THE METAMORPHOSIS OF THE IT UNIT

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Since computers first came on the scene over sixty years ago, we've been assuming that companies need an "IT department." While the label attached to this organizational unit has regularly changed, it seems to be widely accepted that, as with a delineated marketing or finance function, companies need some sort of organizational unit dedicated to managing IT and overseeing all the associated staff. While this may have been appropriate when the role of IT was limited to automating routine tasks and processes, might having a dedicated IT unit today actually hold a company back from achieving its digital transformation ambitions?

The dominant organizing model for technology is shifting from one premised on a distinct IT unit to one where IT is embodied in connections providing access to distributed knowledge.

Over the decades, the role of technology has fundamentally changed, but our conceptualization of the IT unit has remained largely unchallenged. MIT CISR research[1] reveals that many executives hold outdated views on what it takes to succeed with technology, and this is constraining their digital ambitions; their thinking does not reflect the realities of what is needed to leverage the digital opportunity.

Based on what is known about the recipe for success with technology, our research also suggests that some companies are reimagining how to leverage the digital opportunity and are developing new organizing models. The IT units at these companies are metamorphosing into something radically different and unrecognizable from the IT departments of old.

ORGANIZING MODELS FOR TECHNOLOGY

An organizing model determines the arrangement of employees, the work they do, and how they do it to achieve the outcomes necessary to realize strategic and operational ambitions. Employees embody knowledge, certain experiences, and mindsets. In our research, we sought to identify the organizing models that companies are adopting to leverage the opportunities of digital technologies. Patterns in our interview data enabled us to discern a variety of models, based on the organizing logic underpinning them.

Two noteworthy models are those we call *Partnership* and *Pervasive*. While the dominant model today is the Partnership model, we have detected a small number of organizations slowly shifting toward the Pervasive model. The Pervasive model has emerged among companies responding to limitations that the Partnership model imposed when they sought to become more digital. Figure 1 contrasts these models.

The Partnership model is premised on the IT unit as a distinct organizational unit that contains most of the knowledge and expertise (i.e., people) it needs to achieve the functional objectives of building and keeping IT systems working, delivering some IT services itself and managing vendors that deliver the rest. Typically having its own management structure and budget, the IT unit's leadership team manages around the unit's boundary to access any knowledge the unit lacks and needs to meet objectives. This is usually achieved through the creation of mechanisms such as liaison roles that establish relationships with other areas of the business. A mature Partnership model also includes governance structures that engage senior non-IT executives to provide additional necessary knowledge such as strategic objectives and future plans or technology investments priorities.

Reinforcing a silo mentality, the Partnership organizing model has seen prescriptions advising CIOs to manage their IT unit as a business. Perhaps as a consequence, references to customers are invariably to internal employees. Moreover, despite the best efforts of IT unit staff, a consequence of this model is the struggle to generate expected returns from IT investments. Merely deploying technology is insufficient to ensure delivery of any expected business benefits. Ensuring the necessary organizational changes that will unlock bene-

1 Various discussions and sixty-eight interviews with executives carried out between February 2018 and June 2019.

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fits is a perennial challenge with the Partnership model, as making those changes is not the IT unit's responsibility. This model also sees companies struggle with digital innovation; innovation does occur, but it tends to be haphazard. The model also encourages so-called bimodal IT[2] delivery.

The Pervasive model maintains that the "IT unit" is not a separate distinct organizational unit, but rather that it is embodied in a set of intra- and inter-organizational networks of connections providing access to distributed knowledge. It is through the coordination and integration of this knowledge that capabilities and products underpinned by technology are realized. This happens by bringing together—usually in teams—people with diverse discipline knowledge and experiences, and giving them resources and the freedom to do what is necessary to achieve outcomes, unhindered by functional silos, hierarchy, multiple handovers, unclear responsibilities, conflicting metrics, bureaucracy, and budgets.

This coordination and integration of knowledge to leverage technology takes place through collaboration and dialogue across an organization, not in an IT unit acting quasi-independently in a command and control manner. While there may be no explicit IT unit, architectural cohesion, data integrity, and cybersecurity are paramount, often maintained by principles-based governance structures. In addition, the traditional budgeting process is being ditched in favor of new funding models.

Although it is just emerging, we are getting glimpses of how the Pervasive model might evolve and the model's likely variants. For example, a number of incumbent banks have expanded the role and scope of their traditional IT unit. DBS Bank organizes around what it calls "platforms," a collection of business capabilities, technology assets, and people. In its quest to become more like a software company, Spanish bank BBVA replaced the role of CIO with a Director of Engineering and Organization who runs technology and business operations and is also responsible for digital products. René Deist, CIO of automotive supplier Faurecia, argues that in "three to five years everyone will work in IT."[3] Global energy company Enel is looking to a future where its IT unit, in the words of Head of Global Digital Solutions Carlo Bozzoli, will be "completely diluted" in the business.[4] Starling Bank, a bank in the UK, is explicit about not having an IT department.

2 Bimodal refers to the practice of managing two separate but coherent styles of work, one focused on predictability, the other on exploration. "Bimodal," Gartner website, https://www.gartner.com/it-glossary/bimodal/.

