Top Managers & Information Systems:
'Crossing the Rubicon'!

Abstract

In reviewing the influence of information systems on today's organisations, it becomes evident that top managers play a critical role in their inevitable success or failure. Yet, despite these systems strategic relevance many studies reveal a dichotomous relationship between 'management' and 'information systems', a relationship kept polarised by organisational myths resulting in the emergence of differing community perspectives. Such division is borne out in the increasingly high rates of information systems failure within practice. As strategic stewards of the organisation, top managers are noted to play a vital role in supporting information systems. Support is said to be a multifaceted concept requiring both thought and action. This paper in reviewing the information systems management literature attempts to unravel the mystery that has shrouded this topic over the past five decades. The journey seeks to provide top managers with a roadmap before *Crossing the Rubicon* to support the introduction of information systems.

Keywords: *Top Manager; Information Systems; Top Management Support; Critical Success Factors.*

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Introduction:

The introduction of information systems can greatly assist organisations in attaining greater effectiveness and efficiency. Information systems promise to increase rationalisation, reduce duplication, streamline business processes, integrate disparate systems, offer greater competitive advantage, increase innovation, and remove redundant managerial tasks through disintermediation. Yet despite such claims many implementations remain marred by poor performances and returns on investment. A key factor for enabling greater information systems success is top management support. This paper reveals that top managers who foster a positive attitude towards information systems can build a powerful coalition group to develop a vision that is aligned to the corporate strategy. In deploying vehicles such as steering committees top managers can communicate this vision thus ensuring organisational wide buy-in and increasing the information systems' chances of coming in on time and under budget.

Organisations & Information Systems:

Following the path of information systems[1] (IS) since their introduction into work organisations over five decades ago, research reveals that these systems have moved beyond their operational origins to firmly take their place within the executive boardroom. Early IS systems were stand-alone, functional-based, transaction-oriented, however today's suite of IS tools continue to match organisational needs becoming highly integrative, enterprise-wide, global and strategic systems. In fact, a brief historical tour of organisations illustrates a similar journey for IS development. Throughout the 1980s a primary concern for many top managers was the attainment of competitive advantage within their respective industries (Porter, 1980). The IS field responded by developing systems that sought to provide top managers with timely information to make strategic decisions, e.g. executive support and decision support systems. In the 1990s, organisations began to reflect inwards looking for key strategic resources that would yield unique

[1] The field may be termed information systems (IS), information technology (IT), or information and communication technologies (ICT). The variations in terminology reflect changes in the scope in the field over the decades. (Davis, 2000: 65). For the purposes of consistency the authors will use the term information systems (IS).

core competencies (Barney, 1991). Similarly, the IS field responded by building highly integrative enterprise-wide systems (Davenport, 1998), which would unite every pillar of the organisation providing top managers with a single transparent view of firm competencies and business processes. The first decade of the 21st century continues in this vein, with organisations extending their global reach through new and innovative business models (Kim & Mauborgne, 2004). Similarly, IS have responded by developing Enterprise 2.0 (McAfee, 2009) systems that enable boundaryless organisational structures, 24/7 real-time customer-centric communication, collaborative supply chain environments, and virtual IS infrastructures delivered via cloud computing. IS has become a key vehicle in assisting with the execution of strategy in many of today's organisations. They have moved beyond the myopic lens of their operational ancestry, instead inheriting a *strategic* future.

Yet despite IS's progression and growth to 'strategic' importance for modern organisations, empirical evidence reveals that challenges abound when implementing such systems into the organisation. Most notably, evidence from US case literature demonstrates a troubled and varied past. Allied Waste Industries Incorporated, found SAP too expensive and too complicated to operate, while Waste Management Incorporated aborted its SAP implementation after it had spent $45 million (Helm et al, 2003: 260). Other reports reveal similar outcomes with FoxMeyer Drug, a $5 billion pharmaceutical company, filling for bankruptcy after major problems were generated by a failed Enterprise System implementation (Chen, 2001). In the United Kingdom, according to The Independent public sector IS failures have cost the British taxpayer in the region of £26 billion. The article reports on the value for money of ten public sector IS initiatives over the past decade (Savage, 2010). Examples include; the National Health Services' electronic patient system-cost £12.7 billion with 160 health organisations out of 9,000 currently using the system; National Identity Scheme system-budgeted for £3 billion but cost £5 billion before being abandoned; Defence Information Infrastructure system-cost £7.1 billion-currently £180 million over budget and 18 months late; Libra system (for magistrates' court) budgeted for £146 million-current spend is £400 million; and finally Single Payment Scheme system (for

farmers), cost £350 million with Public Accounts Committee warning last year that the system was already "at risk of becoming obsolete". Research on IS outcomes mirrors the case examples. Incidences of underperformance and failure are as high as 90% (Loonam & McDonagh, 2004) with up to 50% of IS initiatives being abandoned or failing outright and up to an additional 40% of IS initiatives being delivered late and over budget. Unfortunately, as few as 10% of IS initiatives may actually deliver promised business value. While some studies differ in terms of the degree of implementation success, the majority of investigations have revealed an enduring dilemma within the IS arena, a dilemma plagued by costly projects delivered beyond agreed timescales and often resulting in below par business value performances or complete abandonment.

