

The Renaissance CIO Project:

THE INVISIBLE FACTORS OF EXTRAORDINARY SUCCESS

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As the role of the CIO continues to evolve, the determinants of CIO success remain elusive. Numerous articles and books have been written offering solutions to this problem. Is it placement in the organization's reporting structure, a combination of technical and managerial skills, or something more unique? This article identifies the most important role-specific CIO career success factors based on an examination of the careers of fourteen highly successful CIOs selected by a committee of globally respected peers. (Keywords: Cross functional management, Information management, Leadership, CIO, Collective intelligence)

The current situation regarding the role of the CIO may be characterized as follows: the role remains immature, it has yet to *find* itself; the technological products and services used by CIOs are rapidly changing, as they have been for over fifty years; and the cross-functional nature of the role continues to expand and now frequently includes end-customers (looking “downstream”) and vendors/suppliers (looking “upstream”).

The role of the CIO is an evolving one, having started fifty years ago as simply the supervisor of the early computers that ran very basic payroll, general ledger, bill of material, and other such systems. As computer hardware, software, and telecommunications technology has matured over the decades, so too has the role of the CIO, with the meaning of the “I” in the title often being a source of debate. Does it stand for Information or Infrastructure or Integration or Intelligence or Innovation or some combination of all of these?

The consensus answer provided by many current CIOs is a combination of all of these with the exact combination depending on the specific situation and likely to change with time. As the scope and power of information technology has grown, the once largely non-integrated, manual business processes of the first half of the 20th century have become both highly integrated and highly automated—with a corresponding increase in the importance of the role of the CIO. What once was a fairly technical role with limited impact if things went awry has broadened to a role that oversees essentially all aspects of a company's internal *and external* information flow.

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Today, it can easily become front-page news if a prominent company's "systems" malfunction, such as United Airlines' recent reservation system problem or any of the recent security breaches at large financial services companies. As the CIO's role has grown, so too have the opportunities for some of those CIOs to notably succeed where their peers in other companies in the same industry have had little noticeable impact.

Within this context, why do some CIOs have massive, positive, enduring competitive advantage impacts on their employers while others do not?

What is it that enables some CIOs to change the way entire industries do business? Is it Luck? Timing? Education? Or, is it some combination of other—often overlooked—ingredients that underlies these rare instances of extraordinary success?

"It's amazing what you can do with an inspired team. [I think] the CIO job is the greatest in the world [and expect] the next twenty years will be even more exciting."—Charlie Feld, ex-CIO, Frito-Lay, Inc.

Structured interviews of fourteen widely respected "top of their profession" CIOs suggest the answers to these questions lie in a small set of personality traits, managerial skills, and environmental factors. Since many of the elements of this small set are also found in most successful c-level executives, we have tried to identify (within this set) the two or three elements that are largely unique to the role of the CIO.

It is in these latter two or three elements that the "new news" value of our work is to be found. Our goal here is not to compare CIOs to other c-level executives. Instead, we have tried to discover the special factors that underlie our interviewees' extraordinary success *as CIOs*. We accept as "given" that CIOs must function as business leaders.

The problem that has led to our work here is the rarity of CIO success. Why do a very few achieve extraordinary success while so many of their brethren (estimated at 95% or so of the entire profession)¹ are viewed as simply managing a necessary but often annoyingly expensive service?

As outlined by Bruce J. Rogow,² the role of the CIO is very much at a crossroad. Relatively few companies derive competitive advantage from their IT organization. Many more companies see IT as simply a necessary service whose cost is to be minimized. The growing acceptance of Cloud Computing and of SaaS (Software as a Service) has added a sense of urgency to those who see the continuation of the CIO as a c-level executive as both at risk and, simultaneously, imperative as a powerful enabler of innovative products and services.

The imperative aspect is forcefully demonstrated by the fourteen CIOs whose careers are examined here.

"I like to see people succeed; to see organizations succeed. Would I like to be starting over again? *You bet!*"—DuWayne Peterson, ex-CIO, Merrill-Lynch

Much has been written about the basic roles of the CIO (see Smaltz et al.),³ the various ascending roles of the CIO,⁴ and the separate but similarly ascending, levels of IT maturity.⁵ The separation of these—two focused on the individual and the third focused on the organization—is important to note since our research suggests that the common factors of extraordinary success are to be found only when one takes a broadly integrated perspective, both of the personal and of the environmental.

Thus, we have focused our attention on both the personal characteristics of fourteen highly successful individuals and on the environmental factors that enabled them to seize and achieve opportunities for enduring IT-enabled competitive differentiation.⁶

Framework for Research

In the late summer of 2008, a conversation was held with Max Hopper,⁷ the author of American Airlines' ground-breaking SABRE system, discussing the state of the CIO profession and speculating on why so very few CIOs bring major, positive, enduring changes to both their companies and to their industries. During this conversation, Max suggested this would be a useful topic for a paper. A list was quickly developed of five individuals qualified to serve as a selection committee to identify the United States' dozen or so most successful and highly regarded CIOs.

Participant Selection

The selection committee consisted of:

- Max Hopper, author of American Airlines' SABRE system;
- Jim Spitze, Executive Director of UC-Berkeley's Fisher CIO Leadership Program, an IT-focused management consultant for a quarter century (served as chair of selection committee);
- Bruce J. Rogow, ex-EVP for Research of the Gartner Group, an early member of Nolan, Norton & Co.;
- Harvey Koepfel, Executive Director of the Center for CIO Leadership (an IBM founded global community of 2,100+ CIOs) and ex-SVP/CIO of Citigroup's Global Consumer Group; and
- Naomi Seligman, co-founder of The Research Board.

