

# An interview with Dr. Yogesh Malhotra

Interview by Alistair Craven



**Dr. Yogesh Malhotra is the founding chairman and chief knowledge architect of the New York based research and advisory firm BRINT Institute, LLC. He is recognized globally among the world's foremost experts and pioneers of contemporary knowledge management and business technology management innovation practices.**

His recent national policy and corporate advisory engagements of global and national significance include some of the world's largest global corporations, world governments, and the United Nations. He serves on the Faculty of Management at the Syracuse University and has taught as an invited faculty in the Executive Education programmes at Kellogg School of Management and Carnegie Mellon University.

Widely recognized as a knowledge management pioneer, in this extensive interview read what Dr. Malhotra has to say about knowledge, information, technology and chasing success in this field.

**It is probably fair to say that there is considerable confusion surrounding knowledge management and its application in organizations. How would you define the concept of knowledge management?**

**Yogesh Malhotra:**

Knowledge management is more about the pragmatic and thoughtful application of any concept or definition, as it is not in the definition but in real world execution where opportunities and challenges lie. Any definition therefore must be understood within the specific context of expected performance outcomes and value propositions that answer the question 'Why' about relevance of KM. That being said, the following working definition that I had proposed several years ago seems to have found a general consensus among scholars, practitioners, and policymakers across many nations of the world.

*"Knowledge Management refers to the critical issues of organizational adaptation, survival and competence against discontinuous environmental change. Essentially it embodies organizational processes that seek synergistic combination of data and information processing capacity of information technologies, and the creative and innovative capacity of human beings."*

I have treated the above definition as a 'working definition' as its pragmatic understanding requires immersion in specific contexts, such as real time business models, supply chain management, customer relationship management, etc. Many of these context-specific

explanations with industry case studies as well as more general models applicable across multiple industries are discussed in articles accessible at [www.kmbook.com](http://www.kmbook.com).

Two key characteristics of the above conceptualization are noteworthy given that many of the existing simplistic notions often do not take these into consideration. First, the explicit focus on 'Why' – in terms of specific performance outcomes and value propositions – is the key motivator and driver for other parts of the above KM equation. Second, the focus on the performance outcomes, processing, and inputs also requires realizing the dynamic contexts resulting from ongoing changes that may need re-specification of any of the above aspects.

In the realms of corporate strategy and military strategy, my following summary interpretations of KM have gained specific popularity among practitioners and policy makers. KM is: 'Knowing what you know and profit from it' and 'Making obsolete what you know before others obsolete it.'

**You are regarded among the world's most influential practitioners and thought leaders on knowledge management. What first interested you in this area?**

**Yogesh Malhotra:**

My interest in knowledge management seems to have emerged from a confluence of various experiences over the past 30 years or so. I recall having written my first policy focused op-ed piece

related to (what we more recently have called) human capital and knowledge assets about 27 years ago when I was around 14 years old. This article was written in response to a national writing competition organized by a national newsweekly and I ended up receiving the cash award for the winning entry. It was just around the time after I had already become familiar with some of the works of Peter Drucker and Edward de Bono. During those teenage years, I also worked as an Engineer Trainee in Process Engineering functions of multinational automobile and consumer goods processing companies. This served as my earlier introduction to large scale systems and processes that would be central to my later professional life across diverse economies and industries. Right thereafter, as the youngest Executive Engineer with the world's largest Japanese manufacturer of ultra fuel-efficient cars, I was given the responsibility of project manager for process engineering technology know-how transfer between process engineering facilities of Japan and India. Between the mid-1980s through to the early 1990s, my professional career evolved beyond post-industrial manufacturing industries to global management consulting and software development industries. As a global business technology management consultant for a US Big-3 computer manufacturer, I happened to guide global technology strategy and implement large scale systems for some of the world's largest banking and consulting multinationals across USA, Hong Kong, and India.

