Title	**Institutional determinants of construction safety management strategies of contractors in Hong Kong**
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Citation	**Institutional determinants of construction safety management strategies of contractors in Hong Kong. In Smith, SD & Ahiaga-Dagbui, DD (Eds). Proceedings of the 29th Annual Association of Researchers in Construction Management (ARCOM) Conference, Reading, UK, 2-4 September 2013, p. 347-356. Reading, UK: Association of Researchers in Construction Management, 2013**
Issued Date	**2013**
URL	**http://hdl.handle.net/10722/248144**
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INSTITUTIONAL DETERMINANTS OF CONSTRUCTION SAFETY MANAGEMENT STRATEGIES OF CONTRACTORS IN HONG KONG

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From an institutional perspective, organisations are not only a production system; but also a social and cultural system. The external institutional environment in which organisations are embedded plays a critical role in shaping organisational structures and practices. Organisations as active agencies respond strategically to the institutional pressures and expectations in a variety of ways, such as conformity, compromise and avoidance. Building on the conceptual framework established by Oliver (1991), this study explores how contractors respond to institutional demands in terms of compliance with construction health and safety requirements, involvement in voluntary safety initiatives and safety campaigns, and commitment to zero accidents in the context of the Hong Kong construction industry. A case study was conducted to collect empirical evidence of contractors' strategic responses. The results indicate that the contractor prefers to adopt compromise and avoidance strategies in the face of the client's stringent safety requirements and tight project progress demands. This study contributes to the knowledge of safety management by offering an institutional explanation of contractors' safety management strategies.

Keywords: construction safety, institution, management, strategy, Hong Kong

INTRODUCTION

The Hong Kong construction industry has achieved remarkable progress in construction safety. The accident rate per thousand workers has dropped from 85.2 in 2002 to 49.7 in 2011 (Labour Department 2013). Nevertheless, a plateau in the downward trend has been reached (Construction Industry Institute 2009). The number of fatalities fluctuates, with 9 in 2010 and 24 in 2012 (Labour Department 2013). To achieve a continuous improvement in safety performance, it is vital to review the current safety management strategies and issues rooted in the industry.

Safety management activities cannot be fully understood unless the broader context of industry, market, and regulations in which contractors are embedded is taken into account (Hale 1998). In line with the transition of safety management approach from prescriptive to performance-based in Hong Kong, contractors are not only exposed to prescriptive rules of safe conduct, but also an increasing public awareness of construction safety, a series of safety campaigns and initiatives, changing market conditions and financial pressure. Contractors on one hand have to comply with

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Ju C and Rowlinson S (2013) Institutional determinants of construction safety management strategies of contractors in Hong Kong *In:* Smith, S.D and Ahiaga-Dagbui, D.D (Eds) *Procs 29th Annual ARCOM Conference*, 2-4 September 2013, Reading, UK, Association of Researchers in Construction Management, 347-356.

prescribed safety requirements; on the other hand they are expected to conduct various safety management activities to satisfy the demands of multiple stakeholders. Good safety performance helps contractors to gain business opportunities in the highly competitive market, and to earn legitimacy in the eye of key stakeholders. However it has been recognised that players in the construction industry have not made concerted efforts to improve industry-wide safety performance in Hong Kong (Construction Industry Institute 2009). Contractors are confronted with complex institutional demands for safety.

This paper, drawing upon the institutional theory, aims to examine contractors' response to the institutional environment in Hong Kong. The next section reviews the institutional theory and resource dependence view. It is followed by an introduction to Oliver's (1991) framework that adopted a convergent insight of institutional and resource dependence theories. The paper then discusses the institutional environment in which construction safety management activities are embedded (e.g., regulatory pressures, industry norms) and elaborates how this environment might affect contractors' safety management strategies. Through a case study, empirical evidence was collected to verify the explanations.

