"I Think I am, Therefore ……" An Inquiry into the Thinking Styles of IT Executives and Professionals

Abstract

This paper reports the results of a study of the thinking styles of mid-level and senior information technology (IT) executives from the United States. Contrary to popular belief, this population scores significantly lower than would be expected in the "analyst" thinking style and significantly higher than would be expected in the holistic or "idealist" thinking style. We proceed to argue that this misperception is gravely prejudicial to the career interests of the IT executives and limits the contribution that they can make to the corporation as a whole. To correct the misperception, we prescribe three major strategies that IT executives can use, and also, discuss how IT executives can use knowledge of others' thinking styles to be more influential and effective.

1. Introduction

For years, IT organizations have struggled to achieve the respect that many IT executives believe they so rightfully deserve. Many reasons have been put forth for the poor reputation and lack of respect for the IT function: failure to deliver, poor marketing and poor customer relation skills are just some that are mentioned. We believe another prominent reason is that IT executives are not viewed as peers by the rest of the senior management team. Rather, they are seen as narrow, technical, analytical individuals. Research that we have just conducted reveals that this is a misperception. Indeed, our research shows that IT executives have the very thinking styles that CEOs have told us they would like to see in a senior executive, and specifically, in their IT executive.

Several years ago, the authors and a colleague interviewed a number of CEOs and asked them what IT organizations needed to do to be successful [DeLisi, Danielson, and Posner 1998]. This research highlighted the fact that these CEOs felt IT executives did not have the skills they needed to be successful in their jobs. Prominent among these were interpersonal and synthesis skills.

In an attempt to rectify these deficiencies, we developed the Information Technology Leadership Program (ITLP) at Santa Clara University. This intensive three-day program focuses on the executive and general management skills that CEOs had told us IT executives needed to be successful.

In one portion of ITLP, we introduce the participants to the subject of thinking styles, noting that the way we think is instrumental not only in how we make decisions, but also in how we relate to others. We administer the Inquiry Mode Questionnaire (InQ) [InQ Educational Materials 2001] to assess how each of them processes information.

The InQ assesses five different thinking types: synthesist, idealist, pragmatist, analyst and realist. We will describe these in more detail later but it is fair to state for now that the pragmatist, analyst and realist styles match the conventional stereotypes suggested by the titles. The synthesist, on the other hand, represents a divergent style of thinking, able to reconcile patterns of thought which might be contradictory for others. The synthesist does not see these items as disconnected - rather, somehow related. Synthesists tend to be highly creative people, but can appear to be "off the wall" to others. They represent a very small percentage of the population. The idealist is a classical "systems thinker," seeing parts in relationship to a whole. Idealists are concerned with ends, goals and values, need to see the "big picture," and aren't necessarily concerned about the attending detail.

When we began the ITLP workshops, and began using the InQ, we believed that IT professionals were mostly analytical people. This perception was shared by the CEOs we had interviewed and, in fact, has been that of virtually all the participants in the ITLP. However, as we began recording the thinking styles preferred by the individuals to whom we administered the InQ (over 300 IT managers and professionals) we were surprised. The results indicate that IT professionals are predominantly idealistic and pragmatic – not analytical. In fact, more IT professionals use the idealistic and pragmatic thinking styles than would be expected in a random sample of the general population, and fewer use the analytical style. These are really surprising and counter-intuitive results.

In this paper, we will seek to understand the implications of IT professionals being seen as analytical. Are there problems that this causes, and, if so, what can IT professionals do to correct the situation? We will also explore whether the idealistic and pragmatic thinking styles are favorable ones for IT professionals, and, if so, how IT professionals might take advantage of them.

Before we answer these questions, however, we will take a more in-depth look at the results of the CEO study, and investigate previous research that has examined the relationship between IT professionals' thinking styles and their ability to perform in their job. In addition, we will examine trends in the marketplace and ask what the times suggest in terms of the value of respective thinking styles. We will also spend additional time on study methodology, further clarification of the thinking styles instrument, and study results.

2. Characteristics of IT Professionals

Stereotypical perceptions of IT professionals characterize them as introverted, analytical and detail-oriented individuals, a view that frequently surfaces in presentations and the trade press [Hildebrand 1995]. Certainly the professional training that IT professionals receive focuses on analytic skills, and the work of developing and debugging code requires great attention to detail.

Psychological studies of computer professionals using the Myers-Briggs Type Indicator [Buie 1988; Lyons 1985] suggest that the subjects are typically introvert, intuitive, thinking types (ISTJ, INTP, and INTJ). Myers-Briggs theory [Myers and Myers 1980] claims individuals with such types are "analytical and impersonal," "emphasize logic, analysis and decisiveness," "are

conspicuous for patient and willing application to detail," and "are determined to the point of stubborness." That is, the stereotype is justified.

Those studies focused on the lower ranks of the IT organization, but similar characteristics have been reported for senior IT managers. In reporting on a survey of IS leadership in more than 60 organizations, Earl and Feeny [Earl and Feeny, 1994] report that psychometric data show successful CIOs are "strongly goal oriented," "demonstrate stamina and steely determination in pursuit of goals," and have a strong IT background in systems analysis and development.

Couger, et. al., [Couger 1979] surveyed more than 800 mid- and high-level MIS managers and found they had very low need for social interaction (lower level MIS personnel had even lower need). Such motivations are consistent with an introverted orientation and ability to focus on detail.