Around the same time, I also happened to get involved in understanding the evolution of multimedia technologies and related technical standards for educational applications and understanding the global software industry – specifically with respect to copyrights and patents. By the early 1990s, I became fascinated by the 'digital' and 'virtual' possibilities presented by IT-based networked systems. Given the above interests, I accepted the invitation for a doctoral fellowship at the University of Pittsburgh by Professor William R. King to advance my understanding of the business applications of these new information technologies. There I was first introduced to Tom Stewart's early thinking on Knowledge Management by Professor Ralph H. Kilmann when I discussed my perspective of the next generation IT-based knowledge systems with him. That facilitated formalization of my KM research around the themes of IT, innovation, digital enterprise models, organizational learning and management control. This is when the dots between the experiences in the prior life suddenly seemed to connect in the context of making sense of growing failures of IT-based systems and finding their resolution. Hence started my search for a new paradigm of IS (information systems) that would be less susceptible to failures in the newly emerging

strategic contexts of growing complexity and uncertainty. This was pursued in my earlier focus on business technology management that evolved into a broader systems thinking view of knowledge management by mid-1990s.

As mentioned above, I started my professional life in post-industrial manufacturing and process-focused industries and then transitioned to management consulting and software development industries that are archetypes of the information economy. Beyond that transition, I had been trying to understand the links between business practices and management theories related to people, processes, and technologies. This phase seems to have characterized my evolution beyond managerial and applied understanding about the information economy to the needs imposed by the knowledge economy. In my new perspective, knowledge would gain importance as a key product, process, and resource of the digital virtual enterprise model. This notion of knowledge would be distinct from the data-centric and information-centric concepts that have occupied other practitioners and theorists. My specific focus was on understanding the 'disconnects' that were preventing IT systems from achieving anticipated performance outcomes and delivering upon the expected value propositions. Hence, my key questions focused on the various linkages that translated data into specific human-machine behaviours and performance. Therefore, the obvious questions focused on issues such as: how data translates into purposeful meanings, how meanings give rise to choices based on objective and subjective interpretations, how sense making processes drive behaviours and how behaviours result in performance outcomes. Simultaneously, given my interest in environments characterized by complexity and uncertainty, key questions focused on issues such as: how the logic and assumptions underlying the above steps get adapted and modified by machines and humans, and what are the respective strengths and limitations of humans and machines for (efficiency-focused) information processing and (effectiveness-focused) sense making.

These questions were of particular interest given the changing nature of work and organizations specifically in terms of apparent conflicts between managerial control and self-determination of the workers. Most of these issues require a more sophisticated understanding of cognitive, affective and active aspects of human behaviour beyond the mechanistic models popular in recent management theory and practices. Many of these questions necessitated developing an integrative understanding of IT, strategy and psychology which correspond to the three parts of the

technology–processes–people focus commonly used in practice.

**You first became involved with knowledge management 20 years ago. What would you say have been some of the key developments in the discipline since then? How would you assess the current state of the practice of knowledge management?**

**Yogesh Malhotra:**

Many of the above questions that occupied (and still occupy) me in devising the future paradigm of IT-based systems that would be less susceptible to failures reflect on the current state of the practice of knowledge management.

Particularly, they reflect on the current dismal success rate of KM-technologies and possible factors that have been responsible. Such factors relate to the broader practices of management, and the textbooks on management practices used for educating managers. However, to understand the growing disconnects between increasingly 'smarter' and affordable technologies and performance outcomes, one must reflect on the transition from industrial economies to information economies and the ongoing transition from information economies to knowledge economies. Understanding the contrast between the latter two is critically important for recognizing the sources of increasing complexity and uncertainty contributing to systems failures. Importantly, these sources lie more outside the firm rather than inside and can not be adequately managed by an internal focus on efficiencies. Paradoxically, the economies of the bygone era had inculcated in most managers the models of scientific management based on deterministic control. However, in the new era of rapid pace of increasingly unpredictable change, such models of deterministic control would result in failures – particularly of large-scale systems. The challenge lies in trying to control what is uncontrollable. Most of the management practices, texts, and scholarly research done in the prior era had propagated the model of deterministic control. Also, it is my observation that management research conducted during the past decades has become more and more detached from the fundamental reference disciplines such as psychology. The emergence of the digital era with KM at its focus resulted in the 'perfect storm': managers trying to impose greater controls when such controls are either economically expensive to sustain and often even detrimental to the viability of the increasingly 'out-of-control' systems. The increasingly ubiquitous, distributed and intangible (and tacit) nature of knowledge work and the increasing fuzziness of work-life boundaries pose further challenges to the

command-and-control models of the assembly line era of mass production.