INSTITUTIONAL AND RESOURCE DEPENDENCE PERSPECTIVES

The traditional task environment based on resource dependence theory focuses on the roles of markets, resources, and competition in determining organisational processes and outcomes (Pfeffer and Salancik 1978). Managerial choices within an organisation are guided by an economic rationality and motives of efficiency, effectiveness and profitability (Conner 1991). The external strategic factors that impact the organisation include buyer and supplier power, intensity of competition, and industry and product market structure (Oliver 1997). Whether resource selection and deployment lead to enduring variations across organisations depends on factor market imperfections (Oliver 1997). It is recognized that the resource dependence view, albeit being insightful on organisational behaviours, has made the role of institutional environment implicit.

From an institutional perspective, organisations operate within a social framework of rules, norms, values and taken-for-granted assumptions about what constitutes appropriate behaviours (Meyer and Rowan 1977; Zucker 1977). One important tenet of institutionalism is structural isomorphism which describes how the structures and practices of organisations in a certain institutional field become isomorphic over time (Meyer and Rowan 1977; DiMaggio and Powell 1983; Powell and DiMaggio 1991). Through conformity to institutional pressures and social expectations, organisations gain organisational legitimacy, resources and survival capabilities (DiMaggio and Powell 1983; Ashforth and Gibbs 1990; Suchman 1995). However, the institutional perspective has been criticised for its lack of attention to the role of organisational self-interest and active agency (Oliver 1991).

Oliver (1991) constructed a framework grounded on the institutional and resource dependence theories, explaining that organisations may respond to institutional pressures in a variety of modes ranging from passive compliance to active manipulation of the environment. This framework was adopted in this study to examine contractors' safety management strategies, with the consideration of the following issues.

Firstly, safety management activities are regulated by mandatory rules and regulations, beyond which safety is viewed as "moral obligation" by stakeholders who do not hold legal responsibilities. Secondly, professional or trade associations play an important role in formulating, transforming, and disseminating industry norms. Thirdly, safety culture is regarded as a social construction, concerning what and how people believe, feel, think and how they behave (over time) and how this is reflected in collective habits, rules, norms, symbols and artefacts (Rollenhagen 2010). Safety accidents may cause severe deterioration in organisations' intangibles (Fernández et al. 2000), such as image and reputation (Smallman and John 2001).

Besides the intangibles, construction safety performance also has vital economic and business implications. Good safety performance, for example, reduces costs associated with accidents, improves productivity, and brings about business opportunities for companies (Fernández-Muñiz et al. 2009). These economic benefits make it clear that it is in the company's best interests to take measures to manage safety on the work site (Wilson and Koehn 2000). Overall, it seems tenable and potentially meaningful to examine contractors' safety management strategies building on Oliver's framework.

INSTITUTIONAL PRESSURES AND STRATEGIC RESPONSES

Oliver (1991) identified five types of organisational strategic responses to institutional processes, consisting of acquiescence, compromise, avoidance, defiance, and manipulation. Acquiescence implies a full conformity to institutional pressures and expectations. Compromise indicates a partial compliance with institutional demands. Organisations may also avoid institutional pressures by concealing non-conformity, responding symbolically and buffering themselves from the requirements. Defiance refers to active resistance to institutional norms and expectations. Organisations may attempt to change or exert power over institutional pressures through manipulation strategies. The five broadly defined strategies may have alternative forms. For example, tactics of compromise strategy consist of balance, pacifying and bargaining (Oliver 1991).

In the framework, Oliver (1991) also identified the critical characterizing factors of institutional pressures that predict organisations' strategic choices, including cause, constituents, content, control and context. Their connection with contractors' strategic responses is discussed in the case study section.

INSTITUTIONAL ENVIRONMENT OF CONSTRUCTION SAFETY MANAGEMENT

The institutional pressures related to construction safety in Hong Kong's construction industry are complex and fragmented (Construction Industry Institute 2009). To analyse the institutional elements related to construction safety in the context of Hong Kong, Scott's (2008) three pillars of institutions theory - regulative, normative and cultural-cognitive -is adopted in this study.

