IS3103 Information Systems Leadership and Communication
Tutorial 5: Discussion on "Re-examining the Role of CIO, CDO, and CISO"
(Week 11 – 26 Oct 2022)

Pre-class Reading

Read the three articles:

1. Gerth, A.B. and Peppard, J. "The Dynamics of CIO Derailment: How CIOs Come Undone and How to Avoid It," *Business Horizons*, 2016, Vol. 59, pp. 61-70.
2. Davenport, T.H. and Bean, R. "Are You Asking Too Much of Your Chief Data Officer?" *Harvard Business Review*, February 07, 2020.
3. Doan, M. "Companies Need to Rethink What Cybersecurity Leadership Is," *Harvard Business Review*, November 27, 2019.

Review your understanding of the roles of Chief Information Officer (CIO), Chief Data Officer (CDO), and Chief Information Security Officer (CISO):

- Skills and Competencies required for these roles (Lecture 0)
- Six CIO Roles / CIO Role Effectiveness (Lecture 2).

Class Discussion Questions

1. Synthesizing the points raised across the three articles on the role of CIO, CDO, and CISO, what are the common actions that these IS leaders can take to become successful?

2. Why are role clarity and shared expectations especially important for effective IS leadership?

3. Should organizations have only defensive or offensive IS leadership roles? Or both? Why?

4. How should IS leaders work with the CEO and other non-IT executives?

5. What IS leadership role(s) would you like to take on in the future? Are you clear with the path to success?

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The dynamics of CIO derailment: How CIOs come undone and how to avoid it

Anthony B. Gerth [a,*], Joe Peppard [b]

[a] Kelley School of Business, Hodge Hall 4115, Indiana University, 1309 E. 10th Street, Bloomington, IN 47405-1701, U.S.A.
[b] European School of Management & Technology, Schlossplatz 1, 10178 Berlin, Germany

KEYWORDS
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Chief Digital Officer;
Digitization;
Executive derailment;
CIO turnover;
CIO success;
Digital leadership;
Digital transformation

Abstract With information technology (IT) becoming ever more ubiquitous and pervasive, the resulting deluge of data is driving a wave of digital disruption. No industry, it seems, is immune, and business performance is increasingly dependent on the effective use of IT and investments in technology that generate real business benefits. Yet research continues to report that most of these investments don't pay off as expected. Blame for such scenarios is normally placed at the feet of the Chief Information Officer (CIO). Some commentators have even suggested that it is now time to replace the CIO role with that of CDO (Chief Digital Officer). This line of thinking ignores the inherent organizational dynamics that lead to the derailment of the executive in charge of IT; merely changing the job title won't fix the problem. This article uses research conducted over the course of 8 years to illuminate reasons why CIO leaders are derailed, and what they and the CEO can do to avoid this outcome. Causes of derailment are presented in detail, and prescriptive advice is given for CIOs and CEOs alike regarding how to address causes of executive failure in leading the digital transformation of organizations.

1. The digital leadership conundrum

Organizations are ever more dependent on information technology (IT), not only to run their businesses on a daily basis but also to stay competitive. This digitization drive, which began in the 1980s, has accelerated over the last 10 years (Donahoe, Morgan, Muck, & Stewart, 2010) and is set to surge even more in the decades ahead.

At the forefront of this digitization push is the Chief Information Officer (CIO). As the executive responsible for leading the organization in its use of IT, the CIO is typically charged with achieving these digitization benefits (Ranganathan & Jha, 2008). But as IT spending has increased, so too has disappointment regarding its returns. Research reveals horrendous statistics for IT project failures, with some

* Corresponding author
E-mail addresses: tgerth@indiana.edu (A.B. Gerth), joe.peppard@esmt.org (J. Peppard)

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consistently reporting figures as high as 60% and 70% (Carlton, 2014; "The Chaos Manifesto," 2013).

Blame for this dismal situation is usually placed at the feet of the CIO. Consequently, the involuntary turnover rate of CIOs is higher than that of other executives in the C-suite (Nash, 2009). Indeed, frustrated by the perceived inability of their CIOs to drive the digital agenda, some organizations are now either replacing them with Chief Digital Officers (CDOs) or hiring CDOs specifically to drive their digital initiatives (Suh, 2014; Woods, 2014). This practice only serves to demonstrate the naïveté within many management teams, which operate under the misguided belief that the digital realm is different than good old-fashioned IT. The irony is, when one reads the job specification for this role, it clearly mirrors what a CIO should be doing. Moreover, it is a pointer that many C-suites don't acknowledge *their* role in safeguarding the success of digital initiatives and are happy to abdicate anything to do with IT to the CIO. While the technology may be new (e.g., social media, mobile, analytics), the non-technical challenges are the same.

Of course, incumbent CIOs may not be up to the job. This is clearly the situation in some cases, but is not the key reason why they can struggle with the digital agenda. What our research (see Appendix for more details) reveals is that even CDOs are likely to struggle to be effective unless they recognize the dynamics of derailment associated with the role. Derailment, or involuntary attrition, can be defined simply as not meeting the organization's expectations.

While there are the personal attributes of leadership, there is also a subtle landscape to be navigated with respect to technology. We spoke with over 100 CIOs, CDOs, non-IT executives, and board members to better understand the causes of CIO derailment and determine what can be done to fix it. We also surveyed nearly 700 CIOs globally to better understand the challenges they face. What is clear is that the role of the CIO is complex and the causes of derailment no less so; however, in understanding this, CIOs and CEOs can actively manage these dynamics to increase their potential for success.

2. Causes of CIO derailment

In our research, we wanted to look beyond the more generic factors contributing to derailment (e.g., interpersonal frictions; poor tolerance for criticism; inability to learn, adapt, or think strategically; inability to lead and build a team) to identify those that are specific to the CIO role. We identified five particular causes: (1) misunderstanding the transition, (2) ambiguity in defining IT success, (3) ambiguity in role expectations, (4) poor relationship management with peers, and (5) pushing change at the wrong pace.

2.1. Misunderstanding the transition

One of the common causes of derailment is CIOs misreading the type of transition situation they are entering and the associated expectations of both the CEO and the top management team. When hired, the serial CIO must recognize that not every transition is similar. In short, the CIO needs to understand why he/she has been hired. Consistent with prior executive research (Watkins, 2004), our research reveals that a newly appointed CIO experiences one of four types of transition: startup, turnaround, realignment, or success-sustaining.

