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The Center Cannot Hold: How Leading Firms are Managing the Changing IT Boundaries

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Abstract:

The IT world is going through rapid and drastic changes with the emergence of new business models and, with them, the changing of internal and external organizational boundaries. A recent CIO roundtable composed of the CIOs of some of the leading corporations in Greater Detroit discussed the impact of these shifting boundaries on IT issues including outsourcing, careers, and employee development. Contemporary IT depends on external vendors, yet these relationships can be complicated. Employees are increasingly mobile, and the skillsets that firms demand are changing significantly. The panelists suggested that firms should focus on developing and engaging employees despite the risks of turnover.

Keywords: CIO, IT Boundaries, Current CIO Issue.

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I. INTRODUCTION

*Turning and turning in the widening gyre
The falcon cannot hear the falconer;
Things fall apart; the centre cannot hold. – W.B. Yeats*

In April 2014, a roundtable discussion was held with a dozen CIOs from a range of industries in Greater Detroit, Michigan. This was the seventh such meeting held in the past eight years. The CIOs discussed, without an audience, issues of interest to themselves and shared their insights and advice. These have been challenging years. Through recession and recovery, through downsizing and rebuilding, through outsourcing and a new trend toward insourcing, the participants—old hands, survivors, and newcomers—have focused on their own issues and solutions.

The focus of the most recent roundtable centered around the definition of what an IT organization might be and what its role is becoming as organizations change their own structures both internally and with relation to both competitors and strategic partners. Chief among the concerns were weakening organizational boundaries and managing human resources in a changing organization. Because this summary brings the consensus view, quotes brought here represent that consensus. In most cases, the other CIOs expressed the same opinion as the ones quoted.

This year's roundtable participants included CIOs from five automotive suppliers (one with annual sales of around \$2B, two around \$3B, and one each around \$4B and \$20B). Two CIOs represented financial and insurance companies, one a subsidiary of a much larger firm, and one privately held. One CIO was responsible for the IT for a large leisure sector property, one for a major logistics company, and another was CIO of a large auto retailer. Finally, two university CIOs participated, representing organizations with an annual budget of about \$1B and \$200M. The number of IT staff reporting to each CIO ranged from 30 to several hundred.

From the opening comment, discussions of the present of and future of IT revolved around the changing organizational boundaries of the IT function. Boundary lines are drawn in new places, are frequently redrawn, and often just sketched in lightly as projects, processes, information, and people pass across them constantly. IT managers frequently manage teams that do not report to them—in or outside the larger organization. Outside organizations can dictate work that happens in IT. Staff members need completely different kinds of skillsets to manage across these boundaries and in the role of IT as an organizational integration function (Ragowsky, Licker, Miller, Gefen, & Stern, 2014). Employee hiring, management, development, and retention become critical in holding the IT group together and to operate effectively in an environment where the organization itself is perpetually in flux.

This paper is organized into two major sections. In Section 2, we summarize how CIOs saw the phenomenon of weakening IT boundaries, and, in Section 3, we bring what they thought about how those changing IT boundaries could be managed appropriately. Organizational boundaries are becoming permeable at several levels. Work, resources, people, and responsibilities pass through external organizational boundaries through outsourcing and similar contracts. This has happened to such an extent that some CIOs already describe themselves as operating in a virtual organization. Internal boundaries, too, are weakening, leading to problems but also to opportunities for the IT group in an organization. We cover the discussion of how these CIOs are managing the risks and challenges of this new working environment. Investing in people and in ways of hiring and connecting employees to one another are important ways to maintain an organization's operational effectiveness in this emerging economic context.

II. THE WEAKING IT BOUNDARIES

External Boundaries

In contemporary IT management, large amounts of work is commonly done outside the firm by staff out of the organization's direct control (Gefen, Ragowsky, Licker, & Stern, 2011). Nonetheless, CIOs are held responsible for that outsourced work, too, which creates a complex work environment because both the IT management and management on the user side have less direct authority to address problems that may arise. That places extra stress on the CIO. Addressing this, the CIOs described how traditional measures such as "employee headcount" no longer reflects the scope of their responsibilities and how dependent they now are on suppliers. One automotive supplier CIO described it this way: "[Our] number of budgeted IT employees is 150, but we do have a number of

pretty significant outsourcing contracts. So, for example, [our] global datacenter hosting is outsourced. [Our] global application support services are outsourced to a vendor partner.”. Another automotive supplier added:

I'm not sure what the definition of an employee is nowadays. Do I write them a check or are they a vendor or a supplier or whatever? In terms of full-time employees, we're probably down to about 130, but that really doesn't tell the story. I have pretty large strategic partnerships in India that do most of my SAP support. I have an outsourced data center there, and another set of colleagues really manage my firewalls, my Internet access, and all of those things.

