

Knowledge Sourcing: How Board Intellectual Capital Improves Organisational Performance via the Executive

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Abstract: Based on anecdote, the board's collective and individual ability to add value to the organisation it governs can be summarised as being a function of the depth and breadth of its directors' skills, experience and knowledge - that is, their intellectual capital. Therefore, if the board's intellectual capital determines the value that directors add how is this value translated into organisational performance? We suggest that board value is linked to organisational performance through the executives'. Executives' access the board's intellectual capital by assimilating the tacit and explicit knowledge of directors'. This is conveyed mainly through interactions between the board and executive teams in the boardroom. Executives may apply their increased knowledge to solving organisational issues through processes of replication, innovation or adaptation, as classified by Gray and Meister (2004). We argue that not all executives apply such acquired knowledge in the same way and that the differences in their application of this knowledge may contribute to the differences between high performing and poor performing organisations. Nicholson and Kiel (2004) described intellectual capital as a collection of knowledge, information, experience, relationships, routines, procedures and culture that a board can employ to create value (that is, to influence organisational performance). It is this knowledge that executives access from the directors of their boards, to guide and assist them with sense-making and organisational decision making. Termed knowledge sourcing, Gray and Meister (2004) described this process as a precise construct indicating an individual's intentional efforts to search out and access expertise, experiences, insights and opinions produced by other key individuals, which is not available elsewhere. Gaining knowledge is one thing; however, learning without application is essentially a wasted act. How executives use the new knowledge is critical if the knowledge gained is to add value to organisational performance. Gray and Meister (2004) highlighted the cognitive change which must occur in executives if they are to maximise the benefit of the knowledge. These authors found that the extent to which individuals' cognitive structures have improved over time was an important indicator of the learning outcomes. Using fuzzy set qualitative comparative analysis which we applied to data from a set of corporate and not-for-profit organizations, we identified key differences in the cognitive profiles of executives of high-performing organisations compared to executives in poor performing organisations. This indicates that in practice the executive teams in high-performing organisations applied their acquired knowledge effectively in their roles within the organisation, whereas the executive teams in poor performing organisations were markedly less effective in applying such knowledge.

Keywords: boards, performance, knowledge, directors, intellectual capital, executive

1. Introduction

Today's fast-paced decision-making environment requires that executives have access to a knowledge repository they can trust and one which allows them to test their possible solutions against the knowledge of others. The tacit and explicit knowledge held by individual directors can be viewed as representing this repository in the form of human capital. Human capital consists of accumulated stores of tacit and explicit knowledge, learning, experiences, expertise and so on, and is considered to be a subset of intellectual capital which also includes cultural capital, social capital and structural capital (Nicholson and Kiel, 2004). Intellectual Capital is a concept that draws upon a number of theoretical streams including management and economics and is an area of emerging interest to researchers, with a range of authors contributing to its understanding (e.g. Bontis, 1999; Keenan and Aggestam, 2001; Nicholson and Kiel, 2004). In the context of the board of directors, intellectual capital is defined by Nicholson and Kiel (2004) as the collection of knowledge, information, experience, relationships, routines, procedures and culture that a board may employ to create value (i.e. influence performance).

The concept of the board's intellectual capital as a resource which the executive can access aligns with the resource dependency perspective. Resource dependency theory presents boards and their members as conduits through which organisations access additional essential resources (e.g. Hillman, Cannella, and Paetzold, 2000; Pfeffer and Salancik, 1978). However, this view and its emphasis on accessing external resources takes no account of other activities undertaken by a board e.g. strategising and providing advice to the CEO and executive (Lorsch and MacIver, 1989). We contend that it is while undertaking these activities that the tacit and explicit knowledge of directors, either individually or collectively, creates value within the

organisation. Importantly, tacit knowledge is recognised as a key component of innovation and includes the unspoken knowledge, observations, inspirations and other forms of awareness that are typically not written down or codified (Nonaka, 2008). We argue further that knowledge sourcing – capturing tacit and explicit knowledge from the directors – facilitates the executives' access to the board's individual and collective human capital. The executive may then adapt, innovate or replicate the acquired knowledge and apply it to the organisation's advantage. In the context of this study the word "executive" refers to the CEO and those senior functional managers (e.g. chief financial officer, operations manager, marketing manager), who have regular formal or informal contact with the board and/or individual directors.