The cumulative IT-arena experience of this committee was well over two hundred years. They are some of the profession's most widely respected practitioners, consultants, and advisors. As a group, they were aware of the reputations (good or bad—and sometimes in considerable detail) of many thousands of CIOs, often based on personal contact, including working for or with them in various ways.

All of the proposed committee members were contacted and agreed to assist. Naomi Seligman succinctly stated the selection criteria for our “top-of-the-pyramid” CIOs: must be “wicked smart” (exact words of Naomi Seligman); must have had a massive and enduring positive impact on their employer; and must have had a massive and enduring positive impact on their industry. While the first of these criteria may have been said somewhat in jest, the second and third criteria were a useful rewording of our project objective as originally suggested by Max Hopper.

Every selection committee member offered several names of candidate CIOs. At some point, the term “Renaissance CIOs”⁸ was used to describe the growing list of candidates that was being developed. The final list contained thirteen names (later expanded to fourteen) with six backup candidates to contact in case someone on the main list declined to participate.

Data Collection

The selection process itself led to some important data collection. The members of the selection committee were, in many cases, peers, colleagues, business associates, or personal friends of the fourteen selected Renaissance CIOs. The preliminary comments regarding the Renaissance CIOs by the committee members both validated and, in some cases, added strength and *color* to the later comments made by the Renaissance CIOs themselves. Additional validation was confidentially provided by several currently active CIOs who had worked for or with the Renaissance CIOs. In one instance, a Renaissance CIO had worked for almost a decade for the same individual who, many years ago, had been the boss of the lead author of this article. When that individual was contacted, he both strongly supported the selection and provided much added color entirely supportive of what we later learned in our interview of that CIO. One member of the selection committee had worked either for or with four of the Renaissance CIOs and had extensive opportunities to observe them in action.

Our exploratory research was a case study of highly successful CIOs.⁹ There were 14 data points, each representing an individual CIO. The central element of our approach was a focused interview with our primary data collection instrument, a set of twelve open-ended “conversation provoking” questions (see Appendix A) developed over many weeks and many iterations with the very active participation of the selection committee.

To both prepare for the interviews and to check their validity afterward, particularly to balance possibly self-serving responses, five other sources of data regarding the interviewees were used. These were: comments from the Selection Committee (previously noted); press releases; formal case studies regarding their achievements (numerous in one case); books, trade magazine and scholarly journal articles by or about them; and material provided by them directly.

“[I am] proud to have hired and mentored five people who are now having successful CIO careers of their own.”—Pete Solvik, ex-CIO, Cisco

Two-thirds of the interviews were conducted by phone. Interviews with those living in Northern California were conducted in person. Because both authors have had long careers in information technology, we ensured our objectivity via a multi-step process, i.e., individual note taking at each interview, then consolidation of these notes, and finally verification by the CIO being interviewed. When possible, interviews were also recorded.

“No one succeeds by themselves; you must have relationships based on trust. . . . [You must] be willing to suck it up and take it in . . . [you can be helped by your mentors] to “fail faster” and bounce back quicker.”—
Melodie Mayberry-Stewart, ex-CIO, State of New York

The list of twelve questions was sent to each of the candidate CIOs in advance of their agreeing to participate. At the conclusion of each interview, an unannounced 13th question was added, “What next?” which led in several cases to valuable comments regarding the future of the CIO profession.

With the interview questions developed and stabilized, the candidate CIOs were contacted and invited to participate. All agreed to do so. Table 1 lists the fourteen Renaissance CIOs along with their employer at the time of their notable success and their *Special Accomplishment* (see Appendix B for their current status).

The first interview was held on Wednesday, November 11, 2009. The interviewee was Art Money, the ex-CIO (1999-2001) of the U.S. Department of Defense under President Bill Clinton and Secretaries of Defense William J. Perry

TABLE I. The Renaissance CIOs

Renaissance CIO	Employer	Special Accomplishment
Rob Carter	FedEx	Online shipment tracking
Edward G. dePaschalis	Levi-Strauss	Accurate, timely finished-goods inventory data
Charlie Feld	FritoLay	Real-time ordering and tracking
Jack Hancock	Chemical Bank	ChemNet and bank-wide interconnection
Max Hopper	American Airlines	SABRE system
Bill Kelvie	FannieMae	Desktop Underwriter
Dawn Lepore	Charles Schwab	Internet-based stock transactions
Bobby Martin	WalMart	RetailLink
Art Money	US Dept of Defense	Created DoD-wide IT enterprise resulting in increased IT security
DuWayne Peterson	Merrill-Lynch	“Way ahead of the pack” integrated brokerage system
Pete Solvik	Cisco	Web enabled ERP; eCommerce, internet capabilities
Melodie Mayberry Stewart	City of Cleveland	Computer usage for underserved citizens
Carl Wilson	Marriott International, Inc.	One-stop online hotel reservations; internet in guest rooms
Paul Zazzera	Time Warner	IT consolidation for print & online publishing

(February 1994-January 1997) and William S. Cohen (January 1997-January 2001). Art had studied the interview questions in advance and was well prepared for the interview, thus setting a pattern that proved to be consistent with all the subsequent interviews.

The 14th and final interview was held on June 3, 2010. The interviewee was DuWayne Peterson, the ex-EVP (1986-1991) of Operations, Systems and Telecommunications for Merrill-Lynch and, in the late 1980s, reportedly the first CIO to break the “million dollar [compensation] barrier.”