- *Startup CIO Transition*: The CIO is charged with assembling the IT capabilities—people, processes, funding, and technology—to get a new IT organization off the ground.

- *Turnaround CIO Transition*: The newly appointed CIO takes on an IT organization that is in trouble and works to get it back on track. In this transition context, the perception of the top leadership team is that IT is not delivering expected business outcomes and the previous CIO is seen as having failed.

- *Realignment CIO Transition*: The new CIO is hired to revitalize an IT organization that is drifting into trouble. Prior to the CIO's appointment, tensions were beginning to emerge, often due to a new reporting line for the CIO, changes in the makeup of the IT leadership team, or a new mandate for IT (e.g., a shift from cost minimization to a more strategic role). Given the new expectations, the existing IT organization is often characterized as 'not fit for purpose.'

- *Success-sustaining CIO Transition*. The new CIO takes responsibility to preserve the vitality of a successful IT organization and expand it to the next level. The previous CIO was perceived as being successful and having performed well in the role and has either moved into a new role, moved to a new organization, or retired.

In our research, half of the turnaround transitions were the result of a strategic shift in IT vision by the CEO and an increasing digital focus. The other half were reported as IT-is-a-mess-now-fix-it type turnarounds. Even in these latter situations, the mess often resulted from a lack of commitment by top

management investing in IT to help make it successful. Moreover, this lack of a strategic view of the role of IT resulted in an ineffective IT function that did not serve the organization's needs. This may also explain why turnaround transitions were typically led by CIOs hired outside the organization. It is not surprising that the preceding CIO was viewed as ineffective and subsequently replaced.

Most realignment transitions were the result of the CEO articulating a more strategic direction for IT. This new vision stemmed from different drivers, such as a merger, geographic expansion, new digital ambitions, or other changes in the competitive environment. The majority of these transitions were led by CIOs hired from outside the organization, indicating that the preceding CIO was viewed as not able to successfully make the strategic shift.

Success-sustaining transitions do not consist of radical changes in strategic direction. In the success-sustaining transitions in our research, the CIO was chosen primarily from inside the organization. This type of transition is characterized by a chief executive who wants to build on the stability and success of the current IT organization and resources. This is not to suggest that success-sustaining transitions are the same as having a strategic view of IT, only that the CEO is satisfied with the IT organization's performance and perceives it as successful.[1]

Thus, the transition type for a new CIO can be defined by the gap between the CEO's expectations for IT and its current performance, at least as perceived by the CEO. While the description of a startup is relatively straightforward, the CEO defines whether she thinks her existing IT leadership is successful and simply needs realignment or whether it needs a complete overhaul. It is therefore imperative that the new CIO truly understand what he is getting into when accepting a new appointment. In the words of one of our study executives: ''The CIOs who come in and have been successful have figured out very quickly the CEO's vision.''

This is not as easy as it sounds. Regardless of the due diligence performed by CIO candidates, there are always surprises. This comment from one CIO captures the experience of most external hires: ''When I arrived. . . .it was far more urgent, complicated, and dysfunctional than I had imagined, even with a fair bit of due diligence.'' As you would expect, those promoted from within to the CIO role reported a different experience, as represented by this insider CIO: ''I probably was 80% ready to hit on all cylinders. I spent 7 years prior working on the IT leadership team.'' However, this person also had other issues to deal with, such as peers who felt that they should have gotten the job and trying to break free from still being viewed as the IT guy by his new C-suite colleagues.

[1] See Gerth and Peppard (2014) for more details on how CIOs transition into new appointments.

2.2. Ambiguity in defining IT success

A significant cause for derailment is failure to deliver IT projects successfully. However, one non-IT executive noted wryly that ''often CIOs are blamed for everything, including the bad coffee.'' While this was said in jest, it underscores the razor's edge that CIOs walk in terms of defining IT investment success. We found that non-IT executives defined IT investment success in two different ways:

1. *Project success*: The project was on budget, on time, and met requirements.

2. *Business success*: The organization realized the planned operational or strategic benefits.

Executives measured the success of an IT investment primarily as delivery of a project; that is, based on budget control, schedule achievement, and satisfied users. Fewer viewed benefits realization (i.e., expected business outcomes achieved) as a measure of success, and far fewer of those evaluated that achievement after the IT solution was implemented. The data suggests that many executives undervalue the contribution IT makes to the business because their focus is more on project metrics than business results. The irony cannot be lost that these same executives evaluated investment proposals based on expected business benefits.

This is significant because delivering business results was one of the factors executives overwhelmingly mentioned as contributing to the successful transition of a newly appointed CIO. Delivering results is about delivering business value through IT services and projects. If the standard of success also depends on each individual executive's perspective, then the CIO may have difficulty fulfilling this wide range of expectations. To compound the matter, the CIO is primarily seen as the responsible party for delivering success, regardless of its definition. Yet CIOs face a conundrum: they are held accountable for benefits but have little authority over what needs to happen in the organization for benefits to be achieved (Peppard, 2007).

2.3. Ambiguity in role expectations

The CIO role is an ambiguous one (Peppard, Edwards, & Lambert, 2011). Non-IT executives describe varying

expectations for their CIOs, and perceptions of the role can differ even within one organization. Go around the C-suite and you can almost be guaranteed that everyone will have a different view of what they expect a CIO to do. Not a good start if you are the CIO! We surveyed 674 CIOs globally, asking if their conception and understanding of the role mirrored that of their C-level colleagues; the answer was a resounding no. As one interviewee succinctly noted: "Companies need to know how to use a CIO." This ambiguity in role, especially across the top management team, was echoed by one of the CEOs that we interviewed:

> The other difference, I think, is that when you go into an organization. . .you almost always walk into a situation where your peers get what you do and your role is accepted and understood, and in the CIO's case it's oftentimes not the case. I mean, everybody kind of gets what the VP of Marketing and the VP of Sales and the VP of Manufacturing—and so forth—do. This comes back to the role understanding question that I've talked about and never really fixed. That's been around for a while, I think, unfortunately.

When we analyzed our data, we discovered three role types that can be distinguished based on the level of the CIO's strategic influence. Figure 1 shows these three roles along the continuum of strategic influence.