This paper focuses on how the board's knowledge (human capital) is accessed by the executive through the use of knowledge sourcing which, we argue, allows the executive to replicate, innovate or adapt this knowledge to improve organisational performance. It is in this way that the board is linked with the organisation's performance outcome.

With regard to strategic leadership and its influence on the organisation, past research has focused separately on the board and executive management, labelling the executive team variously as managerial elites, an upper echelon and a top management team (TMT) (Fama and Jensen, 1983; Finkelstein and Hambrick, 1990; Hambrick, 2007; Hambrick and Mason, 1984). This body of research conceptualises two teams as providing leadership at the apex of an organisation: the board and the executive. In a larger study on which this paper is based, we identified three top teams at the apex of control: the board, the executive team, and the "Third Team", which is formed when the executive and board meet either formally or informally. We posit that it is through the third team that organisational performance is influenced.

A better understanding of how a board influences organisational performance has become increasingly important as the magnitude and impact of corporate failures has grown over the past two decades. Greater clarity regarding how boards add this type of value is necessary, since boards and directors have been implicated in the loss or destruction of significant corporate wealth (e.g. Yahoo, Research in Motion [RIM], Bank of America, Hewlett Packard etc.).

2. Theoretical background

Knowledge management research, which seeks to understand how organisations could better manage their internal and external knowledge resource, provided the basis for the development of Gray and Meister's (2004) knowledge sourcing construct. The knowledge management literature is interested in managing knowledge in its various forms (e.g. electronic, written, oral) but does not offer a testable model to explain how knowledge is accessed by the individual. Gray and Meister's (2004) knowledge sourcing construct addressed this problem by providing the means by which researchers could gain insights into and focus on how individuals access the expertise, experience, insights and opinions of others.

Research into how knowledge is accessed so that learning may occur has used different terms to define knowledge sourcing, such as advice-seeking (Alexiev, Jansen, VandenBosch, and H.W, 2010) and group learning (London and Sessa, 2007). For the purpose of this study the various terms and their definitions are grouped within the construct of knowledge sourcing. We emphasise this construct because of its importance to executives who tend to rely more on oral and personal information sources than on written and impersonal sources such as reports and management information systems (Alexiev et al., 2010; McDonald and Westphal, 2003).

The difference between simply obtaining facts and gaining knowledge is critical: the former relates to information freely available from many sources (e.g. books, reports, etc.), whereas the latter is based on an individual's tacit and explicit knowledge gained from their professional expertise and experiences and, in its particular form, is only available from that individual. A key outcome of knowledge sourcing is allowing executive members to access expertise, experience, insights and opinions from external sources (e.g. the non-executive directors). This advice can lead the executive to make choices that may guide organisational action and behaviour away from entrenched patterns and routines (Alexiev et al., 2010; Druckman, 2001).

Gray and Meister (2004) present knowledge sourcing as a precise construct that describes an individual's intentional efforts to search out and access expertise, experiences, insights and opinions produced by

individuals and thus not available elsewhere. This description aligns with resource dependency theory, which suggests that a board's key function is to give executives access to resources (e.g. knowledge) that they may not otherwise have. In this way, knowledge sourcing can be seen as a significant contributing factor to the continued personal and professional growth and development of the individual executive members.

There are three generally accepted groupings of communication between people which Gray and Meister (2004) relate to knowledge sourcing behaviour: one to one, one to many, and many to many. The three groups are:

- Dyadic: a person-to-person communication, a single knowledge provider to a single knowledge seeker.
- Published: the codification and storage of knowledge from a single knowledge provider – available to many.
- Group: knowledge is exchanged between multiple knowledge seekers (executive) and multiple sources (e.g. directors) in an open venue (e.g. a board meeting).

Group knowledge sourcing behaviour is especially relevant in the context of this study as it captures the exchanges between multiple knowledge seekers (executives) and multiple sources (directors). With regard to knowledge sourcing in an organisational context top management teams (i.e. the third team) have a high capacity to assimilate and incorporate highly specialised and tacit information from their internal advisers (directors) into their decision making (Hansen, 1999). The third team's ability to access and assimilate specialised and tacit knowledge allows the group to handle unexpected situations, cope with emergencies, manage interactions across group boundaries, and solve problems creatively (Pulakos, Dorsey, and Mueller-Hanson, 2005).

