

› White Paper



Analytics and the Modern IT Organization

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Every individual, every executive, every organization – and now, with the Internet of Things (IoT), every object in your organization – is on a digital journey. This is putting more pressure on IT organizations to manage more and take on more responsibilities. At the same time, business professionals are increasingly tech-savvy and, through the use of cloud-based tools, able to initiate technology projects of their own.

One of the more immediate needs for IT is to find its footing on analytics. This is a less familiar place for IT to play, but with big data, IoT and other high-visibility data initiatives, the need for analytics is moving from an analytics team to a more broad-based effort that transcends boundaries.

Is IT equipped for this shift? There is a rich ecosystem of academics, journalists and researchers covering IT. These are IT people writing for IT people. Similarly, much has been written about analytics. This is content created by analytic people writing for analytic people.

Unfortunately, very little has been written about analytics *and* IT – specifically how these two tribes interact in the modern workplace. A hole exists between these two groups.

This research series seeks to begin to build a bridge across the gap of mutual incomprehension¹ that exists between these two incredibly important disciplines.

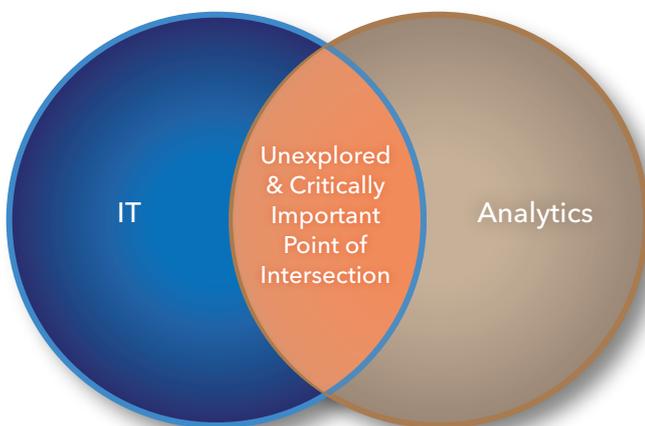


Figure 1. The intersection of IT and analytics is a training ground for modern IT practices.

¹ In 1959 the novelist C.P. Snow delivered a lecture in Cambridge suggesting that intellectual life had become divided into two separate cultures – the sciences and the humanities – that Western society was irreconcilably split between scientists and poets: “Between the two a gulf of mutual incomprehension – sometimes (particularly among the young) hostility and dislike, but most of all lack of understanding.” bbc.co.uk/programmes/b01phhy5.

² Stuart Hall, David Held, Don Hubert, and Kenneth Thompson (editors), *Modernity: An Introduction to Modern Societies*. Cambridge, UK: Polity Press, 1995.

Futurescapes asked C-level executives to describe where their organizations were going technologically; how the role of the CIO was evolving; the structure, staffing and strategy of the IT organization of the future; and the attitude, aptitude and action plan of the enterprise regarding analytics. We specifically asked executives:

1. Where do you think modern IT is heading?
2. What does and what should a modern IT organization look like?
3. Where will the IT organization of the future be spending its time?
4. What elements define the modern CIO?
5. What differentiates a modern CIO from a traditional CIO?
6. What is and what should be the role of the CIO and the IT organization in selecting a digital endpoint?
7. What is and what should be the role of the CIO and the IT organization in preparing the enterprise culturally for the ride?

IT and the Concept of ‘Modern’

The word “modern” is thought to have first appeared in English in the 16th century, referring to the argument between two schools of thought – the Ancients and the Moderns. In his book *Keywords: A Vocabulary of Culture and Society*, mass media scholar and cultural historian Raymond Williams notes that, “The majority of pre-nineteenth century uses [of the word modern] were unfavorable.”