In today's tightening fiscal environment, the continuation of such poor returns for IS investments could relegate any 'strategic' advances to the proverbial organisational 'scrapheap'. Lessons about implementation must be learnt if top managers are to harvest the 'strategic' capabilities from their IS arsenals. Central to the challenge of effectively introducing IS into organisations is the need to foster a highly systemic approach to organisational change. Such an approach must seek to integrate the many complex facets relevant to organisations and IS, in particular the integration of human and technical aspects of change. Best practice clearly supports the view that no more than 20/25% of an IS project spend will be absorbed by technical (hard) change considerations while the remaining 75/80% will be absorbed by human and organisational (soft) aspects of change (McDonagh, 2005). In particular, much of the literature around critical success factors for IS implementation denotes the key importance in obtaining top management support. From a preliminary review of studies over the past decade (insert Appendix 1), into the critical success factors required by organisations implementing large-scale IS initiatives, the authors can reveal the perennial call for top management support. While there are many factors deemed critical for attaining IS implementation success, top management support is cited as the most important success factor by every study. Reviewing how top managers support there is investments will be the focus of this article.

Top Managers & Information Systems-A Cyclical Tale:

The importance of top management support has remained important throughout the history of IS implementations. In 1968, Rockwell, for example, stated that 'a good management of information system (MIS) must begin at the top with the chief executive officer' (1968: 20), while in the same year, Kriebel noted that 'considerable evidence has shown that in all cases where management has not taken an active role in computer systems development the system has been an economic disappointment' (1968: 9). In the 1970s, Adams noted that 'the successful implementation of MIS depends on the active and informed participation of top management' (1972: 54), while at the end of this decade Rockart had identified top management involvement as a critical success factor in achieving information management effectiveness (1979).

Similarly, the 1980s also saw a continued interest in top management support for IS initiatives, particularly in light of their strategic potential (McFarlan, 1984). Kanter noted that 'it is becoming increasingly clear that a better informed and involved senior management team is a critical factor in improving the effectiveness of IS' (1986: 12), while Doll stated that 'top management's involvement may be a critical factor in determining the success of IS development efforts', warning that 'information systems are just too important to leave development in the hands of technicians' (1985: 17). Perhaps, Applegate et al sum up top management support in the 1980s best, stating 'our 30 year history of IS use in organisations suggests that in the future top managers must be much more actively involved in directing technology and managing its influence on organisations' (1988: 136).

The 1990s began with Jarvenpaa and Ives noting that 'it is now widely believed that to exploit strategic opportunities from IS, the Chief Executive must view IS as a component of corporate strategy' (1990: 354). Jones and Arnett continued to articulate the call for top management support, noting that 'top management involvement in IS has long been touted as a crucial element in the successful infusion of IS in organisations (1994: 20). Similarly, Thong et al

pointed out that 'top management support has been identified as a key recurring factor critical to IS effectiveness' (1996: 248), with Watson et al also highlighting the need for sustained CEO involvement for ensuring IS success (1997).

Throughout the 2000s calls have continued for top management support (Ragowsky and Gefan, 2008). Tallon et al, for example, note that 'in light of recent interest in Enterprise Systems and electronic commerce, top management support is more critical than ever for the successful implementation of future IS investments' (2000: 147). Similarly, Havelka and Lee from results of their survey on critical success factors for IS projects, revealed that 'top management support was selected as the most important factor when all other factors were considered' (2002: 36). Chin et al tell us that 'top management's predisposition toward a specific business strategy and governance structure can profoundly influence the choice of IS governance in organisations' (2004: 50), while Kearns noted that 'top management support is a key determinant for strategic IS' (2006: 236). Finally, Ifinedo reiterates the importance of top management support for IS initiatives (2008). This brief historical tour points to an enduring call for top managers to provide effective support when introducing IS into their organisations.

Yet, despite the continued calls for top management support over the past five decades, our understanding of this topic has remained somewhat opaque. For example, Garrity stated that 'top management 'must' take charge if profits are to result' (1963: 174). A decade later Rockart and Crescenzi noted that 'in the midst of this computer-based explosion, one significant ingredient has been noticeably missing. For the most part, top management has stood-uninvolved at the sidelines. Senior executives have merely been spectators in the development and use of IS' (1984: 3). In the 1990s, Jarvenpaa and Ives infamously noted that 'few nostrums have been prescribed so religiously and ignored as regularly as executive support…..Despite the enthusiastic calls for executive support and the intuitively compelling evidence in the case study literature, little is known about the concept, and its utility remains largely unproven' (1991: 205-206). Earl and Feeny noted that 'CEO's can neither avoid IS nor delegate the issues it raises to

others. Business strategy and IS have become so intertwined that large corporate IS failures frequently lead to the demise of the CEO. IS issues must now be proactively embraced. Unfortunately, most CEO's are ill-equipped for this new world. Indeed, surprisingly few provide the necessary leadership' (2000: 12). And only recently, Dong has once again highlighted the opaqueness in our understanding of this topic noting, "despite the general consensus regarding the critical role of top management in the IS implementation process, the literature has not yet provided a clear and compelling understanding of the top management support concept" (2009: 55).