While having access to the collective knowledge of the third team is important, its worth is determined by its application in solving or improving organisational performance. In this regard, Gray and Meister (2004) identified the extent to which individuals' cognitive structures improve over time as being an important indicator of the learning outcomes. They categorised three distinct types of instrumental cognitive change mechanisms used by individuals to apply the knowledge: replication, adaptation and innovation. Replication is the propagation of existing cognitive structures or, more simply, taking a new learning and applying it directly within a certain sphere of control and operation. This application results in value creation by not having to re-create the knowledge that already exists (Gray and Meister, 2004). Adaptation is the evolutionary development that occurs when prior knowledge is altered in some way to make it more applicable to the firm and its environment (Weick and Quinn, 1999). Innovation is a radical or substantial change to the extent that no increase in efficiency or redesign could have the same impact (Tushman and Anderson, 1986).

Replication, adaptation and innovation are not mutually exclusive – they can merge and occur concurrently. A third team can be automatically reactive (replication) in meeting immediate urgent needs; purposively proactive (adaptation) in adding new behaviours, skills and knowledge; and re-creative (innovation) in identifying and adopting new processes or skills that are not driven by existing pressures (London and Sessa, 2007). Knowledge and information have been positively associated with organisational performance (Conger, Lawler, and Finegold, 2001; Mohrman, Cohen, and Mohrman, 1995; Payne, Benson, and Finegold, 2009), and specifically in relation to board effectiveness (Daily, Dalton, and Cannella Jr, 2003; Hermalin and Weisbach, 2003). Understanding how the executive accesses knowledge and information from the directors within the third team process may thus be an important antecedent to improved organisational performance.

3. Research objectives

In response to Pye and Pettigrew's (2005) call for multi-theoretical research into corporate governance, we sought to identify how the construct of knowledge sourcing might be a facilitating mechanism in relation to organisational performance. In addition we looked for differences between high- and poor-performing organisations, with regard to the characteristics that comprise the construct. We suggest from our findings that through accessing the board's human capital, the executive may source and adapt, innovate or replicate the knowledge they obtain, for use in the organisation. A mixed-method approach was adopted for the research which incorporated thematic analysis of interview data and fuzzy set qualitative comparative analysis (fsQCA) of survey data.

4. Research methodology

The corporate and not-for-profit (NFP) sectors in New Zealand and Australia provided the research population for the study. The corporate sample was drawn from the New Zealand and Australian stock exchanges' top 50 indices (NZX50 and ASX50). The NFP sample was chosen by selecting initially those organisations that were national representative bodies and were affiliated to an internationally recognised body. These two sector groups comprising publicly listed corporations and NFPs yielded a population exceeding 130 entities from which a total of 64 (43 corporate and 21 NFP) organisations were selected for the research sample. The corporate and not-for-profit samples were separated into high-performing and poor-performing groups to allow comparison of board characteristics between country and sector groups. To qualify for selection corporations needed to be listed on either the New Zealand Stock Exchange (NZX) or the Australian Stock Exchange (ASX) and to have been listed for more than ten years. NFP organisations were required to be registered as an incorporated society and to have been registered for at least ten years. Further filtering was conducted using a range of financial measures appropriate to each of the two sectors to measure organisational performance.

Key performance indicators (KPIs) used to measure corporate sector performance were: return on assets (ROA), earnings per share (EPS) and dividend yield (DY). These three KPIs were chosen because the data is readily obtainable through publicly available information. ROA indicates how well (or poorly) the company is generating cash from its asset investments, while the measures of EPS and DY are widely used by shareholders, institutional investors, investment advisors and the general business community as key indicators of organisational performance (e.g. Brown and Caylor, 2004).

For the NFP sector, two measures were used from a study by Ritchie and Kolodinsky (2003) that were originally developed by Siciliano (1996, 1997): fiscal performance and an index of public support.

Gray and Meister (2004) identified the changes in cognitive structures as being indicative of learning through access to the knowledge of others. Therefore, the extent of change to an individual's (e.g. executive's) cognitive structures is critical to understanding the level of knowledge sourcing that has occurred. The survey instruments used in this research were those designed by Gray and Meister (2004) to measure these three cognitive changes.

In total, 321 participants took part in the research; 98 participants were in the high-performing sub-group and 223 in the non-high-performing sub-group. An overall response rate of 39 per cent was achieved for the survey. Additionally, 23 hours of taped interviews were conducted with a randomly selected sample of executive and board members from the high performing and poor performing groups, and were analysed using thematic analysis.