Claiming things to be “modern” – up-to-date, breaking with tradition – was, at one point, thought to be a bad thing and a dangerous idea that required justification. It is only in the 19th century and “very markedly in the twentieth century” that there is a strong movement the other way, “until ‘modern’ becomes virtually equivalent to ‘improved.’”²

Today, just about every discipline (e.g., art, economics, literature, theater, politics, marketing and finance) extensively and intensively make use of the word “modern.” The only discipline where the word “modern” is conspicuously absent is IT.

Reinserting 'Modern' Into the IT Vocabulary

It is perhaps paradoxical that IT, the discipline responsible for creating, managing and deploying the myriad technologies that form the backdrop of the modern world is, for the most part, not perceived as being modern. Indeed, IT and enterprise IT practitioners are often considered embarrassingly out-of-date.

For many next-generation knowledge workers, entering the workplace often feels like entering a computer science museum. Sixty-one percent of the CIOs in the Global 2000 are *not* perceived by executives and employees inside their company as being ahead of the curve.

What Defines the Modern IT Organization

So a majority of big-time CIOs are thought to be dinosaurs. How can they save themselves from extinction? The answer lies in the things that define a modern IT organization.

There are a few ways to define what makes companies modern - and how they are establishing processes that will keep them current in the future. These elements are common across IT groups that have learned how to respond to business problems with rapid, meaningful and visionary solutions.

Speed Defines the Modern IT Organization

Speed defines the modern age. In *Future Shock* (1970), futurist and author Alvin Toffler summarized the widespread belief that the world was changing at a rate faster than that which many of us - indeed, most of us - could keep comfortable pace with. Part of being modern means mastering acceleration versus being victimized by it.

IT is being pushed toward ever-shorter delivery times. It's being asked to deliver things a lot faster. The modern IT organization cannot be perceived as being slow, or as being behind. IT has to position itself not as being an anchor to the past but rather as an accelerant to the future.

The pace of life has accelerated. In the commercial sector, the average time that a company spends on Standard & Poor's 500 index has declined by 80 percent, from 75 years in the late 1930s to 15 years in 2000. The "champ" (i.e., top-of-your-game, praised by Wall Street and covered favorably by the business press) to "chump" (i.e., bottom-of-the-stack, facing shareholder

lawsuits and very unfavorable media commentary) cycle has compressed. To cope, many companies seek to create differentiated analytics capabilities.

Organizations are forecasting more frequently, with an eye toward capturing different versions of the future. The increased frequency of generating forecasts has led many firms to automate forecast and planning processes.

McDonald's runs one of the world's best managed end-to-end, idea-to-deployment innovation programs. This includes test kitchens, alpha labs, beta tests, field tests, simulations and video ethnographies. With these capabilities, senior management continues to shorten the strategic window from concept to deployment. For example, in 2007 "innovators" were charged with coming up with alternatives in a three-year time period. By 2012 that was shortened to 18 months.

Two observations emerge from even the most perfunctory observation of the modern environment:

1. Things are accelerating.
2. Acceleration is not uniform.

Time Zones Define the Modern IT Organization

The CIO at one manufacturer is managing a transition of significant portions of its product base from passive physical objects to connected info-products. This could be via sensors used to collect, analyze and act upon information. The executive shared the challenges of trying to insert multiple time zone thinking into a very operational culture:

▶ I go and try to talk to my business about things two years from now. They look at me with wild eyes and bark, "I am trying to make the quarter here! I wish I could have your job where I could just sit around and dream about stuff that could happen a year or two from now. I have to go deliver my numbers." It is very hard to engage - with the exception of small R&D groups. Nobody in the company thinks that far ahead.

Like most CIOs, this one is trying to practice “classical” IT that focuses virtually all effort on the NOW time zone. And NOW has to be taken care of. It just can’t take up all your time.

