The Digital Talent Gap
Developing Skills for Today’s Digital Organizations
The War for Talent Has Gone Digital

The shortage of digital skills in the current marketplace is unprecedented. It is estimated that over 4.4 million IT jobs will be created around Big Data by 2015; however, only a third of these new jobs will be filled. Martha Lane Fox, the UK’s digital inclusion champion, believes over 16 million people in the UK lack the basic digital skills to fully benefit from the Internet. Even Millennials are a matter of concern. In a survey comprising over 800 middle to upper management executives from over 50 industries, nearly one in five Millennials in the modern workplace are perceived to be lacking in analytical skills.

"The impact of digital technologies is now felt not only in the IT department, but across the entire organization, creating a huge demand for digital skills."

The reasons driving this skills shortage are not hard to identify. The usage of mobile, social and analytical tools is permeating the length and breadth of every function across the organization. Unlike the past, the impact of these digital technologies and tools is felt not just in the IT department. This means that the magnitude of training and re-skilling that is required is enormous. Moreover, each new technology cycle has brought forth new requirements and these cycles are increasingly getting shorter. Employees must now refresh their skills more frequently if they wish to stay relevant in this rapidly changing digital environment.

The head of India R&D Labs of software firm SAP succinctly states: “The shelf life of a software engineer today is no more than that of a cricketer – about 15 years. The 20-year-old guys provide me more value than the 35-year-olds do."

Organizations are beginning to recognize the magnitude of the problem. Our own research with the MIT Center for Digital Business has revealed that 77% of companies considered missing digital skills as the key hurdle to their digital transformation. Digital leaders or ‘Digirati’ are already investing in digital skills and reaping significant benefits in comparison to other companies (see Figure 1). On average, ‘Digirati’ are 26% more profitable than their industry competitors.

This skills shortage is creating a ‘war for talent’, where companies have to compete for the best talent with new categories of players. Unlike in the past, the hunt for the best talent is no more limited to localized skills in certain departments. In this case, the talent war is manifest across the entire organization. The important questions are: Do organizations include digital skills as a key component in their workforce plans? Are HR departments equipped and skilled to bring innovative solutions to bridge the digital skills gap? How are Digiratis developing digital skills?

Figure 1: Digital Leaders or ‘Digirati’ are already investing in digital skills and reaping the benefits

<table>
<thead>
<tr>
<th>We are investing in the necessary digital skills</th>
<th>We agree/strongly agree we have digital skills</th>
</tr>
</thead>
<tbody>
<tr>
<td>Digirati 82%</td>
<td>Analytics 26%</td>
</tr>
<tr>
<td>All others 40%</td>
<td>Social 11%</td>
</tr>
<tr>
<td>82% of respondents from Digirati agreed,</td>
<td>Mobile 9%</td>
</tr>
<tr>
<td>compared to 40% in other firms</td>
<td></td>
</tr>
</tbody>
</table>


*Organizations that truly transform by leveraging digital technologies*
77% of companies consider missing digital skills as the key hurdle to their Digital Transformation.

Organizations are currently facing an acute shortage of digital skills. To find out the current level of skills shortage and reasons behind this shortage, we interviewed companies across the globe.

Companies are Not Investing in Digital Skills

Over 90% of the companies we interviewed stated that they did not have necessary skills in the areas of social media, mobile, internal social networks, process automation and performance monitoring and analysis. That is not to say they do not realize the importance of such digital skills. Our research with the MIT uncovered that 87% of companies feel digital transformation is a competitive opportunity. However, only 46% were investing in the development of digital skills.

Despite the skills shortage, only 46% of companies are investing in developing digital skills.

Training Programs are Out of Sync

A key challenge that we uncovered was how out of sync the training efforts were. We found that only 4% of companies ensured that their training efforts were aligned with their overall digital strategy.

The result of this lack of synchronization and alignment became clear when we analyzed corporate training budgets allocated to digital. We found that none of the companies we surveyed spends more than 20% of its training budget on digital. Such poor investment is clearly reflected in the limited reach of training initiatives. For an overwhelming 95% of companies, only 20% of their workforce benefited from trainings on digital (see page 4).

Only 4% of companies we interviewed are aligning their training efforts with their digital strategy.