However, the current state of the practice of knowledge management, specifically KM focused on 'IT solutions' pitched as silver bullets by self-interested vendors and analysts particularly in the USA has been deplorable. Therefore, for most such IT-centric and management science focused economic optimization models of KM, managerial (and academic) understanding about people (today's knowledge workers and knowledge professionals) represents the weakest link in the IT-performance equation. This observation is supported by observations of other management practitioners and scholars – an example being the debate about bad management theories destroying good management practices in the current issue of the Academy of Management's *Learning and Education* journal.

The mechanistic thinking that served its purpose well during the industrial era seems to underlie many of the current failures of both IT and KM-based systems. The legacy of the industrial economy originated in the efficient deployment of assembly line work starting with Ford's Model T. The legacy of the information economy originated in the calculating machines for accounting built on a deterministic and predictable model of the future. In the above models of deterministic control, goals could be predicted and defined in advance and then input resources aligned to meet those pre-set goals. The 'mechanistic' thinking that treated systems at all levels as machines seems to underlie the IT vendors' and analysts' early efforts at branding any technology having even the remotest link with data processing or information processing as a 'KM' solution. The logic of over-emphasizing routine and structured processing for simplistic decisions was pursued often while mostly ignoring complex decisions characterized by non-routine and unstructured sense-making that are required for solving complex problems. This unsophisticated view of KM seems to underlie IT vendors' early characterization of KM solutions technologies that can get 'the right information to the right person at the right time.' In my prior interviews published in *CIO Enterprise* and *CIO Insight*, I have deconstructed the archaic mechanistic models underlying the above mindsets and these interviews are also accessible online at [www.kmbook.com](http://www.kmbook.com). Similarly, in a forthcoming article in the *Journal of Knowledge Management* special issue, I have explained how the characterization of a real time enterprise (RTE) business model as an IT solution by some analysts was based upon fundamentally flawed and problematic logic explained above.

On a more positive note, at the worldwide level, knowledge management has come to be

regarded more as a discipline of practice that depends not only on understanding technology, but also deep understanding about strategy and psychology. Fortunately, many of the world's governments and world development organizations seem to be taking a more realistic, holistic, and, often grassroots-driven focus on knowledge management. The pace of progress of the KM discipline and practices seems greater in more developed countries of the world, with some European nations spearheading the progress with Western European and North American regions being right alongside or right behind them. The Asian-Pacific regions have been ahead in the propagation of the KM discipline and practices, with the two large economies of China and India behind them – with China having made particularly strong progress in recent years.

Other Asian regions seem to be right alongside or catching up. For instance, in the Middle-East, greater interest is evident in both less and more democratized countries such as Israel and Arabian nations. Australia and New Zealand have been early adopters of knowledge management at policy and research levels across governments, institutions of learning and practitioners are catching up behind them. In the African regions, South Africa has been an early adopter for advancing understanding about KM in regional government policies with also strong interest across various institutions of higher learning. Many other regions of Africa, such as Egypt, Nigeria, and Tunisia, seem to be catching up, however most other African nations seem to be a bit behind the curve. Besides the government and public sectors, progress in application of KM is evident across most industries and professions across the countries of the world. Fortunately, the early IT-hyped focus on KM solutions seems to have tapered off with business users of IT and KM taking a more conservative view of technology-based systems with specific focus on strategy and people aspects.

**You are the Founding Chairman and Chief Knowledge Architect of the internationally-recognized BRINT Institute in New York. Can you tell us about the motivations and ambitions you had when you started BRINT?**

**Yogesh Malhotra:**

In context of the prior questions, it appears relevant to share what the BRINT Institute has been proactively doing about furthering the practice of KM in the above contexts in affiliation with worldwide governments, corporations, and institutions.