In our previous study of high-tech CEOs' perceptions of the senior IT executive within their companies [Delisi, Danielson, and Posner 1998] we discovered that the CEOs greatly valued the contributions of IT to the success of their companies but were generally disappointed with the abilities of senior IT executives. These CEOs believed a CIO needed essentially the same set of skills to succeed in his or her position as did a CEO:

- *General management* – an understanding of the business as well as the company's markets; organizational development abilities; and a broad background in various facets of activities essential to the company's success.
- *Strategic sense* - a "big picture" view of the organization; the ability to synthesize; and the ability to take calculated risks.
- *Interpersonal skills* – communication; education; salesmanship; recruiting/hiring/nurturing staff; leadership.

The executives were unanimous in their belief that the senior IT executives with whom they had personal experience, and IT executives in general, were lacking in these skills. This observation was in spite of the fact that the CEOs believed that IT executives have great opportunity to gain a broad understanding of the business because of the pervasiveness of IT within the organization. The CEOs were especially critical of IT executives' abilities to develop a big picture view of the organization and their excessive dependence on detailed analysis. As one noted,

> "I see the traditional MIS person getting lost in the forest of technical stuff … we seem to immediately jump down to the smallest technical things."

The CEOs in our study clearly underscored the importance of synthesis and a "big picture" perspective to not only the CEO job but, also, to the job of the IT executive. *It is important to clarify here that the CEOs' use of the word "synthesis" is not synonymous with the "synthesist" thinking style evaluated through the InQ.* When the CEOs referred to "synthesis," they were describing the ability to look across the pieces of the problem and to recognize the underlying pattern. For them, as for us, synthesis is opposed to getting lost in the details. The InQ thinking style most closely related to the executives' use of the term "synthesis" is idealist.

3. The InQ Instrument

The InQ instrument is a product of InQ Educational Materials, Inc., and was originally developed by Allen Harrison and Robert Bramson [1984]. It is one of a number of instruments that measure individual thinking styles and related variables.

The InQ is grounded in a rich philosophical tradition. Most recently, it builds upon the work of Churchman [1971] who identified five traditions of inquiry basic to Western philosophy, corresponding to the philosophical approaches of Hegel, Kant, Singer, Leibniz and Locke.

We could also say that the InQ owes some of its origins to Carl Jung who, in describing the dispute between Freud and Adler, made the following comment.

> "But how comes it that each investigator sees only one side, and why does each maintain that he has the only valid view? It must come from the fact that, owing to his psychological peculiarity, each investigator most readily sees that factor in the neurosis that corresponds to his own peculiarity." (Jung, quoted in Singer, 1972, p.183)

This "readiness to see according to one's own peculiarity" is really the basis of the theoretical work on the InQ and related instruments, such as the Myers-Briggs [Myers and Myers 1980] and the Herman Brain Dominance [Herman 1995].

We chose to use the InQ instead of the other related instruments for two reasons. First, the InQ looks at how people process information – something to which IT professionals can easily relate. Second, it stays away from personality measurements, such as introversion or extraversion, thereby avoiding the defensiveness that might result from a discussion of one's personality.

As previously mentioned, the InQ assesses five different thinking styles – synthesist, idealist, pragmatist, analyst and realist.

Synthesists are integrators. They delight in finding relationships in things which, to others, have no apparent connection. In a group discussion, they are likely to champion an opposite point of view, and are therefore valuable in avoiding "group think." Synthesists tend to be highly creative people, very interested in change and highly speculative. To others, they may appear argumentative at times, and their pattern of thought may appear somewhat disjointed.

Idealists take a broad, holistic view of things, tending to be future-oriented and to think about goals. They are also interested in social values. We could say that they are "big picture" people. Correspondingly, they tend not to like detail.

Pragmatists have a bias for action. They like to get things done and their approach is often flexible and adaptive. The model of the pragmatist is, "whatever works." Unlike idealists, their solutions do not have to be the most elegant.

Analysts tend to be logical, structured and prescriptive. They prefer predictability and rationality, and will look for a method, a formula, or procedure to solve a particular problem. Analysts believe there is "one best way" to solve any problem.

Realists take an empirical view. Their world consists of what can be felt, smelled, touched, seen, heard, and personally observed or experienced. They are interested in concrete results And, at times, may appear to be too results-oriented. In thinking styles, the realist resembles the analyst. Both are factual and focused on concrete facts, but unlike the analyst, the realist will finally run out of patience and become frustrated with the analyst's endless search for data.

The assessment flows from responses to 18 questions that use a forced ranking format. The questions represent a variety of hypothetical situations, such as "When I read a report I am most likely to pay attention to:" Each question is followed by five possible responses which the individual must rank from five, which is most typical of the individual's style, through one, which is least typical of the individual's style. Each possible response is linked to one of the five thinking styles, and the values of the responses are summed to give a single score for each style. Scores of 60 or higher on any category indicate a peak or preference for that thinking style. Scores of 48 or below indicate a valley or relative disregard for that thinking style. It is possible to have no peaks or valleys, yielding a relatively flat profile that may indicate versatility in thinking styles and an ability to adapt one's thinking style to a given situation.

About half of any population would be expected to have a peak in a single thinking style. Thirty-five percent of people have peaks in two thinking styles, with the most common combinations being analyst/realist, idealist/analyst, and synthesist/idealist. Two percent of the general population has a preference for three styles. About 13 percent exhibit relatively flat profiles, with neither peaks nor valleys.