The Virtual Organization

These shifts in organizational boundaries led some of the CIOs to refer to IT as a “virtual organization”. The skills that CIOs need from staff inside the IT organization and staff outside the organization are increasingly divergent. IT’s focus is shifting from technology toward the business process. One automotive supplier put it this way:

I think a lot of the traditional IT jobs are more and more becoming non-cored organization¹. You find vendor partners that have that expertise, and what you really need to cultivate are those business skills, to round out with a certain amount of technical capability or knowledge.

Another automotive supplier added:

Most of my executive team is managing half a dozen vendors around the world. They're not managing an internal workforce. They're balancing work across outside organizations with different priorities and different capabilities and delivering on budget and on time. That's just a different thing. I see that getting worse by 2020. Somebody said earlier...that IT is a virtual organization. We're a handful of people who are counselors, internal consultants, facilitators, and we manage work in the back office, largely offsite through suppliers.

To this, a third automotive supplier added:

I think because of a lot of what's being said, the makeup of the organization is going to change a lot. You know, we're outsourcing network, outsourcing datacenters. Everything's moving to software. The technology piece: the big technology is getting less significant.

Summarizing, a university CIO concluded: “I think [by] 2020 we'll probably be dropping that ‘T’ and adding a ‘P’ [i.e., “IT” becomes “IP”]—information processes, to talk about, you know, the flow of information from fluid perimeters and internal systems.”.

Responsibility Everywhere

CIO burdens are also increasing on other accounts, too. CIOs remain responsible for IT and its supported processes even as it becomes more widely spread throughout the organization. Describing this brave new world, one financial CIO explained:

We're a data integrator. We take on our clients' data. We bring it in house into proprietary applications—we're an outsourcing organization. We provide outsourcing services. ...At the end of the day, my client has to work with me, and we have to be equally responsible for the data that that's transcending our system.

Other key responsibilities are external requirements with compliance and standards. As industry moves forward into the new, fuzzier era, process standards and regulations could potentially redefine inter-organizational interfaces and new organizational boundaries. However, unclear standards and an evolving understanding of how to manage inter-organizational processes remain under development. The financial CIO said:

We're a vendor organization to financial institutions, and most of our clients are banks, big banks. So being on the vendor side, we are now subject to rules and regulations for all of these new governmental organizations that, frankly, are ballooning my costs and are not allowing me to get the work done, the application work done, because we keep layering on additional controls, processes and controls—which isn't necessarily a bad thing. But at what point is it just the frosting and there's no cake underneath.

¹ I.e., IT roles as no longer treated as core to the business.



These issues extend beyond banking, as the leisure firm CIO added:

And we're there. That is, the compliance in [the] gaming [industry] is unbelievable, more than a hospital. You can't move without affecting something. We get audited sometimes twice a month, but at least once a month we're participating in some sort of audit.

While these issues are becoming higher profile, IT professionals are still building the understandings of how to actually manage compliance and security in their practices. The established standards alone are guidelines but not sufficient for operations. A financial CIO gave an example in an exchange with a client for payment operations:

There's a definition that's really very amorphous out there of what PCI [electronic payments standard] is. I had a bank come to me and say, "You can't take our client's name and address". And I said, "Where would we send the checks?"

One university CIO noted:

I think we're really agreeing on two really big points there. Compliance and security is overwhelming all of us, and I think that's an expertise that we bring to every process and every vendor and every action that's going on.

Internal Boundaries Are Becoming "Fuzzy"

Just as external boundaries are continually crossed with outsourcing, internal boundaries are also becoming less distinct. Traditionally, managers could describe their position by describing to whom they reported and how many employees reported to them. Now, however, boundaries around both of these markers are fuzzy both in the sense of being ill defined and rapidly changing. During their introductions, half of the CIOs introduced themselves as reporting to more than one manager either in theory or in actual responsibilities, and many had to qualify what they meant by "employee". Even the IT work that is not outsourced to contractors or vendors may be done by employees with other formal reporting relationships.