When a modern CIO – such as Ina Kamenz, now CIO and Senior Vice President at Eli Lilly and Co., formerly in strategic IT roles at Thermo Fisher Scientific, Tyco and Marriott – is dropped into a new organization and told “have at it,” what would she do? She would probably do what she did when she airlifted in to turn around Tyco or when she was hired to “fix” IT at Marriott. She would embark on a multiyear program designed to stabilize the core, manage the data and connect with customers and suppliers.

At Thermo Fisher Scientific, a \$10 billion multinational organization, it took Kamenz eight weeks working with three external “coaches” to answer three critical questions:

- What are the key business processes?
- How important was each business process to the overall success of the enterprise?
- What was the health of the IT applications supporting that business process?

With that information, Kamenz and her team were able to engage in productive dialogue with the lines of business regarding what the key issues facing the enterprise were moving forward. Six surfaced. They then engaged in creative problem solving around how best to move forward with these options:

- Build a new system.
- Buy a package.
- Outsource.
- Other.

Once you have the answers, you can start to determine what your goals are for each area, and what speed that initiative will take. There will be “now” projects and projects that get you ready for the future. A constant dialogue with stakeholders among the business units serves as the “speedometer” for this effort.

Anticipation Defines the Modern IT Organization

The CIO at a consumer durables company explains his strategy for staying modern and escaping the gravitational pull of the “now:”

▶ I stay modern by looking way beyond my functional role or my industry for where things are going. My house – I am doing a smart house DIY. I am doing the work myself. I am playing with different things. When I think “how can I contribute to technology advances in our products?” it is not because I am out studying other consumer durable companies. I am studying Apple. I am studying Google. I am studying where is venture capital going? What kind of startups? Where is the next Google or Apple kind of thing? How do we understand that?

To be truly modern, it’s not enough to be of one’s time. To be a modern IT organization means being *ahead of one’s time*.

Glenn Wegryn, Principal at Analytic Impact LLC, led an operations-focused analytic organization at P&G which brought advanced, rigorous analytical approaches to hundreds of projects around the world, influencing billions of dollars in decisions. The organization was recognized for its achievements as a three-time finalist for the Franz Edelman Award.

Wegryn believes that both the analytics and IT groups within an organization share this objective. Neither wishes to fall behind. As he points out, modern analytics is all about “being able to anticipate and keep ahead of the business.”

Thomas Friedman, The New York Times columnist, wrote at the end of the 2009 Davos conference that, “Everyone is looking for *the guy* – the guy who can tell you ... exactly how we get out of this mess and exactly what you should be doing. But here’s what’s really scary: *the guy* isn’t here.” The person who can tell organizations not only how to get out of their current mess, but also how to avoid getting into the next mess and the mess after, is not one person or one department. That kind of foresight emerges when IT and analytics play well together.

Treating Data as an Asset Defines the Modern IT Organization

Each executive interviewed was asked if there was an explicitly stated official endpoint to their organization's digital journey. Fifty-seven percent had a digital endpoint everyone in the enterprise could point to and say, "Yup, that's where we are heading."

Of the organizations having an explicitly stated endpoint to their digital journeys, 84.8 percent had an endpoint that involved mastering analytics. Figure 2 shows the breakdown across industries.

John Kessler, the CIO at Motorists Insurance Group, shared with colleagues the no-nonsense, risk-adjusted approach his organization took to creating analytical mastery. The IT group often heard that it couldn't make business decisions due to poor-quality or inconsistent data.

What we ended up doing is - we stopped. I brought together leaders from all the functional areas from all the different companies. I brought them together and said, "We want each of you to write a user story - one simple fundamental business question they cannot answer/one fundamental business problem that they cannot solve. Keep it short. Don't try to solve the world's problems. Don't try to boil the ocean. Maybe two to three sentences."

All those leaders went back and wrote their stories. We reconvened in one group as one integrated team. We shared every single story. As we did that we were getting the value of having an integrated team. We were getting the value of having a shared understanding of what everybody's business problems were. We got a shared understanding that the story of the person next to me isn't totally different from mine and that maybe the data needed to solve their problem is not so different from the data I need to solve mine.

