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The Review of Recent Challenges in Information Technology Management

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Abstract

A recent study of rapid-growth firms in Ontario has revealed that the three top challenges for CEOs are managing cash flow during growth, obtaining employee buy-in and choosing strategic partners. The study is identified 12 challenges for rapid-growth firms. A rapid- growth firm is one that employs between 20 and 500 people, and has demonstrated year-over-year revenue growth of at least 50 per cent during three consecutive years. Each of these challenges has a particular impact on how these firms develop and manage information technology, a critical component in their growth. These challenges, and how managers can meet them, are discussed in this article.

Key words :- *Information technology, rapid growth, challenges, development.*

Introduction

The recent advances in information technology are becoming central to the process of socio-economic development. Information technology offers new ways of exchanging information, and transacting business, changes the nature of the financial and other service sectors and provides efficient means of using the human and institutional capabilities of countries in both the public and private sectors. The world is rapidly moving towards knowledge-based economic structure sand information societies, which comprise networks of individuals, firms and countries that are linked electronically and in interdependent relationships.

In an increasingly globalized economy, information technology is one of the key determinants of competitiveness and growth of firms and countries. Firms are becoming more competitive on the basis of their knowledge, rather than on the basis of natural endowments or low labor costs. It is becoming increasingly apparent that the role of traditional sources of comparative advantage (a large labor force and abundant natural resources) in determining international competitiveness is diminishing. The competitive and comparative advantages of countries are gradually being determined by access to information technology and knowledge. The comparative advantage that now counts is man-made, engineered by knowledge through the application of information.

Recent challenges of I.T. management:-

1. Managing cash flow

Cash is king for any type of business, but it plays a particularly important role in the rapid-growth enterprise. The assumption that a rapidly growing business has adequate cash is misguided, since these firms must constantly reinvest in their businesses to fuel their rapid growth. It is therefore more likely

that these businesses operate while in a perpetual cash crunch.

Planning to become bigger is the guiding principle of a rapid-growth enterprise. This approach requires that managers remain flexible, something that in turn requires a realistic view of the life cycle of information technology. For example, managers may wish to consider leasing equipment to reduce the firm's cash requirements. Evergreen clauses can be included contracts to stipulate when the supplier will replace outdated equipment with the latest technology. This minimizes the resources that will be needed to maintain equipment and ensures that appropriate information technologies will always be available. Careful analysis at this point will not only make future purchasing decisions easier but can also lead to partnerships that can produce other benefits in the form of important supplier contacts or access to innovations.

In addition to the financial implications, senior managers should be concerned because of IT's potential to limit the strategic positioning of the firm or lock it into a particular business process. Certain decisions, like the introduction of enterprise-wide applications or the maintenance of legacy systems, have the potential to undermine the firm's survival. Senior managers must remain involved in decisions related to IT, since an investment in a particular information system, even one which is not viewed as strategic, may have a high opportunity cost that can potentially limit management's ability to act on important strategic initiatives.

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2. Employee buy-in and fostering an open work environment

An open environment implies obtaining employee input on decisions, which is critical to securing employee support. Nowhere is this perhaps more important than in the introduction of information technology in cash-strapped organizations, when disparities in technology can result in employee discontent and management grief.

It is important to develop a framework for the technology that the organization will use. The framework should take into account the nature of the work that individuals are expected to do and assign appropriate technology configurations that will enable employees to meet their business goals. This framework should also maintain technology within a particular work group at comparable levels, thus reducing intra-departmental disparities while making inter-departmental disparities more manageable.

It should be noted that an open environment does not imply complete or uniform information disclosure. While employees should have access to the information needed to perform their work, they do not have to be able to access all data within the firm. Certain synergies are possible when information is shared throughout the organization and there are numerous information technologies available to support this communication. However, the access that employees have to company data is a decision that should be, but is not often, scrutinized by senior executives. We will revisit this issue when discussing departing employees.

3. Choosing partners and strategic alliances

Choosing alliance partners highlights two major concerns in the context of information technology. First, identifying IT requirements will often give the firm its first indication that it needs a technology partner. Second, facilitating alliance agreements often requires implementing integrated information systems.

Partnering with technology providers, rather than providing all technology services in-house, is often a relatively low-risk approach for the rapid-growth enterprise. However, partnerships can include long-term strategic alliances with technology vendors, system integrators and/or outsourcers, as well as short-term contracts with consultants. A recurring issue for managers is to determine how these choices will affect the organization. Taking a narrow view of IT, purely as a source of short-term cost savings and efficiencies, tends to flaw this decision-making process. A manager can expect that strategic alliances based on such advantages will be equally short-lived.