The *service provider* role is defined by a low degree of strategic influence. In this scenario, other executives view the CIO role as that of a technical service provider and support staff person. While they may appreciate the complexity of IT and the challenge it presents for the CIO, they do not wish to be inconvenienced by IT. These executives do not expect strategic input from the CIO or necessarily want it. The extent of their expectations goes no further than the CIO keeping the infrastructure running smoothly and fixing IT problems as they occur.

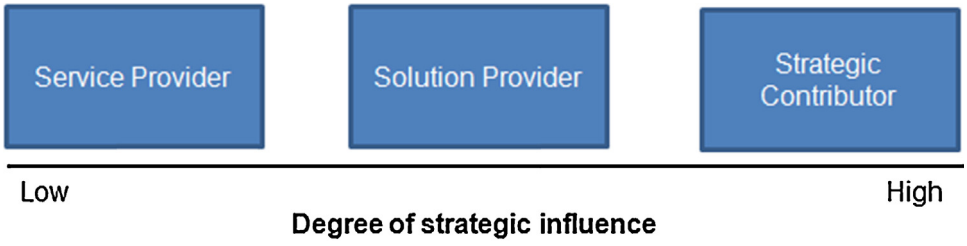
The *solution provider* role is characterized by a higher degree of strategic influence. Executives describe the solution provider in terms of designing and delivering solutions to business issues. These executives expect a relationship in which they present business problems to the CIO and she finds IT solutions to address them. They expect the CIO to actively understand their problems and behave like a consultant or business partner in designing solutions for them. In contrast to the role of service provider, executives who view the CIO as a solution provider have a higher degree of respect for the role and an expectation that the CIO will engage in business problems in addition to technical ones.

The *strategic contributor* is viewed by other executives as a peer in the top management team. The strategic contributor is expected by executives to engage with them at a strategic level, in addition to providing IT solutions and services. This CIO must act as a strategic advisor to the operating executives, proactively bringing to the table IT-enabled ideas that can potentially influence business strategy.

These three roles can describe a maturity model of sorts for how CIOs are viewed in organizations. Our research and that of others (Chen, Preston, & Xia, 2010) clearly indicates that CIOs will not be allowed to influence strategic initiatives until they have demonstrated effective leadership of the IT function; in other words, CIOs need to show that they are effectively managing the IT assets and services of the organization before their peers will recognize them as legitimate business leaders capable of participating in strategic discussions. These roles follow a cumulative trajectory. For example, a CIO viewed as a solution provider is also expected to be an effective service provider. Similarly, a CIO who is a strategic contributor will also be an accomplished solution and service provider.

The data also indicates that a person who fulfills one role may not have the skills or perceived capability/willingness to mature to a higher level of strategic influence. We found this to be a factor in many CIO transitions. As mentioned earlier, 75% of the CIO transitions in our study were described as either 'realignment' or 'turnaround,' meaning that the CEO wanted the IT function to move in a new direction and started this process by replacing the then-current CIO with an external hire. In sum, the

Figure 1. CIO roles described by non-IT executives



incumbents were viewed as incapable of fulfilling the CEO's new vision for IT.

Because members of the top management team do not all have the same view of the role, meeting or exceeding expectations can be quite difficult. Failure to recognize this of their peers can result in a one-size-fits-all interaction style that is capable of giving rise to poor interpersonal relationships and, ultimately, derailment.

We did encounter executives who view the role as encompassing strategy and innovation but still treat the CIO as a service provider only. Failing to see the contradiction, they want their CIO to be a miracle worker and achieve major impact without having to trouble them. We accounted for this by the low level of digital literacy in the C-suite. In our survey of global CIOs, we asked about the levels of digital literacy they encountered in working with C-level colleagues. The majority reported that their leadership colleagues were ill-equipped to embrace digitization and engage in the necessary dialogue. Many lamented that their understanding of technology was based on their experience with consumer IT; however, consumer IT does not equate to enterprise IT. The following observation from one of the CIOs interviewed illustrates this concern:

> They [older executives] tend to have a more abstract assessment of what systems are because they came from the age when you had to do a lot of system thinking without the gadgets, without the tools. The younger people are at the other extreme: they think that because they can send an SMS text in 3 seconds with language that nobody can understand. . . .they understand IT. . . .which is normally not the case.

2.4. Poor relationship management with peers

Poor relationships with their top management peers was frequently mentioned as a reason for CIO derailment. This is more than a failure in interpersonal relationships; an anecdote we received from a marketing director sums up this point: ''The CIO proceeded to try to understand all the systems, but the guy fundamentally forgot that there are human beings behind all those processes and all those systems. He totally ignored the relationships, the informal mechanisms, the informal systems.''

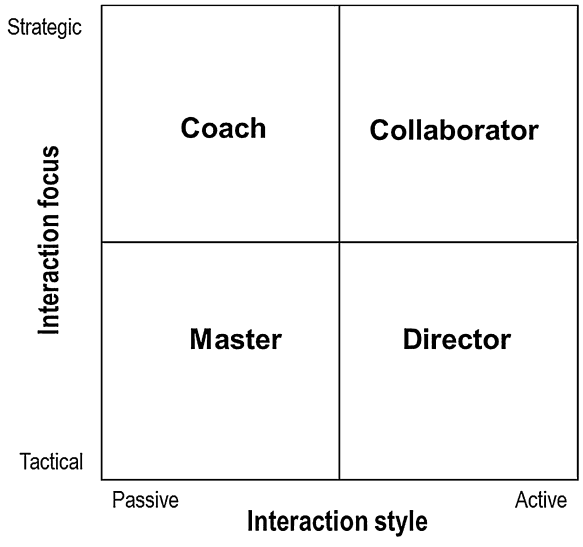
Our data also reveals that there are subtle elements at work in building relationships with peers. We found that non-IT executives' perspectives on *their* role in building relationships and working with the CIO vary. Prior research has demonstrated that executives can have different assumptions about IT (Kaarst-Brown, 2005). Our research data shows that the newly appointed CIO interacts with different executives in ways that vary based on the interaction style and focus of these executives. These dimensions suggest four different types of executives. This taxonomy, drawn from our data, is shown in Figure 2.

