Digitalization is affecting the Professional Services industry both internally and externally. How digital disrupts other industries will impact the clients of Professional Services firms, which, in turn, will have to adapt their offerings accordingly. Transforming business models to better meet client expectations, pre-empting disruptive competition and creating the right system of partners will become a source of competitive advantage for these firms.

Within the industry, Professional Services companies have an unprecedented opportunity to harness the power of artificial intelligence to augment people's ability to ‘do’, ‘think’, ‘learn’ and ‘feel’. By automating routine tasks, technology is freeing people to focus on solving higher-order problems. Technology makes it more important than ever for companies to be agile – and makes it easier than ever for them to achieve that agility. Technologies such as platforms and machine learning provide organizations with the tools to be ever more responsive. Companies that can anticipate change and react faster than competitors will be able to stay ahead of the curve.

Clearly, digitalization will be a source of transformational change for Professional Services, but are we comfortable leaving machines to make ethical and moral decisions? How can the industry and government address a rising skills gap? How can society mitigate the impact of possible technological unemployment from increased automation? And, how can it ensure that the benefits of digitalization are shared equitably?

The World Economic Forum is committed to helping leaders understand these implications and supporting them on the journey to shape better opportunities for business and society.
INTRODUCTION TO THE DIGITAL TRANSFORMATION INITIATIVE (DTI)

In a world where game-changing innovation has become the norm, DTI provides a unique insight into the impact of technology on business and society over the next decade.

The past 12 months have brought a series of exciting technological breakthroughs. Self-driving Tesla cars can now be seen on the road; Uber is testing autonomous taxis in Pittsburgh; Google DeepMind’s Alpha Go demonstrated a leap forward in artificial intelligence with a famous victory at the board game Go; and augmented reality hit the mainstream with the success of Pokémon Go. Game-changing innovation has become the norm.

Digital innovation is reshaping industries by disrupting existing business and operating models. But it is also having a profound impact on society, presenting a series of opportunities and challenges for businesses and policy-makers.

The Digital Transformation Initiative (DTI) is a project launched by the World Economic Forum in 2015 to serve as the focal point for new opportunities and themes arising from the latest developments in the digitalization of business and society. Over the past two years, DTI has analysed the impact of digital transformation across 13 industries and five cross-industry themes. We have also developed a unique value-at-stake framework to support a consistent approach to measuring the impact of technology on business and wider society. An overview of this framework is included on the next slide.

Our goal is for this framework to provide an evidence base and common language for public-private collaboration focused on ensuring that the benefits of digital transformation are fairly and widely shared.

Bruce Weinelt
Head of Digital Transformation
World Economic Forum

Mark Knickrehm
Group Chief Executive
Accenture Strategy
The Professional Services industry appears to be approaching a tipping point, as disruptive technologies drive fundamental changes in its economics.

The Professional Services industry may be proficient at evolving its offerings to clients’ changing needs, but perspectives differ on whether the industry itself has been significantly transformed by digital disruption. One school of thought sees Professional Services in the vanguard of digital transformation, with high levels of digitalization across most aspects of the sector. An alternative view holds that, despite outward agility, it has not yet been disrupted to the same extent as some other industries.

Our assessment of digital disruption in Professional Services is nuanced. We believe that, though there has not yet been a seismic disruption to shake the entire industry, the shifts under the surface are stronger than many people realize. This suggests that the industry may be approaching a tipping point.

Artificial intelligence (AI), data analytics, machine learning and platforms are among the most important technologies disrupting Professional Services. AI supports professionals to learn, think and perform better; analytics and machine learning are revolutionizing insight generation; and platforms are disrupting traditional business models by bringing buyers and suppliers together.
PROFESSIONAL SERVICES: MAPPING DIGITAL DISRUPTION

The extent to which digital technologies are disrupting Professional Services varies across segments, with accounting and audit at the highest risk from computerization and technology.