Many Companies Continue to Use Traditional Approaches for Sourcing Digital Skills

Companies seem to be overly cautious and conservative in their acquisition of digital skills. We found that while companies are increasingly using multiple methods to source digital skills, they still rely heavily on traditional methods such as training, recruitment and partnership. In our survey, over 63% of companies are using such traditional methods to source digital talent. On the other hand, only 13% of companies are using innovative methods such as targeted company acquisition or an incubator approach (see page 4). While traditional methods definitely need to be considered, other inventive avenues present many untapped opportunities. There have been many success stories of companies that have used innovative approaches such as acquiring companies and engaging startups through incubation.

The Human Resources Function is Not Actively Involved in Digital Skills Development

An added challenge appears to be the fact that HR is not in the driver’s seat when it comes to steering digital skills development. We found that only 30% of organizations have mentioned HR as being actively involved in skills development. So, the question remains who is managing the transformation of skills if it is not HR? In over 60% of the companies we surveyed, it was the senior leadership, IT division, functional teams and employees who were spearheading digital skills development.

This lack of investment and alignment with digital strategy is worrisome as it means that companies still have a long way to go before they can resolve their digital skills issue. Apart from the investment focus, a talent shortage of the magnitude that organizations face today requires a more proactive stance on the part of companies. Organizations need to tap into newer platforms for acquiring skills while also accelerating the pace of skills development. They need to understand that traditional skills and approaches are not going to help them in the digital age. In the next section, we take a look at the skills that organizations need in order to thrive in the digital world.
Companies realize the digital skills gap and its importance

Over 90% of companies lack digital skills

87% of companies feel digital transformation is a competitive opportunity

Yet, they are not investing in digital skills

Only 46% are investing in developing digital skills

Moreover, existing efforts to develop skills are out of sync

Only 4% of companies align their training efforts with their digital strategy

No company spends > 20% of its training budget on digital

Only 20% of companies’ workforce benefits from training on digital

Companies Continue to Use Traditional Approaches to Source Digital Skills

Over 63% of companies are using traditional methods to source digital talent

Only 13% of companies are using innovative methods

Human Resources Function is Not Actively Involved in Digital Skills Development

Only 30% of organizations have mentioned HR as being actively involved in skills development

Over 60% of companies have identified senior leadership, IT division, functional teams and employees as leading cohorts
What Skills are Most Relevant for the Digital Age?

One of the common challenges that most organizations have faced in the past is how technical teams and business teams speak different languages. In today’s digital age, this will prove to be a significant hurdle. The proliferation of digital tools and technologies across functions means that the business worker has to learn sufficient technical skills. At the same time, the technical engineer should be ready to speak the business language in order to be in sync with their marketing and product counterparts. In the long-term, the need is for an evolved professional who is equally comfortable with business and technology (see Figure 2).

There is Demand for New Types of Technical Skills

There is a growing usage of Big Data analytics, social media platforms and mobile devices. This, in turn, is forcing employees to acquire skills in these areas.

For instance, our survey indicated that over 50% of companies realize that mobile is one of the two most important skills for digital transformation. However, over 80% of these companies face a talent shortage in mobile. Mobile skills encompass design skills, e.g. platform design, user-interface and gamification as well as technical skills such as app development, cloud services, mobile device management and security.

Similarly, in a survey conducted with American executives, over 85% mentioned that they have a Big Data initiative planned or in progress; however, only 21% rated their company’s analytics capabilities as “more than adequate” or “world class”. Moreover, all respondents cited facing issues while hiring analytical talent with more than 75% saying that it is challenging to source such skills.

Like mobile and analytics, social media skills is another skill area that is in demand. In a survey conducted with respondents from organizations with over 50,000 employees, only 13% of companies described their social media efforts as advanced. These social media skills encompass soft skills such as building a brand, community participation, virtual facilitation, online etiquette and front-end engagement skills such as social media outreach, community management, customer service and public relations. Our Digital Maturity Assessment survey also highlighted that over 50% of companies lacked social media skills.

Over 50% of companies realize mobile is a key skill for digital transformation; over 80% of them face a talent shortage in mobile.

Only 13% of companies described their social media efforts as advanced.

