South Wales, Sydney, Australia. He is a Fellow of the Royal Institution of Chartered Surveyors and a Fellow of the Chartered Institute of Building. He has published numerous books and internationally refereed articles in risk management, crisis management, OHS, corporate social responsibility, HRM and IR. In 2003, he was appointed as Advisor on workplace productivity and reform to the Giles Royal Commission into the Building and Construction Industry. He was subsequently invited to provide evidence to the 2004 Federal Senate inquiry into the Building and Construction Industry Bill and the 2009 Federal Senate inquiry into Building and Construction Industry Improvement Amendment (Transition to Fair Work) Bill 2009. In 2009, he was appointed to Federal Government’s Built Environment Industry Innovation Council (BEIIC).
1 Introduction

Many argue that the recent implosion of financial markets and the resultant credit and economic crisis sweeping the world will mark a turning point in the way that many organisations in the private and public sectors manage their risks. In particular, WEF (2009) argues that organisations need to adopt a broader multi-stakeholder approach to managing risks rather than manage them in isolation. Wider social changes are also driving demands for a more consultative approach to risk management. Consumers are better educated and informed than at any time in history and are making ever more informed and conscious decisions about the economic, health, social and environmental risks associated with the products and services they use. And they have never been more empowered to do something about it if they are not happy. On top of this, increasing security threats from terrorism, new potential health epidemics like Avian Flu and the uncertain impact of climate change are having deeply unsettling side effects on both individuals and businesses. The interrelationship between the public’s health, wealth and security and the business, governmental and regulatory institutions that govern their lives has never been clearer (Berry, 2004; Werther and Chandler, 2006). It is against this backdrop of heightened public perceptions of risk that governments around the world have introduced increasing stringent risk-related legislation to regulate, monitor and call-to-account, the activities of the business community. Increasingly, government policy, guidelines and legislation stresses the importance of consultation, collaboration and community engagement.

Unfortunately, how managers incorporate heightened public perceptions of risk into corporate strategies, processes and activities is a challenge to which few organisations in the construction sector have risen, largely because the tools available to manage risk have the effect of isolating rather than involving people in the risk management process (Loosemore et al., 2003). These deficiencies become particularly problematic on social infrastructure projects where community concerns about the impact of the construction industry on their lives are heightened. This paper is a response to this challenge. Its aim is to offer new insights into the social, psychological, political and cultural dimensions in which development risks are experienced and perceived by stakeholders in any construction project but particularly social infrastructure projects. It is also to discuss the potential role of multimedia technology as a means to better engage stakeholders in the risk management process. This will provide a more informed framework within which to facilitate community engagement.

2 The challenge of social infrastructure

The construction industry is at the heart of the public debate about risk because it plans, designs, constructs and operates the facilities in which people live, work and experience critical services like healthcare, education, water, energy and transport etc. The public is an important stakeholder in any construction or engineering project but especially in social infrastructure projects like health, education, water and transport where connections into the community are particularly strong. In contrast to economic infrastructure such as bridges and roads which are designed to provide basic services to business and industry to support productivity growth and economic prosperity, social infrastructure projects are designed to improve the quality of life, health and welfare of
the community. In particular, the recent trend towards public private partnerships (PPPs) in the provision of social infrastructure has provided the construction industry and its associated professions with a higher public profile and level of scrutiny than ever before. While all construction projects involve significant risk and opportunity, social infrastructure projects attract additional risks and opportunities. For example, they are characterised by a relatively high emotional attachment and public interest and scrutiny, meaning that public perceptions of risk needs to be managed especially carefully. They are also more prone to political interference, meaning higher scope and change risks and a higher risk of optimism bias and strategic misinterpretation by public sector wanting to get a PPP over-the-line. Social outcomes are more important than dollar outcomes, making it more difficult to define clear objectives and measure success. And there are generally higher expectations of service quality and reliability, meaning higher abatement risks and lower service quality tolerances. Another unique characteristic of social infrastructure projects is that there is greater public expectation that services should be provided by the public sector, meaning more political risk and potential activism has to be managed. And the relationship between asset and performance is complex and not well understood, meaning best outcomes/solutions are not always clear. Finally, risks are exacerbated because much social infrastructure is old and neglected and there is poor understanding of asset conditions, nature and quantity, meaning high scope risks associated with any project. The point of this discussion is that many of these risks, associated with the delivery of social infrastructure can be effectively managed through effective consultation. As illustrated in recent failed social infrastructure projects in transport and health, if this challenge is not addressed then even a relatively small development problem has the potential to be perceived by the public as a major crisis (Loosemore et al., 2005). The danger of undeserving negative stigmatism of construction companies and over reaction to even the most innocuous construction project is an increasing possibility and how we incorporate heightened public perceptions of risk into corporate strategies, processes and activities is a challenge which companies must address. It is clear that future management in the construction industry will need to be guided by an approach which effectively communicates about risk and recognises the legitimate interests and roles and contributions which stakeholders have in the management of construction projects. The implicit question facing any organisation involved in any construction project, particularly social infrastructure, is not just whether it is managing its risks effectively but also whether it is communicating this effectively to stakeholders. This will require a better understanding of the forces which influence public perceptions of development risk and an appreciation that it is counterproductive to dismiss public fears as irrational, uninformed and misplaced.