3 René Deist (Chief Information Officer, Faurecia), MIT CISR interview, April 11, 2019.

4 Carlo Bozzoli (Head of Global Digital Solutions, Enel), MIT CISR interview, September 13, 2018.

STARLING BANK

According to John Mountain, chief information officer of Starling Bank, "Not having an IT department means that you should never need the phrase 'the business.'"[5] Mountain was referring to the IT and business "camps" that exist in most organizations and that are very often at war with each other. Many consider the gulf between these camps the root of many of the problems with technology that have plagued not just banks but businesses of all types. "The massive schism between [the business and IT camps] is what we try desperately not to let exist or develop [at the bank]," said Mountain.

Founded in 2014 by Anne Boden, Starling Bank has built a fully functioning retail bank in the cloud on the company's proprietary technology. Eschewing the traditional banking model, the leadership team chose to design the bank as a technology and data company. The team created an organizing model that meshed traditional business and technical roles, forgoing separate organizational units focused on fostering specific disciplines and expertise.

With no IT department, the perspective of IT among Boden's leadership team shifted from IT as a function to IT as fabric. Guided by the company's organizing model, Starling has challenged many deep-seated assumptions about IT. For example, the bank has turned bimodal IT on its head, releasing code to the bank's back-end platform on at least a daily basis. Per Mountain, rather than seeing shadow IT as "against the system," Starling's philosophy is to "make [it] the system."

Key elements of the Starling organizing model include:

- **Organizing around business functionalities.** Without traditional departments, Starling has looked to organize for work around new constructs so as to rapidly deliver business capabilities and products. It has chosen to organize around specific groupings such as business banking, payments, and Marketplace, a banking marketplace offering customers access to third-party apps and services. These organizing constructs are entrepreneurial in orientation, with aligned teams delivering outcomes.
- **An agile network empowered by team leaders, voluntary collaboration, and knowledge sharing.** Teams are empowered to do whatever they feel is necessary to achieve goals. Ways of working are not mandated; teams use their choice of scrum, Kanban, or their own version of an agile methodology. Teams are self-organizing and establish their own feedback loops. What is paramount: continuous delivery. A strong signal that there is a problem with the company's

5 This case study draws from seven MIT CISR interviews with Starling Bank executives in 2018 to 2019, as well as from presentations, media coverage, and documentation.

organizing model is when, according to Mountain, they begin hearing, "Oh, I can't do this because I'm waiting for this person or that department."

- **Autonomy with accountability.** Giving employees autonomy while holding them fully accountable is a cornerstone of the Starling organizing model. For example, the engineers doing coding are responsible for release of the code into production and for monitoring it. This autonomy/accountability combination gives employees a strong sense of ownership and motivation. Teams are fully resourced, and while this can sometimes result in redundancy, it is something the bank is prepared to accept.
- **Fostering living assets.** Starling has supplanted running projects—which leadership associates with "baggage" such as budgets, plans, and milestones—with a product mindset. Leadership sees projects as a straitjacket inhibiting the company's objective to be free-flowing, innovative, and agile. Rather than building one-off digital assets, Starling continually evolves assets in accordance with ambitions and funding.
- **Being metrics driven.** Despite being a start-up, Boden emphasizes that "Starling doesn't do things by being 'start-uppy,' but by being exact. Rather it is a highly engineered, measured, and managed organization."
- **A principles-based framework for governance.** Starling pursues a principles-based approach to achieve coordination and coherence in areas such as cybersecurity, architecture, and coding.

Also, Starling nurtures cultural traits that support the company's organizing model, including:

- A tolerance for mistakes. Starling strongly encourages employees to experiment, moving quickly but carefully.
- Planning, but without estimation. The company is relatively certain of the detail of what it will be working on only in the next four to eight weeks.
- Full transparency. The company uses Slack, a cloud-based set of proprietary team collaboration tools and services, to provide visibility into work in progress.

Boden maintains, "What I am most proud of is not what we do, but how we do it. It's [our] culture, being brave and courageous and individuals taking responsibility for their actions."

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Just as the caterpillar metamorphoses into a butterfly, we are seeing IT units similarly transform into something completely different. As digital becomes part of the fabric of an enterprise, and infrastructures move to the cloud, the challenge for leadership teams is not to redesign their IT unit or introduce practices such as agile and DevOps. It is to establish the basis for coordinating and integrating knowledge that is distributed across the organization and required to build capabilities and products underpinned by IT. As the knowledge for success with technology can no longer be corralled into a distinct organizational unit, it becomes necessary for organizations to rethink their organizing model. CIOs need to work with their colleagues to create a new frame of reference and an organizing model that will enable their company's digital transformation.

Figure 1: Partnership and Pervasive Models: Dominant and New Organizing Models for IT

	Partnership Model	Pervasive Model
Organizing logic	Corral knowledge to manage IT in a dedicated organizational unit	Coordinate and integrate distributed knowledge to build capabilities
Organizing objective	Understand business requirements	Optimize opportunities from technology
Organizing philosophy	Ensure efficiency and effectiveness	Pursue learning, innovation, and customer impact
Design assumption for technology success	Necessary knowledge can be housed in a separate organizational unit	Necessary knowledge is distributed across the organization and ecosystem
Design criteria	Build relationships to facilitate knowledge access	Build capabilities to deliver products and services
Design focus	Deliver services	Co-create value
Digital strategy process	Align with "the business"	Co-evolve with customers and ecosystem
Role of CIO	Be a strategic partner and boundary spanner	Drive change and orchestrate people

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