In fact, to the authors it appears that the domains of 'management' and 'IS' seem to mix a little like 'oil and water'. Initially as the oil mixes with the water there is much swirling, promise, and colour. Upon settling, however, both elements return to their original states, separate, uncompromised, and independent. Similarly, the domains of 'management' and 'IS' appear to return to their natural states remaining aloof, segregated and divorced from one another. One possible reason for such responses may be attributed to certain *myths* that continue to lurk in the subconscious of both communities. In an attempt to dispel such myths, we highlight some phrases that top managers may have found themselves thinking when responding to their IS initiatives.

Myth 1-But Information Systems don't belong in the Boardroom!

Often due to their perception of IS, many top managers relegate its discussion to the operational fringes. Top managers tend to view IS as an operational tool that has little part to play in corporate-wide initiatives (Tallon et al, 2000). The boardroom is a place for 'strategic' thinking and discussion, providing participants with a panoramic view of macro organisational issues. Yet, many IS initiatives, in particular today's large-scale projects such as Enterprise Systems can singularly re-structure and reengineer the entire organisation. Such systems have become *strategic* initiatives, which enable organisations to gain greater competitive advantages and rationalisation through business process reengineering. Leaving discussion to the operational fringes will in time bring untold organisational challenges to the plinth of top managers. Therefore, the authors

would encourage top managers to ensure the IS manager is a core part of the executive management team when introducing large-scale IS initiatives. Top managers should also be an active participant in the development of the IS strategy, as this will ensure it both receives the organisational-wide recognition it will need and its close alignment to the corporate strategy. Finally, top managers that engage early with IS send clear and unambiguous signals to fellow members of the executive management team that this initiative has gained strategic status and consequently will require respective attention from all parties within the boardroom.

Myth 2-But I know nothing about technology!

The current generation of managers may feel a little overwhelmed sometimes at the pace of technological change. This can create a culture of fear, where top managers are afraid of losing face in front of colleagues or appearing silly with their lack of knowledge about IS. A solution often adopted is to either ignore or delegate the new IS initiative. However, astute top managers will know that both of these options are only short-term solutions. If we keep in mind that the majority of large-scale IS initiatives only require 20/25% of a technical focus while the remaining 75/80% of our concerns must focus on the organisation, then surely top managers have less to fear and in fact more to contribute to any large-scale IS implementation. Understandably many top managers may be uncomfortable with their lack of knowledge around the technical issues, however a close relationship with a business-oriented IS manager can easily plug such gaps. In fact, with so much focus required around management and organisational-wide issues, top managers can potentially end up being strong advocates of large-scale IS implementation within the boardroom.

Myth 3-But Where's the Value!

A justifiable concern for many top managers is focusing on the inherent value potential promised from the delivery of the new system. This has become particularly central to most discussions around IS over the past two years. Many top managers hold an economic-centric view of the organisation. They are responsible to key organisational stakeholders such as shareholders,

customers, suppliers, and increasingly to society and its environment more generally. As a consequence, with the introduction of new IS initiatives, many top managers tend to focus from the beginning on the bottom line and end result. While we certainly do not advocate an alternative perspective, we would encourage top managers to be mindful of the challenges imposed upon project teams from large-scale IS implementations. A purely economic-centric perspective can result in short-term goals, which tend to focus on efficiency often at the cost of effectiveness. This doesn't bode well for very large IS implementations, e.g. Enterprise Systems which can take up to five years to implement. The fundamental rationale for many IS implementations is to offer both efficiency and effectiveness gains to organisations. It is, therefore, important that top managers set a vision of IS that ensures value-creation and organisational effectiveness are at the heart of the initiative but adopts an implementation strategy that allows the team the resources and time to attain both of these objectives.

Myth 4-But the IS department won't let me do things differently!

A reality emerging from many large-scale IS implementations is the 'generic standardisation' the new system imposes upon the organisation. This can impose generic business processes upon organisations, often processes that are either not required or wholly inappropriate for the organisation and its respective industry. This is best illustrated by a key vendor mantra stating 'thou shalt not change SAP'. Such conflict becomes a challenge for many top managers, who find themselves torn between the organisational needs on the one hand and the project needs on the other. As a consequence, resources that were originally intended for the IS initiative may be horizontally moved or hierarchically subsumed. Project teams may be dispersed with alternative teams or arrangements made. Such actions can result in scope creep, where project leaders and their respective teams spend their time either relearning what was already known by dispersed teams or redirecting resources since scattered throughout the organisation. The authors acknowledge the challenges many top managers face in appeasing organisational needs, however we would encourage proactive project engagement rather than reactive organisational impulses. A reactive culture instils limitation and scarcity, attributes that surely stand in the way of large-

scale organisational change. It is, therefore, critical that top managers take an active role during system tendering and vendor choice selection. Scout around for similar system implementations and success stories, conducting a thorough analysis of the proposed system and its implementation effects on your organisation.

Myth 5-But I did support it!

A dilemma often associated with top management support is in the interpretation of the word 'support'. As many top managers are the 'strategic' stewards of the organisation, naturally their support often follows suit. In other words, they focus on strategy formulation, communication, resource-allocation, and delegation. However, as the authors reveal from the literature, top management support is an eclectic mix of activities, requiring many techniques. Some techniques are ceremonial by nature, the top manager can use their position to summon attention across the organisation for the IS initiative. Such an approach to support often lives in the 'formulation' or 'diagnostic' stage of a project. However, the authors reveal that top management support needs to be holistic in nature, thus spanning all stages of the implementation process. In other words, top managers need to move beyond ceremonial support and actively engage in the project during its 'execution' and 'implementation'. Only deploying ceremonial support techniques keeps many top managers in a psychologically neutral state. However, when they actively engage in the initiative, they become psychologically supportive, which greatly increases continued top management support throughout the projects life.