Legal environment

Regulative elements include formal regulations and rules such as constitutions, laws and property rights (North 1990). Regulations may be created and maintained by states, provinces, or local regimes with power to formulate and enforce rules, and to sanction deviators (Orr and Scott 2008). In Hong Kong, statutory provisions governing work safety on construction sites are set out under the Factories and Industrial Undertakings Ordinance (FIUO) (Cap. 59), the Occupational Safety and

Health Ordinance (OSHO) (Cap. 509) and their subsidiary legislation. The Ordinances and subsidiary legislation comprise both prescriptive and goal-setting types of legislation to address the safety and health in the construction industry (Labour Department 2011). The impact of the legal environment on organisations' conformity behaviours is discussed from two aspects: regulatory stringency and enforcement.

Regulatory stringency is defined as the complexity and burden of regulatory environments (Fennell and Alexander 1987). High regulatory stringency refers to particularly extensive or severe regulatory pressures exerted on organisations (e.g. a large number of enforceable rules, regulations and codes) that potentially impede organisational autonomy or efficiency (Oliver 1997). Biggs et al. (2011) found that plenty of 'paperwork' required by regulations distracts contractors' attention from specific safety problems and undermines the integration of safety practices into normal construction processes. The regulatory stringency can be measured through the extent to which contractors feel that workplace safety is or is not overregulated with too many government codes, rules and regulations, and the extent to which contractors feel that the regulatory environment does or does not reduce their discretion to manage safety effectively (Oliver 1997).

Enforcement is an important instrument in ensuring compliance with safety legislation. Anderson (2007) argued that the effective enforcement of the legislation on construction Occupational Health & Safety issues is just as important as the law itself. Site inspection is the primary enforcement tool used by the Labour Department (LD) in Hong Kong. The LD is empowered to initiate prosecutions, issue improvement notices (INs) and Suspension notices (SNs), when breaches of the law or imminent risks are identified during site inspections (Labour Department 2011). Companies are more likely to act in socially responsible ways when strong and well-enforced state regulations are in place to ensure such behaviours (Gainet 2010).

Normative institutional environment

Normative elements include both values and norms. Values are conceptions of the preferred or the desirable; norms specify how things should be done (Scott, 2008). Compared with regulative institutions that emphasise the "logic of consequentiality", normative institutions shift attention to the "logic of appropriateness" (March and Olsen 1989: 23). Many occupational groups, both professional and craft-based, generate and enforce work norms and actively promulgate standards and codes to govern conduct (Brunsson and Jacobsson 2000; Van Maanen and Barley 1984).

The Hong Kong LD provides non-statutory guidelines to facilitate compliance with the relevant safety and health legislation. The LD works closely with the Construction Industry Council (CIC) in publishing safety guidelines, such as the use of tower cranes, site vehicles and mobile plant, and working in hot weather (Labour Department 2011). The CIC, as a statutory industry coordinating body, performs an important role in promoting industry self-regulation, formulating codes of conduct and enforcing such codes. The Occupational Safety and Health Council (OSHC) is another statutory body for promoting safety and health at work. For instance, the OSHC launched a number of sponsorship schemes for small and medium enterprises aiming at enhancing their safety awareness (Labour Department 2011). It is noteworthy of the role of professional institutions in fostering safe work norms. For example, the Hong Kong Institute of Engineers collaborates with higher education institutions through accreditation of an engineering higher diploma programme to ensure the necessary

education on occupational safety. In addition to this, contractor associations are active in disseminating safety initiatives and good safety practices amongst their members.

These normative pressures manifest themselves through dyadic inter-organizational channels of firm-supplier and firm-customer (Burt 1982) as well as through professional, trade, business, and other key organizations (Powell and DiMaggio 1991). Corporate peer pressure has also been identified as an effective means of facilitating industry norms (Martin 2003). The influence of normative pressures on contractors can be measured through contractor's relationships with clients, contractor associations, trade unions and subcontractors.