4. Thinking Styles Study

4.1. The Sample Population

The data reported in this paper were gathered from 19 separate groups, ranging in size from four to 56 individuals, totaling 339 subjects. The vast majority were mid-level or senior IT executives, almost exclusively from the United States (fewer than 10 were living or working outside the US when they took the questionnaire) and a majority from California. This is not a random sample, instead reflecting the nature of the IT management groups with which we have worked for the past five years.

The first group consists of 185 individuals who were participants in the Information Technology Leadership Program (ITLP) workshops that we offer through the Executive Development Center of Santa Clara University. The ITLP is a three-day workshop that focuses on the "soft skills" IT professionals must have at the executive level in order to be successful in their jobs, including executive leadership, relationship building, communication, consulting, strategic vision, sales and marketing skills. For the most part, these individuals self-selected to attend ITLP, and all participants completed the InQ.

The second group is composed of 98 senior level IT executives to whom we administered the InQ as part of our consulting practice. For the most part, these individuals did not self-select to be involved in the consulting experience, and all the participants completed the InQ.

The final 16% of the sample were attendees at a presentation given by the second author at the Giga World conference in Las Vegas in May 2001. Fifty six members of the audience volunteered to take the InQ questionnaire and report the results. Unfortunately, we do not know what percentage of the audience these 56 subjects represent.

4.2. The Results

The InQ questionnaire was administered to each of the sample groups, and the number of individuals who achieved a peak or a valley in one of the five thinking styles was recorded. These numbers were converted to a percentage and compared against the expected percentage of the general population that would show a peak (valley) for that style.

Table 1 shows the percentage of the general population that would be expected to show a peak for each of the five thinking styles, the percentage of the sample that did show a peak, the significance of the difference between the two values as determined by Student's T-test, the range of actual percentages seen across the 19 sample groups, and the standard deviation across the sample groups. Although there is wide variation in the distribution of thinking style peaks across the sample groups, taken as a whole the analysis shows that a significantly larger percentage of the sample had peaks in the idealist and pragmatist styles than would be expected, and a significantly smaller percentage had peaks in the analyst style. It should be noted that the significance evaluation was done with pooled variance, but no results changed when the analysis was done with unpooled variance.

Table 1. Thinking Style Peaks in Sample Population
N = 339

	Synthesist	**Idealist**	**Pragmatist**	**Analyst**	**Realist**
Expected Percentage	11.1%	37%	18%	35%	24.4%
Actual Percentage	10.6%	45%	27%	20%	20.9%
T-test Probability	0.408	0.008	0.316×10^{-3}	0.111×10^{-6}	0.107
Range Across Sample Groups	0% - 22.2%	31.3% - 81.8%	17.7% - 53.3%	6.7% - 43.8%	7.1% - 38.1%
Standard Deviation	6.7	11.8	13.3	9.5	9.3

Similarly, Table 2 shows the same data for thinking style valleys for the general population and for our sample. A significantly lower percentage of the sample had valleys in the idealist, pragmatist, and realist thinking styles than would be expected, and a significantly higher percentage had valleys in the analyst style.

Table 2. Thinking Style Valleys in Sample Population
N = 339

	Synthesist	**Idealist**	**Pragmatist**	**Analyst**	**Realist**
Expected Percentage	43%	12.3%	35.4%	18.2%	24.3%
Actual Percentage	44.8%	8.8%	12%	33.3%	18.9%
T-test Probability	0.286	0.048	0.144×10^{-14}	0.231×10^{-7}	0.024
Range Across Sample Groups	21.4% - 61.9%	0% - 25.0%	0% - 35.7%	7.1% - 50.0%	0% - 41.2%
Standard Deviation	12.0	6.8	8.3	12.2	10.2

Table 3. Thinking Style Peaks in Reduced Sample Population
N = 154

	Synthesist	**Idealist**	**Pragmatist**	**Analyst**	**Realist**
Expected Percentage	11.1%	37%	18%	35%	24.4%
Actual Percentage	11.1%	42.9%	26.6%	19.5%	20.8%
T-test Probability	0.617	0.042	0.613×10^{-3}	0.113×10^{-6}	0.096
Range Across Sample Groups	0% - 22.2%	31.3% - 56.3%	11.1% - 53.3%	6.7% - 43.8%	7.1% - 33.3%
Standard Deviation	6.4	8.2	13.1	11.5	8.4

Table 4. Thinking Style Valleys in Reduced Sample Population
N = 154

	Synthesist	**Idealist**	**Pragmatist**	**Analyst**	**Realist**
Expected Percentage	43%	12.3%	35.4%	18.2%	24.3%
Actual Percentage	45.5%	7.8%	14.3%	36.4%	22.7%
T-test Probability	0.226	0.014	0.644×10^{-12}	$0.5\ 00 \times 10^{-10}$	0.28.8
Range Across Sample Groups	22.2% - 50.0%	0% - 25.0%	0% - 35.7%	7.1% - 46.7%	11.1% - 33.3%
Standard Deviation	10.80	7.0	10.1	14.1	6.6

One might argue that the individuals who have chosen to attend the ITLP, which is advertised as providing the "soft skills" needed by IT managers, are not typical of all IT managers. If we remove that population from the sample we obtain the same results, with one exception, for the 154 subjects that remain. Table 3 lists the peaks for the reduced sample, showing that a significantly larger percentage than expected had peaks in the idealist and pragmatist thinking styles and a significantly smaller percentage had peaks in the analyst style. Similarly, Table 4

shows that the reduced sample has a significantly smaller percentage of valleys than expected in the idealist and pragmatist thinking styles, and a significantly greater percentage had valleys in the analyst style.