Understanding Top Management Support:

Such myths have pervaded the topic of top management support for the past five decades. A fact that is reflected in the literature, where the topic remains fragmented in scrutiny and rather opaque in interpretation. As a consequence the authors now seek to collate our current understanding from the IS management literature of how top management can support IS. A number of key approaches have emerged, which seek to explain the techniques top managers

deploy. These approaches include; the importance of maintaining a positive attitude, building an effective and powerful coalition group, creating an inclusive steering committee, developing a strong vision for IS, aligning the IS strategy with the corporate strategy, communicating the IS initiative across the entire organisation, and providing sufficient resources for the IS initiative. These approaches will act as an initial roadmap to guide top managers towards a more holistic approach to support. For the purposes of enabling such a roadmap the authors categorise these approaches into linear 'steps'. It is important to note, however, that these *steps* are systemic by nature, often overlapping and occurring in tandem rather than in isolation.

Step 1-*Foster a Positive Attitude*

Studies reveal that a positive attitude by the top manager is critical when supporting IS initiatives (Feeny et al, 1992, Sabherwal_et al, 2006, Liang et al, 2007). Top managers that maintain a positive attitude can greatly assist other organisational stakeholders, most notably their top management team, project management team, and eventual end-users, to also positively view the new IS initiative. A favourable attitude by the top manager, helps to foster a culture that adopts a long-term perspective when dealing with IS, helps to 'open-doors' for the IS manager (or the chief information officer) when liaising with the top management team and executive board, gives the project management team a capacity to tap into organisational-wide support to confront the many challenges associated with socio-technical initiatives, and instils greater confidence amongst end users when working with new systems. In effect, the attitude of the top manager will determine the level of engagement in the remaining six steps identified across the literature.

So how can we help top managers to assess whether they have a positive or negative 'attitude' towards IS. The literature tells us that there are a number of factors that assist in shaping and influencing the top managers' attitude, most notably their age, tenure in the organisation, tenure in the position of Chief Executive Officer (CEO), formal education, and career backgrounds. Jarvenpaa and Ives, for example, note that age has been related to risk propensity and the willingness to venture into uncharted areas. As a consequence 'younger CEO's who have a short

tenure in the CEO position and in the firm are the most likely to have positive views of IS' (1991: 211). More seasoned top managers with longer tenures in the position of CEO and relevant organisation tend to be typically more conservative and cautious of change. Similarly, a top manager's level of formal education is also said to influence their attitudes towards IS initiatives. Feeny et al found that top managers who attended formal IS education programmes, such as an IS seminar, were more likely to have better relationships with their IS managers and invariably the IS function (1992: 440). This point is further supported by Pijpers and van Montfort who found that formally educated top managers are more open to new innovations and new technologies, and therefore better able to cope with IS projects (2006). A final factor that can determine the top managers' attitude is their career background. Top managers with career backgrounds in 'output functions' (i.e. marketing, sales, and product research and development) are typically more amenable to the firm exploiting IS for competitive advantage, given that strategic applications most commonly address customer service (Jarvenpaa & Ives, 1991).

However, top managers need to be conscious of certain challenges that may hinder their development towards a more positive attitude for the IS initiative. Firstly, with many IS implementations experiencing significant delays, ever-expanding budgets and decreased overall system functionality, top managers need to be aware of whether such anecdotes lurk in their subconscious. Secondly, many of today's IS initiatives have become 'strategic weapons', consequently demanding a more organisational-wide focus. Such a focus requires adopting a 'business-centric' as opposed to a 'techno-centric' approach to implementation. For top managers this places an additional 'core' project on their already busy to do list, which will demand ever-increasing commitment and support. Finally, and perhaps the greatest challenge confronting many top managers resides in their own 'assumptions[2]' of IS (Schein, 1992). An honest appraisal of top managements assumptions will help them to become psychologically 'involved' (Jarvenpaa & Ives, 1991), which in turn becomes a key factor in influencing their attitudes towards, and behaviour for, IS initiatives.

[2] See Schein (1992) for CEO typologies on 'assumptions' of IS

Step 2-*Build a Cohesive Coalition Group*

Holding a positive attitude of the IS initiative allows top managers to build a more cohesive coalition that will create a shared understanding of the project across the organisation. Central to building an effective coalition group is the relationship between the top manager and their IS manager or CIO. Both executives must be in agreement before presenting their case to other executive management members (Rockart, 1979, Ives and Olson, 1981, Gottschalk, 1999, and Karahanna and Watson, 2005). According to Gupta 'the CEO alone cannot effectively utilise IS as a strategically competitive resource, nor can the CIO go it alone. However, the partnership of the CEO and the CIO together brings the knowledge, skills and perspectives to effectively use IS as a strategic response' (1991: 135). In creating this shared understanding Earl and Feeny note that 'CEO's can help to enable the relationship by making the CIO a key member of the top management team. This one action greatly increases both the number and the quality of relationship-building opportunities available to the CIO, while it also helps to create a culture of mutual trust between the top management team (1994). Studies also note that CIO's with technical know-how, organisational proficiency, and business acumen have a greater chance of maintaining a successful relationship with the CEO (Jones et al, 1995, Skyrme 1996). Beyond the CEO relationship, the CIO should also develop a personal relationship with other executives and create a shared understanding that assists in filling the 'gap in understanding' between the top management team (Fiegener and Coakley, 1995, Preston et al, 2006).