Cultural-cognitive institutional environment

Cultural-cognitive elements of institutions stress both the symbolic systems perceived to be objective and external to individuals and the subjective interpretation processes of individuals (Scott 2008). Culture is the learning result of a group of people over a period of time. The deepest level of culture is in the cognition where a group shares perceptions, language, and thought processes that become the ultimate determinants of attitudes, espoused values, and overt behaviour (Schein 1990). Even though a clear consensus is yet to evolve on the definition of safety culture, the concept generally depicts the set of beliefs, values, attitudes, and perceptions guiding people behave in a safe manner. Such a constructed meaning system indicates what is important and legitimate to people (Turner et al. 1989).

Individuals as agents and entrepreneurs play an important role in the creation and change of institutions (Zilber 2002). It has been noticed that some industry leaders have adopted a zero accident vision in Hong Kong. The zero accident vision calls for a generative safety culture, wherein risks are not only controlled, but unforeseen risks are also anticipated, recognised, and adequately dealt with (Weick and Sutcliffe 2007). To cultivate such a culture, commitment to safety of every individual should be the starting point. Both technical and social innovations are needed, as well as out-of-box thinking for solving existing safety problems (Zwetsloot et al. 2013). Without collective commitment, it is quite difficult to break the improvement plateau.

The Hong Kong context

The Hong Kong government has introduced various safety initiatives to public works and dedicated tremendous efforts to their implementation. The Works Branch of the Hong Kong Government (currently the Development Bureau) published a Construction Site Safety Manual (Manual) in 1995 as a mandatory guideline for all staff and parties involved in the Public Works Programme (PWP). The Manual, which has been continuously updated, stipulates stricter safety requirements than the government regulations, specifies the contractual provisions on construction safety and formalises safety initiatives. Therefore, apart from the legislative prescriptions, contractors involved in public works are required to accept stringent contractual provisions on construction safety.

Contractors are more likely to adopt conformity strategies given that they depend on clients of public works for a continuous flow of contracts. This fits with the resource dependence construct that is defined as the extent to which a focal organisation depends on constituents in its environment for critical resources (Pfeffer and Salancik 1978). It can be measured through perceived dominance of suppliers or construction works purchasers (Teo et al. 2003).

In Hong Kong, the main contractor employs a multi-tier subcontracting strategy to cope with the dramatic changing demand for in-house resources (Ng et al., 2009). However this strategy traps the main contractor into a difficult situation of labour shortage and coaching newcomers during the boom period. According to the Labour Department (2013), the number of construction site workers increased by 40% from 51,000 in 2009 to 71,300 in 2012, including many new comers to the industry. Thus, the extent and effect of conformity may be influenced by the capability of the main contractor in managing its subcontractors.

Based on the above argument, contractors in Hong Kong are confronted with institutional pressures of regulatory compliance, voluntary involvement in industry initiatives and safety campaigns, as well as commitment to zero accidents.

CASE STUDY

The case study was conducted in a railway project at the early stage of the first author's PhD study, aiming to identify site safety issues, diagnose underlying causes, and provide further improvement advice. A case study is suitable for probing into the "how" type research question, which could offer new insights into links among variables (Yin 2003). The focus of the case study is on safety practices adopted by the main contractor at the project level where management strategies are implemented and the influence of the client can be investigated. This paper concentrates on the institutional explanations of the contractor's safety management strategies. The internal organisational factors, such as safety climate, although is able to explain the variation of safety practices, are beyond the scope of this paper.