During the late 1990s, the BRINT Institute had the privilege of advising the US Federal Government

agencies' focus on best practices as a 'council partner' of the Federal Best Practices (FedsBest) initiative. It also counseled the Government of Netherlands' cabinet minister for the Ministry of Education, Science, and Culture about the future education and workforce policies in wake of the increasing digitization of the nation. Around the turn of the century, BRINT Institute was involved in similar advisory and thought leadership capacities – along with the lead representatives of the G8 nations – with the cabinet ministers, 13 CIOs, and six hundred executives in the Government of Mexico to facilitate transition to a national e-economy. We have made similar thought leadership and advisory contributions in the national Vision Korea Campaign on the forums we shared with other thought leaders such as Ikujiro Nonaka of Hitotsubashi University; Robert H. Buckman of Buckman Labs; and, Charles Lucier of Booz, Allen and Hamilton. These represented some of the early large-scale national KM programmes of world governments and nations in their course of transition to knowledge economies. During recent years, such national policy focused KM programmes have become much more widespread across nations of the world including Latin America and newer regions of Africa. More recently, the BRINT Institute was invited by the United Nations headquarters in New York City to contribute to their world-policy development focus on global and national knowledge societies. This presented an opportunity for understanding various frameworks and models in use for assessing the progress of nations to knowledge economies of the world. I contributed to their focus as the author of the expert paper on measurement of national knowledge assets and as a keynote presenter and participant in the global expert panel. This project also afforded the opportunity for collaborating with seasoned veterans directly involved with world development policies and execution during the past few decades.

As apparent from the above description, the BRINT Institute serves as a research and advisory organization for some of the world's largest economies and most progressive nations. This focus over the prior years emerged first from initially compiling interesting, unique, and different knowledge on the themes at the intersection of management and technology. Thereafter, it evolved into developing seminal research and practices to guide the knowledge management programmes of our advisory clients. Simultaneously, the BRINT Institute has been contributing to the broader global community of professionals through its community engagement and public service activities. It has played a pioneering role in developing the mainstream worldwide awareness and application of business technology management practices and trends through its online ventures. Our award-winning content and community portals –

including the BizTech Network, WWW Virtual Library on Knowledge Management, and, Knowledge Management Think Tank – have been the world's top-ranked content and community portals for business technology management and knowledge management professionals since their inception ten years ago. The BRINT Institute and its contributions have been reviewed in most of the worldwide management and technology publications and won various awards including one of the early 5-star Strategy website award from Emerald's Anbar Intelligence. It is the first world-recognized enterprise to define worldwide trends in business technology management and knowledge management through online ventures with millions of users and registered members from all countries of the world.

***“It is important for the programme champions and other managers to recognize that the human aspects of management deserve much more than lip service. In the final analysis, the success of KM programme implementations could very well be determined by these human factors.”***

As apparent, the central applied focus of most of our activities is on the creation, dissemination, and renewal of knowledge. Hence, the BRINT Institute serves as a base for developing and integrating new knowledge, sharing that knowledge with our worldwide users and members, and facilitating knowledge transfer between our global community members on themes of shared interests. The focus from the beginning has been on charting and defining new areas of knowledge at the intersection of disciplines necessary for effective integrative understanding of people–processes–technology needed for reducing failures of large scale systems. The Institute serves as a means for realizing knowledge through action by practicing and applying new understanding that we gain and then sharing it through our global research, advocacy, and thought leadership practices.

Therefore, the basic motivations in starting BRINT Institute were in fact quite simple. They can be simply summed up as: developing a platform for

understanding the new world of business technology management; applying knowledge thus developed in real world practices; and, helping others understand and apply that knowledge through research, advocacy, and advice.

**You have worked with global giants such as Philips, Intel and British Telecom. Have you found any patterns in large organizations with respect to their approaches to knowledge management?**

**Yogesh Malhotra:**

Interestingly, the common patterns among large organizations seem related to my prior discussion about the effective realization of integrating people, processes, and technology to minimize system failures. All three organizations' focus interestingly was on the weakest link that I mentioned earlier, i.e. on people. Specifically, in their own different ways they were attempting to advance beyond the mechanistic understanding of KM by focusing on specific human aspects relevant to specific stakeholders. Even though the broader contexts differed in terms of what each of the three organizations was trying to achieve through KM (response to the 'Why?' question), the overriding focus on better integration of people and process focus was apparent.