Yet, challenges persist in building an effective coalition group. While the literature notes the importance in making the CIO an integral part of the top management team, Hambrick tells us that top management teams often remain fragmented, where 'the team is not a team at all, but rather a mere constellation of senior executives pursuing their own agendas, with a minimum of collaboration or exchange among them' (1995: 111). This point is further supported by Enns et al (1997), who noted that the top management team often endured high levels of conflict, with each member vying for their own functional interests. In other words, top management teams are more concerned with their 'own patch', or little 'fiefdoms' (Feeny et al, 1992). A related

challenge facing top managers in creating an IS project coalition, is the dilemma of occupational groups. Schein found that both 'senior management and the IS community can be viewed as two subcultures, each making a set of assumptions about the nature of information, the nature of people, the learning process, organisations and management. An examination of those assumptions strongly suggests that they may be very different and those differences account to a large degree for the problems of implementing IS solutions' (1996). McDonagh furthers this point, stating that 'executive management tend to view the introduction of IS as an economic imperative while IS specialists tend to view it as a technical imperative. The coalescent nature of these two imperatives is such that the human and organisational aspects of IS are frequently marginalized and ignored' (1999: 691).

As a consequence, top managers need to remain vigilant when building an inclusive coalition group. Creating a good relationship between the CEO and CIO where the underlying sub-cultures are confronted, ensuring the CIO is business-focused rather than techno-centric, and appointing the CIO to the top management team, are effective techniques in moving towards a shared understanding of IS. However, in building a strong and cohesive coalition, top managers must take ownership of the group, thus illustrating to all members of the top management team that the IS initiative takes precedence over tribal concerns. Such ownership needs to be embedded into the culture of the top management team, until eventually all members become stakeholders in the IS vision.

Step 3-Create a clear Vision

The top manager along with their CIO working in tandem with the coalition group now build a clear and compelling vision for the new IS initiative. It is critical that all members of the coalition group become active participants in creating this vision. Kotter notes that a good vision should clarify the general direction for change, motivate people to take action in the right direction, and coordinate the actions of different people (1996). Similarly, Robbins and Duncan note that the IS vision should identify the organisation's values, set priorities for goals, and establish guidelines

for how these goals are to be pursued (1988). Studies note that a strong CEO vision of IS plays a crucial part for ensuring successful IS outcomes (Zmud, 1988, Schein, 1992, Martin and Huq, 2007). Jarvenpaa and Ives, for example, found that when CEO's maintained a strong IS vision, firms attained greater success in their progressive use of IS (1991). Similarly, Grant states that a 'clear vision and strategy will serve to galvanize the efforts of both business and IS managers towards achieving a company's objectives' (2003: 173). The CIO remains a key participant within the coalition group in driving this commitment to creating an organisational-wide vision for IS.

Despite the crucial role of CIO's in guiding the top manager and respective coalition group, key challenges exist. Currie and Glover, for example, note that IS executives embracing a business perspective can often alienate themselves from the IS department, which can result later in poor uptake and support for the IS vision (1999). Bensaou and Earl further note that, 'people who serve in liaison roles that are designed to close the gap often end up as middlemen who only keep the two sides apart. Creating hybrid managers-people who are knowledgeable about business and IS-sounds appealing, but the hybrids soon discover they're stuck in a career cul-de-sac' (1998: 125). Similarly, within the literature the IS vision is often viewed from a business and IS perspective, which invariably leads to separate inquiry. Such an approach continues to compartmentalise top management support for the IS vision. In other words, the CEO continues to view IS as a 'technical' imperative while the CIO acting as a bridge between both domains is faced with the possibility of 'being neither fish nor foul' (Currie and Glover, 1999).

Consequently, it is critical that in creating a shared vision of IS, the entire coalition group lends its support to the CIO. While in creating the IS vision the CIO may be happy to act as project champion, it is important that the top manager and the coalition group recognise this commitment and actively participate to support their role as agents of change (Earl & Feeny, 1994: 17). The coalition group should seek to engage with the CIO on converting the IS vision into an effective business-centric initiative, rather than leaving the CIO to go it alone. If the CIO is to become a 'hybrid' manager or 'middle-man' between the two communities of 'management'

and 'IS', then it is vital that the top manager and the coalition group acknowledge their commitment and ensure the organisation openly recognises the sacrifices being made by the IS department and rewards accordingly. To further prevent a backlash from the IS community, the CIO should set up an IS steering committee that will have direct access to the coalition group. Such measures can ensure greater solidarity between both communities and assist the top manager and their coalition group to build a more effective and empowered vision for IS.

Step 4-Align IS & Business Strategy:

Once the IS vision has been created, it then becomes necessary to develop a plan of action. This is the role of the IS strategy (Kriebel, 1968, Lederer and Mendelow, 1986, King and Teo, 1996, and Booth and Phillips, 2005). According to Garrity, the IS strategy has been an issue ever since computing first became a top management concern (1963). An A.T Kearney study in the 1980s reveals that 'companies with integrated business and IS strategic plans financially outperformed those without integrated plans by a factor of six to one' (cited in Lederer and Mendelow, 1986: 246). During the 1990s, Brown and Magill also found, from their surveys across four continents, that 'alignment of IS within an enterprise was a key IS issue' (1994: 371). And more recently Preston and Karahanna note that 'the alignment between IS strategy and business strategy has continued to be a top concern for top managers (2009: 159).