Analytical Process

To facilitate a structured comparison of the CIOs’ careers, thirteen code categories and related detail codes were developed (see Appendix C). After performing the structured comparison, three of the categories displayed *no consistent pattern* and were *discarded as not relevant for career success* comparison purposes: Early Geography—rural or small town or urban or international; Family Income—poor or low/middle or middle or upper/affluent; and Education, with the exception of being a life-long learner.

Formal education, particularly, had no pattern with one of the Renaissance CIOs having just 19 units from a community college and another one having a long list of advance degrees. The unifying educational factor across all of the CIOs was a clearly discernable passion (repeatedly openly expressed) for life-long learning. In view of the rapid technological changes that have almost continuously impacted *and changed* the role of the CIO over the last fifty years since the first commercial use of a digital computer in the late 1950s. This passion for life-long learning is one of our main findings.

Results of the Study

The results are set forth in two sections: surface results and the common denominators of extraordinary success.

Surface Results

Using the detail codes as candidate Common Factors, each of the Renaissance CIOs were evaluated with regard to each code on a 1-5 scale. The results are summarized as follows.

“We have built such a powerful team here. The IT people know the business so well, you can’t tell them from our business partners.”—Carl Wilson, ex-CIO, Marriott International, Inc.

Personal Attributes

To varying degrees, all of the Renaissance CIOs can be described as industrious, self-reliant/confident, honest/trustworthy, practical, a risk-taker (but a prudent one),

a quick learner, and an excellent communicator. Of the six management styles¹⁰—coercive, authoritative, affiliative, democratic, pacesetter, and coaching—the authoritative style predominated.¹¹ Two of the CIOs described memorable career-enhancing changes in their management style from coercive (the least effective) to authoritative (the most effective).

Birth Year

This information was useful in aligning each of the Renaissance CIOs with the recognized inflection points in information technology.¹² This allowed us to examine their careers holistically without being distracted by particular technologies and the changing role of the technology manager. Most of the Renaissance CIOs achieved their first major success in mid-career, between the ages of thirty-six and forty-eight.¹³ Based on research in career entrenchment and resistance to change,¹⁴ this indicates that the Renaissance CIOs were not so entrenched in their career patterns that they had adopted an attitude of risk aversion or resistance to change.

Education

While about two thirds of them earned advanced degrees, there seemed to be no clear correlation between an extensive education and career success. However, there was strong and consistent evidence suggesting that all of the Renaissance CIOs were “lifelong learners.” As one of the CIOs summarized, “I enjoy learning. Good days are days I have a learning experience.” Several expressed a belief that their success to date was but the foundation to more success in the future—based on their ongoing learning experiences.

Parental Influence

While integrity was always mentioned, virtually all of the Renaissance CIOs recalled their parents as strongly supportive of education and as visible, consistent supporters of a strong work ethic as exemplified by their actions. Almost all of the CIOs had meaningful part-time jobs in their youth—and many had fond recollections of those as foundational to their later careers.

“I attribute my success to my ability to sell an idea and my ability to motivate and inspire people to do more than they think they can really do . . . Focus on ‘The Art of People’ and always hire people smarter than yourself. My failures have been my poor hires. People are the most complicated part of the equation.”—Paul Zazzera, ex-CIO, Time Warner

Relationships

There can be little question from both the tone and the content of the Renaissance CIOs’ responses on this topic, that their interpersonal relationships had a central place in their careers. All had important, “valued” and longstanding professional relationships. All actively sought to surround themselves with good/excellent people (and to nurture them and encourage their careers). All had mentors and

most have been and are today mentors themselves. There was a consistent display of enthusiasm when early mentors were recalled, often with up-to-date knowledge of what they are now doing.

The rapidity of technological change and the newness of the CIO profession itself increase the importance of the interpersonal relationships of CIOs. To succeed in an almost perpetually changing environment and a not yet mature professional role, one simply must be able to attract, retain, and surround oneself with good/excellent people—perhaps to a significantly greater degree than true in the older, more stable c-level roles.

Motivators

Most mentioned positive and/or negative feedback as having a valuable (in a few cases “landmark”) impact on their careers. All of the Renaissance CIOs were self-motivated, expressing in some way a strong desire to achieve demonstrable, constructive accomplishment. All can be described as “compulsive completers” with a strong “bias for action.”¹⁵ At multiple points in all of their careers, when an obstacle arose, they successfully worked their way around it. All of them accepted large challenges (sometimes of their own creation) and then worked with energy and intellect to successfully achieve them. All of them displayed a willingness to take on meaningful projects and move them forward to successful completion. For example, Max Hopper with SABRE, Bill Kelvie with Desktop Underwriter, and Dawn Lepore with internet-based stock trading.

Career Actions

Virtually all of the Renaissance CIOs achieved rapid recognition and/or promotion along with greatly expanded responsibilities—often early in their careers. Although difficult to quantify, all seem to have had short learning curves, at least for those things that were important to their career progress.

Most seem to have been at the right place at the right time. While some attributed this to luck (which was likely true in some instances), there was a clear and consistent pattern of wise choices regarding both employer and boss. All displayed an ability to recognize obstacles and to take related risks; and similarly to recognize opportunities and to take related actions—in a timely, well-considered manner.

Not all career actions of the Renaissance CIOs were positive. When questioned about career missteps, all offered some examples (sometimes humorous). In several cases, these missteps were key learning experiences and led to early-career improvements in leadership skills, effectively re-starting potentially stalled careers.