The first organization, one of the world's largest technology-based consumer appliance companies, needed to develop a holistic but pragmatic understanding of KM systems for technology integration in their business processes for facilitating consumer insights and product innovation for global marketing. The world's largest microprocessor company was trying to develop a better 'organizational cultural' understanding of the next generation information technology architectures they needed to help their business customers realize. Such understanding seemed necessary in helping the clients recognize and realize the human aspects necessary for achieving the potential of those technologies. The third organization, being one of the world's largest telecom companies, was more focused on developing more broad-based advocacy of the knowledge management focus to further harmonious relationships with its small and large business customers numbering in hundreds of thousands.

Despite the differences in sought value propositions and performance outcomes, their shared interest in KM was on better defining, realizing, and integrating the people aspect of the three-part (people–process–technology) KM implementation equation. This was realized through more precise human understanding of

their (internal) employees as well as (external) customers and specifically recognizing their roles as knowledge workers who would need to interface and interact with the various information and communication technologies. Key challenges may arise particularly for large organizations in making transition from the well-oiled machine to an agile enterprise. The large size of the organizations may present unforeseen problems arising from the bureaucratic structures that sometimes characterize large organizations. The champions of such KM efforts often need sustained top management support and resources to accomplish their goals. The coordination required for realizing KM execution (through integration of business processes) across various internal stakeholders with potential competing interests may make the process challenging. It is important for the programme champions and other managers to recognize that the human aspects of management deserve much more than lip service. In the final analysis, the success of KM programme implementations could very well be determined by these human factors. These observations are somewhat different from the case of non-profit and particularly governmental and world policy making efforts addressed earlier.

**In his interview with Management First, knowledge commentator Roger Bowes suggested that when it comes to knowledge management, many people "are comfortable in the belief that they're doing enough simply because they have computers, access to the Internet and some databases." What do you make of this statement?**

**Yogesh Malhotra:**

My comments under a prior question are also relevant here. It is important to note that the information archival, storage, and communication technologies by themselves may not imply knowledge management. One may even suggest that in absence of system user motivation and commitment, these technologies may not even represent data management or information management. Often, these systems depend for creation and use of data and information on humans. Hence, we must recognize that access to technologies may not necessarily in itself imply their acceptance by users. Even technology acceptance may not necessarily imply their sustained use or sustainable performance outcomes. Hence, an important skill lies in developing interesting value propositions related to performance outcomes that can bring about motivation, commitment and proactive involvement of users in using, creating, sharing, and applying knowledge. In absence of uptake of these

technologies by potential users, or in absence of performance outcomes of value, there is little if any merit in characterizing them as 'knowledge management'.

An important aspect of any conceptual, theoretical or applied distinction therefore lies in recognizing if any such difference makes a real difference in terms of what gets done or how it gets done. A detailed discussion on this issue is available in my article titled 'Why Knowledge Management Systems Fail' (accessible from [www.kmbook.com](http://www.kmbook.com)) that received the Corporate Computing award from CNet for being the most downloaded article relevant to that practice.

**In your article entitled "Why knowledge management systems fail" you state that the overriding challenge for organizations is to "effectively address the dialectic of knowledge harvesting and knowledge creation." Can you explain what you mean by this?**

**Yogesh Malhotra:**

Knowledge harvesting is about deriving and extracting expected performance outcomes and anticipated value from existing knowledge related infrastructures, processes and activities. Its specific focus is on 'harvesting' the fruits of KM programmes and systems put in place. Given the time and context sensitive notion of value of such outcomes that may be eroded by competitive pressures, consumer trends, or other changing environmental variables, extraction of value has to be pre-conceived right from the get go.

However, without first defining the KM-related infrastructures and processes that would yield the expected performance outcomes and value propositions, harvesting may not be possible. This knowledge creation aspect of KM is amenable to greater structure and automated and / or manual programming and execution. The value propositions may be well defined, the process for converting inputs into the expected values is well understood. Hence this other aspect may be more easily delegated to a mix of low cost programmable technologies and manual activities.