The dimension of *interaction style* indicates whether the executive is passive or active as regards interactions with the CIO. A passive style is one where the executive expects the CIO to take the initiative in the relationship. The passive non-IT executive will not initiate a meeting with a newly appointed CIO; rather, he will expect the CIO to schedule a meeting. Moreover, the passive executive does not view a relationship with the CIO as a high priority. In contrast, active executives take the initiative in connecting with the CIO. The non-IT executive with an active interaction style views a relationship with the CIO as in his best interest and will be proactive in developing that relationship.

The *interaction focus* can be either tactical or strategic. Tactical focus centers on IT services that the IT organization—and, by extension, the CIO—provides and the requirements that need to be fulfilled. Executives with a tactical interaction focus are concerned with getting services and projects for their area of responsibility, but do not want or expect strategic contribution from the CIO. An executive with a more strategic focus is concerned about how the CIO can not only provide business solutions and influence business strategy but also make a strategic contribution to her area of responsibility.

The *master* has a tactical focus and a passive interaction style. He views the CIO as a technical service provider and the head of a support function.

Figure 2. Interaction focus and style



He does not expect the CIO to contribute to strategic business problem solving or planning. The master executive does not initiate interaction with the CIO, but rather expects the CIO to come to him. The interaction consists of the executive communicating his needs and expectations to the CIO so that they are fulfilled. With a delivery focus, the master executive would not offer advice on the political power structure or insights on the organization's culture.

The *director* has a tactical focus but takes an active approach to interacting with the CIO. She will take the initiative to schedule meetings with the CIO on a regular basis. However, the focus will be on the tactical issues of services provided to the executive's function as well as those on the executive's IT wish list. Proactively engaging the CIO is viewed by this executive as a politically shrewd way of getting her priorities to the top of the CIO's list. Similar to the master, this executive will not offer advice or insight on the organization's politics or culture. The director executive is using this active interaction style to gain an advantage over her peers to reap her share of limited IT resources.

The *coach* is an executive that has a passive interaction style and a more strategic focus based on input of the CIO. This is an executive that will help the CIO if the CIO takes the initiative. While he appreciates that the CIO can contribute to providing business solutions that enable strategy, he still does not view the role as equal in top management. He is willing to work with the CIO and provide insights into the organization's power structure as well as any unique cultural aspects of which she should be aware. Coach executives share this information as part of their role in the top management team.

Finally, the *collaborator* takes an active approach to engaging the CIO on strategic issues. Taking the initiative to engage the newly appointed CIO, she views the CIO as a peer on the top management team and recognizes the contribution the CIO can make to innovation and influencing business strategy; in fact, she expects the CIO to make such contributions as a member of the top management team. She views this active collaboration as a normal part of her role, just as she would with any of her operating executive peers.

CIOs will therefore likely encounter four different types of top management peers with unique combinations of interaction style and focus. These executive types can be mapped to their view of the CIO role described in Figure 1:

- Master: Sees CIO as service provider.
- Director: Sees CIO as service provider.
- Coach: Sees CIO as solutions provider.
- Collaborator: Sees CIO as strategic contributor.

If the CIO does not tailor her relationship building activities to the type of executive with whom she is dealing, it can create tension between the two executives (Fiegener & Coakley, 1995). Success at relationships is a function of understanding others' perspectives and meeting them 'where they are.' Failure to do this can result in poor working relationships and a transition out of the organization.

2.5. Pushing change at the wrong pace

CIOs are often hired or promoted to be change agents (e.g., CDOs being hired to drive the digital agenda and digital transformation). In turnaround and realignment transitions, change will be inevitable. In both of these transitions, the new CIO has a relatively high degree of discretion to push change into the organization. However, he can be derailed by pushing change at the wrong pace.

Conventional wisdom on CIO transitions focuses primarily on the first 90—100 days. This wisdom suggests that CIOs make changes early in their tenure to send a signal to the organization that they are having an impact. For turnaround transitions in particular, the new CIO should accomplish a couple key goals to get off to a good start. These quick hits are usually focused on fixing IT service delivery problems that are creating a poor customer experience for end users. Another form of quick hit might entail stabilizing an IT project that is failing. If these actions are needed and the new CIO procrastinates, he will likely face derailment. A bias for action is a trait of successful new CIOs. One of our study CIOs stated:

> I think it's important to put your stamp on the organization reasonably early but not rush through it. So identify where the problems are, whether it is a structural process or whatever it might be, and very quickly put plans in place to address those.

Clearly, new CIOs must make an impact, but at what pace? While creating change too slowly can cause derailment, so can implementing change too quickly. One CIO described it this way:

> If you are a sprinter and you come into a walking organization, you are going to walk. I actually had to slow down a little bit on some things and conclude you can only do one large change at a time. One thing I am always wary of when you come into a place requiring a lot of change is. . .change fatigue.

Many of the CIOs we spoke to recognized that implementing change can be difficult and slower than they would like. However, if the new CIO introduces change beyond the organization's change capacity, failure is likely. Another CIO shared his experience this way: ''We spent a lot of time carefully introducing change, and a phrase we use is 'introducing things in the culturally appropriate speed.'''

Understanding the capacity for change did not inhibit introducing change but rather moderated the speed and degree of change that could be introduced. There is a finite capacity for change within an organization, and the CIO must pace the speed of change according to that cultural capacity. Failure to recognize this constraint is another cause for new CIO derailment.

3. What can CIOs do?

When we analyzed our data, we discovered certain actions a CIO could take to mitigate the risks of derailment. These include (1) clearly understanding the CEO's vision for IT, (2) recognizing the ambiguity of the CIO role, (3) delivering on service and solution commitments, (4) building a relationship strategy, (5) proactively defining IT success, (6) managing the pace of change, and (7) speaking the language of the business. Next, we consider each of these in more detail.

3.1. Clearly understand the CEO's vision for IT

Our research suggests it is critical that the newly appointed CIO share the CEO's vision for IT and fully understand the type of transition situation she is entering. Since transition type is the gap between the CEO's expectations and the performance of IT, it is critical that the incoming CIO understand the nature of this gap. For example, if she enters a realignment transition with the approach of implementing broad, radical change, she will likely experience a failed transition. The new CIO must align her approach with the type of transition she is entering. Building this shared vision needs to be part of the new CIO's 90—100 day plan.

3.2. Recognize the ambiguity of the CIO role

The findings of this study reinforce previous research reporting significant ambiguity about the CIO role. The newly appointed CIO should acknowledge that beyond the CEO's view of the CIO role, individual executives hold their own assumptions about the role and IT's contribution to the business. Moreover, he must keep in mind that there may not be a shared understanding of the CIO role among the entire top management team (TMT). For example, the CIO may expect to be strategic and contribute to innovation, but his peers may have different expectations. This recognition will help him understand individual points of view when he begins the job.