3 The forces which shape perceptions of risk

It has been argued that without a comprehensive appreciation of the nature of public perception and concern with risk, then attempts to manage them may at best be ineffective and at worst magnify risks and be counterproductive (Renn, 1996). Unfortunately, the current orthodoxy in risk management practice in many industries, including construction advocates a scientific approach to risk management which tends to disregard such perceptions (Hood and Jones, 1996, Loosemore, 2000). This economic
perspective assumes that people respond rationally to hazards on the basis of comparisons of costs and benefits, reacting best to the path of maximum potential benefit (utility) to them personally. Herein lies the traditional actuarial world of the risk management industry with strong traditions in the mathematics of probability which would tend to ignore differing stakeholder perceptions on the basis that they were irrational and misinformed. However, research shows that people do not always behave rationally and that a whole range of biases can cause people to attenuate or amplify a risk (Tversky and Kahneman, 1974). This emphasised for the first time, the importance of giving as much attention to stakeholder beliefs as to hard data relating to risks. More recently, sociologists have found that reactions to hazards are the result of group-based social processes (Kasperson and Kasperson, 1996). In other words, risk is an interactive phenomenon and people are influenced by the perceptions of others around them, making sense of the world in collaboration with other people in social situations. This reliance on community as a source of perceptions is exacerbated when there is not much information or knowledge about a risk or when there is mistrust in external regulators who have the responsibility to provide that information. Adding to this, cultural theory has shown that people form into groups of common objectives and perceptions, assigning particular meanings to risk events (Thompson et al., 1990). That is, people rely on patterns of habit and socialised reinforcement of their values and behaviours in order to make sense of the world. In this way, risks are perceived and responded to according to principles that are imbedded in particular forms of social organisation. For example, from a cultural perspective, arguments about a construction project would not be just concerned about choosing a safer technology, design or production process, but would be linked to fundamental questions about the social and political meaning of technologies to societies and to their broader societal implications.

The implications for managers of the above research is that one cannot understand and manage the reaction to a decision without understanding how a community functions and that these must be engaged and considered by decision makers if perceptions are to be managed effectively.

4 Communication – the basis of effective risk management

It is evident from the above that people are not rational in responding to risks but perceive risks according to the cultural and social networks in which they are imbedded. People form their own subjective perceptions of risk which often differ from the objective assessments made by experts and scientists and their behaviour reflects these perceptions (Berry, 2004). As both Bernstein (1996) and Richardson (1996) have argued, to the people that hold these perceptions, it is the objective assessments that are irrational and ultimately, there is no other way for managers to interpret risks other than in terms of human values and emotions. This position is supported by Barnes (2002) who points out that while risk managers have become more sophisticated in their approach to managing and measuring risk, the majority of the public continue to rely on cultural and social explanations of risk events, leading to significant perceptual differences between the public and the private business sector. Given the traditional approach to risk management in the construction industry, it is possible that these differences lie at the core of the increasingly prominent and frequent conflicts between construction companies and an increasingly empowered public. In many companies there may remain significant
The key to eliminating these blind-spots is fundamentally one of communication, consultation and involvement in decision-making. It is also about identifying and understanding the stakeholders in a business – who they are, what their needs are and how best to communicate and consult with them. There has been considerable research in this area and we have learnt that when communicating with stakeholders it is important to ensure that the language used assists communication and is not a medium of dominance disguised by indecipherable jargon. Furthermore, we know that any communication needs to be based on a mutual sense of respect for the positions and perspectives of all parties. Finally, we have learnt that risk management should be a multi-way process that is designed to make risk management accessible to everyone and to promote mutual understanding, if not consensus. Following these three simple principles does not guarantee the elimination of conflict between organisations and their stakeholders, but it does offer an opportunity for people to become part of the solution rather than part of the problem (Fischhoff, 1995).