The impact of digitalization varies across industry segments

<table>
<thead>
<tr>
<th>Level of disruption</th>
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<tbody>
<tr>
<td>Big Law</td>
<td>Consulting (excluding Technology and Media)</td>
<td>High-Frequency, High-Volume Search</td>
</tr>
<tr>
<td>Least</td>
<td>Technology and Media Consulting</td>
<td>Accounting and Audit</td>
</tr>
<tr>
<td>Most</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The impact of technology varies by segment

<table>
<thead>
<tr>
<th>Technology</th>
<th>Legal</th>
<th>Consulting</th>
<th>Auditing &amp; Accounting</th>
<th>Human Capital</th>
</tr>
</thead>
<tbody>
<tr>
<td>Machine Learning</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Deep Learning</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Data Science</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>Smart Robots</td>
<td></td>
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<tr>
<td>Natural Language Processing</td>
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<tr>
<td>Virtual Reality</td>
<td></td>
<td></td>
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<tr>
<td>3D Video Telepresence</td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>Blockchain / Distributed Ledgers</td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>E-Discovery Software</td>
<td></td>
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</tbody>
</table>

Source: World Economic Forum / Accenture analysis

Note: Illustrative / non-exhaustive. Source: World Economic Forum / Accenture analysis
Digital disruption is contributing to a fundamental shift in the supply and demand dynamics of Professional Services.

**Evolving demand landscape**

Ubiquitous data and pervasive technology give clients greater insight into how professions work. Availability of and access to data has allowed clients to have more say in how they procure expertise. Insourcing of professionals has also injected more transparency into their work by reducing the degree of separation between them and their clients. This has created an expectation of high-quality professional expertise at an affordable price point.

**Changing supply dynamics**

Traditionally, the Professional Services industry has relied on human skills to meet clients’ needs. Once a solely human capability, expertise based on cognition and memory is being acquired by machines. Rapid advances in machine learning and robotic process automation (RPA) are helping create a new source of supply in the market. Technology is supporting increasingly effective remote collaboration, boosting productivity and enabling a shift towards freelance work.

**Alternative marketplaces**

Online platforms now offer a convenient alternative to the traditional physical marketplace for services. Clients and customers can now seek professional help from anywhere and at any time. This trend, buttressed by the fact that 3 billion people now have internet access and 2 billion use smartphones, is helping accelerate a change in how services are bought and sold.

---

**Changing supply in Professional Services**

| Number of jobs in the legal sector likely to be automated in the next 20 years | 114,000 |
| Proportion of US workforce expected to be freelance by 2020 | 43% |

Sources: 1. Financial Times; 2. The Telegraph
We have identified four themes that we expect to have the greatest impact on the digital transformation of Professional Services over the next decade.

**Business Model Transformation**

Digitalization empowers firms to change every facet of how they go to market: their services, value propositions, target customers and price points. Firms are repositioning themselves with new services for the digital world and fostering an ecosystem of partners across the industry value chain and beyond.

**Intelligent Automation**

Expertise is the primary offering of the Professional Services industry, and traditionally it has been provided by humans. However, emerging technologies such as analytics, AI and deep learning are augmenting professionals’ abilities to do, think, learn and feel. This can both enhance the quality and volume of expertise, and lower the cost to serve.

**Digital Agility**

Companies that can anticipate change, react faster than competitors, and adapt their strategies and processes in light of disruptive events are able to stay ahead of the curve. Companies are becoming more responsive by adopting a flexible workforce, promoting an agile culture, and investing in smart digital infrastructure to encourage productivity and creativity.

**Talent Empowerment**

Reimagining the employee experience to offer the right value proposition will be imperative for firms in the digital world. They will need to leverage new technologies or models to source talent, and maintain high engagement levels by ensuring that talent is appropriately trained and dynamically managed.
Firms are repositioning themselves for the digital world, taking new data-based offerings to clients and fostering an ecosystem of partners across the industry value chain and beyond.

Enhancing Go-to-Market Strategy

Professional services firms are evolving their offerings to keep pace with digitalization, building digital platforms to facilitate conversations with clients. New data is generating novel insights to solve specific client needs. Companies are providing offerings for the digital age, developing data-based services and adjusting revenue models.