3.3. Deliver on service and solution commitments

Our research reveals that executives demand the CIO delivers on her commitments before earning the right to contribute strategically. They expect that the CIO will be an effective service provider by delivering IT services (e.g., help desk, email, network performance) that meet the daily needs of the organization. They expect that the CIO will lead the successful implementation of IT projects that add value to the organization's mission. Only after the CIO has demonstrated her leadership in these areas will her peers allow her to become a more strategic contributor. The senior management team will not take strategic input from a CIO, for example, if she cannot keep the email system up and running.

3.4. Build a relationship strategy

Understanding the four types of executives he may encounter can help the new CIO tailor his relationship building. Using this taxonomy, he can map individual relationships with executives based on how they interact and what expectations they hold. The most common success factor mentioned by non-IT executives was relationships between the CIO and other top managers. One executive stated it this way: ''It's the emotional intelligence that they show to be able to build relationships.''

In first meetings, the new CIO can ascertain the executive's primary focus, tactical or strategic, and get a sense of her preferred interaction style. Initially, the CIO may only focus attention on master and director executives to fulfill their basic service obligations during the early stage of his tenure. Then he can focus his relationship building on the coach and collaborator executives who have an expectation of a more strategic contribution. IT initiatives can be planned that will deliver the business value expected by these executives; in turn, such successes will build the CIO's legitimacy as a business leader. He should exploit the willingness of the coach and collaborator executives to share their insights regarding the organization's culture and how best to successfully assimilate into

it. Newly appointed CIOs can experiment with different influence tactics for each type of executive with whom they work. New CIOs need to proactively seek information and build personal relationships with their top management peers.

3.5. Proactively define IT success

The ill-defined nature of IT success is also important for new CIOs to consider. They should not assume that everyone in the organization will use the same measure of success for IT investments. The new CIO needs to proactively negotiate and set the success criteria for a given investment prior to its launch. She must also manage and monitor the realization of those benefits, overcoming any barriers that might exist. When asked how well his organization managed benefits realization, one executive in our study replied:

> I think IT can do better. I think the people that are directly involved in the project, particularly on the IT side, have a pretty big vested interest in painting a picture that might be rosier than it [really] is. So, I think there is room for improvement there.

Whether or not it is conceptually right for IT to be responsible, the new CIO cannot leave the success of an IT investment to chance. In fact, the data in our study suggests that many non-IT executives do not recognize their own role in achieving business benefits and expect the IT organization to be responsible for the success of IT projects, including delivery of anticipated benefits. Therefore, the new CIO needs to build the IT savvy of her peers by delivering demonstrative value from IT investments.

3.6. Manage the pace of change

CIOs should consider pacing the amount of change introduced based on the transition situation in which they enter the role. If they are taking over a successful IT function, they will most likely be expected to continue the behavior of their predecessor and conform to the expectations of the top management team. CIOs in turnaround transitions will experience a broad mandate for change whereas those in realignment situations will need to compromise in aligning to or changing top management expectations. What worked in the past likely will not work in the current situation. One of the CIOs in our study explained it this way:

> I've made mistakes thinking that when I transition from one company to another I could do the same thing that I did at the previous company [in] the same way, getting the same results, assuming they were successful; but I found out that wasn't the case because the culture was really different. Then you've got to come up with a different method of implementation or process of implementation because what works at one place does not necessarily work at another.

A CIO should assess the organization's appetite for change, top management's expectations, and the limitations of its leadership team to form a plan to introduce change at a culturally appropriate speed.

3.7. Speak the language of the business

While it might seem like a contradiction, C-suite conversations about IT should never be about technology. If they are, they usually just reinforce the stereotypical view of the CIO: adept in all things technical but somewhat removed from the realities of business. Growth, enhancing customer experience, cost reduction, and new strategic opportunities should be some of the key topics of conversation. An operations executive described what this means for the CIO:

> I think the successful ones are integrated and understand business and their real objectives. They are not really about technology, they are about. . .ensuring the technology they're delivering enables the company to do something with it, whether that be close the books or serve the customer. I think high-quality Chief Information Officers are those who are integrated as part of senior management and [who] understand. . .they have to bring technology to the business and serve a purpose, whether it be financial processes, customer service, operations, inventory management—all of those things that link together.

4. What can CEOs do?

The clear message from our analysis is that the CIO can achieve little in a vacuum. CEOs must recognize the value and contribution that a CIO can bring. They and the leadership team must actively engage with the CIO and with all digital matters to create an environment that enables success.

4.1. Acknowledge your role and that of your C-suite colleagues in driving the digital agenda

The effects of technology permeate throughout the organization, and the whole C-suite must embrace

the digital agenda. Reaping the benefits from required IT investments cannot be accomplished without real organizational changes, which can only be delivered in partnership with the CIO. While the CIO sets the tone for IT, the C-suite must galvanize around the vision and recognize its role.

4.2. Define the CIO role clearly

CEOs have a role to play in increasing the new CIO's probability of success. As the CEO was likely active in recruiting and hiring the new CIO, she has a vested interest in the CIO's effective transition. The first place for the CEO to start entails having a clear vision of the CIO's role in the organization. Should the CIO focus on being a service provider, solution provider, or strategic contributor? Clarity in the definition of this role will help in hiring the right CIO and will reduce the chance for a surprise later. CEOs should also develop a clear perspective on the current performance of the IT organization and how they want it to change in the future. Again, setting clear expectations will go a long way.

4.3. Communicate your expectations for the CIO

It is crucial that the CEO clearly communicate to the top management team her expectations regarding how IT will contribute to the organization's strategic objectives. This will begin building a shared understanding about IT between the CEO, the CIO, and the rest of the top management team. It is important to recognize that the members of top management may all hold different views on the role of IT and that some will require mentoring.

4.4. Increase the digital literacy of the leadership team

We found that most leadership teams are ill prepared for today's digital world. They need to recognize that being digital is inevitably about creating change and that if this change is going to happen, it requires leadership and drive from all in the C-suite. The CIO can help here by coaching colleagues on the capability of technologies, not the technicalities.