The Renaissance CIOs were not afraid to manage their own careers, taking timely action when a career choice proved somewhat less than wise. Career opportunities came from two directions: seizing a new opportunity laid-out before them; and seeking a new opportunity when the CIOs concluded that their current employment had reached a dead-end. In several cases, the CIOs were comfortable in their positions, but moved to new companies under the pressure of CEOs who

clearly knew the CIOs by reputation and were relentless in pursuing them. These moves resulted in productive, long-duration careers.

One of the Renaissance CIOs earned a well-deserved excellent reputation early in his career at a medium-size company. He was pursued by the largest firm in the same industry, moved to that firm, and spent the rest of his highly successful career there. He served as the CEO of all of the firm's overseas' operations for about a decade prior to his retirement.

Another of the CIOs joined one of the largest firms in his chosen industry but quickly discovered that its approach to the use of IT was unlikely to succeed and that he was unlikely to succeed in getting them to change that approach. He was offered a similar position at an even larger firm in the same industry, moved to that firm, and—with one short interruption—spent the rest of his distinguished career there.

Regarding the Renaissance CIO's reporting relationships, findings by Banker et al. suggesting that the CIO should report to either the CEO or the CFO depending on the strategic positioning of the firm seem to confirm the popular position that the CIO must report to the CEO if the CIO is to have a major influence on corporate direction.¹⁶ This is counter to the position of others who have stated that the reporting relationship is not as important as the idea that the CIO needs to be acknowledged and treated as part of the leadership team.¹⁷

Our findings support the latter, as the Renaissance CIOs reported to various C-suite executives, i.e., CEO, COO, and CFO. In all cases, the Renaissance CIO was considered a member of the leadership team. Additionally, the strength of CIO engagement with the leadership team is an important enabler of CIO capabilities.

All of the CIOs commented, using various terms, about the existence of a "level playing field" regarding their relationships with the rest of the executive team with the openness of these relationships enabling them to "sell" (often the exact word used) their sometimes expensive visions.

Regarding Max Hopper at American Airlines, the developmental cost of his proposed SABRE system equaled that of two airplanes at a time when the airline needed those planes. His access to and relationship with AA's management team enabled him to "make his case" without regard to the corporate hierarchy—and he succeeded. Later, and for several years, SABRE's profits exceeded those of the airline itself.

According to Schmaltz, "The stronger the relationship of the CIO and the Top Management Team (TMT) the better for improving CIO capabilities for success. Formal membership in the TMT confers CIOs with an opportunity to appreciate the strategic business and IT issues facing their firm, develop the needed political savvy and enhance their communication capabilities."¹⁸

It is clear from our research that all of the Renaissance CIOs benefited from their relationships with other C-suite executives, as evidenced by many of them moving upward in their reporting structures: Bobby Martin to CEO of WalMart International, Max Hopper to Chairman of SABRE, Inc., Jack Hancock to de facto Chief Administrative Officer of Wells Fargo Bank, and later at PacBell to a role that included IT, operations, and marketing. Most of the other Renaissance CIOs retained their CIO title but were given progressively expanded roles.

Outside Influences

As previously mentioned, there was consistent evidence of wise choices of both employer and boss—and of taking timely action when such choices proved somewhat less than wise. Rambus¹⁹ identifies three factors that enable a CIO to move to COO:

- **The Right Company:** A CEO who understands the value of a cross-functional executive capable of delivering complex change to the enterprise; and a willingness by the CEO to invest in change. From our study: Ed dePaschalis at Mervyn's, Jack Hancock at Chemical Bank, and Dawn Lepore at Charles Schwab.
- **The Right Industry:** For example, one in which there is increased competition and pressure on margins. From our study: Jack Hancock (banking), Paul Zazzera (magazine and newspaper publication), Carl Wilson (hospitality), and Ed dePaschalis (retail).
- **All of the "Essential Skills":** Business leader, L2M2 (Learner, Listener, Mentor, Motivator), Business Savvy, Communications, Technology, Operations, Risk Management, Skilled Entrepreneur.²⁰

While "luck" was frequently mentioned, working for growing companies that had CEOs who promoted enabling cultures and supported innovative initiatives, certainly helped many (most) of these CIOs. For example: Melodie Mayberry Stewart at City of Cleveland, Pete Solvik at Cisco, Charlie Feld at Frito-Lay, and DuWayne Peterson at Merrill-Lynch,

For some of the more recent Renaissance CIOs, their success was clearly linked to the arrival of the second IT inflection point, "The Information Era,"²¹ when computing arrived on the desktop, coupled with a third inflection point (as recognized in our coding approach), the commercialization of the Internet. Thus, success for these CIOs can be linked more to "timing" than to "luck." The following associates our CIOs with their related Inflection Points:

- **Inflection Point 1, The Computer Era, 1960s-1970s:** Jack Hancock, Max Hopper, and Ed dePaschalis.
- **Inflection Point 2, The Information Era, 1980s-1990s:** Charlie Feld, Bobby Martin, and DuWayne Peterson.
- **Inflection Point 3, The Internet Era, 1990s-2000s:** Carl Wilson, Dawn Lepore, Art Money, Pete Solvik, Bill Kelvie, Melodie Mayberry Stewart, Paul Zazzera, and Rob Carter.

It would be a stretch to say that an Inflection Point itself materially contributed to a Renaissance CIO's success. It would perhaps be more accurate to say that the Inflection Points (as a group) provided new *environments* within which the Renaissance CIOs saw innovative opportunities where the great majority of their peers did not. The Inflection Points have, however, materially impacted the role of the CIO. The first created it. The second expanded it. The third (where we are now) has firmly established the role as one that can have major, enduring competitive impact for those enterprises that see its potential.