If any alliance is to be successful, there must be regular communication between the partners. The organization's systems and information flows should be able to interface smoothly with those of its partners. Many alliances have failed because system incompatibilities have been over looked. Managing the flow of information requires an integrated approach. That is, the systems in an organization must be able to communicate with the systems in the partner firms. To ensure this, most companies will find it necessary to empower an executive such as a Chief Information Officer to provide the leadership to implement and enforce technology policies. Establishing this connectivity can be particularly challenging for rapid-growth firms since the period during which separate systems are integrated can be very short.

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To ensure that companies with incompatible systems are aligned, it may be necessary to select one as an enterprise system, which is then implemented by all of the partners. This approach has its own unique challenges, since these initiatives must often be accompanied by re-engineering projects which enable and potentially modify the partner's processes to meet the information system requirements. This is a daunting task since it has always been easier to modify technology rather than the way people work. Management must be aware that integrating systems between partners is not simply about technology. Invariably, the task will require some process re-engineering before the systems can be integrated successfully.

4. Finding the right employees

Employee recruitment is particularly difficult for rapid-growth firms, which tend to need employees who are in high demand. IT can certainly help identify qualified people, as the ability to match specific task requirements to individual skills from a worldwide pool of potential employees is a key factor in the success of on-line recruiting. Unfortunately, identifying the persons with the required skills is not enough. Prospective employees may not be willing to move

from their current locations, and there is a risk that the people recruited on-line will not fit the organization's culture. However, IT can be used to further screen qualified applicants with video-conference-enabled interviews and on-line personality tests. As well, the ability to telecommute can encourage skilled but reluctant individuals to join a company. Virtual working arrangements and telecommuting can provide relief for shortages in job skills while effectively reducing the company's exposure to long-term agreements for skills that may only be needed on a limited basis.

5. Departure of employees with critical knowledge or proprietary information

Companies can have their employees sign non-disclosure agreements and other legal documents. However, an effective IT-based approach to this problem is to partition and effectively seal the knowledge that exists within the firm. With this approach, sensitive information is compartmentalized electronically so that only those individuals that require certain information have access to it. As pointed out earlier, an open environment does not mean or necessitate that everyone should have access to all the information in the firm. To this end, security measures should be in place to control who can access the information, and access itself should be logged and monitored. Most network operating systems, like Windows 2000, have the capability to restrict access to particular information; however, restricting access must be planned and implemented.

Providing open access to all data without considering the implications for departing employees exposes a business to the risk that these employees will take not only the knowledge that they played a part in creating but other data the company has collected. Designing the network security plan is a senior management responsibility. Too often, however, in rapid-growth enterprises, this duty falls to junior employees since they are often the only people who can implement the plan.

6. The internet and e-commerce

The privacy of data collected on-line and the requirements for enterprise system integration are two areas which the rapid-growth firm must be particularly aware of when dealing with internet and e-commerce initiatives.

Internet initiatives for many rapid-growth firms provide the opportunity to collect customer data on a large-scale basis. The rules governing the collection and use of this data by organizations have often been set solely by company directives. But recent initiatives, like the appointment of a Privacy Commissioner of Canada, are likely to further constrain firm activities. For management, these new regulations will require that the organization demonstrate due diligence when obtaining consent to use personal data on customers and employees. This consent will be required if the data is repurposed.

E-commerce initiatives require the implementation of a significant IT infrastructure, as data within the organization and outside it must be accessed. Management can easily be ill prepared for the scope of work required to implement a successful e-commerce strategy. This issue becomes more critical since it is very difficult to anticipate future system requirements when current requirements are evolving rapidly. This issue can at least be managed if all systems development is

coordinated and islands of automation are prevented, even if the immediate requirements do not necessitate such interconnectivity. Assigning this responsibility to a senior level in the organization, early in the company's life, will position the firm well for any future e-commerce initiative.

7. A CEO who can communicate a vision

The ability of a CEO to connect with employees in a fast-paced, rapid- growth environment is often limited. However, the effective use of IT can bridge the gap between senior management and employees. Although some may be cynical about technology's ability to communicate a vision, IT can help by increasing the frequency of contact, improving the clarity of the message, opening multi-way communication channels, and reinforcing the vision in a timely manner at key organizational learning points. Without the technology, senior managers often have no way of contacting all employees directly. However, the use of corporate videos and publications on intranets can enable employees to retrieve and capture the corporate culture on demand. Intranets can be used to disseminate messages from the CEO and other company executives, introduce new personnel, showcase outstanding employees, circulate company news and success stories, support cross-functional teamwork, create important new feedback channels, and facilitate organizational learning. Digitally documenting the corporate culture can be extremely helpful for new employees, who have missed many of the critical events in the company's history.

Management must understand how IT can be used appropriately to convey a message, since the choice of medium can be critical to communicating effectively. For example, e-mail may be suitable for providing message reinforcement, but it may not convey an initial message as strongly as a live presentation or video conference. An individual phone call from the CEO to welcome a new employee is likely to be more effective than an automated voice mail. Therefore, senior managers should understand the limitations of various communication technologies, so that they can employ those that are appropriate.

