The Need for IT Services for Better Business Alignment

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About this paper

A Pathfinder paper navigates decision-makers through the issues surrounding a specific technology or business case, explores the business value of adoption, and recommends the range of considerations and concrete next steps in the decision-making process.

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Executive Summary

Modern business operations are in a constant state of flux, and some of the strongest pressures on IT are being driven by the digital economy. Open source, software-defined infrastructure, new application delivery approaches, and the need to incorporate legacy applications and infrastructure more intelligently are all crucial considerations for IT departments. Organizations are under tremendous pressure to speed software development, deployment and delivery while maintaining uptime, quality and security.

IT department priorities have to change as IT itself moves from being a cost center to a potential differentiator, with software permeating all aspects of the business. Consequently, today’s IT teams are increasingly looking to a technology services partner for support – one that is equipped for the requirements of the digital economy.

Facing the New Normal

As the new millennium dawned, what we now consider ‘traditional IT’ was still dominant in the corporate world, and was still largely evolving along conventional lines. IT remained very much in control of internal systems and the software that ran on them. But the internet effect soon took hold, opening the floodgates of data and making computer resources more broadly accessible – and soon essential – to consumers and businesses alike. Then came cloud computing, providing instant access to flexible – and practically unlimited – external IT resources for line-of-business groups, changing capex outlays to opex and completely altering customer expectations on the accepted norms of IT complexity and cost.

All of this has helped usher in a new period of transition and development, including a strong motivation for organizations to undergo ‘digital transformation’ so they are in step with the new normal of customer expectations. The three main imperatives driving this ‘new normal’ are: intelligence (getting insight from data and moving to data-driven decision-making); business agility (as digital disruption comes to every industry); and customer-centricity, largely enabled by the smartphone (which comes with greatly heightened concerns over privacy and data protection).

In the current software-centric digital environment, technology is core to all businesses, and it is quite common for CEOs in a variety of industry sectors to now say that they are in the technology or software market. Increasingly, the leading incumbent enterprises in nearly every sector are looking to augment their existing businesses by creating platforms to orchestrate their own digital services and those of their partners in order to better compete in disrupted markets.

These sweeping technological changes bring enormous promise, such as improved capabilities for centralizing and automating the management of IT (and IT risk). Much of this promise is offered by the large-scale agility of cloud computing, as well as the prospects for improved safety and convenience arising from pervasive intelligence and contextual digital experience.
The trade-off, however, is that such significant change brings with it a new set of risks. As technology becomes universal, potential cybersecurity threats also become universal. Behavioral analytics, machine learning and AI will become primary tools for defending enterprise technology – but will also themselves be potential security targets. In addition to security concerns, there are also challenges around gaining visibility into the new IT environments being developed and deployed, creating risks around degraded application performance.

The net result of this ‘new normal’ in the business world is that organizations are under tremendous pressure to speed software development, deployment and delivery while also maintaining uptime, quality and security. They need a different kind of technology services partner to assist them, a partner who can help them meet the unique requirements of the digital economy.

The Requirements of IT Transformation

‘Digital transformation’ is a term that is widely used in the industry – but what, exactly, is being transformed digitally? 451 Research believes there are three major aspects of an organization being transformed: the way it uses information, its business processes and the technology platforms it uses (see Figure 1).

Figure 1: What Exactly Needs to be Transformed?
Source: 451 Research
**Information Transformation** – Going digital drives an explosive increase in the amount of data that organizations have. New channels of engagement with customers have created new sources of information coming into the organization at speeds never seen before. In the past, customer interaction was mostly one-way – from the business to the customer. Now the ideal model is customer-directed, on-demand two-way engagement, anywhere and on any device. Add to that the explosion in information from Internet of Things (IoT) devices, and it’s pretty clear that data-driven decision-making is the overall market direction, leveraging technologies such as advanced analytics and machine learning.

**Process Transformation** – Digital transformation requires not only a technical shift, but a cultural one. Collaboration is an obvious example: Without waiting for IT’s blessing, employees embrace enterprise file sync-and-share tools such as Box, Dropbox, Google Apps for Work and Slack, and use them not just internally but with customers, partners and suppliers. Similarly, in software development, teams are moving beyond the planning, coding and build phases into testing, release, deployment and operations, thereby having a shared understanding of how software is being used across the organization. The DevOps approach enables organizations to react faster to customer demands, directly benefiting the overall customer experience.