Significant Contribution

IT governance research is replete with comments insisting that IT organizations be aligned with corporate goals.²² These comments typically suggest that IT must act as an enabler of corporate strategies and goals. Our research suggests that this imperative be refined to state that strategic IT initiatives should directly impact the end-customer, which was the case with all of our Renaissance CIOs.

All of the Renaissance CIOs had a major visible project that was recognized as a “game-changer” accelerating their career progress. We view this as a *central finding*. In all cases, this project was intended to have, and did have, a direct and positive impact on the end-customer. Examples of these end-customer projects include:

- Ed dePaschalis’ much improved finished-good inventory system for Levi Strauss enabled them to greatly increase their on-time deliveries and to speedup those deliveries, and consequently to increase their end-customers’ (the retail stores) satisfaction level.
- Max Hopper’s on-line passenger airline reservation system, SABRE, for American Airlines enabled the world’s travel agents (AA’s effective customers) for the first time to easily and swiftly obtain up-to-date flight and reservation data.
- Art Money took into consideration his end-customers, an example being the sailors on U.S. Navy ships. When standardized shipboard IT was deployed, the results were shortened decision making time (from hours to seconds) using IT to enhance collaboration for planning and execution, thus saving dollars, time, and lives.

Priorities

Most stressed “family.” Looking backwards, several went on to mention achieving a better “balance” between “family” and “career” if they were to do it all over again. There was a consistent underlying emphasis on the importance of enduring relationships—with early bosses, early employees, and an expansive network of longstanding and highly valued professional friends and associates.

While perhaps secondary in importance to their “game-changing” projects, these relationships were clearly *enablers* of the success of those projects

Besides this pattern of enduring relationships, often dating back to the early days of their careers, there was also a consistent note of respect and appreciation for the help and guidance these people had provided. All of the Renaissance CIOs expressed in varying ways a belief that:

- While they had worked hard to achieve success, they hadn’t done it all by themselves. They all expressed a strong belief in the importance of *teams*, particularly *cross-functional* teams. Many suggested that a key, possibly central, element in their success was their ability to build and manage such teams. All of the CIOs clearly placed *people* strongly at the top of the people-process-technology hierarchy.

TABLE 2. Summary of Interview-Derived Data

Category	Details
Personal Attributes	Industrious, self-reliant/confident, honest/trustworthy, practical, prudent risk-taker, quick learner, and an excellent communicator; management style adapts to circumstances, authoritative style most common; an ability to think conceptually + broadly + positively without seeing barriers (“why not” reasons) but rather a positive path forward (“why” reasons)
Birth Year	Great success achieved in mid-career, regardless of the technology involved.
Education	A “life-long learner”
Parental influence	Integrity, education, work ethic
Relationships	Important, longstanding, “valued”; had mentors, now serving as a mentor
Motivators	Desire to achieve demonstrable, constructive accomplishment; compulsive completer
Career Actions	Rapid recognition/promotion; short learning curve; right place at right time but selected employer & boss wisely; accepted missteps and learned from them
Outside Influences	Growing company, supportive CEO
Turning Points	Major visible project with an external customer focus
Priorities	Family, balance, enduring relationships

- They had an often quite long list of people who had helped them. The length of these still active relationships is extraordinary, forty-three years in one case, twenty-nine years, twenty-two years, and fifteen years in three other cases.

The above sets forth the “surface” results of the fourteen interviews (see Table 2 for summary). However, the very fact that these often quite busy people agreed to participate in this effort and to frequently do so with some enthusiasm, deserves comment. All of these individuals were, during their interviews, candid, open, obviously “comfortable in their own skins,” (see Goffee and Jones²³ regarding the need of leaders to be true to themselves, and George et al.²⁴ regarding the importance of *authenticity*) as well as being excellent *world-class* communicators. Virtually all of their comments were validated by the five other sources listed earlier with that validation often adding strength to the more self-effacing comments of the interviewee.

“Successful people build teams.”—Jack Hancock, ex-CIO Chemical Bank, Wells Fargo Bank, PacBell (now AT&T)

Upon reflection, the most important data derived from these fourteen interviews may not be found in the interview notes but, rather, in the overall *tone* of the interviews themselves. Not once did we feel that the interviewee had tried to “paint an overly rosy picture” or gloss over a misstep. Four of the CIOs (Max Hopper, Charlie Feld, Pete Solvik, and DuWayne Peterson) are “Icons” of the profession and their careers have been widely documented. Others were well known to members of our selection committee. If anything, the CIOs tended to be harsher on themselves than the press reports. It was also clear that—while demanding of excellence—they

were uniformly trustworthy and might even be enjoyable people to work for (if you met their high standards).

The Common Denominators of Extraordinary Success

Besides the obvious “wicked smart” criteria which all of the interviewees met, they also all possessed in varying but generally large measure, the following “soft” attributes:²⁵

- an integrative mind (the ability to see and connect the dots);
- focus and vision;
- a trusting and trustworthy nature;
- an extensive network of friends, mentors, and protégés;
- emotional intelligence; and
- leadership (in contrast to management) skills and an *enabling* nature

The first three of these possess certain aspects that contribute more to the success of a CIO than to that of other c-level executives. The last three attributes are common to all c-level executives, a viewpoint supported by Warren Bennis²⁶ and De Janasz et al.²⁷ regarding friends and mentors; by Grant and Hutson²⁸ and, more extensively, by Daniel Goleman²⁹ regarding emotional intelligence; and by Warren Bennis³⁰ regarding leadership.