Source: Capgemini Consulting Analysis
Technical Talents Need a Strong Understanding of Business

The lack of advanced technical skills in mobile, analytics and social media isn’t the only challenge that companies face. They also need to increasingly complement these digital skills with business acumen. The true potential of digital skills is realized when they are combined with a robust understanding of the business. For instance, the real value of data analytics stems from an organization’s ability to operationalize these insights. This requires combining data prowess with strategic and creative thinking, collaboration and communication skills. This is leading to a growing demand for individuals who possess technical skills along with business strategy and leadership abilities.

Markus Nordlin, the CIO of Zurich Insurance, sums up the requirement for the future leaders, “I believe that the successful leaders of tomorrow, in any business or industry, are going to be true hybrid professionals who have spent some time in IT but have shifted to operations and vice-versa.” And when it comes to the next generation of talent, Anne G. Robinson, President of INFORMS emphasized how critical it is that “analytics graduates learn program management and change management, so they understand and drive the end-to-end analytics process.”

I believe that the successful leaders of tomorrow are going to be true hybrid professionals who have spent some time in IT but have shifted to operations and vice-versa.

- Markus Nordlin, CIO Zurich Insurance

Business Professionals Must Understand the Language of IT

By 2015, research firm IDC expects that 90% of all jobs will require Information and Communication Technology (ICT) skills. Business professionals will increasingly need to be comfortable with digital tools and technologies in order to perform their core roles. They need to understand the language of IT that will enable them to have a healthy conversation with their IT colleagues on how best they want to serve their customers. Indeed, IDC expects that 50% of new marketing hires in 2013 will have technical backgrounds.

So, what does the digital-savvy professional of the future look like? Future employees will need to combine excellent digital specialist skills with deep functional business knowledge. They should be comfortable with short delivery cycles and be able to operate across silos and within cross-functional teams. They need to ensure they are ahead of the technology curve and in roles where they can add value beyond what digital technology generates. Terry Harrison, past President of INFORMS and Professor at the Penn State University puts it directly, “It is no longer sufficient that you think of your job as doing what you have constantly done for many years. If you have that mindset long enough then software will be developed to do what you do making you redundant.”

However, getting to an organization that is filled with employees having such skills is not an easy task. It requires plugging of the digital skills gap. In the next section, we propose some approaches to achieving this.

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b. Anne G. Robinson is the Director, Supply Chain Strategy and Analytics at Verizon Wireless.

c. INFORMS: Institute for Operations Research and the Management Sciences and is headquartered in Baltimore, USA.
How Can Organizations Plug the Skills Gap?

The growing demand and limited supply of digital talent is placing immense pressure on organizations to scale up on their digital skills. We believe organizations need to initiate training programs on digital tools, look at innovative recruitment methods, carry out targeted acquisitions, enter into partnerships and engage with the startup community in order to plug the digital skills gap (see Figure 3).

Employee Exchange Programs with Technology Companies Aid in Accelerating Digital Training

Training programs on digital skills help employees understand how to use and implement new technologies and platforms. P&G is an interesting example of a company that has trained its employees on digital skills to scale up for future growth. To step up its Internet marketing initiatives and to scale up digital skills amongst its employees, P&G and Google started an employee exchange program. The aim of the program was to foster innovation and cross-pollination of digital talent. Employees from both companies took part in each other’s training programs and attended meetings where business plans were formalized. With this program, P&G gained expertise on digital and search marketing to effectively sell its products online.

P&G entered into an employee-exchange program with Google to step up its Internet marketing initiatives and scale up digital skills.

Next Generation Learning in Action

Initially, Intel launched their Digital IQ training program in 2008. The program comprised 60 online courses spanning areas such as social media measurement, brand identity in social media, mobile marketing and viral marketing. Within two years of its launch, over 20,000 employees had completed the Digital IQ training. Going a step further, Intel introduced another course, called Digital IQ 500, which licenses Intel employees to practice social media on behalf of the company.


Figure 3: Plugging the Skills Gap – Examples of Best Practices

- P&G entered into an employee-exchange program with Google to step up its Internet marketing initiatives and scale up digital skills.
- L’Oréal gamified their recruitment process.
- P&G launched an employee-exchange program with Google.
- @WalmartLabs made several acquisitions of mobile, social and technology firms.
- ACCELERATOR partnered with Techstars for an incubator program.
- Boehringer Ingelheim partnered with Kaggle, a platform for data prediction competitions.