One university CIO elaborated on this situation:

I'm Chief Information Officer, and it's a real good guess at this point as to whom I report. We're in a bit of a leadership change, and at the end of the day I have to know where we're going as a university regardless of that reporting line and take the organization in that direction, so I don't think it's much about whom I report to anymore. We only have 33 professional full-time staff members, and then you could add on another 7 clerical or something, so about 40 people. But that's the internal central IT group. Then who is an IT employee? There's another 60 or so that I've identified around the university that have 25, 50, or 75 percent IT responsibilities. And then we've outsourced a tremendous amount of work, so there are all of those vendors. ...I think that we manage a larger workforce than typically shows up on an org chart on paper these days.

Noting the equivalence, the logistics firm CIO added: "I report up through the president of the supply chain group and also to the corporate CIO of the entire company. I have about 150 employees that work for me, over 200 if you think full-time equivalents."

Processes Beyond Silos

Another issue that came up is the IT silo or lack thereof. IT is increasingly charged with managing data across entire business processes, crossing both internal and external boundaries. IT may actually be the only department in the business where staff understand these information flows in their entirety.

Describing this situation, the auto retailer mused:

We take a customer who trusts us with their data. We've got their social security number, we've got their driver's license number, we've got all their financial information, and then we hand that off to a third party. Well, when I hand it off, I'm still responsible for it. And taking the Target example², who would have ever thought the IT guy had to monitor the air conditioning vendor? That's the type of thing that we're going to

² There was a highly publicized security breach at Target at the time. Details at <https://corporate.target.com/about/shopping-experience/payment-card-issue-FAQ>



have to get more into. ...I'm becoming more and more involved in every single vendor decision, because we send data to every single vendor. ...Am I becoming the purchasing department? That might be the case going forward, that I have to be involved in almost every purchasing decision.

Those concerns apply to other industries too. An automotive supplier fretted:

I see an abject lack of process understanding throughout business organizations. In the companies I've worked in, in the last 20 years, 90 percent of that resides in IT, and I find that incredibly scary that we're [the ones] telling the business how it really operates. And I'm not talking about at the lower levels. I'm talking throughout the organization. ... And I think that puts a lot of stress on the IT organization.

A financial CIO saw this as establishing IT's essential role in modern organizations:

We're becoming integrators. We're becoming data integrators. We're becoming process integrators. We're becoming standards integrators. We're becoming people integrators. We're becoming cultural integrators. ...If we don't break down the silos and we don't start to understand each one of the interior applications or operational areas that we have, we're just failing badly, because everybody's running off in their own direction. What they're not understanding is [that] they're only a piece of the puzzle. We have to supply the foundation. We have to give them the means that will allow them to grow their organization. So I think we have to become chief integrators in an organization or maybe be the glue in an organization.

IT Expectations

While IT's role as the integration agent may not be conscious known throughout the rest of the organization, it is a piece of changing expectations. Several of the CIOs observed that expectations are changing because technology has become ubiquitous in society (particularly for younger workers). Increasingly, technology is expected to be cheap and easy inside the organization because it is mass-market technology. This creates additional pressures for IT management to keep up with and manage these expectations.

An automotive supplier described how new expectations ignore organizational processes and boundaries:

If you really haven't interacted with the younger generation, I'll just tell you their technology expectations are not at all aligned with the capabilities you have in place now. And it's beyond the hardware. It's the way they want to operate, the way they want their office to look like, the way they want to interact. They want to telecommute. They don't understand why things take long. My favorite comment is, "Well, I can go home and write a .NET application that does that tonight, and it's going to take you six months and \$200,000?" So there's a paradigm shift going on, and in a global company it's even worse because, you know, we throw language and all of those things on top of it, and it's a challenge that—it probably consumes about a third of my time on a weekly basis.

The leisure firm CIO added:

And the expectations of the younger people—I mean, everyone—wants new technology. These younger people, they don't have any money in their pockets, by the way. They want all this stuff, but they have no idea what it costs and the implications it could cause to an organization. And you don't want to slow that down, because that's how you're going to get all this new development, but it is chaotic right now.

Employment Boundaries

Just as internal and external boundaries are more permeable to business processes and data, so too are they increasingly permeable to highly skilled workers. Employees with specialized technical skills are in demand and may be easier to rent through a vendor than hire into the organization. These employees may also be more attuned to external opportunities and more motivated by their own internal values than conceptualized in the past (Briscoe & Hall, 2006).