An Integrative Mind (the Ability to See and Connect the Dots)

All of the Renaissance CIOs were desirous of seeing (and participating in) the whole picture *in a cross-functional manner*. They wanted to see *all* of the dots, not just those within their traditional domain. Far more importantly, they wanted to be proactively involved in developing the means to connect those dots, to see the potential interconnections, the existing disconnections, and, thus, the inherent opportunities—where others might see obstacles.

Achieving such cross-functional opportunities requires the marshalling of cross-functional personnel and skills, in effect marshalling the *collective intelligence*³¹ of the enterprise. This is a rare ability and is a distinguishing characteristic of every one of the Renaissance CIOs. They all work well and comfortably within a context of collective intelligence and have used it to energize and change, for the better, both their companies and their industries—thus earning them their positions at the top of the CIO pyramid.

A few examples:

- In 1995, Dawn Lepore was given a brief demonstration by her “new technology evaluation team” of some middle-ware software connected to a then new thing called the Internet. They had added a primitive front-end that permitted the entry of data that could then be transferred to a database for subsequent processing. She saw the implications for internet-based stock transactions, energized the collective intelligence of her employer, Charles Schwab & Co., and within a few months was offering to Schwab’s customers the world’s first internet-based stock transaction service.

- In 1972, Max Hopper had just recently joined American Airlines after a short time at United while an employee of EDS. He understood the growing capabilities of large mainframe computers and the simultaneously growing capabilities of telecommunications networks. Working within a supportive cultural environment, he saw the possibility of an on-line passenger airline reservation system. It was to be a very large undertaking, likely to cost the equivalent of two or more large passenger planes. As with Dawn Lepore, Max worked with the collective intelligence of his employer (working with people from sales, finance, airline operations, and others) to create the world's first on-line passenger airline reservation system—a system that grew so rapidly that at one time it accounted for more net revenue to American Airlines than did the company's actual airline service.
- In 1981, Charlie Feld was hired by Frito-Lay to do two things: turnaround an IT organization “in crisis” and provide the IT leadership needed to implement a Hand-Held-Computer (HHC) project that was central to the company's micro-marketing strategy. He first completed the turnaround and then, in late 1984, took on the stalled HHC project, which changed forever the industry's relations with its customers. In 1984, PCs were still “new” and the idea of actually placing a “computer” in a delivery truck was almost unthinkable—but that is what the HHC project did, and far more. The HHC moved promotion and product mix decisions from the corporate headquarters to the actual salesperson. Centralized data entry that would have taken 1,200 or 1,300 keypunch operators was now a simple byproduct of a salesperson recording (into the HHC) his/her call notes. Where before the HHC, sales volume forced a standardization of Frito-Lay/customer relationships, with the HHC each relationship could be (and quickly was) customized. Where sales growth had been 15%-20% in the 1970s, it had slowed to 3%-4% in the early-1980s. When Feld and his team marshaled Frito-Lay's cross-functional (product development, marketing, sales, finance, and IT) collective intelligence in the mid-1980s, the company resumed its industry-leading growth. Quoting Feld: “The machine that had churned out 18% growth year after year had hiccupped. We were doing the ‘right’ things but they weren't working. The aircraft carrier that we had built had to be refitted as a PT boat,” and that is what the HHC project accomplished.³²
- In 1993, Pete Solvik joined Cisco as its IT Director. As the company grew from less than \$500 million to \$23 billion in only eight years, his IT organization grew from 30 people to 2000 employees plus 1000 contractors. Pete had an intense belief that IT can, should, and must be a strategic and competitive asset—and worked with considerable vigor to put that belief into practice. He developed a very firm IT architecture and an “Acquisition Integration Department” that enabled Cisco to close-out the systems of an acquired company on the day of acquisition—and did seventy of them! Under his guidance, IT became a respected contributor to company growth and industry domination. By the late-1990s, order entry was online via the internet and was handling 95% of all of Cisco's incoming orders. At that point, Cisco had the world's biggest e-commerce engine and the company was growing 2x/year—much

of that growth facilitated by IT. The company became recognized as a leader in internet adoption, yet John Chambers (its CEO) was concerned that Cisco be able to maintain its competitive edge. Solvik was enlisted to drive the process for harnessing the collective intelligence of the management team. His own team became consultants to the functional leadership, assisting those who were having issues with moving to the internet model. In August 2009, “Chambers made ‘Leadership in Internet Capabilities in All Functions’ one of three corporate goals.”³³

*Focus and Vision*³⁴

The point of focus of all of the Renaissance CIOs was beyond their employers’ corporate boundary. They consistently sought to achieve a demonstrable and enduring positive impact on the “external customer.”

A Trusting and Trustworthy Nature

Virtually all of our Renaissance CIOs remarked about the importance of teams and of getting the right people on them. Several saw their ability to build effective teams as a skill that contributed materially to their success. Being both trusting and trustworthy are central elements of that skill.

As Waterman observes,³⁵ in the absence of mutual trust, empire-building and political intrigue can permeate a company and “getting a team to work for the good of the company [in such a toxic environment] is nearly impossible.”³⁶ Two of our Renaissance CIOs abruptly left prominent *Fortune 500* companies when they found that excessive empire-building and corporate politics were effectively precluding needed IT improvements. Both of these CIOs found their greatest success after these career actions.

Emotional Intelligence

While Goleman suggests that emotional intelligence is required of all c-level executives,³⁷ the career histories of the Renaissance CIOs and their specific comments during our interviews suggest several emotional-intelligence-related *soft* motivators: a need for creative challenges; opportunities to learn; opportunities to do a job with extraordinary quality; and opportunities to challenge the status quo.