4.5. Encourage and evaluate CIO/TMT collaboration

After setting and communicating expectations, the CEO should proactively evaluate the effectiveness of the collaboration between the CIO and top managers. Are they both playing a proactive role in identifying strategic uses of IT? Do they work professionally together to solve the organization's problems? The CEO should create an environment that encourages top managers to collaborate with the CIO and play a role in his transition. Moreover, the CEO should hold both the CIO and the TMT accountable for effective collaboration on IT opportunities. Executives should be held accountable for defining and achieving business benefits from IT investments.

5. Driving the digital agenda forward

Not understanding the dynamics of derailment is a key reason for the failure of CIOs/CDOs that drives their transition out of the organization. CIOs and CDOs can raise their probability of success by proactively addressing the causes of derailment. CEOs can contribute to the successful transition by setting and communicating clear expectations for the CIO and the role of IT in the organization. Moreover, CEOs need to hold all top managers—not just the CIO—accountable for executing that digital vision. As one CEO said to us: ''The CIO can only deliver what he or she is allowed to deliver.'' Organizations get the IT they deserve.

Appendix. About the research

The research into the challenges faced by CIOs, particularly newly appointed CIOs, was conducted over the course of 8 years by the two authors. This article is based on our research, which involved a number of different strands, including in-depth interviews with over 130 executives, both CIOs and non-IT executives across multiple industry segments, exploring the role of the CIOs and how newly appointed CIOs take charge. We also conducted a global survey of 675 CIOs. Findings from this research stream have appeared in *California Management Review, MIS Quarterly Executive, Proceedings of the International Conference on Information Systems,* and *Proceedings of the Society of Information Management*, and have been used in executive education programs globally.

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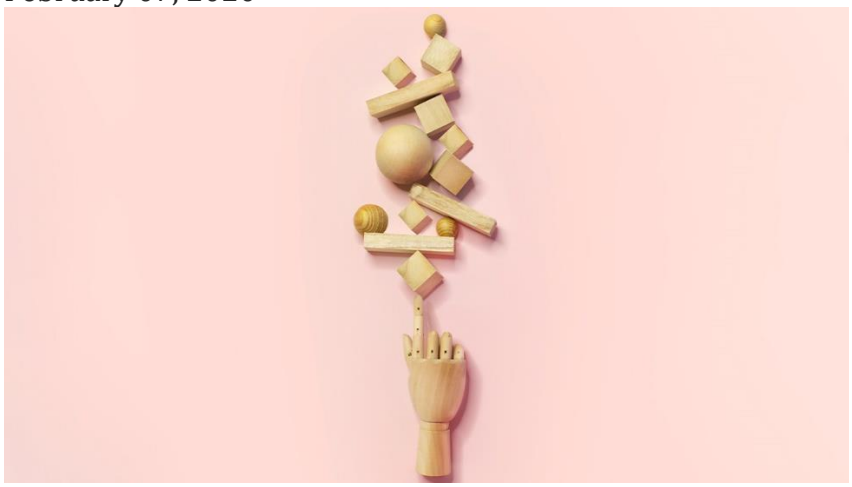
Harvard Business Review

Are You Asking Too Much of Your Chief Data Officer?

by Thomas H. Davenport and Randy Bean
February 07, 2020



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Since the first chief data officer was appointed at Capital One in 2002, the role has been plagued by confusion about its purpose. Although surveys of large organizations by Randy's firm NewVantage Partners show an overall increase in the prevalence of the role — climbing from 12% in 2012 to 68% in 2018, and falling somewhat in 2019 — CDOs' responsibilities have remained unclear. In the most recent survey, only 28% of respondents agreed that the role was "successful and established."

Early on, when most CDOs were in large financial institutions, their most common roles were defense-oriented, involving the security, privacy, quality, and regulatory compliance of key data. However, these functions proved difficult to evaluate except in their absence or breach, and companies have increasingly desired offense-oriented benefits from data — better decision-making, marketing, customer service, and monetization.

Today, CDOs typically have multiple objectives, but often there is little consensus about which are most important. In addition, achieving these different objectives may require substantially different types of experience and skills. Many CDOs will find it difficult to excel at everything they're expected to do.

The most recent NewVantage survey illustrates this problem. It asks respondents — more than half of whom are CDOs themselves — what the primary attribute of a successful CDO is within their organization. Some say their organizations desire an external change agent (the most common and fastest-growing response), others a company veteran or insider. Some want a line-of-business executive who owns business results, others want a technology executive, and still others want the attributes of a data scientist or analytics leader. You'd think at least there would be agreement that the CDO is primarily responsible for data — but several years of surveys find that that's true in only about 40% of organizations.

In part because of this lack of consensus, we have observed short CDO tenures — typically two to three years in many firms, particularly in industries like financial services, where data is the organization's lifeblood. Lack of role clarity and unachievable expectations are certainly a factor in short job tenures.

Seven Distinct Jobs

Understanding what a given organization expects of its CDO, and then matching capabilities with those expectations, can be the key to longer, more effective, and happier CDO tenures. In studying CDOs and their roles over the past decade, we've identified seven key types of CDO jobs, each distinct enough that it would be difficult or impossible for one person to perform all of them well. New CDO hires may not know which combination of the seven they are expected to perform, and formal performance evaluations may not make clear on which of the seven an incumbent CDO is being assessed. One CDO, after reviewing the seven job types, said in an email, "I am evaluated on all seven, but the only ones I get any credit for are the offense-oriented ones."

The first three roles described below are primarily offense-oriented; the last four are more defense-related. Of course, some CDO jobs involve combinations of these roles.

1. The Chief Data and Analytics Officer

CDOs in this role manage the data science, analytics and, sometimes, the artificial intelligence functions for the enterprise. Companies across industries including General Motors, Walmart, Chase Bank, Partners Healthcare, and MetLife have CDOs with this job responsibility, a role that's becoming increasingly common.

Oversight of data management, data science, and analytics in one job is a reasonable combination, since data is the key ingredient for successful analytics and AI. And analytics allows organizations to use data offensively; analytical models can help target customers, optimize supply chains, and make better human resource decisions, all of which allow CDOs to create value. One CDO who controlled analytics and other functions told us,

"Some other aspects of the CDO job were impossible to make visible progress on. Thank God I had analytics to fall back on."