Echoing that academic observation, the logistics firm CIO noted:

My greatest challenge as a CIO would be finding the capable folks today that have experience on the products that we're installing, because we're growing right now. We have a lot of launches with some customers that are coming in. And finding those people that have the specific knowledge in the products that we're launching is difficult for us today.

This problem applied to others, too. A financial CIO said:

I think what is hurting us in this area, and we've already talked about it, is there's intense competition... I couldn't match the \$22,000 increase that [one of my IT employees was offered elsewhere]. It's just so out of the range of something that I can deal with.

In fact, as one university CIO put it:

This is how in demand these skills are. Some of the best people are getting their own agents. That really shocked me. And we're seeing the same thing, you know, at [our university]. Our compensation levels aren't really what they probably should be, or they don't compare well to private industry, and the demand is just through the roof. So we're trying to skim off the top in our honors program before students graduate, give them a full-time job before they're able to see the light of day.

Shortage of the New Skillsets

As hard as it can be to hire those with strong technical skills, it can be an even greater challenge to find and hire those who can work across the boundaries of technology and organizations. The panel stressed that soft skills and critical thinking skills are rare, increasingly valuable, and more important to IT work than ever. One automotive supplier CIO explained the need:

Having more analysts, more senior level analysts that can do all these things is key – I find myself being very short handed with that regard. Everybody's asking for the integration. Everybody wants to automate. And we're right there with them, but the organization's got to morph a little bit organizationally to support that. I can see having 20 percent or more of those kinds of analysts in the organization by 2020 than we have today.

A financial CIO added:

We don't have these people. It's very hard to hire; I hire a lot of people actually. Right now we're all aware it's a very tight market, and in Detroit there's a lot of competition. But my disappointment is that I have difficulty hiring people who know how to think. And, frankly, I agree that I think that the bigger issue is finding people who can come in and independently address a situation or do their own research and analytically walk through a problem. Not to be disrespectful to the programming aspect of our organizations, but I have an easier time finding a programmer than I do having the data analyst or the business analyst who can define the problem and then guide the process.

One automotive supplier saw human capital as a critical concern for IT and society in general:

It's really interesting as to where we're going to go with the workforce, because it doesn't matter about security, partnering—we still need the people in order to facilitate those functions. So our greatest focus really, from the university standpoint, has to be to train individuals with the critical thinking skills that this next generation is going to require. And if we also look at surveys, I think one of the largest deficiencies is the fact that the children of this generation don't have the critical thinking skills, nor do they have the communication skills.

III. MANAGING WEAK BOUNDARIES

Theory predicts that, as technology become more standardized and sophisticated, it should be externalized or outsourced (Williamson, 1975, Williamson, 1981). This tendency leaves CIOs in a delicate position of being responsible also for information, IT, and work done outside their organizational boundaries. The CIOs discussed the ways they were attempting to deal with the challenges posed by this, including ways to select and vet external providers. Interestingly, the CIOs discussed employee skills, development, and hiring in this context.

Selecting External Partners

Protecting data requires protecting it also when it is in the vicinity of a service provider. CIOs are developing processes to manage across these external organizational boundaries, but it remains a complicated endeavor to do. Exercising due diligence with external providers depends in part on the sort of work those firms provide.

Only way of tackling this issue was discussed by one university CIO: "We actually have a checklist. So if we're looking at a cloud provider, here are the things that we run down the list and we just make sure that we're addressing all those things."

Such a methodology is applied elsewhere, too. An automotive supplier built on that policy:

We have something similar, and [in some cases] on-site visits to some of the cloud providers to just kind of look them in the eye, get a feel for some of the data, in terms of data protection, physical security, depending on what kind of arrangements they have in terms of their own datacenters, and disaster recovery and such.

The other university CIO concurred:

You have a certain standard sometimes that you take for granted within your organization. I think the one that jumps out to us often is criminal background check, knowing that a lot of data thefts occur from insider attacks. ... But then when you move that data to a cloud provider, are you sure you're not accepting a lower standard of security than you would have in your own organization? So one of our checklist items is criminal background checks, because that's our internal standard. We want to know how that's handled with an external organization—knowing your own standards and carrying them forward.

That CIO continued:

[We're watching] the lawsuit that just was filed against Trustwave, who was the PCI auditor for Target³. And we're a little concerned that if the auditors are all going to get sued in these situations, the type of audit that they do is going to get a little more stringent. That's one we're watching.