Unlike knowledge harvesting, knowledge creation is about creating new value propositions, means for deriving related performance outcomes, aligning input resources and conversion processes for achieving these new propositions. Hence, this aspect often deals with innovations in business models, business processes and in specification or repositioning of new products or services. Therefore, often it may involve greater uncertainty, lesser predictability and more experimentation with the involvement of

seasoned managers not only familiar with the rules of the game, but also with an intuitive feel of the broader changes in such rules and the game itself.

In some of my prior writings and presentations, I have described the contrast between the above processes in terms of 'doing the right thing' (effectiveness – dependent more upon knowledge creation) and 'doing the thing right' (efficiency – dependent more upon knowledge harvesting). In other articles, I have denoted the two aspects of KM systems in terms of more mechanistic ('tight') models that can harness efficiencies and the more human and organismic ('loose') models necessary for sustained effectiveness. Some others who have further reflected on these models have described the two as the yin and yang of knowledge management.

The following summary interpretations between knowledge harvesting and knowledge creation seem to encapsulate the key difference that matters. Knowledge harvesting with its focus on deriving value can be described as 'Knowing what you know and profiting from it.' In contrast, knowledge creation with its focus on creative destruction and renewal may be described as 'making obsolete what you know before others obsolete it.' As noted earlier, elsewhere I have explained the two aspects of KM in terms of loose-tight systems and processes, wherein 'tight' focus is efficiency driven and rule-based whereas 'loose' focus is on interpretive flexibility depending upon personal sense-making and subjective interpretations.

**Charles Lucier, Chief Knowledge Officer at international management and technology consulting firm Booz-Allen and Hamilton has suggested that – amazingly – up to 84 per cent of all knowledge management programmes fail. What do you make of this statement, and what can organizations do to increase the likelihood of success?**

**Yogesh Malhotra:**

Charles Lucier's observation seems to reflect two issues: first, that knowledge management is increasingly pervasive in diverse business technology management implementation contexts, and second, that there is greater need for conversations such as these to contribute to greater success rate of KM programmes and KM systems.

Knowledge management programmes based upon mechanistic models of command-and-control logic often fail to generate the commitment of users needed for goal oriented proactive application, creation, and renewal for

knowledge. Sometimes, a specific individual or department may be held responsible for knowledge creation, dissemination, and sharing by other individuals and groups which is a difficult proposition for obvious reasons. Often, such programmes may fail if not adequately motivated by specific objectives that contribute to the realization of performance expectations and value propositions at both collective and individual levels. Such failures may also result if the value propositions that specifically address the questions of 'Why' are missing as essential motivators. Similarly, disconnects related to the expected performance outcomes and value propositions relevant to motivations of specific groups and individuals involved may also contribute to such failures.

To increase the likelihood of success, the organization needs to define a clear vision about what are the anticipated value propositions and performance expectations. Specifying how the needs, economic value and personal and social values relevant to different participants and stakeholders are served also increases the potential likelihood of greater pro-active involvement necessary for success. In this perspective, needs are realized within specific strategic, tactical, and operational contexts and there it may be desirable to integrate implementation of KM with the specific business processes and activities as a means for increasing their efficiency and effectiveness. Also, it is important to realize expected value propositions while ensuring that requisite resources and processes are in place to generate such outcomes to begin with. Accordingly, related processes of creating, generating, and realizing value propositions through knowledge creation and knowledge harvesting processes need to be understood along with the commensurate managerial controls and self-controls. For knowledge processes dependent upon volitional behaviours, emphasis should be more on cultural norms and values rather than on enforcement of rules to allow for greater interpretive flexibility and adaptability.