5. Discussion of the Results

The significance of this thinking style analysis lies in the disconnect between popular perceptions of IT professionals as highly analytic, introverted people who prefer to focus on detail, and the results that show members of the sample population are less likely than expected to employ an analytic thinking style and more likely to employ an idealist ("big picture") or pragmatist style. Perpetuation of the stereotype impacts the role of IT professionals in the organization in three ways: it limits their opportunities for job assignments that have strategic impact on the organization, it limits their opportunities for promotion to the highest levels of the organization, and it affects their relationships with clients and senior executives. These limits, in turn, affect the success of IT overall.

5.1. Effect on Opportunities

Many of the recent major initiatives broadly affecting organizations, such as business process re-engineering, knowledge management and E-business, demand a view across the business and require leaders who can raise themselves up out of the technical detail and look at the broader picture. The same holds true of the process of strategic planning. If senior executives perceive that IT personnel are predominantly analytical, it is likely that the latter group will be relegated solely to narrow, detailed tasks and will not be given the opportunity to participate in the more valuable enterprise-wide work. It is even more likely that senior IT executives would not be assigned a leadership role in these tasks that require a broader "systems perspective."

Further worsening the problem is the perception that IT professionals have about themselves. Before we administer the InQ instrument, we ask the participants which thinking styles they believe will be most common among the sample group. Almost universally, they say the analyst style will be most prevalent. That is, IT executives themselves buy into the stereotype. This will tend to have a self-fulfilling effect, with IT professionals more likely to volunteer for activities that are detailed and analytical in nature rather than volunteer for leadership positions that require a skill they do not perceive that they have. If the contributions of these IT executives are predominantly of an analytic nature, that reinforces the stereotype and makes it less likely they will be involved in tasks that are truly significant to the enterprise.

5.2. Effect on Promotion

Since CEOs expect senior-level executives to have idealist skills and to function broadly as corporate officers, the perception that IT executives and professionals do not have these skills severely limits their opportunities to be promoted into senior positions. As well, as we have discussed in the previous section, not being selected to lead major corporate initiatives further limits the opportunity for IT individuals to be seen operating successfully in an executive capacity.

Sadly, the IT organization is perhaps the best training ground for general managers in the corporation. This argument is based upon the view that IT has across the business. There is no other function that has a better knowledge of the detailed work of the enterprise and how the pieces interconnect to produce meaningful output. Earl and Feeny [1994] say it quite well.

> "But the nature of IT is such that the CIO gets a view *across* the business….CIOs are well placed to understand the connections and interrelationships between functions and organizational units, and it is by improving these linkages that the greatest opportunities for business advantage often occur."

One could argue that the finance and human resource organizations have equal perspectives. Indeed, they look across the enterprise, but not at the detailed level at which work gets accomplished, for example, how a customer order gets converted into a manufacturing process, and from there, into subsequent logistical, financial and service systems.

5.3. Effect on Relationships

Earlier, we cited research indicating that IT individuals tend to be introverted, intuitive, thinking types. We also said that Myers-Briggs theory suggests these same types are "analytical and impersonal." Our research supports that this is indeed the commonly-held stereotype of IT professionals.

We believe that this stereotype is an inhibitor to building strong relationships with clients and senior executives. Rightly or wrongly, people tend to have certain commonly-held perceptions of analytical people that convey that they are not relationship-oriented. Following is one such description developed from the research done by Robert and Dorothy Grover Bolton [1984].

> "They live life with consistency according to facts, principles and logic. They often seem to be cool and independent, lacking enthusiasm. They tend to be cautious about extending friendship or showing personal warmth and, initially, will be more concerned with how things get done without need for personal involvement."

In the opening lines of their chapter on the analyst thinking style, Harrison and Bramson [1984] give this characterization.

> "For many of us, the initial impression made by Analysts can pose a problem. They tend to appear cool, studious, perhaps distant, and hard to read. Conversing with Analysts can be difficult, especially if you happen to be trying to sell them something. There may be lack of feedback, as if they are hearing you out (they are)."

Others wrongly assume that IT executives would rather lock themselves up in a corner in front of a computer screen, rather than, "go out and have a beer with them." Contrast this with the characteristics of the idealist thinking style described by Harrison and Bramson.

> "Idealists look and respond attentively and receptively. They show a supportive, open smile. They do a great deal of head-nodding. They give verbal and nonverbal feedback

> that serves to encourage you to be open with them, to trust them, to see them as helpful and receptive."

We know intuitively that the latter characteristics described by Harrison and Bramson are those that we like in people with whom we want to build relationships. Our study results show that a large percentage of IT professionals tend to have these idealist characteristics. We are struck, therefore, with the faulty perception that is commonly held of IT people, as a group, and how it compromises their ability to be truly effective. Later, we will discuss how to turn around this false perception.

6. Correcting the Perception

This study shows that IT professionals have a perception problem. Our test results indicate that they are more likely to have the characteristics that CEOs seek in corporate executives and leaders of strategic initiatives; yet, they are seldom given the chance to demonstrate those skills.

It matters little which thinking style a particular IT person has. The reality is that IT people as a group are seen as analysts. In addressing the problem, therefore, we need to first correct the group perception. Later, we will discuss how individual IT people can benefit from their knowledge of the thinking styles of those with whom they interface.

There are three major things IT personnel can do to turn around the perception that senior people have of them as a group.