And all this comes at a cost. As one financial CIO put it: "We're going to spend an inordinate amount of time preparing for, executing, and following up, remediating audits, and I'm not really sure how much work's going to get done." The other financial CIO agreed, but with a different take:

If you say, "This is a burden, it's a pain, and I have to do it because the government or whoever wants it", you don't bring your creativity to the problem. If you say, "This is an opportunity"—now, it's hard to do that, because it is a pain – but think of it as an opportunity, you find you get a different way of solving the problem.

Employee Skill Needs

The shifting of boundaries because of prevalent outsourcing is creating other problems, too. The skills that used to be required of employees are now often outsourced. As a result, those technical skillsets are less valued internally, but the ability to manage outsourcing contracts—from the inside—becomes increasingly vital. As a result, many of the skills most sought after by these CIOs are now relational in nature in terms of managing relationships between people and organizations. Yet it remains unclear where those employees—and those skills—are going to come from.

One automotive supplier noted the diversity of skills on the team:

The people I've got working on my networks have a whole different skillset than, say, some of the people who are doing sourcing and vendor management, dealing with contracts and such, is a whole different set of skills than my experts who are doing just-in-time, just-in-sequence configuration and process planning in the plants. It's a very, very broad portfolio.

Another automotive supplier CIO observed the need to integrate these skills:

I just think the roles we play and the people who work for us have to have an incredibly broad experience. So just to your point, it used to be you're a technologist. You manage infrastructure; you manage an application portfolio; you manage a project management office. That's not even an ante anymore. You have to be able to negotiate contracts. You need to understand business processes. You have to be able to go across the organization and get stakeholders in a room, because this has ceased to be a case of "Oh, we need to automate this supply chain or we need to automate this".

Elaborating on this, a third automotive supplier looks for new skills in new places:

³ Details available at <http://www.cnet.com/news/security-firm-trustwave-sued-in-connection-with-target-breach-report/>

I'm having more luck finding business people and moving them into IT that have those skills than finding IT people out of college who have more technical skills than they have the communications skills, the kind of follow up and that kind of stuff that you need, the analytical skills to do problem solving, and interacting multi-culturally, which is a big deal for us. You just don't find that coming out of universities.

The second automotive supplier concluded: "We need broader skills. We need legal skills. We need purchasing skills. We need multiple vendor management skills."

Those problems apply to academic employers too. As one university CIO said: "We're outsourcing so much, but I have a very difficult time finding the person who can read a contract and evaluate whether the vendor is delivering on that technology as described in the contract." The other university CIO speculated that the needs will grow much further: "IT is going to need to have more lawyers on staff, right, as we start to move into this realm. I'm feeling that right now. I'm reviewing so many agreements without the background and formal training to do that." Indeed, as another automotive supplier put it: "I'll touch on the contract end, because I make a comment probably twice a month, 'I should have been a lawyer,' because I get contracts and I'm the 'red ink.'"

The first university CIO's experience noted that the need for non-technical skills can complicate hiring for complex and regulated roles:

We tend to say, "Well, the technology people don't get the business side, so I'm going to hire the business analyst who understands technology". And that works up to a point, but it doesn't work very well in the security and compliance realm, where you sit down and you say to somebody, "Here's PCI requirements", or "Here's HIPAA requirements, and as a business analyst, go through these requirements and tell us the technology changes that need to be implemented in order to comply". And they may get how to read the compliance document, but understanding the technology changes that need to come out of that is just very difficult.

Another automotive supplier noted that this shift in skill needs was conscious and driven by the how organizations work across their external boundaries:

We don't really have that many badged roles anymore that are truly kind of like a true technical position, like a DBA, as an example. Anyone that's in that role is actually part of one of our vendor partners. We don't have any badged programmers. I mean, what we have as kind of core roles are business and technical analysts, solutions architects, project and program managers, and vendor management skillsets. So it's that very business-process oriented person that can learn certain technologies and how to apply that in connection with solving business problems. And then when it comes to actually programming something, that gets handed off to an expert firm that has a—whether it's in India or somewhere else—that has a big army of people that have that.

Human Resources: Development, Hiring, and Retention

Employee qualifications, or lack thereof, ties into another problem the CIOs raised. The overall picture that emerged is one where CIOs must carefully consider how to develop their staff to ensure the right skills, hire the right people, and take steps to keep them engaged and retained with the organization. These tasks are all interrelated (see Figure 1). New skills can be developed or people with them can be hired. If the organization invests in employee development, it is important to retain the employees to leverage those skills, but a strong development climate may increase employees' desire to stay. Good hiring will ensure a good fit, increase retention, and may be able to bring important skills to the organization. The CIOs were very conscious of the weak boundaries that firms have for good employees. These topics came up as an integral part of the discussion on outsourcing.