**Platform Transformation** – Priorities have to change as IT moves from being a cost center to being a potential differentiator, with software permeating all aspects of the business. The days of solely managing on-premises applications are over, and hybrid IT environments are quickly becoming the norm. Organizations need systems of engagement – tools and applications specifically designed for customer interaction through multiple channels. And these systems of engagement need to integrate with the old systems of record (like ERP, CRM, or finance and accounting systems). Only in this way can customer intelligence be leveraged to enable the best possible customer experience. These systems of engagement must take advantage of all this new customer interaction and the data that is generated from it in order to keep pace with the smartphone-toting, social-media-posting empowered customer.

**Technology Choices**

When it comes to the best fit for digital transformation, open source technologies have obvious advantages. They enable a faster rate of overall innovation from the ecosystem of providers contributing to the solution. Open source technologies also give organizations greater freedom to pursue different components from different vendors, since it is an inherently modular approach, with various components all made to be integrated. This is particularly important in a world of continuous improvement where, in order to stay current, it is critical to be able to easily insert new technology into existing operations. Open source technology typically provides organizations with the flexibility, scale and upgradability they are looking for to compete in the digital economy.

Furthermore, while many organizations see a clear need to innovate, they can easily fall prey to the ‘not invented here’ syndrome – the belief that it is best to innovate from within the organization. Deploying open source software is an effective way of encouraging innovation, crowdsourcing and the use of outside expertise. With continuous improvement in open source technologies, it is now possible to reduce licensing expenses yet still ensure that new digital products and services based on the technology work flawlessly. For example, the use of Linux enables established companies to be more
profitable in their existing product portfolio while allowing for product variants that compete in new and emerging markets.

While an increasing number of organizations are recognizing the benefits of open source as they undertake their digital transformation efforts, they typically need help to make some internal team changes that the ‘new normal’ requires.

Moving From Traditional to Transformational IT

One consequence of organizations transforming their IT systems to embrace modern and agile technologies is that IT becomes multi-modal: multiple infrastructures are used for various workloads and applications. For example, cloud-based platforms are integrated with on-premises systems, containerized development is merged with traditional application development, or legacy applications are combined with microservices.

In this world of constant technology-driven disruption, how does IT demonstrate that it is performing well? Traditional metrics tend to focus on reactive measures such as response times and resolution times, as well as ticket volume reduction, which may be linked to application metrics around performance and availability. However, modern data-driven businesses require IT that is focused on supporting critical business goals like customer success and revenue growth. The IT organization of the future needs to be more fully integrated into the overall horizontal workflow of the business units. It should function as a catalyst for line-of-business (LOB) teams to transform and become more data-driven. IT’s enhanced role will be to drive value throughout the organization.

IT teams are typically heavy on the tech expertise side of the business equation, while LOB end users are heavy on the nontechnical expertise side. This traditional environment often creates communication misalignment that negatively impacts business value creation and digital transformation projects. Traditional IT management marginalizes IT teams from playing a major role in LOB value creation.

IT teams cannot remain marginalized from business strategy, functioning solely as tactical problem-solvers called in to ‘fix’ user-generated errors. They must become embedded, active members of LOB teams, ensuring that data and analytics utilization become daily – and not dreaded – business habits across the workforce. IT could accelerate improvement in operating metrics relevant to a company’s performance by, say, closing the financial quarter more quickly or enabling the business to flex for seasonal peak retail activity. Or the relevant performance might be more about an organization’s ability to create significant new value. Workers across an organization regularly encounter new needs and new tools for meeting these needs, and they can identify new ways to deliver more value and impact in multiple dimensions – but how effective is the IT team in helping other parts of the organization generate more value?
Ultimately, to support digital transformation, IT teams must become observers of user behavior and trends, and function as the ultimate source of ‘voice of the customer’ data for business units. They must also help translate observations into product and service innovation, and become collaborators for leveraging data and analytics in the creation of business value. This change will take time, obviously, and some of the transitional attributes for teams evolving from traditional IT to transformational IT are shown in Figure 2.

**Figure 2: Comparing Transformational IT vs. Traditional IT Management**  
*Source: 451 Research*

<table>
<thead>
<tr>
<th>TRANSFORMATIONAL</th>
<th>TRADITIONAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Cross-functional application architecture and digital infrastructure deployment teams.</td>
<td>• Siloes of application, infrastructure and datacenter facilities experts.</td>
</tr>
<tr>
<td>• Expert technology broker advisor for entire organization. Research- and solution-focused approach vs. ‘we must invent our own unique solution.’</td>
<td>• Inventor/implementer of unique platforms and single point solutions. Best-of-breed technology implementation approach.</td>
</tr>
<tr>
<td>• Singular focus on flexible (variable) capacity/cost solutions. Cost AND capacities may be decreased/increased based on business demand.</td>
<td>• Fixed (capex-based) implementation strategies. Fixed IT assets, datacenters.</td>
</tr>
<tr>
<td>• Focus on metrics that provide an enterprise view of capability and costs. Provide two-way alignment of business and technology costs/capacities.</td>
<td>• Business, technology and facilities metrics are siloed. No clear understanding of the real cost of IT to the business.</td>
</tr>
<tr>
<td>• Manager of Managers view of the IT world. Orchestration of best execution venues for applications.</td>
<td>• No orchestration of many different technology and datacenter facilities siloes. Very difficult to optimize either cost or capacities.</td>
</tr>
<tr>
<td>• Development of partners to support cross-functional solutions.</td>
<td>• Technical providers focused on point solutions or single-purpose services.</td>
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**IT Generalists in Demand**