- Exploit the natural advantages that IT provides you.
- Take advantage of the "systems" label.
- Market aggressively the idealist and pragmatist thinking styles and the benefits they provide the organization.

6.1. Exploit the natural advantages that IT provides you

IT has a number of unique advantages in organizations. We have already mentioned that IT has a view across the business and is an excellent training ground for general managers. Another advantage that IT has is its objectivity. Objectivity is such a powerful asset because of the tendency of organizations to form narrow, self-serving "stovepipes" or "silos." As Ackoff [1994] and others have maintained, this leads to suboptimal performance, as the groups form a stronger identity with their own mission, rather than the mission of the enterprise. One CEO in our study described the advantage of the CIO this way.

> "A bright, observant executive in that role has got to be learning more and having a broader understanding of the business than somebody who's just focused on one of the more stove-pipe, line-oriented functions."

By definition, IT has no particular allegiance to any one business entity. While politically it often gets caught up in the maneuverings of organizations, in theory, it is set up *outside* the functional structure. As a result IT, with its dispassionate view, is in an excellent position to question whether the benefits from IT initiatives flow ultimately to the whole enterprise and not to any single group. The way they can accomplish this is by constantly asking the question, "How does this benefit or impact the whole corporation?"

Another advantage the IT organization has is its ability to reduce complexity in the organization. In 1977, Dr. Philip Anderson, the Nobel Prize winning physicist, introduced the science of complexity by saying, "More is different." [Anderson and Pines 1988, Anderson 1999] What he was referring to was the observation that as you add molecules together to form a cell, you introduce a level of complexity. Similarly, as you add cells together to form an organism, you introduce an additional level of complexity. Eventually, organisms form an ecosystem, and with that, additional complexity again.

In the organization, as we add people together to form a team, we introduce complexity. And as we add teams together to form groups, and later, functions and divisions, the complexity increases. Eventually, divisions and functions added together form the complexity that we call a corporation. In most organizations, this resulting corporate complexity, and the responsibility to somehow manage it, rests squarely at the feet of one individual – the CEO.

IT, with its ability to connect people, groups and companies together across temporal and geographical barriers to conduct work, renders that work less complex. Also IT, with its ability to reduce the transaction cost of doing business outside the enterprise, enables companies to outsource non-strategic activities, while focusing on their core businesses. This greatly simplifies the work of the enterprise. Lastly, IT enables communication, collaboration and community, and thereby provides a channel through which complexity can be addressed when it arises.

A powerful argument that has been missed is that the IT executive, with her view across the business, her ability to reduce complexity in the organization, and her lack of allegiance to any particular function, comes closer to the CEO's perspective than any other executive in the organization.

6.2. Take Advantage of the "Systems" Label

In most organizations, there is only one "systems" function. Historically, this label has been applied to the Information Systems organization.

During the past century, we were heavily influenced by "systems thinking" – the focus on viewing elements as interdependent parts of a whole, rather than as individual elements. As we enter the 21st century, we are struggling to make sense of this new thinking. Even corporations are becoming more systemic in nature. IT organizations can play a leadership role in understanding this development. To date, this has not happened in most organizations, but represents an excellent opportunity for IT organizations in the years ahead.

Figure 1 shows a framework that was originally developed by the MIT Sloan School [Scott Morton 1990], and was subsequently embellished through our consulting work [DeLisi 1990]. This model can be used by IT organizations to highlight the critical role that "systems thinking" will play in the organization of the future, and thereby, to begin to establish a leadership role for IT.

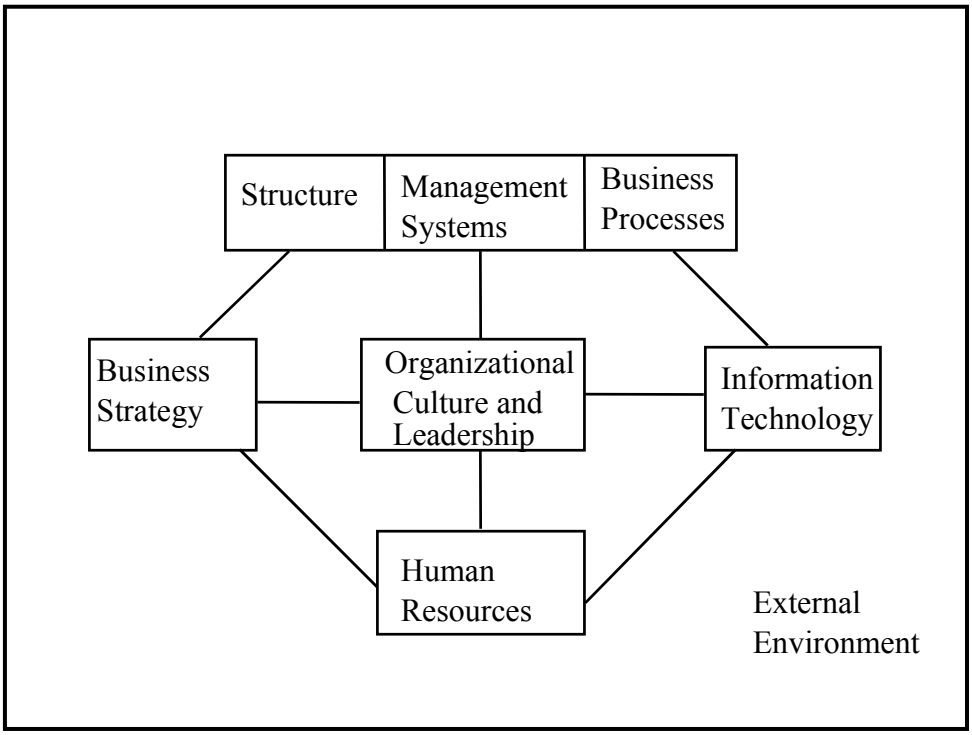

Figure 1. A "Whole Systems" View of Strategic Change

From the model we see that strategic success is vitally dependent upon a number of reinforcing elements: culture and leadership, business processes, organizational structure, IT systems, human resources and management systems (controls, metrics and accountability). The elements serve as either enablers or inhibitors to the strategy and are also interdependent amongst themselves.