5 Problems with current risk management practices

Loosemore et al. (2005) critically reviewed risk management practices across the construction sector and pointed to a number of common problems, which are also common to other industries. For example, too many companies see risk management as a compliance issue, adopting minimum standards suggested by BS 6079: 3: 2000, AS/NZS 4360: 2004, COSO 2004 or ISO 31000 etc. rather than developing approaches which reflect their own business culture and stakeholder base. Most approaches to risk management are therefore not driven or inspired by the need for broad consultation or by the profit and value enhancing opportunities which risk management can offer (the upside of risk) but by the fear of the ever greater penalties for doing something wrong (the downside of risk). It is therefore not surprising that many projects engender negative community responses, result in conflicts with stakeholders, few projects exceed expectations for clients and for the companies involved.

Another problem is that many companies aggressively pursue profit without fully understanding their capacity or appetite for risk, a problem exacerbated by incentive structures which compensate on revenue earned without balancing the risks involved. Poor governance is also a problem in many companies with inappropriately structured boards which do not have the capacity to develop effective risk management policies, practices and cultures. And still, despite the rhetoric, too many clients inappropriately transfer risk, impose counter-productive time and cost constraints and emphasise price rather than value in tender selection criteria. In an attempt to cope with this risk-transfer culture, many companies rely on insurance and back-to-back contracts as a substitute for good risk management. Risk is too often transferred down the procurement chain until it reaches the point of least resistance, creating a dangerous illusion of control which can lead to disputes, delays, cost escalations and rework. It also leads to a selfish and uncooperative industry culture lacking the collective responsibility that is required for effective risk management in the industry’s unwieldy and fragmented supply chains. Thus decisions made in one project stage too often create risks in subsequent project
stages, by which time, risks have grown in proportions and opportunities to exceed expectations have been lost. The industry also has a narrow view of its stakeholder base and is generally insensitive to their needs. The results in a poor public image, irrational public perceptions of development risk, activism and opposition and inadequate information on which to make decisions.

While some companies may have some understanding of risks on individual projects, risks and opportunities are best understood collectively as part of a risk portfolio. Yet few companies understand risk correlations between different projects and business units meaning that many organisations have insufficient understanding of their total risk exposure and are vulnerable to crisis contagion spreading through their business. This is partly related to the fact that many organisations also manage risks in departmental, regional or functional silos which encourage independent evaluation of risks and fail to consider potential synergies which can be realised when risks are managed collectively. So while most managers practice risk management on a day-to-day basis, it is often practiced in an unsystematic and inconsistent manner. This means that standards vary considerably within companies and along supply chains and that many risks go unmonitored and unmanaged.

Loosemore et al. (2003) discuss many other problems with current risk management practices in the sector but the common theme which links all of those discussed here is the common root in poor consultation practices. According to Loosemore et al. (2003) in the majority of instances, current approaches to risk management appear to be deliberately designed to exclude stakeholders from the risk management process rather than include them.

6 The power of multimedia in managing risk

The potential benefits of addressing the above problems are enormous. One major problem avoided, through better consultation, can repay investments many times over for all stakeholders involved in any construction project, particularly social infrastructure. A multimedia approach to risk management can offer a solution by better engaging people in the risk management process in a practical and realistic way, avoiding the many pitfalls associated with indiscriminate stakeholder consultation. Not only is multimedia engaging but it is highly cost effective, stimulating, interesting, enlivening and fun. Images, words and text enliven the process and complex jargon can be minimised, making it easy to understand, even for non-English speaking background users. In construction this is important because around 50% of all workers in construction industry are from non-English speaking counties (DIAC, 2009). Indeed, research indicates that people, no matter what background, retain and understand up to 91% more when using multimedia compared to computer and paper-based management systems (Bailey, 2001). The reason for this is that multimedia engages peoples’ minds, helps them communicate more effectively about risk and thereby assists firms to build a positive risk management culture. This is in stark contrast to many sterile, unstimulating and clinical computer-based approaches to risk management which seem deliberately designed to isolate people from the risk management process. Pedagogical research shows that people want to be fascinated and entertained when they learn rather than be passive participants in the learning process (Jenkins, 2002). So if a sense of engagement and creativity to the risk management process, we can reach out to peoples’ innate desire to learn and be more
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effective at managing our risks and opportunities. This is the power of multimedia. A multimedia interface is easy to use and interactive, enhancing the learning process, enabling managers to develop their skills and maturity over time by providing well researched advice in response to specific questions during different stages of the risk management process. In this way, multimedia can support a training and induction system as well as a methodology for managing risks and opportunities. Finally, multimedia is also highly flexible and can be used for any situation, no matter how complex or simple and in any business environment. It can also be adapted to any user, no matter how novice or experienced.