8. Developing management skills in executives

Information technology can facilitate executive training and the development of specialized management skills.

The first role involves designing and delivering technology-supported training in the form of self-paced interactive CD-ROMs, videos, Web-based courses and video-conference seminars. A training program for executives can be created based upon the future requirements of the company, so executives get the prerequisite training just before, or as soon as, they need it. This just-in-time approach permits them to use new skills immediately. The training program can be adjusted as needed and aligned with the changing requirements of the organization. The rapid growth enterprise's stages-of-growth model can be used to guide the training program. Regular executive training serves to reinforce the learning organization model by making continuing education the norm at all levels of the company. Secondly, IT can be used to link those with knowledge to those who need it. External mentors serve this role so effectively for high-growth firms that it is

not surprising to find that their use is increasing and that the mentoring role is becoming more formalized. In fact, the business of mentoring high-growth firms is itself a high-growth industry. However, even after an appropriate mentor has been identified, there is still the problem of linking the mentor and the entrepreneur. IT, in the form of e-mail, intranets, video conferencing and Web forums, can link these parties in an efficient, cost-effective way.

9. Communicating with customers

Effective communication with customers is linked directly to customer recruitment and retention. Retaining key customers requires the company to either meet or exceed customer expectations. Web-based tools and other interactive technologies can provide convenient, innovative ways to better meet specific customers' requirements. Similarly, customer service, a key factor in customer satisfaction, can be improved through the use of IT. However these results must be accomplished by focusing on the customer and not the technology. For example, companies that have implemented automated or self-directed, customer-support Web sites have found that they offer only partial solutions, since they do not provide the human contact often required to solve complex problems. However, rather than abandon the technology completely, it would be more effective to integrate IT so that a customer can easily switch from an automated, self-directed system to a human customer-support person, when desired, via a phone or Web-enabled videoconferencing link.

Recruiting new, profitable customers is always challenging, even when a company is able to quantify profitability on an individual customer basis. Data mining can identify clusters of profitable customers that can be targeted or gaps where new segments may exist. These efforts require coordinated planning to ensure that the data needed for quick decision-making are available and of a certain quality. IT can lower the cost of servicing customers. For example, segments that could not be serviced profitably via traditional means may become attractive if serviced by technology-based channels like automatic, menu-driven, self-service systems that are telephone or web-based. Service companies in particular can benefit by providing expert systems that use technology to deliver their basic services, and then provide links to traditional channels whenever the expert systems cannot meet their customers' rapidly evolving needs.

10. Using technology to add value and reduce costs

IT has long been used to collect, manipulate and disseminate information to senior managers and thus increase the efficiency and organizational processing capacity of the firm. Software vendors offer a wide range of applications that focus on aspects of enterprise management, from Enterprise Resource Planning (ERP) systems to Executive Information Systems.

The ability to make timely decisions is critical to the success of a rapid-growth enterprise, and that ability is intimately connected to the availability of information to support decision-making. IT has often provided the link between the various parts of the company, thus facilitating the collection and organization of the required data. However, connecting departments

electronically can result in increased interdependence and more complex decision-making. Fortunately, the processing power provided by IT also permits managers to address this more complex analysis.

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11. Outsourcing and the potential loss of control

Any company operating in a high-growth industry is likely to have at least one system that is mission critical. The very basic data processing needs of these companies is so great that they necessitate the use of IT, thus making these systems critical to the successful operation of the business. An enlightening exercise for management is to try to imagine that the various information systems have been turned off. What effect would that have on the organization? What products or services could no longer be offered? What information would no longer be available? The interconnectedness of these systems and their intrinsic worth to the company's business processes should soon become apparent. While management does not need to understand the technical details of company systems, it is critical for senior personnel to understand the exposure that the company faces with respect to information technology.

12. The business life cycle

It is difficult to identify exactly which stage of its life cycle a high-growth company is in, since these stages tend to overlap. However, lifecycle information can be used to help management predict the firm's short-term and longer-term needs and the actions that should be taken now. Flexibility is key. Management must keep the firm's growth requirements in mind when considering information technology needs. Systems that are installed should be able to grow as the firm grows. Difficult management decisions regarding the advisability of building proprietary systems versus buying off-the-shelf solutions, or incorporating essential system functionality versus 'nice but not necessary' features, must be made so that future choices are not significantly constrained by a short-term outlook.

Conclusion

A rapid-growth enterprise faces many unique management challenges. The management environment is constantly changing and the leadership roles rapidly evolving. There is a need to maintain a strong, innovative culture despite a constant influx of new employees and an ever-expanding product line that must be developed in the face of limited resources. Amidst this apparent chaos lies a unique set of information-technology management challenges. These are clustered around the issues of maintaining flexibility, communicating and the need to make key decisions early in the growth of the company. Information technology represents a critical area that demands senior management's attention. Failure to adequately manage this strategic resource can be disastrous.

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