Regarding the “learnability” of emotional intelligence, Goleman describes an instance where an executive who was a poor listener became, after some coaching, a very good listener and, later, a far more successful executive.

One of our Renaissance CIOs described a very similar scenario—from which that individual emerged as a far better leader and went forward, afterward, to notable career success. In our CIOs case, it wasn’t an inability to listen but, instead, an excessive brevity when describing something (possibly quite important) that she wanted done. Even requests for clarification were responded to tersely—to a degree that her personnel simply avoided asking. Eventually her boss, the Vice-Chairman of the company, became aware of the problem and encouraged her to use the same executive coach that he was using. Over a period of about six months, she went from terse brevity to open, courteous thoroughness. As she described it, at the

end, her people seemed to enjoy coming to her since she would now give them “the whole story, warts and all” and things got done faster because of far fewer “tear it down and rebuild it” events caused by too brief and unclear instructions.

Conclusions

We have identified the following three “unique to their role” success factors in our Renaissance CIOs:

- must be a life-long learner;
- must be able to build and motivate cross-functional teams and, thereby, marshal the *collective intelligence* of an enterprise; and
- must be able to conceive and implement a *customer-focused* game-changing project that impacts the enterprise’s end-customers in a major and enduring manner.

In addition to these three—and the obvious need to select one’s industry, company, boss, and employees wisely (and correct any related mistakes quickly)—our data suggests the following five secondary but still essential success factors:

- learn your employer’s business “inside and out”;
- develop your emotional intelligence;
- become trusting and trustworthy;
- learn from an extensive network of friends, mentors, protégés; and
- develop a compelling, achievable vision.

Then, become an effective, cross-functional team leader and achieve your vision.

The one central “out in the open and obvious” skill that all of our Renaissance CIOs have possessed in abundance is their ability to build highly effective cross-functional teams, teams that go on to achieve extraordinary things often far beyond what any individual team member might have thought possible. We have learned from the Renaissance CIOs that customer focus is the *sine qua non* of their success. While being a life-long-learner is essential and while being able to build effective cross-functional teams is also essential, it is what each Renaissance CIO has done with that knowledge and that skill for the benefit of their employer’s end-customer that has positioned them at the top of the CIO profession.

Dedication and Acknowledgements

This article is dedicated to the memory of two extraordinary individuals who passed away while it was being written: Don Fisher, the co-founder of The Gap, whose belief in the importance of IT as an enabler of competitive advantage led him to endow the Fisher Center at UC Berkeley, and Max Hopper, the much cherished and much missed ex-boss of this article’s senior author.

This article could not have been written without the superb cooperation of all of the Renaissance CIOs. The time they devoted to preparing for their interviews,

participating in those interviews, and then carefully reviewing and correcting our interview notes is the foundation on which this work rests. They deserve and have our sincere thanks.

Additionally, we must thank the Selection Committee for both their guidance and assistance in identifying the candidate Renaissance CIOs and their helpful suggestions with our interview questions, the open-ended nature of which proved so useful.

Finally, we thank those who have reviewed and helped us get this paper ready for publication. Their constructive suggestions led us to a far more useful and readable result.

APPENDICES

Appendix A

The Twelve Question Interview Script

- 1 Please tell us about your background (family, siblings, economic situation as a child, education, etc.)
 - 2 Tell us about your early career? Please describe any particular incident or situation that was a turning-point for you in your career. What did you learn from this?
 - 3 If you had/have a mentor or mentors assisting you in your career, at what point in your development? If you can, please identify the individuals who served in that capacity?
 - 4 At what point (and why) did you come to believe that you could make a real difference as a CIO?
 - 5 What best prepared you to be able to make a difference: your mentors, experiences, education, readings, other? Why?
 - 6 What do you consider to be your greatest success? To what do you attribute your success? What surprised you in terms of your success or impact?
 - 7 How would you describe your job during your most successful period? Your most unsuccessful period?
 - 8 What environmental factors do you think were most important to your success?
 - 9 Tell me something about your missteps. How did you recover from them? What lessons did you learn?
 - 10 How much of what you accomplished can be attributed to luck? Timing? Willingness to take risks?
 - 11 Knowing what you know now, what would you do differently if you could do it over again?
 - 12 What are the 2-3 things that are most important to you in your life—both professionally and otherwise?
-

Appendix B

The following is the current status of each of the Renaissance CIOs:

Renaissance CIO	Current Status
Rob Carter	Unchanged, top IT executive at FedEx
Ed dePaschalis	Retired
Charlie Feld	Chm. of The Feld Group
Jack Hancock	Retired
Max Hopper	Deceased
Bill Kelvie	Chm. of Overture Technologies
Dawn Lepore	CEO of Drugstore.com
Bobby Martin	Retired, serves on several Boards
Art Money	Retired, Chm.of IT Adv. Bds. for FBI and NSA
DuWayne Peterson	Angel investor; serves on several for-profit & non-profit Boards
Pete Solvik	Managing Director of Sigma Partners
Melodie Mayberry-Stewart	CEO for Tri Group Holdings
Carl Wilson	Retired, serves on several Boards.
Paul Zazzera	Principal – VP IT Strategy and Assessment, Warburg Pincus