The apparent advantages of multimedia in improving current risk management approaches in the construction industry (and other industries), particularly where there is high public scrutiny, led to the development of a new methodology called ROMS (http://www.risk-opportunity.com). The ROMS has been used successfully by a wide range of organisations in the public and private sectors and in many different contexts and industries. For example, it was used recently with a Public Health Department in Australia to develop a strategy to adapt its hospitals to cope with the health impacts of climate change. It is now being used by a range of Australian and New Zealand government health departments to produce a national climate change adaptation strategy for health facilities. It has also been used for identifying appropriate contingencies on major PPP tenders, for resolving industrial relations and safety problems, for resolving security threats etc. ROMS was also the basis of the risk management system used to manage the 2008 Beijing Olympic Games facilities (Zou et al., 2009).

In simple terms, the ROMS consists of two main parts: educational and operational. The educational component uses voice delivery, moving graphics, text, pictures and is interactive so that people can get further information and guidance and examples of risk management policies, management responsibility structures, job descriptions for risk management, stakeholder consultations strategies etc. The operational component takes people step-by-step through a risk management methodology which is based on international standards and benchmarked against best practice in other industries such as defence, nuclear etc. The operational part of the system is highly interactive in that users get guided through the process-step-by-step and can do so at their own pace and interact with the system to ask questions and get guidance at any time. The process starts by users selecting a level of risk management complexity which suits the abilities of the people involved in the process (inexperienced risk managers can choose a simple qualitative approach while experienced managers can choose a sophisticated probabilistic approach). The appropriate approach also depends on the quality of data available, familiarity of the problem, time available etc. The system guides users as to the best level of complexity to follow by asking them a series of simple questions. There is then a stakeholder consultation process whereby stakeholders are identified using established stakeholder analysis tools. They are then invited to a workshop where common objectives are identified and ranked. Given the multitude of often conflicting objectives that stakeholders bring to a project, this can take some time and the system facilitates this process in a structured way. Having identified common objectives (important for establishing a collaborative rather than confrontational atmosphere) the process requires the stakeholders to collaborate in identifying both risks and opportunities which could adversely or beneficially affect their ranked objectives. The identification of risks and opportunities are separated because people tend to find it more difficult to think about
opportunities than risks for the reasons discussed above (fear of failure, lack of incentives etc). Techniques are provided which correspond to their chosen level of complexity. For example, at the simplest level, simple checklists and work breakdown statements are used to identify risks whereas more sophisticated users can use techniques such as soft systems analysis and simulation to identify risks and opportunities. Once risks and opportunities have been identified stakeholders have to collaboratively assess their magnitude (considering existing controls) so that resources can be allocated most efficiently to manage them. Obviously, greater resources are allocated to higher level risks and opportunities associated with the most important objectives. This assessment process produces a ranked list of risks and opportunities which are then taken forward into an action plan where additional controls are identified and selected using cost/benefit analysis. This process ensures that resources are put into areas of risk and opportunity which ensure a maximum return on investment. The costs of the additional controls are also monitored so that they can be added to bids etc. Any residual risks from this process can then be further analysed if necessary to identify contingency allowances to cover uncontrollable and unforeseeable future risks and opportunities. This can be done probabilistically or deterministically. Given that this paper is presented in traditional written form, it is not possible to illustrate the way that multimedia is used to do the above and readers are referred to the following website for more information – http://www.risk-opportunity.com. Case studies and multimedia illustrations of how ROMS works in practice are available on this site.

7 Conclusions

The aim of this paper was to provide new insights into the social, psychological, political and cultural dimensions in which development risks are experienced and perceived by stakeholder. It was also to discuss the potential role of multimedia technology as a means to better engage stakeholders in the risk management process. The paper has shown that unsustainable tensions exist between reified and experiential notions of risk and it is clear that that business communications about development risk have little meaning if they are separated from the social, political and cultural context in which risk is experienced and described by those communities who are affected. However, the need to consider the social and cultural aspects of risk does not mean that managers should abandon technical risks analysis. The point made in this paper is that risk management should not be confined to objective outcomes and measures but should also take account of people’s perceptions of risk. The study of human perception tells us that making effective decisions about risky activities is difficult and that the risk manager who relies wholly on scientific expertise and who ignores the human dimension of risk management is likely to create more risks than he or she solves, even in the most technical situations. Our technical skills have come far but the future challenge of risk management in the construction industry is to rise above the limitations of individual minds, reconciling the interests of different stakeholders to reach a consensus about the risks which face a project and ways of dealing with them. This paper has shown how a multimedia approach can be valuable in achieving this aim.
References