Using the value discipline framework developed by Treacy and Wiersema [1995], we see how the above model works. The value discipline model argues that excellent companies excel at one, *and only one*, value discipline: product leadership, operational excellence, or customer intimacy. They go on to argue that the company must be good (achieve industry parity) in the other two.

Summarizing their work briefly, the "product leader" is the innovator, the first to market with the latest and greatest technology or service. Time is their ultimate imperative. The "operationally excellent" company concentrates on the lowest overall cost of ownership for its customers. Here the emphasis is on quality customer service and includes solid reliable products. Examples used by Treacy and Wiersema are Wal-Mart, Southwest Airlines and Federal Express. The "customer intimate" company takes knowledge of the customer to the next level and is able to discern the

needs of their customers so well that it can customize products and services into narrow customer segments. Amazon.com is a good example of this type of company.

From Figure 2 we see that it takes certain types of culture, structure, IT systems, management systems, and process focus to be a product leader. The ideal product leader is an engineering-led company, with a highly empowered and entrepreneurial culture. Its process focus is on accelerating product development and on innovation processes, such as R&D. Organizational structures are highly fluid, team-oriented and non-hierarchic. The IT department develops systems to support rapid time to market and systems that enable innovation. People are rewarded for innovation and engineering excellence and the management systems track metrics, such as, time to market and number of new products introduced. Competitive strength resides in the consistent alignment of these elements.

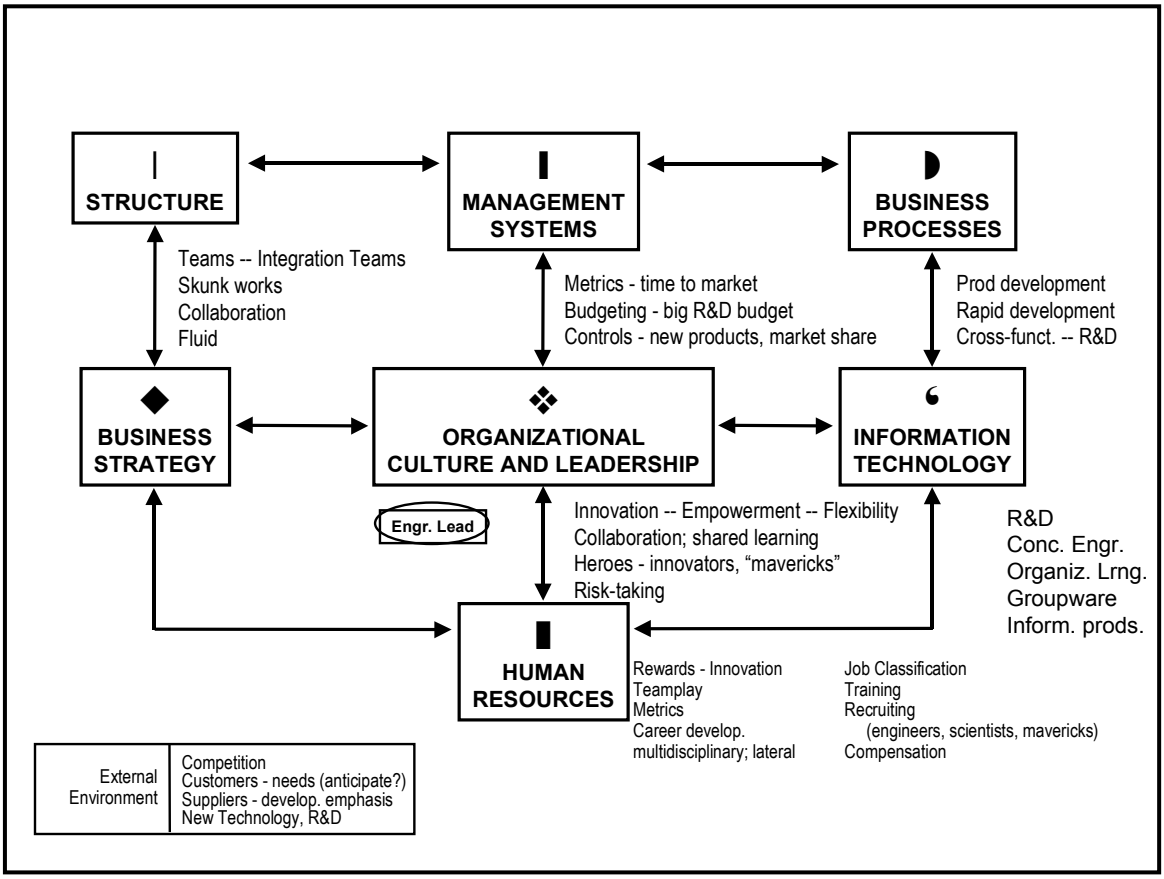

Figure 2. Characteristics of Product Leader Companies

If we were to closely examine each of the models associated with the respective value disciplines, we would observe that each major element of the model is different across the three value disciplines. For example, the culture that enables product leadership is different from the culture that enables operational excellence, and somewhat different from the culture that enables customer intimacy.