However, despite the importance of aligning the IS strategy to the business strategy, Galliers noted that 'in 50% of the cases IS planning was either totally divorced from, or tenuously linked to, the corporate business plan, while in only 20% of the cases were IS planning projects headed by senior management' (Galliers, 1986: 33). The main reason for a lack of IS and business strategy alignment is reflected in stakeholder perceptions of IS. The top manager often does not view IS as a strategic resource (Zachman, 1977, Kanter, 1986, Currie and Glover, 1999), but instead 'relegates IS to a subordinate role, one in which the IS department responds to but does not initiate strategic change from' (Fiegener and Coakley, 1995). This eventually leads to low levels of CEO satisfaction, which in turn results in a continued gap between the CEO's and

CIO's' understanding of the IS strategy (Wrapp, 1967, Stephens et al, 1995). Tan furthers this point noting that 'executive leadership is primarily focused on IS initiatives, which are operational rather than strategic in nature. The main reason for this is due to a lack of top management awareness of the strategic potential of IS' (1995: 75).

As a result, in order to assist top managers in supporting IS and business strategy alignment, it is important that the CIO is able to convince the coalition group of the strategic potential of IS (Nath, 1989, O' Connor and Smallman, 1995, Kearns and Sabherwal, 2005), communicate the IS strategy clearly to the top manager (Lederer and Mendelow, 1988b, Earl, 1996, Feld and Stoddard, 2004), understand the organisations corporate strategy objectives (Lederer and Mendelow, 1987, Gupta, 1991, Pun et al, 2007) and increase top management's general awareness of the IS initiative (Lederer and Mendelow, 1988a, Gottschalk, 1999). Stephens et al, for example, believe that the CIO can involve top management in strategic IS planning by linking the IS strategy to business planning, developing policies, procedures and standards for recognising information as a resource within the organisation, getting approval for IS expenditures, coordinating the IS unit and functions within the firm, educating top management of IS's potential, communicating the importance of IS to top management, conducting environmental scanning for new technologies and competitive advantages, and finally conducting general management duties within the organisation (1995: 14). Clearly, a good working relationship is an imperative between the CEO and CIO when aligning the IS strategy to the business strategy.

Step 5-Commit to an Inclusive Steering Committee:

In order to support the alignment of the IS and corporate strategy, an inclusive steering committee should be set up, which provides a platform for all stakeholders involved in the IS initiative. Doll notes that 'executive steering committees provide the IS director with access to top management and serve as a mechanism for top management guidance in shaping strategies and policies for the information system function' (1985: 20). Similarly, Raghunathan and Raghunathan (1989), in their study of 189 companies, found that the IS steering committee has

been an organisational integrative mechanism, which brings together IS users, top management, and the IS manager. These committees have been viewed as an effective way of getting top management involvement in IS planning (McFarlan, 1981) ensuring the fit of IS with corporate strategy (King, 1978) improving communication with top management as well as middle level user-management and changing the attitudes of users towards IS and IS personnel towards users (Raghunathan, 1992). In a study of 213 IS executives within the financial services sector Karimi et al found that 'a steering committee is a high-level team of representatives from multiple divisions or functions who are entrusted with the task of linking IS strategy with business strategy by setting a strategic direction, matching corporate concerns with technological potential, and building commitment to policies' (2000: 209). Steering committees can greatly prevent CIO 'hybridisation', as mentioned already, ensuring IS personnel have access to the business.

However, once again challenges exist for the development of effective steering committees. Reich and Benbasat warn that, without shared knowledge between the CEO and IS executive, then 'mechanisms such as IS steering committees may degrade into nothing more than project review or budget approval committees (2000 108). Umbaugh also found that 'few steering committees could be considered successful' (1984: 13). A possible reason for poor steering committee performances lies, once again, with the relationship between 'management' and 'IS'. Reich and Benbasat emphasise this point, stating that 'data from our study suggest a steering committee that isolates IS discussion from other organisational issues may be counterproductive and could act to lower the level of IS and business alignment' (2000: 108).

Building a steering committee on its own is not sufficient to ensure effective communication of a shared understanding for IS. To truly utilise any steering committee top managers need to become active stewards of the discussion. The discussion should try and focus the majority of its time around organisational and managerial issues while more technical and project specific topics receive less attention. If needs be other more technical steering committees can be set up to deal exclusively with such issues. It is also important that the coalition group view IS as a business

initiative. The steering committee can then act as a powerful vehicle for relaying the IS vision to the organisation.

Step 6-Effective Communication is key!

Communication is a powerful mechanism through which top managers can signal their support for the IS initiative. Lederer and Mendelow found that the top manager must regularly communicate with IS management, in order to inform them about corporate objectives (1988a). Similarly, Zmud noted that the IS vision must be communicated by the CEO to all organisational managers (1988). To facilitate the communication process, in an earlier study Lederer and Mendelow proposed a number of communication techniques the IS executive could deploy to identify top management's objectives, namely by 'reviewing corporate plans and passing on reports to the IS area, formally and informally educating top management, having an IS plan, and hiring a consultant to get top management to tell the IS executive their objectives' (1987: 394). Similarly, Feeny et al also identified 'IS educational seminars for executive teams' as a method for communicating IS needs to top management (1992: 440).