Fostering a Digital Ecosystem

The recent shift towards cultivating ecosystems of partnerships between incumbents and start-ups has fostered innovation, promoted specialization and made operations more agile. It has also helped companies create new and innovative value propositions for clients at lower price points. Over the past five years, the fast-growing value of venture capital and private equity funding in Professional Services indicates an acceleration in disruptor and start-up activity within the industry.

Illustrative case studies:

<table>
<thead>
<tr>
<th>Q2'11-Q2'12</th>
<th>Q2'12-Q2'13</th>
<th>Q2'13-Q2'14</th>
<th>Q2'14-Q2'15</th>
<th>Q2'15-Q2'16</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Funding* ($ billion)</td>
<td>0.5</td>
<td>145</td>
<td>0.6</td>
<td>190</td>
</tr>
<tr>
<td>Number of Deals for Professional Services**</td>
<td>600</td>
<td>500</td>
<td>400</td>
<td>300</td>
</tr>
</tbody>
</table>

*Total Funding (Includes funding by VCs, Corporates / Corp VCs, Private Equity, Angel and Others)

**Number of Deals for Professional Services (Includes Consulting & Outsourcing, Legal Services and HR & Staffing)

Source: CB Insights
FOCUS ON INTELLIGENT AUTOMATION: DIGITAL INITIATIVES

Emerging technologies such as analytics, AI and deep learning are augmenting professionals’ abilities to do, think, learn and feel.

Modularizing Work

Modularizing work breaks down Professional Services projects so that expertise can be matched precisely to customer need, which lowers the cost to serve. Super-specialized new entrants are unbundling specific tasks from larger projects and, as their expertise in modularizing work deepens, they are moving up the industry value chain to tackle increasingly complex projects.

Augmenting Human Intelligence

Machines are augmenting key human capabilities so that expertise can be provided to clients in more efficient ways, using a combination of humans and machines. These will enhance the quality and volume of expertise provided, while lowering the cost to serve.

Illustrative case studies:

LeClairRyan  McKinsey Solutions  KENSHO
PROFESSIONAL SERVICES: AUGMENTING HUMAN CAPABILITIES THROUGH NEW TECHNOLOGIES

We examined which human capabilities are most important for professionals to provide expertise and investigated the degree to which each is being augmented by technology. The results are summarized in this graphic.

Emerging technologies can augment professionals’ ability to provide expertise

**THINK**
- **Insight Generation**
  - Kensho
- **Creativity**
  - Project Dreamcatcher, Rembrandt
- **Cognition**
  - Watson, DeepMind
- **Memory**
  - Robo Brain

**DO**
- **Communication**
  - Quill (Narrative Science), Amelia
- **Presentation**
  - BeamPro, Magic Leap
- **Organization**
  - Amy Ingram (x.ai)

**FEEL**
- **Relationship Building**
  - Crystal, LinkedIn
- **Empathy**
  - Pepper
- **Instinct**
  - Uniquely human
- **Appearance**
  - Sophia

Note: The degree to which human capabilities are being augmented by technology is indicated by the ideograms next to each capability.
FOCUS ON DIGITAL AGILITY: DIGITAL INITIATIVES

Companies with workforce flexibility, an agile work culture and smart infrastructure can anticipate change, react faster than competitors, and adapt their strategies and processes in response to disruptive events.

Developing a Flexible Workforce
Platforms enable organizations to flex their workforce, manage capacity effectively and crowdsorce super-specialists for specific tasks. The result: an operating model with greater agility. There are three models for organizing a workforce: a traditional model, where a Professional Services firm allocates internal resources to serve the client; a flexible model, where the firm crowdsources on-demand workers for specific projects; and a hybrid model that combines internal and external talent.