The results from the surveys of the two sub-groups ("high-performing" and "not high-performing") were analysed using Fuzzy Set Qualitative Comparative Analysis (fsQCA). This method bridges the quantitative and qualitative approaches to measurement by allowing both case and variable oriented studies. FsQCA is grounded in set theory and is therefore ideally suited to studying explicit connections such as those in this research. A key benefit is that fsQCA allows the researcher to analyse complex causation, which is defined as being where an outcome may follow from several different combinations of causal conditions (causal recipes). The "truth table" is the core tool for analysing causal complexity as it allows structured focused comparisons (George, 1979). Each possible causal condition listed in the truth table has an empirical outcome associated with each configuration (Ragin, 2008).

The use of fsQCA allowed data from the separate items in the questionnaire to be analysed, not as independent variables, but as "potential collaborators" in an outcome. The key point is not which "ingredient" is strongest but which of the various combinations (causal recipe) are capable of being either necessary and / or sufficient in producing the outcome (Ragin, 2008). Fuzzy membership scores address the varying degrees to which different cases belong to a set rather than how cases rank relative to each other on a single dimension of open-ended variation. Fuzzy sets can then be seen as a continuous variable, calibrated to show the degree of membership (fully in – fully out) in a defined set. Consistency and coverage are two important outcomes from the fsQCA analysis and their importance is similar to that of significance and strength in correlational connections. Set-theoretical *consistency*, like significance, displays how closely the cases sharing the causal

recipe are to a perfect subset relation. In contrast, set-theoretical *coverage*, like strength, assesses the empirical relevance of the causal recipe (Ragin, 2008).

5. Results

Only executive members of the participating organisations received the survey document containing questions on knowledge sourcing. This reduced the population significantly, resulting in the need to combine the not-for-profit and corporate samples. The Australian sample contained 10 cases (not-for-profit = 4, corporate = 6), while the New Zealand sample consisted of 8 cases (not-for-profit = 5, corporate = 3). Using fsQCA for the analysis has been advocated for small-n research designs (5–50 cases) – as in this instance – and is increasingly applied throughout the social sciences (Koenig-Archibugi, 2004; Kogut, MacDuffie, and Ragin, 2004). The analysis defined each item in the survey as a distinct characteristic of knowledge sourcing. The coding of the individual characteristics used the prefix of KS followed by the question number e.g. KS1, relates to question 1 under replication, KS10, is question 10 under innovation. The questions are grouped according to (Grey and Meister's, 2004) categorisation of replication, adaptation and innovation, as follows:

6. Replication

- Based on my interactions with the board, I have gained new insights into ways in which to fulfil my role.
- Based on my interactions with the board, I have learned new and proven methods that have increased my ability to perform my role.
- Based on my interactions with the board, I have learned new and proven procedures that have increased my ability to perform my role.

7. Adaptation

- Based on my interactions with the board, I have revised my knowledge to take account of the new knowledge gained.
- Based on my interactions with the board, I have adapted my working knowledge to take account of the knowledge gained.
- Based on my interactions with the board, I have adapted my skills to take account of the skills gained.
- My interactions with the board, have led to an increased and updated work-related knowledge.

8. Innovation

- Based on my interactions with the board, I have become very innovative in my thinking.
- Through my interactions with the board, I have thought of some revolutionary ways that my role could be improved.
- Through my interactions with the board, I have thought of some revolutionary ways that I can improve the organisations performance.

The results from analysis of these knowledge sourcing items for both Australian sectors are shown in Table 1. (For interpretation of the tables, the following legend applies:

Logical AND (*): A “*” indicates that both factors must be simultaneously present; one factor alone would not produce the outcome.

Logical OR (+): A “+” indicates that elements can be either absent or present – with the resulting causal recipe still able to lead to the outcome.)

Table 1: Results for combined Australian corporate and NFP sectors

High Performing Causal Recipe KS1+KS2+KS10	Poor Performing Causal Recipe KS4+KS7+KS9+KS10
<i>Exec members learn new proven methods to increase abilities / also different ways to improve org performance</i>	<i>Revised and increased work knowledge/role improvement/improve performance</i>
Consistency = 0.633333 Coverage = 0.855856	Consistency = 0.614035 Coverage = 0.879397

For high-performing organisations, the element KS1 (item 1) suggests that the executives are willing to adjust their view on their roles and on ways to improve performance. KS2 indicates an ability to learn new methods and skills from directors and KS10 indicates that executives are willing to adapt, innovate or replicate the knowledge in ways that are designed to improve the organisation's performance.