However, certain challenges exist within the literature. For example, Lederer and Mendelow noted that 'senior IS executives almost unanimously identified the ability to know top management's objectives as the greatest difficulty they faced in developing IS plans and strategies' (1987: 389). While the authors propose a number of techniques for improving communication between both communities, the fundamental question centres on the 'objective' of both communities. In other words, what message about the new IS initiative are IS executives communicating to top management, and vice versa. Are IS executives focusing on technical issues only, and indeed are top management aware of the organisational issues concerning an IS implementation? O' Connor and Smallman note that in fact both camps often view each other with suspicion, guilty of communicating their own interests only (1995).

In response to understanding each communities 'objectives' some studies have looked at the types of communication channels that work best between the CEO and CIO. Informal communication has been identified as a more powerful communication channel. According to Jones and Arnett informal communication provides direct feedback to both parties involved (1994: 21-23), while Fiegener and Coakley believe that it helps to build better relationships between both executives (1995). Similarly, Watson remarked that the CEO is a dominant source of information for the strategic direction of the firm. As a consequence, he suggested that this information be communicated through richer channels, most notably face-to-face communications (1990). Feeny et al found that in organisations with excellent CEO and IS executive relationships, 'informal contact was made to discuss ideas and build support before a formal proposal was made' (1992: 442). Jarvenpaa and Ives further this point noting that 'frequent informal exchanges between a CEO and the IS executive might be as effective a forum as a CEO chairing an IS steering committee' (1991: 207). Similarly, Reich and Benbasat found that 'personal relationships between IS and non-IS executives is a major influencing factor for IS alignment' (2000: 85).

Step 7-Provide Sufficient Resources:

The allocation of resources is another method by which top managers can support IS initiatives (Doll, 1985, Jones and Arnett, 1995, Xue et al, 2008). Thong et al, for example, noted that 'by virtue of their leadership role, top management are able to ensure sufficient allocation of resources' (1996: 248). Doll found that 'more successful firms were more likely to have long-term commitments from top management for the stable funding of IS development activities' (1985: 24), while Jones and Arnett noted that 'when CEO involvement is high, IS may receive a larger percentage of the overall organisational budget' (1994: 23). Thong et al also support this point, stating that 'a supportive CEO is more likely to commit scare resources and adopt a longer-range perspective to the benefits of IS implementation' (1996: 248). Similarly, Kanter also refers to better access of organisational resources from a management that are interested in the IS project (1986). Finally, Biehl in reviewing global IS, talks of how 'many managers of

successful projects stressed the importance of allocating appropriate human and financial resources' (2007: 57).

Yet, despite the importance for top management to provide sufficient resources to the project, poor IS performances point to significant challenges (McDonagh, 1999 and 2005). Wong, for example in a study of expert systems, revealed that 'top management may insist on a very short payback period and completely overlook long-term intangible assets like competitive advantage' (1996: 39). In fact, top management's short-term view of IS initiatives, where the focus is on system efficiency over effectiveness (Earl and Feeny, 1994), is frequently cited as a challenge to successful project implementation (Carlyle, 1988, Galliers, 1992). McDonagh notes that 'many senior executives embrace a narrow economic focus on IS believing that IS merely offers an opportunity for rationalisation and cost reduction' (2005: 117). Similarly, Currie and Glover, further illustrate this point noting that top managers often view IS as a supporting role to the core business (1999).

Consequently, in order for top managers to commit sufficient funding to an IS initiative, it is important that these top managers view IS as an organisational resource, which will provide significant returns for investment (Kanter, 1986). The literature suggests that the IS executive should communicate the value of IS to the top manager (Earl and Feeny, 1994), by illustrating the benefits of the perceived system (Havelka and Lee, 2002), demonstrating external success stories (Earl and Feeny, 1994), scanning the external environment to provide evidence of competitor commitment to similar IS initiatives (Watson, 1990, Jones and Arnett, 1994), or using impression management tactics, such as external consultants or members within the top management team, to illustrate the value of a new IS initiative (Fiegener and Coakley, 1995). If top managers have engaged effectively with their coalition groups and created a clear and compelling vision for IS, then this will greatly increase the IS initiatives chances of attaining sufficient resources with a long-term perspective.

A Move towards Holistic Support:

These steps can help provide top managers with an initial checklist for supporting IS initiatives across the organisation. Each step acts as a signpost guiding the top manager towards a more holistic understanding of support. Yet, it must be noted that our understanding of this topic has been somewhat fragmented over the past five decades. Such fragmentation is best viewed in terms of current empirical inquiry. Many studies remain separate in their inquiry, focusing on either the 'management' or 'information systems' communities. A perspective borne out by many practitioners as noted earlier from the myths that continue to pervade both communities.