**Finally, what words of advice would you offer to the knowledge managers reading this interview?**

**Yogesh Malhotra:**

To begin with, I think that we need to develop a broad-based understanding about knowledge management as the new model of management of systems, processes, and related dynamics. Such a model for anticipating and managing faster, less predictable and complex changes seems necessary given the demands imposed by the business environment of the knowledge economies as discussed earlier. Some industry observers have characterized such a focus in

terms such as 'velocity of innovation'. However, this discussion clarifies the underlying context and highlights specific actionable strategies, tactics, and plans. More importantly, the above discussion with specific advice about do's and don'ts also clarifies how to understand, recognize, and realize such innovation in specific pragmatic contexts. Furthermore, it develops the basis for also understanding why such innovation – with greater emphasis on learning, unlearning, and learning how to learn – is necessary and must occur at an increasingly faster pace.

While the strategic, tactical, and operational implementations of KM are important, they can be effectively realized by understanding the broad-based and specific motivations that address the 'big question' 'Why'. A clear understanding of such motivations helps not only in specification of performance outcomes and value propositions but also recognition of needed inputs, resources, and processes and relevant risk management strategies. For instance, in some industries, such expected value propositions may be perceived in terms of decreasing half-lives given the ever-faster rate of commoditization. In other contexts, the performance outcomes may be specified, recognized, and realized in terms of the application of specific knowledge for greater speed, accuracy and versatility of decisions, and performance-focused actions.

Despite the availability and access to ever-more sophisticated information and communication technologies, differences in an entity's performance will depend upon learning how to learn and deliver at an ever-faster pace. On the one hand, this process focuses one to develop a more precise understanding of economic value creation. On the other, it also emphasizes better understanding of how human values and personal norms of knowledge workers are important in realizing performance outcomes. This perspective is motivated by observations about increasing failure rates of large scale systems often developed based upon command-and-control logic of inflexible rules. Such rules may have some role in extracting efficiencies in deterministic environments. However, they cannot provide the agility needed for less deterministic contexts characterized by radical and unpredictable change.

The increasing globalization of hypercompetitive knowledge economies therefore requires a new mindset necessary for creating self-adaptive systems based on more sophisticated understanding of human aspects of knowledge work and knowledge workers. The new mindset necessary for creation of fail-safe systems will be based upon an organismic (treating knowledge workers like 'living humans') rather than a

mechanistic (treating knowledge workers like 'thinking machines') system. Important issues relate to a more holistic understanding of human processes of creating meaning, making sense, framing decisions, making choices, and acting in one's and others' best interests. Such understanding per force necessitates advancing beyond the archaic models prevalent in today's management practices and theory that characterize humans primarily as cognitive mechanisms.

Interestingly, a review of best-selling literature on successful practices in one of the most technical, numbers driven, globally popular area of financial markets provides some perspective about managing information in most unpredictable, radically changing environments that defy prediction, pre-determination and control. Despite the recognized importance of fundamental, technical, structural, and human aspects of such practices, it is well recognized that in the final analysis human elements often determine the sustained success or failure in such environments. Interestingly, such environments that defy prediction and control are also characterized by a virtual absence of rules as most rules are defined, applied and used through subjective interpretations by specific players in the game. On one hand, human aspects characterize the hallmark of the necessary focus and discipline required for sustained success in such highly information-intensive environments often characterized by unpredictable, radical and discontinuous changes. However, on the other hand, the same human aspects of hope and fear – regardless of prior history of experience and expertise – result in elimination of more than 90 percent of players within less than a year. Also, most successful practitioners in such high velocity and hyper-turbulent information-intensive environments recognize the insurmountable challenges posed by command and control stereotypes that characterize less information intensive jobs and professions of the industrial economy.

Finally, the ultimate challenge lies in trying to control what cannot be controlled, and therein seem to lie most problems of management failures associated with large scale systems and processes. These problems require a new understanding about management as being different from control. Management has been interpreted as synonymous with control in many management theories, practices, and texts that served managers well for the industrial economies of the prior era. However, the distinction between the two is increasingly crucial for realizing how to manage what you cannot control. More than any other area of management practice or discipline, the paradigm of information systems founded upon the key premise of deterministic control requires a



fundamental re-thinking to effectively serve the needs of knowledge management. Resolution of such problems is critical to the future of societies, enterprises, and governments that are increasingly dependent upon information and communication technologies. However, a sophisticated recognition of such problems and their resolution demands a much more in-depth analysis beyond popular but surface-level discussions such as if IT matters or not. □