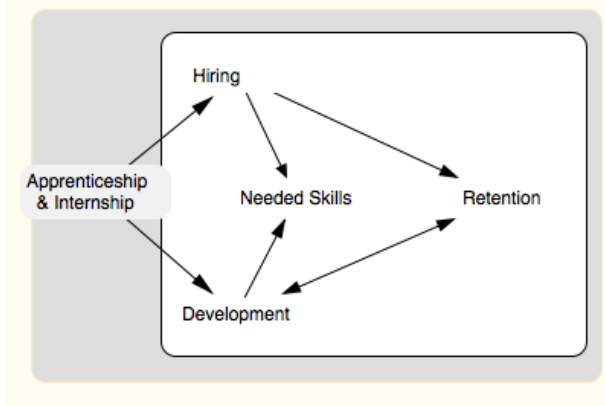


Figure 1. Development, Hiring, and Retention

Development On-The-Job

One automotive supplier described their philosophy that it was critical to build employee skills internally:

A lot of those [new skills], we're going to have to take on ourselves to develop. You're not going to go get those out of school. It's very experiential. If you've never done a contract—you're not going to do one in college. You need to be a good thinker, a good analyst, have the mindset, but then you're just going to have to do it. You're going to have to give them the responsibility, expect them to do it, be there to support them when they screw it up—and they have to learn. All those things are learned. These high-end skills like this are learned, and you've got to develop your people as such.

Likewise, the leisure CIO rarely had the capacity to invest in employee development as directly as much as desired and so intentionally seeks out opportunities to develop staff through cross-training and job switching:

I have been just trying to figure out this very thing we're talking about, because I need these skills and I don't have them. And I find that we're under such pressure to keep producing and getting things done that are coming out of nowhere that we're not really letting the best person work on the project but maybe the second best or even giving somebody else a try. And I've been really consciously trying to step back now and say, "I know you always do that, but you're not doing it this time. Let's have these people do it", or go mix it up somewhere. I tell my management, "Mix them up and have them do each other's jobs or something." Now, it's not as efficient, and that's not really good. You can't do that all the time, but I do think that you have to train this within the company.

Hiring

One university CIO explained how a group's vision and goals can be used in hiring in this environment:

I know I have two really simple goals for my organization, building on what others have said here. One is to provide the best tech experience compared to our peers and aspirational peers. And the other is really simple. It's "I want IT to be the place at [University] where everyone would like to work". The work's exciting. We're solving problems. There's innovation going on. People are treated with respect. It's a flexible work environment, which is really important, too. So every new employee who joins the organization, I sit down with them for, you know, 15 minutes face to face. It's quite an activity, but I tell them, "These are my two goals, and I want you to be happy here. And we're doing some exciting work, and I want you to be a part of that." So I think it starts at the top, and it needs to be sort of interpersonal as well.

A financial CIO discussed their approach to interviews, which is aimed at recruiting the best people to IT but also at ensuring a good fit to retain their hires:

When I'm interviewing a candidate... I say, "You cannot be anonymous here... If you have some desire, that fire in your belly that you want to learn how to do specs and you want you want to work with the end customer; if you want to go out and research something because we're looking for new ideas all the time, this is the place for you. But if you need to be spoon fed or you think your manager's going to come and talk to you every day, you will be very unhappy here." I've had my president of our company say, "Is that working for you? Because it seems like you're batting more people away." And I said, "Actually, look at my turnover.

My turnover is low.” And that’s the reason, because I think it’s better that a person make that informed decision.

The other university CIO agreed:

There has to be a passion for why the organization exists. We’ve said that different ways, but you’re trying to find—or generate that passion for the total organization in your staff. But also I find technology people like to solve problems, and I’ve heard that here a couple ways today—and finding ways to involve them in problem solving and making them feel they are truly contributing to change. I think some of that starts at hire. You want to hire for passion, problem solving, and embracing change. That’s a great hire right there. But if you bring them in the door because they exemplify those characteristics, you’ve got to reinforce passion, problem solving, and change embracement every year, every day in what you’re giving them to do. If you just focus on those skills at hire and then you drop the ball a year later, you’re not going to keep them.