At present, the IT specialist model prevails among IT teams as organizations move along the digital transformation spectrum. IT specialists are staff with domain-specific responsibilities, siloed by technology (e.g., servers, storage, networking) or discipline (e.g., applications, software development). IT generalists, on the other hand, are staff with cross-disciplinary responsibilities and broad skills that span multiple technology domains.

There are multiple reasons behind the increasing requirement for IT generalists:

• The move to cloud delivery, which de-emphasizes former expertise around management of hardware such as servers and presents new kinds of IT management challenges.

• The need to understand the management software, network, storage and compute products from multiple vendors that will all be housed in the same cabinet due to the rise of application-based platforms for, say, data management and file systems.

• The ability to add third-party products to each specific cloud vendor’s infrastructure in order to provide an overall capability.

• The seemingly constant introduction of new technologies and practices (e.g., microservices architectures, containers, serverless) that require individuals to adapt and help out wherever needed.
The composition of future IT technical support teams needs to reflect this cross-functional level of expertise. However, 451 Research data currently indicates very little near-term change among these teams, as illustrated in Figure 3.

**Figure 3: Changes or Planned Changes to IT Technical Teams**  
*Source: 451 Research's Voice of the Enterprise: Digital Pulse, Organizational Dynamics 2018*

<table>
<thead>
<tr>
<th>Option</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes, we expect to move toward specialist/siloed technical disciplines (e.g., server, storage, networking teams) and keep developer and application teams separate</td>
<td>7%</td>
</tr>
<tr>
<td>Yes, we expect to move toward IT infrastructure generalists across disciplines and keep developer and application teams separate</td>
<td>12%</td>
</tr>
<tr>
<td>Yes, we expect to move toward developer-and-application-focused teams that manage their own IT infrastructure</td>
<td>15%</td>
</tr>
<tr>
<td>No, we have no plans to change our IT team layout</td>
<td>65%</td>
</tr>
</tbody>
</table>

Beyond broadening the expertise of technical teams, there must also be wider implementation of agile working methods in order to break down the ‘silo mentality’ and simplify cooperation between development, operations and QA to create a more flexible, innovative organization. While businesses are finding open source technology helpful in getting teams to think differently about IT as part of agile projects, many organizations struggle to attract and retain staff with the skills required to execute digital projects.

**Mind the Skills Gap**

Understanding what talent is necessary for digital transformation starts with understanding what capabilities digital businesses need. Digital businesses are focused on the customer, and they operate very quickly. They are responsive and agile, and can create proprietary insights. And given the rapid pace of change, companies increasingly need to be able to engage with broader ecosystems encompassing a range of businesses and technologies. Additionally, they will need to position themselves to take advantage of technologies such as AI, IoT and blockchain.

This transformation requires IT systems that can process massive amounts of data and continuously deliver new infrastructure environments in minutes. They must be flexible enough to integrate with outside platforms and technologies, and deliver exceptional customer experiences – all while maintaining core legacy IT systems.
Within this context, it is not surprising that IT skills gaps are widening, particularly in the cloud- and data-centric domains. According to 451 Research data, only 16% of organizations report having no IT skills shortages. Large enterprises, digital transformation ‘planners’ and retail sector respondents cite the largest IT skills deficits, indicating that these organizations are at the forefront of those who ‘know what they don’t know.’