Source: Capgemini Consulting Analysis.
The need for employees to have a thorough understanding of digital technologies and their business applications also extends to senior executives. Effective reverse mentoring programs help address this gap. The importance of learning from the younger generation is highlighted by Krish Shankar, Head of HR at Indian communication group Bharti Airtel. According to him, “The future of technology will be defined by the youth, and unless we talk to the younger generation and observe them closely, we will not know their demands. A program like this [reverse mentoring] sends a message that no matter how high up you are, you are never too old to learn.” Such reverse mentoring programs have been pioneered by General Electric and adopted by companies such as L’Oréal and Cisco.

**Digitizing the Recruitment Process Encourages Best-in-Class Digital Talent to Engage**

Digital talent does not lend itself to easy recruitment. Indeed, a survey indicates that over 49% of candidates are more likely to consider a job advertised in an innovative way. The same survey found that over three-quarters of HR professionals think that it has become crucial to use new ways to recruit and retain talent. L’Oréal’s website ‘Reveal’ gamifies its recruitment process. The website lets visitors communicate with employees and take part in real-life, problem-solving scenarios within a virtual environment. The game-like setting allows visitors to collect points and receive feedback. The users with the highest points compete for prizes and job opportunities with L’Oréal.

When recruiting for skills that are in short supply, organizations should look outside their industry towards those who have already taken a lead in developing similar talent. For instance, when gaming company Caesars wanted to build their analytics capability, they targeted employees from financial services companies. These included companies such as Capital One, American Express and First USA — companies that were early movers in developing analytics talent and, thus, were a good source of such talent for Caesars.

**Over 49% of candidates are more likely to consider a job advertised in an innovative way.**

**Targeted Company Acquisitions Help Access Skilled Hires in Key Digital Technology Areas**

Targeted company acquisitions help organizations gain complementary digital talent rapidly. For instance, Walmart Labs, the social and mobile lab of Walmart, has acquired several firms for their talent in specific areas/technologies. These companies have ranged from mobile-related agencies focused on product development — Small Society, search engine Kosmix, point-of-sale development startup Grabble — to a real-time search engine called OneRiot.

**Partnerships with Online Skill Platforms Facilitate Innovative Product Development**

Partnerships enable companies to leverage the digital expertise of other organizations. Such partnerships allow companies to engage best-in-class talent or services for their digital initiatives. For instance, Boehringer Ingelheim, a pharmaceutical company, partnered with Kaggle — a platform for data prediction competitions — to create predictive models for clinical research. The partnership aimed at leveraging the skills of data scientists present on the Kaggle platform to develop models to be used for drug development. The three-month long competition attracted 700 teams that, between them, submitted close to 9,000 entries.

**Incubating Startups Allows Companies to Tap into a Repertoire of New Ideas**

Companies can gain access to external digital talent by nurturing niche startups and providing them with assistance and opportunities. Such initiatives provide companies with an opportunity to look at a larger number of ideas, which they either have not been able to focus on or develop due to lack of required skill sets within the company.

For instance, Nike has partnered with Techstars — a startup accelerator — for their Nike+ Accelerator program, to provide select startups with the opportunity to build products on top of the Nike+ and NikeFuel platforms. The program aims to leverage the Nike+ platform to support digital innovation. Selected companies get access to Nike’s development tools, office facilities and technical platforms and support, to create solutions. Nike also supports the selected companies by providing access to a select list of Nike executives and external mentors. Similar initiatives have also been started by companies such as Mondelez.

Beyond these models, there are several other approaches to identifying digital talent. There are multiple validated, virtual talent pools that are coming up. These “Expert Networks” increasingly connect disconnected and geographically spread talent with clients. Some examples include the Gerson Lehrman Group and Capvision.

In the next and final section, we propose a roadmap for how organizations can develop their digital skills and also offer a self-assessment model to help companies quickly assess where they stand in their digital skills development journey.
Digital skills requirements vary from one organization to the other based on their digital maturity and transformational capability. Key focus areas will depend on individual business requirements as well as availability of resources. Organizations need to define a vision, identify future skill requirements, undertake a comprehensive skills gap assessment, take steps to bridge the gap and finally initiate actions to constantly evaluate progress in their journey to develop digital skills (see Figure 4).