Nurturing an Agile Culture
Agility is a cornerstone of successful digital transformation. High-performing companies can rapidly reconfigure their offerings to meet their client’s needs. A nimble mindset across a Professional Services firm’s talent pool helps the company rapidly identify new markets and deploy tailored solutions. As companies look for greater agility and employees seek more flexibility, a nimble organizational culture can create a win-win for both the company and the employee.

Investing in Smart Infrastructure
Using digitally enabled infrastructure enhances internal productivity and creativity, and improves the employee and client experience that the firm offers. Enterprises that empower workers at all levels with the appropriate digital tools and infrastructure can steer their employees towards sounder business decision-making, greater efficiency and enhanced creativity.

Illustrative case studies:

- PwC
- Edumcally
- Crystal
FOCUS ON TALENT EMPOWERMENT: DIGITAL INITIATIVES

This theme highlights the importance of ensuring that talent is hired with greater precision, appropriately trained and dynamically managed so that employees can reach their potential.

Reimagining Hiring

Recruiters and candidates already have tools at their disposal to make the hiring process more efficient. AI is set to play a leading role, enabling recruiters to scan thousands of CVs and shortlist candidates more efficiently. Identifying and investing in the skills of the future is critical to keeping recruitment sustainable. This is especially challenging when the future may bring as yet unimagined roles requiring new skills in data science, intuition, pattern finding, and dealing with complexity and change management.

Training Talent

The role of automation in the industry will grow in importance, but the quality of human recruits will remain paramount. Competitive advantage will derive from producing outputs of impeccable quality on an otherwise level playing field. This underlines the importance of training employees to work hand in hand with machines. Advances in technology are also changing training and education by democratizing access to knowledge, enabling individuals to become lifelong learners.

Illustrative Case Studies:
PROFESSIONAL SERVICES:
CASE STUDIES

Here are just three of the many case studies that can be found in our white paper on digital transformation in Professional Services.

**Lex Machina:**

*Mining litigation data for new insights*

Lex Machina mines litigation data, revealing previously unavailable insights about judges, lawyers, parties and patents, culled from millions of pages of intellectual property (IP) litigation. Corporate counsel use Lex Machina to select and manage outside counsel, increase IP value and income, protect company assets, and compare performance with competitors. Law firm attorneys and their staff use Lex Machina to pitch and land new clients, win IP lawsuits, close transactions and prosecute new patents. Prominent clients include eBay, Microsoft and Shire Pharmaceuticals. The company claims that the total number of patent litigation cases filed has increased by more than 100% in the past three years.

**Kensho:**

*Using bit data and machine learning to answer complex research queries*

Kensho augments human capabilities to think, learn and do by combining big data and machine learning to analyse the impact of real-world events on financial markets and answer complex financial queries automatically. In the past, a trader or analyst had to conduct research by accessing multiple databases using certain keywords. Kensho’s search engine automatically categorizes events according to abstract features – a process that takes just a few minutes. Generating a similar query without automation could take around 40 man-hours – a significant investment for companies whose employees are paid an average salary of $350,000 to $500,000.

**Crystal:**

*Helping professionals connect and communicate*

Crystal helps workers build productive relationships by understanding the personalities of people they communicate with. It offers instant access to millions of personality profiles and free communication advice. As work communications move away from in-person meetings around a conference table towards virtual chatrooms, misunderstandings are more likely to emerge. The app steps in to coach individuals on empathy and assist non-native English speakers. Sales executives from more than 75% of Fortune 500 companies already use Crystal. It analyses publicly available data sources to categorize professionals into 64 personality types, then extrapolates from this to identify their communication style.
PROFESSIONAL SERVICES: OVERCOMING KEY INHIBITORS

Advances in digital technology and economic shifts could revolutionize Professional Services, but barriers to change need to be addressed.

Innovator’s Dilemma

The ‘platformization’ of the professions means that expertise is not necessarily sought from the nearest expert, but the best. Professional services firms therefore need to continuously challenge the way they do things and be willing to reinvent themselves, with the agility to execute at pace.