The product leadership culture is one that is empowered, risk-taking, and entrepreneurial, and that can sometimes border on being maverick. In contrast, the operationally excellent culture tends to be disciplined, less risk-taking, centralized and top-down. Since the operationally excellent company is driven by cost imperatives, efficiency and cost controls are very important.

Detailed discussion of each of the elements of the model is beyond the scope of this paper. It is relevant, however, to consider how IT executives can use the model to demonstrate to their senior management teams the systems properties of organizations that we have discussed above.

One of the authors recently used the model and an article from the Wall Street Journal [Jaffe 2000] to provide insight into the interdependencies between information technology, culture, strategy and leadership in a working session with a group of CEOs. The article helps us to understand more clearly the central role that IT plays in the above model and to see what happens when the elements of the model are not aligned.

The subject article describes an Army tank commander in a simulated war exercise. As the article points out, "with just a glance at his computer screen, Lt. Devries had a better overview of the battlefield than any of the generals had during the 1991 Gulf War." Armed with this data, and seeing that high brush prevents him from getting a clear shot at the enemy, the Lieutenant asks for permission to move to a better position 500 yards away. His superiors refuse his request and the article goes on to relate the result.

> "The lieutenant did as he was told, even though his computer and his own eyes had given him a better grasp than his bosses had of his odds of making a difference in the unfolding battle. He fired off a couple of blind shots, but his efforts were wasted."

The article goes on to discuss the conflict between the traditional top-down, hierarchical culture of the Army and the empowerment that information technology permits. Leadership, and with it accountability, are also called into question, as one has to naturally ask whether a superior deferring to a tank commander armed with more data, inverts the leadership pyramid, and with what long-term implications. For example, what if the superior defers to the tank commander and it turns out to be a tragic mistake, who is accountable, the superior or the tank commander?

The interdependence of strategy appears quite prominently as well in the above scenario. As the author of the article points out, "One of the biggest challenges the Army faces is training troops in how to use all the data they have on hand. That means teaching them tactics and strategy, traditionally the province of colonels and above."

We have, then, in this short article a microcosm of the contemporary challenge in our corporations. Briefly summarized -- information technology enables new ways of working and new levels of empowerment, but does the culture of the organization enable this behavior and is the leadership of the company willing to accept it? Additionally, how do we prepare the front-line troops with the strategic knowledge they need to operate with the information that they have?

The CEOs were asked to analyze the lessons from the article and to discuss with fellow participants the implications on their own corporations. This exercise was very effective in getting the CEOs to understand the complex dynamics facing their organizations and the central role that IT plays in these dynamics -- how IT must be viewed as part of an organizational system and not just as an independent element. IT could do something similar to educate their senior teams on the system dynamics affecting their corporation, and in the process, begin to position themselves in a leadership role.

6.3. Market aggressively the idealist and pragmatist thinking styles and the benefits they provide the organization

Since IT people tend to score more highly in idealist and pragmatist thinking styles than the general population, we need to take advantage of this capability. The crucial first step in this process is educating key people on thinking styles in general and the purpose they serve. Unless this is done, the commonly-held assumption that all people think alike will prevail. Given this assumption, it will be very difficult to convince anyone that people have unique ways of "seeing the world," and, therefore, represent differing value to the organization.

How can you educate the key people? An "ice breaker," such as an article, or a presentation by an outside person might do it. It is important to tie this to a concrete benefit for the organization, for example, a presentation or article that describes thinking styles as a tool to help the executive team work together more effectively. You might even succeed in getting the senior team to take the InQ instrument.

You might also engage them in a dialogue about the subject. Use the results of the research reported here to introduce the subject of thinking styles and to backup the fact that IT professionals are not as analytical as people believe. Ask to be given a chance to demonstrate what you can do for the organization as a result of your idealist and pragmatist skills.

Once the key people understand the value of thinking styles and how they provide different benefits to the organization, you can begin to market the uniqueness that the idealist and pragmatist thinking styles provide the organization. If you think you are an idealist or pragmatist, or relate to the characteristics we have described for each of these styles, you should have no difficulty with the prescriptions below. However, what if you think you are an analyst, synthesist or realist? In those cases, you might team up with others in the IT organization that have the idealist and/or pragmatist styles, or hire people with those characteristics. Since here we are still trying to correct the perception that others have of us as a group, it matters little whether we or a member of our group has the characteristics.

Marketing is basically about packaging and promoting. To take advantage of the idealist style, write about "systems thinking" and circulate the email or whitepaper throughout the organization. Write or do a presentation on "systems thinking" and its implications for your company. Continue to demonstrate your knowledge and awareness of the "big picture." Be the one who is always asking, "How does this impact the enterprise?" or "How does this impact the whole?" Highlight the interdependencies between things.

Another thing you can do is volunteer to lead major initiatives that take advantage of the idealist thinking style. We mentioned earlier some of the major initiatives that require a "systems thinking" perspective. Business process re-engineering, knowledge management, E-business, and strategic planning all require this perspective. Volunteer for a lead role in these types of initiatives and bring your whole systems perspective to bear. Continue to do this until you are recognized as the person to turn to turn to on major cross-functional initiatives.