Project background

The railway project, valued approximately at HK$ 1.34 billion, comprises one station and a 650 metre long overrun tunnel. The construction work started in March 2010 and is expected to end in June 2014.The main contractor is regarded as one of the leading construction companies in Hong Kong. The client with the Hong Kong Government as the sole shareholder implements stringent safety management standards. The safety target for contractors in 2012 is less than 0.30 (number of reportable accidents per 100,000 man-hours worked). However because of complex site conditions, stringent Health, Safety and Environmental (HSE) requirements, and separated construction sites, the main contractor faces huge safety management challenges.

At the time the case study was carried out in April, 2012, the accident frequency rate of the project was 0.42 which was the highest among the client's projects. The observed reasons pointed out by the client included poor house-keeping, and "walking by" safety issues. For this reason, the contractor appointed an independent third party led by the second author to identify the underlying causes of unsatisfactory safety performance.

Data collection and analysis

Multiple data collection techniques were adopted, consisting of project document review, safety climate questionnaire survey, open-ended interviews and participatory observation, to capture 360 degree perspectives of site issues. As noted above, since the focus of the study is on the institutional factors rather than internal organisational factors, the results of the questionnaire survey are not reported in this paper. The data collected through interview provides significant empirical evidence to support the theoretical argument. However the influence of the broad institutional environment on

safety management strategies of contractors may not be reflected through a single case study. The data collected can only partially support previous arguments.

The interview was designed to probe into safety issues in the project. Respondents were asked to describe their impression of site safety management, safety issues, and possible causes. Among 82 project participants who accepted the interview, only 62 provided relevant information. Each interview lasted for 5 to 40 minutes depending on the respondents' willingness to share their views and on their time convenience. The interview was tape-recorded, transcribed and analysed through the qualitative data analysis software NVivo 10.0. Thematic analysis was adopted whereby the data was analysed according to different themes (Creswell 2009).The themes were developed through an inductive coding strategy.

Findings

Six categories of safety issues emerged from the coding process (See Table 1). The number in the bracket indicates the frequency of issues mentioned by participants. Each category of safety issue is generated from several sub-codes.

Table 1: emerged Safety Issues from Interviews

Categories of safety issues	Sub-codes
Supervisory safety leadership (42)	Safety orientation(safety is the priority or not); Management pattern consistency
Safety practices (40)	Management words consistent/inconsistent with actions; workers follow/violate codes of safe conduct
Poor planning (38)	Work access and housekeeping; insufficient planning and design; progress and safety is in conflict
Safety awareness, knowledge, and competence of workers (21)	Workers take safety ownership; lack of safety awareness
Resources provision (22)	Human resources; provision of PPE; provision of other safety facilities
Communication (10)	Communication between main-con and sub-con, among sub-cons; within organisation

Discussion

Compromise strategies in response to the institutional pressure

Under the issue of poor planning, "progress pressure", "balance progress and safety" or "safety is in conflict with progress" were repeatedly mentioned by interviewees (see Table 2). The project management team of the main contractor complained that the project schedule was very tight, and even not realistic. Meanwhile the client set up a high safety target for site safety management. The self-interest of the contractor is more effectively served by obtaining an acceptable balance between progress pressure and safety target. Balance as one tactic of compromise strategies is likely to take place when organisations are confronted with conflicting institutional demands or inconsistencies between institutional expectations and internal organisational objectives related to efficiency or autonomy (Oliver 1991). One engineer from the client commented on the site safety management of the main contractor:" Site safety issues are old issues. Actually the main contractor recognises where the issues exist. However they would not take further action until pointed out by the client during the weekly safety walk." Indeed those 'old issues' may not cause instant incidents or accidents yet they have the potential to do so. The contractor's strategy is to conform

to at least the minimum standards of safety requirements, then to pacify the client by taking follow-up actions. Pacifying is another tactic of compromise strategies. Pacifying tactics constitute partial conformity with the expectations of one or more constituents (Oliver, 1991). One senior manager from the client side provided other evidence of the compromise strategy: "When we conducted the safety management system audit, the site safety was much better. Yet when it was over, the safety performance went back to the normal level."

Table 2: who are talking about the conflicting goals of "progress and safety?"