**Define Vision and Identify Future Skill Requirements**

The first step in progressing on the digital skills acquisition road is to define a clear digital skills vision for the organization. What are the key skills that the company needs if it has to meet its larger digital transformation goals? This analysis should be driven by the business with the involvement of HR and IT teams.

**Perform a Skills Gap Analysis**

Once a vision has been established and future skills requirements defined, organizations need to conduct a self-assessment of their existing skills. The aim is to compare existing skills levels to desired levels of proficiency and determine the skills gaps. This should be driven by HR with support from business and IT.

**Determine the digital proficiency of employees**

The first step is to determine the digital proficiency and level of online influence of employees. For this purpose, scores from third-party services such as Klout, Kred and Kaggle can be useful in assessing employees’ understanding and usage of specific digital technologies. HR should drive this step with the support of marketing.

**Use these findings to identify digital personas of employees**

The extent of digital-savviness in employees will help determine the kind of skills gap that exists and potential ways to bridge this gap. Typically, senior leadership has a strong stake in business-level decisions, and this is no different when it comes to the skills development strategy of the business. However, it is important to ask: do these influencers have the necessary digital know-how to drive the vision forward? What about employees who use digital platforms to engage professionally with colleagues and customers? How well-placed are they in being pioneers of change? Employees who use digital platforms such as social media for staying connected on the personal front maybe well-versed with digital tools. However, will they be willing to use these skills to accelerate skills development in the larger organization? Then, of course, there are people with purely functional roles who may not be inclined towards digital but might need to sharpen their digital prowess if they want to remain competitive. This stage should also be driven by HR with the support of marketing.

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d Klout Score is a numerical value between 1 and 100 and is measured on the basis of user’s social media network, content created and the interaction by other users with that content.
e Kred is an influence measure for social media. It is given as a dual score to distinguish the person’s Influence and Outreach on social media.
f Kaggle score is a score derived based on the number and complexity of data related competitions a person has successfully participated in on the Kaggle platform.
# Digital Skills Self-Assessment

For each answer, record a score between 1 and 7 (1 = Strongly Disagree, 3 = Neutral, 7 = Strongly Agree)

<table>
<thead>
<tr>
<th>Area of Focus</th>
<th>Key Questions</th>
<th>Your Score</th>
<th>Recommended Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vision &amp; Leadership</td>
<td>We have committed leadership at the top for driving digital skills</td>
<td>0-21</td>
<td>&gt;18 You have a leadership that has a strong vision on digital skills</td>
</tr>
<tr>
<td></td>
<td>Our board is digital-savvy</td>
<td></td>
<td>15&lt;X&lt;18 You need to sensitize your top management on the need for a top-down approach</td>
</tr>
<tr>
<td></td>
<td>We have a clear vision of the skills we need in order to meet our larger digital transformation goals</td>
<td>0-21</td>
<td>&lt;15 You need to inject a passion for digital at the very top of the company</td>
</tr>
<tr>
<td>As-Is Assessment</td>
<td>We have the requisite digital skills in-house to successfully drive digital transformation</td>
<td>0-14</td>
<td>&gt;11 You know where you stand and what skills you have in-house;</td>
</tr>
<tr>
<td></td>
<td>We have a clear view of the type of employees and their digital persona (which employee has what type of digital skill?)</td>
<td>0-14</td>
<td>8&lt;X&lt;11 You have pockets of digital skills in targeted areas;</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>&lt;8 You need to actively consider external assistance and initiate identification of digital skills of existing employees.</td>
</tr>
<tr>
<td>Investment</td>
<td>We have a strong program of investment in digital skills development</td>
<td>0-14</td>
<td>&gt;11 You have recognized and initiated actions for developing your digital skills;</td>
</tr>
<tr>
<td></td>
<td>We have a process to periodically identify key digital skills areas, in line with the pace of technology development</td>
<td>0-14</td>
<td>8&lt;X&lt;11 Identify areas that need specific attention or leadership focus;</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>&lt;8 Need to actively consider impact and role of digital skills on your organization</td>
</tr>
<tr>
<td>Plugging the Skills Gap</td>
<td>We are comfortable with the pace of our training programs on digital skills</td>
<td>0-35</td>
<td>&gt;30 You are on the right track to acquiring digital skills;</td>
</tr>
<tr>
<td></td>
<td>We have partnered with some of the best niche digital technology firms</td>
<td></td>
<td>21&lt;X&lt;24 You need to ensure you spread your best practices across all areas of digital skills;</td>
</tr>
<tr>
<td></td>
<td>We have a dedicated and sufficient budget towards the development of digital skills</td>
<td>0-35</td>
<td>&lt;21 You need to step up the pace of digital skills acquisition</td>
</tr>
<tr>
<td></td>
<td>We are using innovative recruitment ways as an effective way to develop digital skills</td>
<td>0-35</td>
<td></td>
</tr>
<tr>
<td></td>
<td>We are innovating in our approach to gaining digital skills (incubators/usage of expert networks)</td>
<td>0-35</td>
<td></td>
</tr>
</tbody>
</table>
Determine Methods to Overcome the Skills Gap