Appendix C

Code Categories	Detail Codes
Personal Attributes	PA1=Industrious/Ambitious, PA2=Self-reliant/confident, PA3=Trusted, PA4=Unselfish/Altruistic, PA5=Risk-taker, PA6=Communicator, PA7=Integrative thinker (sees the whole picture), PA8=Courageous & Resilient
Early Geography	Later discarded as not relevant
Family Income	Later discarded as not relevant
Birth Year	B30=1930s, B40=1940s, B50=1950s
Education	Later discarded as not relevant [only being a life-long learner proved relevant]
Parental Influence	PI1=Integrity, PI2=education as important, PI3=Work ethic
Relationships	R1=Many longstanding & "valued," R2=Surrounded self with good people, R3=Valued teams, R4=Valued mentors
Motivators	M8=Compulsive completer, M9=Accomplishment oriented ("Do Something")
Career Actions (causes)	CA5=Sought personal growth opportunities, CA6=Recognize obstacles/take risk, CA7=Recognize opportunity/take action, CA8=Right place/right time
Career Actions (effects)	CA1=Rapid recognition/promotion, CA2=Greatly expanded role and/or responsibilities
Outside Influences	OI1=CEO backing initiatives (choose your boss), OI2=Inflection pt. #1: Back-end computing becomes mainstream/ubiquitous, OI3=Inflection pt #2: Computing power moves to the desktop, OI4=Inflection pt #3: The internet comes of age, OI5=Company growing (choose your company)
Significant Contribution	SC1=Major & visible project, SC2=Significant idea caused a paradigm shift, SC3=End customer focus
Priorities	PP1=Family, PP2=Career/reputation

Notes

1. Max Hopper (author of American Airlines' SABRE system) in a telephone conversation with the author, Summer 2008. Estimated 4%-5% of all CIOs might be described as notably successful.

2. Bruce J. Rogow, in a presentation at a conference of the Fisher CIO Leadership Program, "CIOs: Leaders of Change, Drivers of Innovation." Institute for Business Innovation at the Haas School of Business, University of California, Berkeley, CA, October 2009.
3. Detlev H. Smaltz, V. Sambamurthy, and Ritu Agarwal. "The Antecedents of CIO Role Effectiveness in Organizations: An Empirical Study in the Healthcare Sector," *IEEE Transactions on Engineering Management*, 53/2 (May 2006): 207-222.
4. Natja von Urff Kaufeld, Vimbayi Chari, and David Freeme, "Critical Success Factors for Effective IT Leadership," *Information Systems Evaluation*, 12/1 (2009): 119-128, available online at <www.ejise.com>. This article draws on previous research to develop an "extended IT leadership growth model," which identifies four key, ascending roles of IT leadership: technologist, enabler, innovator, and strategist.
5. For an assessment of the developing software capability maturity model, see T. Bollinger and C. McGowan, "A Critical Look at Software Capability Evaluations," *IEEE Software*, 8/4 (1991): 25-41; T. Bollinger and C. McGowan, "25th Anniversary Update: A Critical Look at Software Capability Evaluations," *IEEE Software*, 26/5 (September/October 2009): 80-83. For subsequent versions of the model to integrate multiple iterations, see D. Butterfield, "STC Quality SIG Article: Definition and Summary of CMMI," *Society for Technical Communications*, November 2005-2008; Mark C. Paulk, Bill Curtis, Mary Beth Chrissis, and Charles V. Weber, "Capability Maturity Model, Version 1.1," *IEEE Software* 10/4 (July 1993): 18-27.
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8. Phrase first coined by Richard Nolan, "Web-Enablement," *Teaching Note*, HBS no. 301-144, June 4, 2001. Nolan was describing Pete Solvik, CIO of Cisco. Robert Johanson, Richard Nolan, and David Croson, "Expert Voice: Creating the Renaissance CIO," <www.cioinsight.com>, February 4, 2002. Subsequent articles expand on the original definition.
9. Robert K. Yin, *Case Study Research: Design and Methods*, 3rd edition (Thousand Oaks, CA: Sage Publications).
10. Daniel Goleman, "Leadership That Gets Results," *Harvard Business Review*, 78/2 (March/April 2000): 78-90.
11. We drew this conclusion from the interviewees' descriptions of working relationships, responses to "in trouble" projects, and so forth. We did not perform a separate study correlating individual management styles with the extant management style definitions.
12. See W.R. Synott, *The Information Weapon: Winning Customers and Market with Technology* (New York, NY: John Wiley & Sons, 1987). The two eras or inflection points are The Computer Era (1960s-1970s) and the Information Era (1980s-1990s); the former exemplified by the back-office system becoming ubiquitous, and the latter exemplified by the emergence of computing power on the desktop (the PC) along with the commercialization of the Internet. We separated the Internet out as a unique inflection point.
13. Two of our Renaissance CIOs had already established themselves in successful roles prior to the major initiatives identified with their "renaissance" success. In both of these cases, the original success occurred in mid-career.
14. For example, see Ralph Katz, "Managing Professional Careers: The Influence of Job Longevity and Group Age," in Michael Tushman and Philip Anderson, eds., *Managing Strategic Innovation and Change: A Collections of Readings*, 2nd edition (Oxford: Oxford University Press, 1997); R. Katz and T. Allen, "Investigating the Not-Invented-Here Syndrome," in A. Pearson, ed., *Industrial R&D Strategy and Management* (London: Basil Blackwell Press, 1981).
15. This is Principle No. 1 of the eight principles of business excellence. Tom Peters and Robert Waterman, *In Search of Excellence: Lessons from America's Best-Run Companies* (New York, NY: Warner Books, 1982).
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29. Daniel Goleman, "What Makes a Leader?" *Harvard Business Review*, 76/6 (November/December 1998): 93-102.
30. Bennis, op. cit., pp. 39-40.
31. Thomas W. Malone, Robert Laubacher, and Chrysanthos Dellarocas, "The Collective Intelligence Genome," *MIT Sloan Management Review*, 51/3 (Spring 2010): 21-31.
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