Incumbents of this type need experience applying math, analytics and AI techniques to business problems. They should also be familiar with the types of information technology environments that support analytics and AI, such as open-source tools like Hadoop for storing big data. Particularly with the addition of AI, data science is an increasingly complex and dynamic area of the business, and CDOs focused on this role often have little bandwidth for additional responsibilities.

2. Data Entrepreneur

An increasingly common objective for CDOs is to monetize data — either by selling it directly, using it in data- and analytics-based products and services, or spinning out new businesses based on it. Auto companies, for example, are interested in monetizing connected vehicle data; General Motors has launched a substantial initiative in that area. Software companies are intently focusing on capturing and monetizing data from the business processes that their software supports. (See this HBR article for more.) Online businesses already monetize their data by selling it for the purpose of targeted advertising. Between 11% and 13% of companies we surveyed report that their CDO has some revenue responsibility.

But despite some success and the popularity of data monetization in the abstract, it can be challenging to do. Companies that sell tangible products find it difficult to switch their orientation to selling data. And both consumers and businesses are increasingly concerned about the ownership and use of data that they help to generate. CDOs in the entrepreneur role find that these issues become part of their purview.

While we are certainly supportive of CDOs taking on the development of innovative products and services related to data, we expect that for most this will be a second-order rather than primary focus. In any case, doing this job well requires the CDO to have a background in building businesses, monetizing assets, and developing new products and services. Such attributes are not often found in combination with some of the other skills needed by CDOs.

3. Data Developer

Given the need for CDOs to generate tangible value, some have taken to leading the development of key applications or infrastructural capabilities that will help them deliver it. Many of these, for example, have overseen the creation of enterprise data warehouses or data lakes for their firms. For those CDOs with an analytical or AI orientation, the application might reflect that focus (an AI-supported loan-approval process would be an

example). For others, it may be more transactional in nature. At Citizens Bank, for example, the chief data officer (Ursula Cottone, now in the CDO job at Huntington Bank) led an implementation of process automation software to streamline the back office.

While application development is traditionally more the responsibility of the chief information officer, some development projects may be particularly data-intensive and are thus appropriately a CDO role. At Morgan Stanley's Wealth Management unit, for example, Jeff McMillan, the chief data and analytics officer, led a project to build a "next best action" system, an investment-recommendation tool for clients.

Developing systems of any type is a demanding role that requires expertise in various information technologies, agile and other development methods, working effectively with stakeholders, and integration with systems and processes.

4. Data Defender

Keeping data safe from breaches, fraud, and attacks, and persuading regulators that the firm was adhering to data safety rules, were the most common reasons CDO roles were created in financial services firms in the 1990s and 2000s. This defensive role has declined for CDOs over time — not because data safety became less important, but because other roles, like the chief information security officer (CISO), were created to address it. Still, in our most recent survey, 45% of data executives said that the primary role of the CDO is defensive.

There are still strong pressures toward data defense, particularly in financial services. One banking CDO told us, "I try to keep the balance of offense and defense at 50/50, but all the pressures are toward more defensive activity." Auditors and boards of directors often push for defensive CDO roles. However, we'd argue that defending data is a full-time leadership role best left to CISOs. If the CDO focuses on it, he or she isn't likely to deliver much competitive advantage or business benefits from data.

5. Data Architect

There is a long tradition of using architectural or engineering-oriented methods to create better data environments — that is, with less duplication and fragmentation — and some CDOs lead this activity for their companies. Today, these efforts largely focus on assuring that key enterprise data is aggregated, cleansed, consistently formatted, and readily available throughout the organization. However, these programs tend to be expensive and time-consuming, and many business executives don't see sufficient value in them. When they are cancelled, CDO tenures may be ended along with them.

Some firms ask their CDOs to architect substantial data-modernization initiatives. These typically involve a move from enterprise data warehouses to data lakes, and may also include the use of AI-based approaches to data integration. We wrote about such an effort at GlaxoSmithKline's R&D unit, which was led by Mark Ramsey, then the CDO. Still, only 6% of respondents in our latest survey say they have a "modern data architecture" — most have a mix of legacy and new systems and data formats.

6. Data Governor

Another key CDO role is to establish "data governance" programs. These typically involve enlisting middle and senior-level business managers to take responsibility for data domains that relate to their business processes, for example tasking the CMO with oversight of all marketing data, and supporting them in the effort. When it works, it can be very effective at aligning data programs to business strategies and goals. However, it is often difficult to persuade business-side managers to spend time and attention on data management issues. One CDO told us, "I still try to get the business side involved, but I don't use the word 'governance' — it's become somewhat toxic."

CDOs focused on governance need the ability to build relationships and establish trust. They also must understand the relationship between the business's data needs and business strategy. The combination of data orientation and organizational/business change is often difficult to find in a single person. Organizations whose CDOs have a strong focus on governance include the financial services firms Citigroup, Charles Schwab, UBS, and PNC.

7. Data Ethicist

Perhaps the least common focus of the CDO job, but one that is growing in popularity, is on the ethics of data management, specifically on how it's collected, safeguarded and shared and who controls it. There is no doubt that consumers, regulators, and legislators are becoming more concerned about the misuse of data. If the CDO is charged with managing data, it is logical that the role should include a focus on ethics. Some companies, primarily IT vendors and a few financial services firms, are creating chief ethics officer roles that can absorb this CDO job.

One prominent example of an ethics-focused CDO is at Mastercard, where JoAnn Stonier holds the job. She was previously chief privacy officer there and at American Express, and data privacy and ethics are the primary component of her job. Mastercard has developed a "Data Responsibility Imperative" and Stonier plans to implement its principles internally. They include security and privacy, transparency and control, accountability, integrity, innovation, and positive social impact. She has a law degree, which might be

expected for the ethics focus (though they're not common among CDOs). Although the ethics orientation is somewhat rare now, we expect that it will increase over time.

Too Many Roles for One CDO

Clearly it would be difficult for one person to perform all of these diverse roles effectively. They require different backgrounds and capabilities. That suggests, of course, that organizations need to choose which CDO jobs make most sense in their case. The choice also dictates the optimal reporting relationship for the CDO; a data architect might well report best into the chief information officer, for example, while more analytically focused roles might best report elsewhere, for instance to the CAO if there is a separate one. All of these jobs need to be done by someone, so if your CDO isn't doing them, they should be given to some other role within the organization. And since there are many different information-related jobs within firms today — chief information officer, chief data officer, chief digital officer, etc. — clarity on who is supposed to do what is a necessity. We expect that the number of CDO jobs will continue to grow in organizations, but CDOs will only succeed if their roles are clearly specified.