This result compares with executives in poor performing organisations who focus on role improvement (KS9), increasing and updating work related knowledge (KS7), and revising one's current work related knowledge (KS4). The deficiency in KS6 (adaptation) and the absence of representation of replication within the poor performing causal recipe show a lack of cognitive change in these areas. Within the poor performing causal recipe, the elements KS4 and KS7 are internally focused while KS9 is concerned with how to improve the executives' own role; thus these elements indicate a degree of self interest among the executives of poor performing organisations. Table 2 combines results for both New Zealand sectors.

Table 2: Results for combined New Zealand corporate and NFP sectors

High Performing Causal Recipe KS1*KS2*(KS9+KS10)	Poor Performing Causal Recipe KS4+KS5+KS7+KS10
<i>New insights/ proven methods increased my ability to perform/different ways to improve role/ improve org performance</i>	<i>Revised knowledge to account for new learning/adapted my knowledge/updated work knowledge/improve org performance</i>
Consistency = 0.666667 Coverage = 0.869565	Consistency = 0.560784 Coverage = 0.922581

Although the consistency (strength) of the set-theoretic relationship is low, the differences between the high-performing and poor performing samples are notable. The New Zealand high-performing and poor performing causal recipes display similarities to the Australian causal recipes. The third team executive members of the New Zealand high-performing sample place greater importance on the value they have received from role clarification (KC1), learning new methods that have improved role performance (KS2), role development (KS9), and how these can be aligned to improve organisational performance (KS10).

In contrast, the third team executive members of the poor performing New Zealand organisations value primarily the new knowledge gained (KS4), adaptation of this knowledge into their own working knowledge (KS5, KS7) and how to apply this knowledge to the organisation's performance (KS10).

The item KS2 is the key difference between both countries' high-performing and poor performing samples. This suggests that while increased knowledge is important, learning new and reliable methods that build capabilities combined with application of the knowledge via adaptation, innovation or replication to attain improved performance are important in the achievement of high performance.

Discussions with interviewees confirmed the importance of the role that knowledge sourcing from directors played within the third team. A comment by the chair of a high-performing corporate organisation reinforced the importance to executives of accessing directors' knowledge, in saying that "...board members who are particularly experienced in acquisitions, well then, you would certainly expect them to have some contribution during that development of and execution of an acquisition..." The "contribution" spoken of by this chair referred to the use of the board members' knowledge and experience by the executive. This and similar comments from among the interviewees confirmed the importance of knowledge sourcing within high-performing organisations.

9. Conclusions

The concept of knowledge sourcing aligns with and expands upon resource dependency theory explanations in suggesting that boards and directors are conduits through which the organisation (executives) can access essential resources (e.g. knowledge) (e.g. Hillman et al., 2000; Pfeffer and Salancik, 1978). This notion was reflected in the results of the analysis for both the New Zealand and Australian high-performing organisations (both corporate and not-for-profit). The executive members of the third team in these sample groups identified two common characteristics as outcomes of their ability to access and source the knowledge of directors. Based on their interactions with the board, executives gained 1) new insights into ways to better fulfil their roles, and, 2) learned new and reliable ways of increasing their ability to perform their role through knowledge sourcing. The key point about these characteristics is that directors add value when the executives

have confidence in the knowledge they gain, the directors' intellectual capital. With regard to the first characteristic, this newly sourced knowledge relates not only to obtaining pure information, but also prompts the executive for action, which creates a tangible change in their performance. The second, but equally important, characteristic identified that executives took the newly acquired insights and, through replication, increased their ability to perform their role. Therefore, replication of the boards' intellectual capital by the executive defines one of a number of links between the board and organisational performance. This conclusion aligns Gray and Meister (2004) who found that these three constructs are the key outcomes (cognitive changes) of knowledge sourcing.

Our study indicates that organisational performance is influenced by the exchange of knowledge (knowledge sourcing) within and between the board and the executive which occurs within the relational space created by the interactions among the members of the third team. This finding underscores the importance of the board-executive relationship in determining corporate governance effectiveness, with particular implications for the way boards interact with the larger executive group as defined in this paper. Highlighted also is the importance of understanding the behavioural aspects of this dynamic interaction between the board and executive in the relational space that we have defined as the third team.

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