	Progress and safety	No. of Participants	Percentage
Client	5	6	83%
Main contractor supervisors	3	7	43%
Main contractor workers	6	11	55%
Sub-contractor supervisors	2	3	67%
Sub-contractor workers	6	35	17%

Avoidance strategies in response to the institutional pressure

The main contractor employed a large safety management team, comprising safety manager, senior safety officer, site safety supervisor, safety training officer, site nurse, HSE trainee and site clerk, dealing with safety related issues, which is the legislative requirement in Hong Kong. The major role of safety personnel is to maintain a "sound" safety management system, and to ensure that safety related works, documents, and activities meet regulatory as well as client's requirements. However evidence revealed that the risks were not actually systemically managed: insufficient work planning and risk assessment, insufficient provision of safety resources, poor temporary work design, etc. The phenomenon of decoupling the actual safety practices from the "paperwork" of safety management system indicates the avoidance strategy. This agrees with the postulation that organisations may adopt avoidance strategy by concealing their nonconformity, buffering themselves from institutional pressures, or escaping from institutional rules or expectations (Oliver 1991). Besides, the top management of the main contractor maintain a very positive attitude toward improving site safety performance, which indicates "dispositional legitimacy" (Suchman 1995) from the client, even though the inconsistency of management talk and actual behaviour were frequently reported by the interviewees.

CONCLUSION

As an exploratory study, this paper takes the novel perspective of institutional and resource-dependence theories to examine the influence of the institutional pressures on contractor's safety management strategies. The case study results show that under stringent safety requirements and client's tight project schedule demands, the contractor tends to compromise the safety target by balancing the progress and safety goals and pacifying the safety pressures from the client. To avoid legal sanctions, the contractor devotes great effort on the standard safety management systems.

REFERENCES

Anderson, J M (2007) Health and safety- matching legislation and enforcement. In: Proceedings of the Institution of Civil Engineers- Management, Procurement and Law, Issue MP1, 11-12.

Biggs, S, Davey, J D and Freeman, J E (2011) Safety leaders' perceptions of safety culture in a large Australian construction organisation. In: 1st International Conference in Safety and Crisis Management, 24-28 June 2011, EUC Cultural Center, Nicosia, Cyprus.

Brunsson, N and Jacobsson, B (2000) "A World of Standards". Oxford: Oxford University Press.

Burt, R S (1982) "Toward a Structural Theory of Action: Network Models of Social Structure, Perception, and Action". New York: Academic Press.

Coble, R J and Haupt, T C (2000) Performance vs. prescription based safety and health legislation - a comparison. "The American Professional Constructor", 24(2), 22-25.

Conner, K R (1991) A historical comparison of resource-based theory and five schools of thought within industrial organizational economics: Do we have a new theory of the firm? "Journal of Management", 17, 121-154.

Construction Industry Institute (2009) "Safety initiative effectiveness in Hong Kong- one size does not fit all", Hong Kong Construction Industry Institute.

Creswell, J W (2009) "Research Design: Qualitative, Quantitative, and Mixed Methods Approaches", 3rd Edition. Los Angeles: Sage Publications, Inc.

DiMaggio, P J and Powell, W W (1983) The iron cage revisited: institutional isomorphism and collective rationality in organizational fields. "American Sociological Review", 48, 147-160.

Fennell, M L and Alexander, J A (1987) Organisational boundary spanning in institutionalised environments. "Academy of Management Journal", 30, 456-76.

Fernández-Muñiz, B, Montes-Peón, J M and Vázquez-Ordás, C J (2009) Relation between occupational safety management and firm performance. "Safety Science", 47, 980-991.

Fernández, E, Montes, J M, and Vázquez, C J (2000) Typology and strategic analysis of intangible resources: a resource-based approach. "Technovation", 20, 81-92.

Gainet, C (2010) Exploring the impact of legal systems and financial structure on corporate responsibility. "Journal of Business Ethics", 95, 195-222.