Industry	Have Explicit Digital Endpoint	Digital Endpoint Is Analytic Mastery
Consumer Goods	100%	100%
Education	55%	25%
Energy	67%	87%
Entertainment	25%	100%
Financial Services	79%	80%
Health Care	100%	100%
Hospitality	10%	100%
Manufacturing	56%	45%
Media	50%	50%
Professional Services	67%	100%
Public Sector	12.5%	100%
Restaurants	67%	100%
Retail	30%	100%
Technology	100%	100%

Figure 2. The endpoint for an organization's digital journey can vary by industry.

Once they understood that there were some common problems, Kessler and his team went back with a solution. It was based on promoting the value of data as an asset, which became a starting point for the initiative. They were then able to push for and hire a chief analytics officer, who had a team of ETL developers, business analysts, consultants and other staff members who represented all functional areas.

What this CIO understands is that it's important to show that the data itself - not the platform or the application - has the power to make change. By decoupling the value of data from its "receptacles," you can focus on what data can lead to better analytics. And what rules you need to put in place to make things better.

'Boundarylessness' Defines the Modern IT Organization

Gary Beach, author of *The US Technology Skills Gap: What Every Technology Executive Must Know to Save America's Future*, worked at IDG, the publisher of Computerworld, Network World and CIO Magazine. With that background, he observed that for IT to be truly modern,

There can be no boundaries. We have grown up in an era where IT starts here and ends there. That world has gone away. It is no longer parochial. Modern IT has no boundaries.

Many organizations have trouble with the concept of boundarylessness. One CIO noted that many IT organizations had an important obstacle that prevented them from being truly modern. It's the obstacle of "territory," where different business units view applications, data or other IT assets as "theirs" and not a shared resource.

This "territorialness" can lead to land mines. As Gary Beach observed, these can include "personal relationships, change management and organizational dynamics. We focus externally on improving a person's life through better sleep, and not on non-value added stuff like, 'Well, that's my department's job and not yours.'"

Stuart Scott is SVP and CIO at Tempur Sealy International Inc. Previously he was the Chief Information Officer for Microsoft Corporation where he was responsible for the IT, Quality, and Risk Management organizations. He agrees that the obstacle keeping many IT organizations from being truly modern is what he calls "territorialness." In his mind,

The land mines moving forward include personal relationships, change management and organizational dynamics. We focus externally on improving a person's life through better sleep, and not on non-value-added stuff like, "Well, that's my department's job and not yours."

Viewing shared data as an asset is an important element of becoming a boundaryless IT organization. By focusing on the elements that are common across the organization, IT can then focus on the infrastructure behind the applications and work with business analysts on business process mapping and automation.

John Deane has held senior IT roles for Abercrombie & Fitch, Wendy's International and Caremark Rx. His perspective from more than 30 years in IT has shown him that technology groups are always on a "digital journey." He clusters these journeys into three epic migrations:

1. **Generation 2.0 Computing to Generation 3.0 Computing.** The blocking and tackling associated with automating core business processes: "Implementing supply chain, order management, financial systems. Core value chain stuff."
2. **Discovering that enterprise IT didn't have to build all systems from scratch.** Understanding the vast and disparate things that go on when one is building purely custom systems. Asking the question, "Why are we building yet another accounts receivable system?"
3. **Advanced analytics (currently ongoing).** The realization that we had seven to 12 years of data passively spinning around led to harvesting some value, which led to better hindsight, which led to forecasting and other predictions, which has finally ended in today's transformative step: advanced/prescriptive analytics.

Relevance Defines the Modern IT Organization

Modern CIOs focus on why people bought the technology in the first place, not on what Daniel Barchi, CIO and Senior Vice President at Yale-New Haven Health Services Corp. and CIO at the Yale University School of Medicine, calls “bright shiny object syndrome.” Truth be told, once people get over the novelty, they don’t really care about computers. They care about what computers can do for them.