From a support point of view these myths have resulted in top managers often adopting **three** differing perspectives of IS, i.e. a technology-centric perspective (which focuses on information systems) an organisational-centric perspective (focusing on management), and a socio-technical perspective (which focuses on the systems end users). The 'technology-centric' perspective views organisations as 'machines', where human behaviour is highly predictable and determined by clearly defined rules. Consequently, top management support reflects such an implementation perspective, where the role of the IS executive is heralded as the true champion of technology. Top managers delegate responsibility for the implementation process to the IS executive. As many IS executives are technically-oriented, the implementation process therefore tends to focus on the technology rather than the organisation. Consequently, when the system fails to deliver top managers are left bewildered and slowly begin to view IS and the IS executive with suspicion. The IS executive, on the other hand, tries to defend the implementation process, noting that the technology actually works but blames the organisational 'machine' for not adopting to the new system. Thus, both communities remain separate from one another.

An 'organisation-centric' perspective adopts a top-down approach, where implementation begins at the strategic level and filters its way down the organisation. Consequently, top managers tend to focus on the role of 'strategy-making'. However, plans alone cannot secure successful

implementation, action is also required. Mintzberg, for example, states that a top-down approach to strategy formulation and implementation simply separates strategy from implementation and keeps the top management team isolated from the rest of the organisation (1990). Similarly, Davenport purports that a top-down approach, typical of the organisation-centric perspective for IS implementation, does not lead to the development of effective information systems (1994). Such an approach only separates 'management' from 'information systems', thus resulting in an over-dependence on strategy that is isolated from organisational implementation.

The socio-technical perspective is collaborative by nature seeking to unite both communities by aligning the organisation and the technology to suit the people who will be using the new system, i.e. end-users. In other words, 'the performance of a system is optimised when both the technology and the organisation mutually adjust to one another until a satisfactory fit is obtained' (Laudon & Laudon, 2002: 15). Top management support is very much centred on the people to ensure both the organisation and the technology is adjusted to accommodate future system users. However, as this perspective adopts a bottom-up approach to implementation it is often accused of lacking the top-down approach necessary for organisational-wide implementations.

Therefore, the authors call for a more holistic approach to support to prevent bias and a singular focus for IS. Top managers need to understand the complexity of IS-enabled change, which must balance their epistemological perspectives on 'implementation', i.e. the organisation-centric, techno-centric, and user-centric views. The seven approaches identified by the authors can provide such a holistic perspective for top managers. For example, setting a clear *vision* adopts an 'organisation-centric' perspective, where top managers align project goals and objectives to the corporate strategy. Similarly, a sole focus on *resources* adopts a 'techno-centric' perspective, where top manager's focus exclusively on technology installation and its respective costs for the organisation. While building an effective *steering committee* adopts a more 'socio-technical' or 'user-centric' perspective, where top managers concentrate support on the people in the organisation and how the new system affects their work practices.

Conclusion:

As organisational boundaries become more porous, competitors become more collaborative, the workforce becomes virtual, and industries go global, it is clear that information systems will continue to play an increasingly important and strategic role in our organisations and society. Consequently, top managers hoping to take advantage of such future opportunities will need to become true advocates of technological change. This paper attempts to dispel some of the key myths that have taken root within the management and information systems communities, providing top managers with a series of steps to take when supporting their information systems initiatives. The approaches identified above provide an initial guideline for researchers and practitioners, however as this topic remains empirically opaque we would make a call for further and deeper inquiry. Such inquiry might build upon the steps proposed, developing a framework or diagnostic tool that top managers can use during implementation.

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Appendix 1-List of Critical Success Factors

	CSF Studies 1999-2010 / Critical Success Factor List (Somers & Nelson, 2001)	Top Management Support	Project Team Competence	Cooperation	Clear Goals & Objectives	Project Management	Communication	Management of Expectations	Project Champion	Ongoing Vendor Support	Careful ES selection	Data Analysis & Conversion	Dedicate Resources	Steering Committee	User Training	Education	Business Process Reengineering	Minimal Customisation	Define Architecture	Change Management	Vendor/Customer Partnership	Use vendor tools	Use of Consultants
1	Bingi et al, 1999	X											X		X		X				X		X
2	Sumner, 1999	X				X	X		X						X		X	X					X
3	Holland & Light, 1999	X			X	X	X			X							X						X
4	Esteves & Pastor, 2000	X	X		X	X	X		X		X				X	X	X	X	X	X	X	X	X
5	Jarrar et al, 2000	X			X	X	X	X			X				X		X		X	X	X		X
6	Sedera et al, 2001	X				X	X		X						X								
7	Nah et al, 2001	X	X			X	X		X								X		X	X			
8	Somers & Nelson, 2001	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
9	Akkermans & Helden, 2002	X	X	X	X	X	X	X	X	X	X												
10	Al-Mudimigh, 2002	X				X	X					X			X		X			X			
11	Al-Mashari et al, 2003	X		X	X	X	X		X		X	X	X		X	X	X	X	X	X		X	
12	Umble et al, 2003	X	X		X	X					X	X	X	X	X	X				X			
13	Somers & Nelson, 2004	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
14	Gargeya and Brady, 2005	X	X					X					X		X			X		X			X
15	Finney & Corbett, 2007	X	X			X	X		X		X				X		X	X	X	X			X
16	Plant & Willcocks, 2007	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
17	Garcia et al, 2007	X	X			X	X				X				X		X			X			X
18	Ngai et al, 2008	X	X			X									X	X				X			
19	Snider et al, 2009	X	X			X									X								
20	Huang, 2010	X	X		X	X	X		X		X					X	X			X			
	Total Citations across all Studies	**20**																					