**Figure 4: IT Domains Facing Skills Shortages**
*Source: 451 Research’s Voice of the Enterprise: Digital Pulse, Organizational Dynamics 2018*

<table>
<thead>
<tr>
<th>IT Domain</th>
<th>% of Respondents</th>
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</thead>
<tbody>
<tr>
<td>Cloud platform expertise (e.g., AWS, Azure, VMware, OpenStack, etc.)</td>
<td>39%</td>
</tr>
<tr>
<td>Information security</td>
<td>37%</td>
</tr>
<tr>
<td>Machine learning/artificial intelligence</td>
<td>36%</td>
</tr>
<tr>
<td>Cloud functions/tools (e.g., containers, microservices)</td>
<td>30%</td>
</tr>
<tr>
<td>Application development for cloud-native IT environments</td>
<td>26%</td>
</tr>
<tr>
<td>Business intelligence/data analytics</td>
<td>25%</td>
</tr>
<tr>
<td>Data analytics</td>
<td>25%</td>
</tr>
<tr>
<td>Data compliance/governance</td>
<td>17%</td>
</tr>
<tr>
<td>None - not currently facing an IT skills shortage</td>
<td>16%</td>
</tr>
<tr>
<td>Open source/community code expertise</td>
<td>14%</td>
</tr>
<tr>
<td>Third-party service provider management (e.g., contract management/ negotiation)</td>
<td>8%</td>
</tr>
<tr>
<td>Other</td>
<td>5%</td>
</tr>
</tbody>
</table>

The imperatives of digital transformation require new cloud- and data-centric IT skills, as well as information security expertise tailored to the digital era. Yet skills gaps exist across multiple technology domains. Cloud platforms and information security emerged as top areas of IT expertise gaps in 2017, and skills here continue to remain scarce. Another area now facing acute skills shortages is cloud-native environments for container and microservices technologies.

In the open source world, Linux expertise is the most in-demand skill as organizations realize that cloud and container technologies, along with DevOps practices, are now a necessary part of their digital business. According to the latest Open Source Jobs Report, most organizations are now investing in training existing employees on new open source technologies and helping them gain certifications. Technology and service providers are often playing an important role in transferring knowledge to the in-house teams as part of their training and support programs. Some in-house teams are also strategically deploying open source technology to attract bright young development talent to help catalyze their digital business.
A major challenge here is the phenomenon of open source talent poaching – as soon as employees gain open source certifications, their market value jumps, and the lure of working for digital-native brands at a higher salary becomes difficult to resist. So how can traditional businesses mitigate this risk? One answer is that not all skills need to be in-house. Organizations and discrete project teams should consider a mix of internal and external talent, of both a temporary and permanent nature. This is one reason why selecting and working with a good open source technology partner with a wide services portfolio is important.

Reaching Desired Business Outcomes With the Right Open Source Services Partner

Given the strong synergies between open source technologies and digital transformation to deliver business value, many organizations are investing in open source but are aware that there are transitional challenges to overcome before they can reap the benefits. Many of these challenges involve getting projects started when the skills are not yet available in-house.

To effectively take advantage of open source technology, enterprises need to engage with trusted partners that can help them to develop and support their software-defined infrastructure and to clear implementation, management and maintenance hurdles. Open source services are available in a wide range of options, from workload audit and migration guidance to application design and deployment, or developer training and engineer certification. The endgame is a cohesive operation where skills gaps can be addressed, maintenance burdens relieved and new technologies exploited to the fullest.

To achieve this goal, it is important for enterprises to select dedicated third-party service technicians that are familiar with their IT infrastructure and internal teams, and can offer initial design and deployment advice, as well as provide proactive maintenance support. Ideally, the selected services vendor should act as a partner, sharing best practices, offering insight into emerging trends and technologies, and providing technical expertise.

Given the scarcity of many open source skills, a services engagement should also be able to address knowledge transfer or training requirements. This enables technology adoption that is sustainable for the internal IT team by extending their skills to include those required for digital projects.

And where there are skills gaps, having a services organization that can step up and augment staff as required is also well worth considering. In the world of digital transformation, trusted open source services partners should accommodate technology disruption by providing coaching and support for the deployment of new and emerging technologies.
In evaluating open source vendors, it is critical to find one with a services arm that can address all of these areas in order to achieve the desired digital business outcomes as quickly and effectively as possible.

Conclusion

As business models continue to be disrupted by the digital economy, the impact on enterprise IT is huge. Prior to the rise of cloud delivery, IT was still very much in control of internal systems and the software that ran on them. Now, in order to remain competitive, organizations need to change the way they use information and how they leverage technology, as well as adjusting their business processes.

Enterprises are grappling with a mix of traditional infrastructure and software-defined infrastructure, and they want to be confident that workloads have the mobility to take advantage of this mixed IT environment. When it comes to the best-fit technology for taking advantage of multiple modes of IT and application development and deployment, organizations are increasingly looking to open source software.

The shift to multi-modal IT places different demands on IT technical teams as they need to provide this cross-functional level of expertise. Yet 451 Research currently sees very little change in the composition of these IT teams, suggesting this is a challenge that needs to be addressed urgently as part of digital transformation projects. Fortunately, not all skills need to be in-house from day one. Partnering with an open source vendor with a strong services arm can fortify internal IT teams and help ensure a seamless transformation.
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