Thomas H. Davenport is the President's Distinguished Professor in Management and Information Technology at Babson College, a research fellow at the MIT Initiative on the Digital Economy, and a senior adviser at Deloitte Analytics. He is the author of over a dozen management books, most recently *Only Humans Need Apply: Winners and Losers in the Age of Smart Machines* and *The AI Advantage.*

Randy Bean is CEO and managing partner of consultancy NewVantage Partners. You can follow him at @andyBeanNVP.

Companies Need to Rethink What Cybersecurity Leadership Is

by Matthew Doan
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For businesses today, cyber risk is everywhere. Yet for all the investments they've made to secure their systems and protect customers, companies are still struggling to make cybersecurity a vibrant, proactive part of strategy, operations, and culture. The root cause is twofold: (1) Cybersecurity is treated as a back-office job and (2) most cyber leaders are ill-equipped to exert strategic influence. Given that a cyber leader's average tenure is just 18 months, it's clear that something needs to change.

Historically, companies have expected CISOs (Chief Information Security Officer) and security chiefs to focus on technical tasks — and haven't expected more of them. Cyber leaders have the monstrous and all-important goal of securing a business, but when companies make big, strategic decisions — about business models, digital strategy, product mix, M&A — cybersecurity is an afterthought. That means companies are losing out on the value that the function can provide. (It's not unlike the situation that many CMOs find themselves in.)

This approach was acceptable in the past, when threats were slower and less complex, but it is no longer sufficient. Today's cyber leaders must be able to embed security throughout the company's operations, rapidly respond to threats, and influence fellow senior leaders. In short, they must be able to *lead*. And that means companies need to hire and develop security executives who have the skills to do so.

It's time for boards and C-suite executives to reset their expectations of how cybersecurity is positioned and what a cyber leader is. Research being run by New America (where I'm a Cybersecurity Policy Fellow), paired with my observations from dozens of consulting engagements, suggests a framework for what business leaders must do to spur cybersecurity success.

1. Set your intent with cybersecurity strategy. What outcomes are you seeking? Since every business faces a unique risk portfolio, there is no one-size-fits-all approach. However, there are a few primary options that all companies should consider building their strategy around: business continuity, brand protection, compliance, and bottom-line growth. Your business context will drive your choices; you'll want to think about factors like regulatory pressure, risk exposure, and what customers value. For example, an electric utility company may prioritize business continuity to ensure the highest service uptime in a cost-pressured market, while an internet-of-things manufacturer may focus on growth, betting on cybersecurity's ability to be a differentiator and to justify premium prices.

Business leaders must thoroughly analyze their "why" for cybersecurity and be very clear regarding their choice. The chosen strategy will cascade down to operational activities, which will then drive business outcomes. You can't afford to be aimless or generic with your cyber strategy — there's too much at stake.

2. Position the cybersecurity function to have influence. In this sense, "positioning" breaks down into location, authority, and incentives. It's easy to default to slotting cybersecurity within the IT function (under the CIO), but putting IT operations and security under the same roof, and on the same budget, can create problems.

Before deciding where cybersecurity will sit, determine the types of influence you want it to have. Businesses operate in sprawling ecosystems, where digital infrastructure and data are not neatly contained, and cybersecurity needs to be tailored to specific elements. For example, if your cyber needs are especially high in R&D, manufacturing, and customer support, you'll need to position the function for lateral impact. Giving the cyber leader and program proper authority is also vital; they must have political sway and a top-level mandate to orchestrate change across the business.

And lastly, since cybersecurity can't operate in a vacuum, business leaders need to incentivize the right stakeholders to work closely with the function. In the supply chain management department, for example, you might want cybersecurity "checks" to be part of evaluating potential business partners, while in the manufacturing unit you want to ensure that secure machines are being installed on the plant floor. A global pharmaceutical organization that I've worked with incentivizes "better" behavior by tailoring cyber KPIs to each business unit, creating healthy peer pressure that encourages executives to partner with the cybersecurity function, and establishing bonuses for those leaders whose departments do.

3. Get the right cyber leader for your needs. It's clear that the "who" matters for critical leadership positions, so it's worth dissecting which characteristics to look for. Boards and C-suite executives should prioritize mindset over technical skills when they're

considering and evaluating cyber leaders. Looking at what successful cyber leaders do, mindset characteristics jump out, such as having an expansive worldview, understanding how neuroscience can improve leadership, being eager to grow others, and having a voracious hunger for learning.

This mindset stands in stark contrast to skill set — the supreme focus of the cybersecurity community to date. While organizations do require key cyber skills such as network security, threat intelligence, and incident response, these shouldn't be the yardstick used to measure cyber leaders. Yes, cyber leaders must appreciate these technical capabilities and have people to handle them, but the leaders themselves need to be something different: an influential voice in business strategy, technology decisions, and enterprise risk management.

To make this a reality, they must build tight relationships across the business ecosystem while structuring, growing, and empowering teams. They must translate abstract technical concepts into messages that grip senior leaders both logically and emotionally, and elicit their contribution. What this means is that, just as the best person to lead a digital transformation isn't necessarily a digital expert, your best cyber leader might be a proven non-cyber executive who knows the business, has key relationships throughout the company, and has a general appreciation for technology. It's your job to find this person and ensure they serve as an energetic and enduring force within the enterprise.

From the New America research and my consulting work, I've seen how this framework can help mitigate business risk, reduce friction with regulators, lay guardrails for technology and security, and increase competitive advantage. I've also seen that making tangible progress requires substantial top-down initiative from a company's leaders — otherwise the inertia is too great, and cybersecurity remains a back-office, noninfluential activity.

We're now beyond cybersecurity's "whack-a-mole" past of addressing one-off vulnerabilities. The function can — and should — be an essential ingredient to business success. But for that to happen, executives need to embrace their role in embedding cybersecurity across a company's entire landscape and developing the right leaders to make the function thrive.

Matthew Doan is a cyber and digital strategist at BCG Platinion, where he consults to top companies across the world. He's also a Cybersecurity Policy Fellow at New America. His passion is for solving problems at the intersection of technology and human dynamics.