Apprenticeships and Internships

While weak organizational boundaries can often pose a challenge for organizational leaders, it can also present an opportunity. Some of the CIOs had programs to exploit weak employment boundaries to improve hiring processes using internships, apprenticeships, and co-ops, which allowed the organization to “test-drive” and train new staff without having to commit to an unknown employee. These programs transition candidates across the fuzzy boundary, while developing skills.

Commenting on this, the leisure firm CIO said: “There are so many people though that graduate with IT degrees and they cannot find a job, and they just need to get started. It’s hard to just bring someone on who can’t really do anything. An internship is almost mandatory now.”.

One such program was then described by an automotive supplier:

There’s now a program here called the Michigan Advanced Technical Training Program. It’s modeled after that sort of [European] apprenticeship. ...It’s like an apprenticeship where it’s a combination of school training and working. It started more on the engineering side, specifically mechatronics kinds of things. [The goal is] that they’re—even with an associate’s degree—able to do stuff “day one.”.

Another automotive supplier agreed:

I would echo your comments. I think the model in Europe is a lot healthier for onboarding productive employees. The model in Europe is, you go to school for four or five years, but a third of that time you’re physically working. If you imagine the classical North American education system, you have fall semester, spring semester, and summer off. In Europe, they tend to go year round and take one of those semesters, and they actually go in and do stuff. From my perspective, the advantage of that is you’re trying someone. You’re understanding if they can critically think; can they contribute? They’re bringing in their educational experience, but you’re giving them real world experience. And in Europe, we take kids for three years, put them on the help desk or in infrastructure year one; put them on a project team year two; and year three put them in a PMO function. And the best kids, we make a job offer before they leave that last time. As soon as you get your degree, it’s here. We’re able to give them a lot more money than the market because we know what we’re getting, and they have a fairly broad IT based experience when they come in.

Staff Connections: Retention and Development

There are many ways in which the CIOs have approached managing their responsibilities and employees as boundaries weaken. These approaches try to embed the employee in the organization by making the job itself more attractive or embed the organization in the employee through making the employee more important by heightening engagement. Many also try to increase the connections IT and its staff has with the broader organization. This would be in accordance with theory that suggests that employee satisfaction improves with better work design (Grant & Parker, 2009). The roundtable discussed practices they use to improve employee engagement and connecting the employees to each other, to their roles, and to the rest of the organization.

Highlighting the issue and ways to manage it, the logistics firm CIO shared a program they use to connect staff to the broader organization and to employees beyond IT:

Engagement is difficult in terms of getting better with the business. First of all, many IT people are very introverted. They’re very used to sitting in front of a screen and working and not necessarily being socially



active in the rest of the organization. And I think another thing that contributes to that is many times IT people are two, three, four, five times removed from the end customer, where you really get the understanding of what's going on with the company. So I think just inherent in being in the IT workforce, there's a problem with engagement. One of the things that we do is we actually foster "a day in the life of". So we'll take some of our IT employees, and we'll run them out to a warehouse and have them work in a warehouse for a couple days, or we'll have them sit with the truck drivers as they do their deliveries. So the idea is to get them understanding what's further down the line, closer to the customer, and get them out from behind that screen and from the technical discussions they've been having with their close group, and get them out in the business a little bit.

One automotive supplier used a related method to overcome introversion, embed employees, and also promote IT within the organization:

Each team member has to give a presentation to the entire team. We critique it, and then we go off and we do a voiceover, and we publish it on our Intranet so that everybody within [our company] becomes familiar with this person that they probably have never seen. Some of them will never have person-to-person contact with this person. ...It's gone over very well. ...The employees didn't particularly like it at first, but now that they're getting phone calls from people saying, "Wow, I never knew who you were" and "This was very nice". ...That's one of the things that we've done for not only the engagement of our team, but the engagement of the organization with the IT team so that we can fill that void of: "Who are these people?"

This need to break down boundaries was also brought up by another automotive supplier:

We [survey] internal customers, and how they feel about IT. The numbers are interesting, of course, but probably the real outcome of these things is to then have the face-to-face discussions with the folks and say, "Here's what the survey says. Here's both some of the more positive scores and some of the more negative ones, and as a group what do you think?" ...We've tended to do that on a group basis. So you have the numerical results, but you also then have people talking about, "Well, what do you think people meant by that response?" or "What specifically are you talking about?" And what comes out there, I think, is some of the longer term things about relationship between the employees and the company.