For example, consider E-business as a contemporary initiative that IT organizations should lead. Witness what is happening without this leadership. Each function has a different perspective on what E-business is and what it means for the organization. Sales argues that it is about setting up new sales channels. Marketing believes that it is about customer relationship management (CRM) and digital branding. Operations argues that it is all about B2B and the relationship with suppliers. For them, setting up exchange mechanisms is a way to reduce costs. Support people see the Internet as a way to offload support costs. Engineering sees it as a way for customers to engage in self-design. And human resources adds that the values of the company must come through clearly to customers and suppliers in whatever E-Business initiative you undertake. How is a CEO to make sense of all this?

IT can play a significant role in E-business by arguing that they can most objectively represent the interests of the corporation. As we said previously, they stand outside the functions and "have the best interests of the corporation at heart." This objectivity, plus the ability to see that success in E-business depends vitally on getting many functional groups to work together interdependently, make IT the natural leader for this initiative.

In marketing the advantages of the pragmatist style, you will once again fall into good company. From the research done by Bramson, Parlette and Harrison [1985], it appears that many CEOs tend to be dominant in the pragmatist style. This is not surprising given the push for corporations to produce short-term results, which IT organizations have long been criticized for their inability to deliver. Our study now indicates that this is unlikely to be because of lack of aptitude on the part of senior IT executives.

Much has already been written about the need for IT organizations to focus on short-term deliverables and how to do this [Rockart, et al 1996]. We will not repeat this material, but underscore how important it is to do so. A focus on short-term deliverables is critical in turning around the perception that others have of the IT organization and to demonstrate the natural advantages a pragmatist thinking style gives many IT executives.

7. Exploit knowledge of thinking styles to build strong relationships

As we have argued above, for many IT executives their preferred thinking style(s) provide a natural advantage in meeting the needs of the enterprise. In this section, we will highlight a technique that *all* IT people can use – regardless of their *individual* thinking style.

From social psychological research we know that individuals relate more strongly to people who are like themselves [Cialdini 1984]. Not surprisingly then, we relate better to people who appear to think like we do, and therefore, present things to us in our dominant way of thinking. For

example, we have all had the experience of making a presentation to an analytical individual and finding out after the fact that we did not have enough detail, structure and logic to please this individual. Our recommendation, therefore, is to be fully aware of your own thinking style and how that affects your ability to communicate with individuals who have different styles. *In effective communication and in building strong relationships it is more important to present material in a way that favors the receptor's thinking style.* Learn what this means and learn to apply it. There are significant benefits to doing so.

One of our clients was a prime example of the power of using thinking styles in interpersonal communications. She was the CIO of a major healthcare company. In work with her and her management team, we had introduced the subject of thinking styles and had administered the InQ to members of her staff. Some weeks later, in a subsequent meeting with her staff and one of the authors, the CIO remarked that in the intervening weeks she had decided to use the thinking styles on some of the V.P.s with whom she had meetings. "Especially critical," she added, "was a meeting with the Chief Operating Officer. I have never been able to figure him out. This time, I theorized that he was a synthesist and went into the meeting with alternatives, instead of my usual single recommendation. The results were amazing," she said. "It was the best call I have ever had with the guy."

Harrison and Bramson [1984] provide detailed suggestions on how to interface effectively to people with other thinking styles. Here we will offer only the briefest of summaries.

We have said that the idealist prefers the "big picture," and hates detail. Be sure to present idealists with a broad overview before plunging into the specifics of anything you are proposing. On the other hand, the analyst loves detail, structure, order and logic. In this situation, provide as much structure and detail as you can, and enlist the analyst thinker in clarifying and expanding that detail. As noted in our client example, the synthesist likes alternatives. He or she is likely to see the other side(s) of your argument and will want to speculate about it, and you can gain influence by providing some of those alternate sides up front. Pragmatists have a bias for short-term action. To gain their support suggest incremental, experimental steps and be sure to indicate the utility of the expected results. Finally, the realist operates from his/her own world of experience and often values expert opinion. Realists can be encouraged to adopt your ideas and goals as their own, pushing them forward with enthusiasm. They also respond well to a concise, direct approach.

A last suggestion is to be aware of how your thinking style (or styles) shows up in a group, and how that may be particularly valuable in some group situations. One of the authors, who has dominant styles in idealist and pragmatist, recalls being in a group setting with predominantly idealist types. After a period of time he became very frustrated with the rambling conversation and blurted out, "Enough of this speculation about where we want to go and why. We're running out of time and need to get something accomplished." In other words, his pragmatist peak took over in this situation.

He has also experienced the situation of being in a meeting with predominantly pragmatist types. Equally frustrated, he was once again the individual who interrupted the discussion, this time

with, “Wait a minute. Let’s step back before we go off half-cocked and ask what are we trying to do? What are the results we are trying to achieve?” In this scenario, his idealist peak took over.

8. Summary

In this paper, we have reported the results of the thinking styles of mid-level and senior information technology (IT) executives from the United States. The results show that the commonly-held perception that IT executives are analysts is grossly inaccurate. Our results show that IT executives score very low in analyst thinking style, and indeed, have the very thinking qualities that CEOs value highly and wish that they had in their IT executive.

We believe that correcting the misperception will go a long way in “gaining a seat” for the IT executive, alongside the other executives in the organization. Rather than being seen as just a narrow, technical, analytical individual, she will have the opportunity to demonstrate the executive skills that she truly has. Along with this, however, the IT executive must continue to learn the business and continue to broaden herself. In this manner, she will be able to rightfully “take her seat” and contribute to the discussions that truly bring value to the business.

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