Hale, A, Baram, M, and Hovden, J. (1998) Perspectives on safety management and change. In Hale, A and Baram, M (Eds.) Safety Management: The Challenge of Change. Oxford: Pergamon Press, 67-92.

Haupt, T C and Coble, R J (2000) International safety and health standards in construction. "The American Professional Constructor", 24(1), 31-36.

Labour Department (2013) "Legislative Council Panel on Manpower Hong Kong Measures to Enhance the Work Safety Performance in the Construction Industry". Labour Department, HKSAR.

Labour Department (2011) "Legislative Council Panel on Manpower Hong Kong's Safety Performance in the First Half of 2011 and Regulatory Framework for Construction Sector". Labour Department, HKSAR.

March, J G and Olsen, J P (1989) "Rediscovering Institutions: The Organisational Basis of Politics". New York: The Free Press.

Martin, R L (2003) The virtue matrix: calculating the return on corporate responsibility. "Havard Business Reivew on Corporate Social Responsibility", 83-104. Boston: Harvard Business School Press.

Meyer, J W and Rowan, B (1977) Institutionalized organizations: formal structure as myth and ceremony. "American Journal of Sociology", 83, 340-363.

North, D C (1990) "Institutions, institutional change, and economic performance". Cambridge: Cambridge University Press.

Oliver, C (1991) Strategic responses to institutional processes. "The Academy of Management Review", 16, 145-179.

Oliver, C (1997) The influence of institutional and task environment relationships on organizational performance: the Canadian construction industry. "Journal of Management Studies", 34, 99-124.

Pfeffer, J and Salancik G R (1978) "The External Control of Organisations: A Resource Dependence Perspective". New York: Harper & Row, Publishers, Inc.

Powell, W W and DiMaggio, P J (1991) "The New Institutionalism in Organizational Analysis", Chicago, University of Chicago Press.

Reason, J (1998) Achieving a safety culture: theory and practice. "Work & Stress", 12(3), 293-306.

Rollenhagen, C (2010) Can focus on safety culture become an excuse for not rethinking design of technology? "Safety Science", 48, 268-278.

Schein, E (1990) Organizational culture. "American Psychologist", 45 (2), 109-119.

Scott, W R (2008) "Institutions and Organisations: Ideas and Interests". California: Sage Publications.

Smallman, C and John, G (2001) British directors perspectives on the impact of health and safety on corporate performance. "Safety Science", 38, 227-239.

Suchman, M C (1995) Managing legitimacy: strategic and institutional approaches. "The Academy of Management Review", 20, 571-610.

Teo, H H, Wei, K K and Benbasat, I (2003) Predicting intention to adopt interorganizational linkages: an institutional perspective. "MIS Quarterly", 27, 19-49.

Turner, B A, Pidgeon, N F, Blockley, D I and Toft, B (1989) Safety culture: its importance in future risk management. "Position paper for Second World Bank Workshop on Safety Control and Risk Management", Karlstad, Sweden.

Van Maanen, J and Barley, S (1984) Occupational communities: culture and control in organisations. In: B. Staw and L. Cummings, (eds.) "Research in Organisational Behaviour, 6". Greenwich: JAI Press, 287-365.

Wilson, J and Koehn, E (2000) Safety management: problems encountered and recommended solutions. "Journal of Construction Engineering and Management", 126, 77-79.

Yin, R K (2003) "Case study research: design and methods (3rd Ed.)". New Delhi: Sage Publications.

Zilber, T B (2002) Institutionalisation as an interplay between actions, meanings, and actors: the case of a rape crisis center in Israel. "The Academy of Management Journal", 45(1), 234-254.

Zwetsloot, G I J M, Aaltonen, M, Wybo, J-L, Saari, J, Kines, P and Beeck, R O D (2013) The case for research into the zero accident vision. “Safety Science”, 58, 41-48.