Such interaction can be very beneficial. A third automotive supplier related the important discoveries that surveys revealed:

I know what we've found through similar surveys in the last couple of years, trying to integrate two companies together, is how well an employee feels connected to the goals and cultural vision/mission of the company and how well is that being disseminated—it's really a company culture thing, from the top. Are we getting a common direction set, and is everybody supporting that and pushing that down? Does everybody in the organization know what the vision, mission, and goals and objectives are of the company and how they can impact it? And we found a huge disconnect there. And for our company in the last couple years, that's been a focus of ours is to get that connectivity from the bottom back up to the top. It just wasn't being pushed down. It wasn't being communicated very well at the top, and people surely weren't jumping on board.

Of course, some have it easier than others. One university CIO adopts practices to leverage what they think is a natural advantage:

Universities have it really easy in this regard. You know, to get employees behind a cause, the mission of the organization, is really easy. Education has to be number one or two on the list of altruistic things that we should be doing on the planet. So, for us, we're always talking about student success; how can we help our faculty engage with students. We've set up an endowed scholarship fund in my organization and where employees are giving to it. We're developing software that we're selling to other organizations. We take the profit from that, we're pouring it into the scholarship fund, everybody gets to vote to see who should receive the scholarship, and that's sort of a lever for us to really keep people excited and focused on what the mission of our organization is generally. It's something you can believe in. It's in your heart. You can see the benefits all across society. So for us it's really easy. And yet, there is no quick solution.

IV. CONCLUSION

The roundtable shows the kind of challenges CIO are currently facing. Current organizational and environmental changes have created a new business and IT environment. The existential question of "What is an IT shop?" puts

new demands on CIOs to define themselves, their services, and their activities. While there may not be consensus as to “where IT is headed” (May, 2014), there seems to be consensus among CIOs in the roundtable as to what is happening. As the definitions of “customer”, “supplier”, “partners”, “employees” and even the structure of the organization itself change under these pressures, CIOs are finding that they are having to respond outwardly (through marketing) and inwardly (through employee development). As organizational demands have shifted, the way work is done has shifted. The CIOs have addressed this by adopting new ways to manage and new ways to find, engage, and develop their employees. While many IT organizations now look for some level of experience for entry-level positions, several of the CIOs have programs that they use to exploit fuzzy employment boundaries and use internships, apprenticeships, or co-op programs to draw in, develop, and evaluate new employees before making a permanent offer.

Some of the CIOs have adopted practices that increase job variety, feedback, significance, and identity as suggested by research. The focus on the relational aspect of the work (Grant & Parker, 2009) is another important aspect—not only to directly increase performance but also to strengthen employees’ ties to the organization. When the organization and the employee have a strong relationship, both parties have an increased incentive to develop the sort of organization-specific skills that are difficult to effectively source in the market (Ouchi, 1980; Williamson, 1975). The weaker that organizational boundaries become, the more critical these practices become for the organization’s survival and to ensure that it benefits from investments in its employees.

REFERENCES

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Briscoe, J. P., & Hall, D. T. (2006). The interplay of boundaryless and protean careers: Combinations and implications. *Journal of Vocational Behavior* (69) 1, pp. 4-18.

Gefen, D., Ragowsky, A., Licker, P., & Stern, M. (2011). The changing role of the CIO in the world of outsourcing: Lessons learned from a CIO roundtable. *Communications of the Association for Information Systems*, 28, 233-242.

Grant, A. M., & Parker, S. K. (2009). redesigning work design theories: the rise of relational and proactive perspectives. *The Academy of Management Annals*, 3(1), 317-375.

May, T. (2014). Where is modern IT heading? *ComputerWorld*. Retrieved from <http://www.computerworld.com/article/2686004/where-is-modern-it-heading.html>

Ouchi, W. G. (1980). Markets, bureaucracies, and clans. *Administrative Science Quarterly*, 25(1), 129-141.

Ragowsky, A., Licker, P., Miller, J., Gefen, D., & Stern, M. (2014). Do not call me chief information officer, but chief integration officer. A summary of the 2011 Detroit CIO roundtable. *Communications of the Association for Information Systems*, 34, 1333-1346.

Williamson, O. E. (1975). *Markets and hierarchies: Analysis and antitrust implications: A study in the economics of internal organization*. New York: Free Press.

Williamson, O. E. (1981). The economics of organization: The transaction cost approach. *American Journal of Sociology*, 87(3), 548-577.

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