The next step is to overcome the skills gap through the approaches discussed earlier. However, the type of method used will differ based on the technology focus area, intensity of the skills gap as well as availability of resources. For instance, employees with high Klout and Kred scores typically tend to have a high degree of social media savviness and influence. These individuals can potentially become mentors as part of a reverse mentoring program, similar to what companies such as L’Oreal and GE have done. Similarly, employees with high Kaggle scores can be leveraged to train other employees for improving their analytics skills. In such scenarios, the organization can tap into their in-house pool of talent instead of looking at third-party training services.

Develop an Iterative System of Monitoring Progress

Once the methods to bridge the skills gap have been implemented, it is crucial to establish a continuous system of monitoring progress. In the case of internal trainings, for instance, organizations could start by rolling out a basic training and evaluation system. Companies should continue evaluating their programs as before but use real-time technologies to increase their agility in adjusting training content and couple it with more frequent talent performance evaluation. Similarly, if a training program is not producing the optimum levels of participation, methods such as gamification can be used to drive up engagement levels. The idea is to measure the impact of training on behaviors as opposed to focusing on training delivery.

Organizations across the globe are facing an acute shortage around digital skills. When it comes to overcoming this shortage, there is no ‘one-size-fits-all’ approach because every organization has its own unique requirements. Procter & Gamble established a baseline for all its employees through a “digital skills inventory,” and set proficiency expectations for specific roles and career progression. Pepsi launched its “digital fitness” program to keep its marketers’ digital skills up to par. It is essential to define a customized approach that makes the best use of available assets and resources, and leverages the most impactful methods to bridge the skills divide.

Building digital skills is only a part of the overall digital transformation agenda. Organizations will have to continue working towards sustaining the advantage that they gain through these digital skills. This will require sustained efforts towards training and re-skilling. Acquiring digital skills is the first, albeit significant, step of a long journey to a successful digital transformation.

Research Methodology

The research included in the paper is a combination of multiple surveys that have been conducted by Capgemini Consulting at varying points in time as well as select interviews of academics and business professionals.

We first conducted an in-depth research with the MIT Center of Digital Business interviewing more than 150 senior executives from large enterprises from across the globe. For further details and insights from this research please refer to Digital Transformation: A Road-Map for Billion-Dollar Organizations. The Phase 2 of the research with MIT focused on benchmarking digital practices around the globe. As a part of this effort, survey responses were gathered from 469 executives in 391 large companies around the world. For further details on the insights from this phase, please refer to The Digital Advantage: How digital leaders outperform their peers in every industry.

To conduct further deep-dive analysis of specific issues, Capgemini Consulting carried out a Digital Maturity Assessment Survey in 2012 and 2013, seeking opinion from over 130 executives from companies spread across the globe. The results of all these surveys identified relevant digital skills as one of the major concern areas for companies trying to realize benefits from digital transformation. To understand the precise pain areas in developing digital skills, we conducted a Digital Skills Survey in 2013. As a part of this research, we surveyed HR decision makers with the aim of understanding the efforts and approaches companies are employing to overcome the acute shortage in digital skills.

We also conducted detailed interviews of board members of INFORMS, the Institute for Operations Research and the Management Sciences, which is headquartered in Baltimore, United States.
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