Barchi repeatedly tells IT executives who want to be CIO someday that:

I don’t get jazzed about blinking lights and whirling discs. I have nine data centers. What really excites me, where I want to spend the majority of my time, is getting executives to think beyond just the computer and/or device and really focus on how we are using this type of data. I am pleased to say we are starting to do the right things.

In a seminal Harvard Business Review article³ Ted Levitt pointed out that people, in point of fact, do not buy products; they buy the benefits that products deliver. Thus people shopping for shovels are not really shopping for shovels; they are in the market for holes, or the dirt displacement the implement enables. Someone buying cosmetics is not buying chemicals; they are buying hope.

This seems forehead-slappingly obvious, but the No. 1 cause of value destruction and the most frequently made mistake of those charged with creating strategies to pursue future technologies is to focus too much on the features and functions of the technology being considered and not enough on how the technology meets mission requirements.

Empirical research indicates that most organizations do technology maps all wrong. They start with the technology. The human’s objective is where technology map making should begin. Maps should start with the traveler – where does the business want to go and is the current vehicle (i.e., existing technology base) sufficient for the task?

Gary Cantrell, formerly the CIO at Textron and now CIO at Jabil, explains the intense business focus he has embedded in his team:

We talked about a different way of doing business. We talked about the customer’s expectation of speed, efficiency and results. We talk a lot more about business outcomes. When our internal team starts talking about “Here’s my coding. This block is done,” we start completely shifting gears and say, “Look, the fact that you did your job is really nice but completely irrelevant. Until we get the business outcome we are after, nobody cares.” We still tell them that is really great that they delivered their part ... but we need to deliver the outcome before we call it a success.

Product Development and Support Defines the Modern IT Organization

CIOs have been erroneously categorized as machine tenders or “big app” wranglers. IT can do much more than this.

John Deane laments that “very little credit is given by the C-suite to IT being able to conceptualize.” Deane seeks to banish the decidedly not-modern mindset that “IT is there to take orders and then climb back into their hole.” All this is changing. Modern IT is playing an exciting and growing role in new product development – thanks to analytics.

Stuart Scott is very excited about what the future holds: “I think the major investment going forward will focus on enhancing IT’s capabilities and skill sets to improve the sleep of more people every night all around the world.”

³ *Marketing Myopia*, 1960.

He continued by drawing an analogy to how technology is improving one of the most basic human needs: sleep.



The mattress has been improved upon for over a century through electrical, mechanical and chemical engineering. Adjustable bases can lift your head and feet, and some even have massage features. The challenge is that a good night's sleep can be as unique and personal as a fingerprint. By adding computer engineering to current and future sleep technologies, your sleep platform could adjust automatically throughout the night to fit your individual needs. Digital sensors combined with learning algorithms can turn data into information and information into action to consistently give you the best sleep of your life.

Modern Is a Perpetually Moving Target

When Mozart's *Don Giovanni* premiered in Prague in 1787, it was viewed as "modern" music. When *Don Giovanni* played in Toledo, OH, in 2013, it was considered "classical." Modern is a moving target. Modern science is more precise and valid than Victorian science. Today anyone practicing Victorian science would be incompetent, and anyone practicing Victorian medicine would be subject to malpractice suits. The same thing can be said about IT, only with a very much abbreviated time frame. Any IT organization practicing IT the way it was done five years ago borders on malfeasance.

Marv Adams, the former CIO at Ford Motor Co., Fidelity Investments, Citigroup and now Chief Operating Officer at TD Ameritrade, believes that IT, now that it touches everything and everybody, can no longer really be thought of as just one thing. Tasks such as maintaining a global ERP system, patching productivity software, establishing machine-to-machine communication between sensors, negotiating data management policies with European governments, embedding ethics in the code governing unmanned vehicles, and countless others could be included in the genus IT.

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