Low Technology Adoption Rates

From top management to front-line managers who actually work hand in hand with machines, there is a rapid decline in trust in the advice provided by intelligent systems (see graphic). Managers have an incomplete understanding of what they may need to thrive in a partnership with intelligent machines. There’s a trust gap within managerial ranks, and a lack of a clear path to realizing the opportunity presented by automation and augmentation.

Relying on traditional KPIs

Professional services firms focus on maximizing financial value (through metrics such as quarterly shareholder returns, profitability and chargeability). In contrast, start-ups are not encumbered by a short-term focus on traditional performance measures, which allows for greater risk-taking. To truly spur innovation in the Professional Services industry, employees need to be empowered to think long-term.

Percentage of managers who strongly trust the advice of intelligent systems

- 46% Top-level managers
- 24% Mid-level managers
- 14% Front-line managers

Source: Managers and Machines, Unite! Accenture, 2015
PROFESSIONAL SERVICES: IMPERATIVES FOR THE INDUSTRY

Inspiring leadership is critical to digital success. To help executives become effective digital leaders, we have developed an illustrative near-term action plan.¹

<table>
<thead>
<tr>
<th>Business Model Transformation</th>
<th>Intelligent Automation</th>
<th>Digital Agility</th>
<th>Talent Empowerment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gather information on business model changes being made by direct competitors and companies in adjacent spaces and assess suitability.</td>
<td>Build a comprehensive view of labour-intensive business processes. Identify opportunities to modularize work and invest in automation and machine-learning capabilities.</td>
<td>Clarify the company’s engagement with freelancers from legal and operational standpoints.</td>
<td>Analyse if hiring is leveraging the latest technology, and is agile enough to adapt to transforming organizational needs.</td>
</tr>
<tr>
<td>Cultivate a market research team that works closely with data scientists to identify new needs and thus create new data-based services.</td>
<td>Cultivate data talent: develop a plan to build, buy and/or partner to improve data and automation know-how.</td>
<td>Conduct an as-is analysis of smart infrastructure used in the company. Map it against the latest infrastructure in the market.</td>
<td>Determine what investments need to be made to deliver high-quality training across the workforce.</td>
</tr>
<tr>
<td>Create a list of disruptors to partner with to gain synergies. To prioritize, map this against functions that the company doesn’t need to perform in house.</td>
<td>Create a ‘people first’ strategy to plan organizational transition, training employees to keep skills up-to-date.</td>
<td>Incentivize digital adoption by pressing on with the introduction of ‘simpler’ technologies.</td>
<td>Recreate the company engagement strategy to factor in millennials’ demands.</td>
</tr>
</tbody>
</table>

¹ This slide only includes near-term actions. Please see the Professional Services white paper for the one-year action plan.
All materials are available on http://reports.weforum.org/digital-transformation including detailed white papers and case studies.

Over the past two years, DTI research has focused on understanding the impact of digital transformation in 13 industries and drawing insights from the cross-industry themes that came out of that analysis.

We have covered five cross-industry themes. Digital Consumption explains how the rapidly changing expectations of digital customers are forcing enterprises to reinvent themselves. Digital Enterprise looks at how companies can respond by rethinking every aspect of their business. Platform Economy focuses on the immense impact of one type of digitally enabled business model – B2B platforms. The adoption of new digital business and operating models is having a profound impact on society, a theme we analyse in Societal Implications. We then introduce our quantitative analysis of the impact of digitalization on business and wider society in our final cross-industry theme, Societal Value and Policy Imperatives.

Our industry deep dives have covered 13 industries: Automotive; Aviation, Travel and Tourism; Chemistry and Advanced Materials; Consumer; Electricity; Logistics; Media; Mining and Metals; Oil and Gas; Professional Services; Retail and Telecommunications.

White papers, SlideShares, articles, an overall executive summary for the DTI project, and a library of video interviews can be found on our website.

Key features
• Mobile-responsive, platform-agnostic site
• 13 industry white papers
• 5 cross-industry white papers
• 13 SlideShare summaries of white papers
• 60+ video snippets and mini documentaries
• Online case study repository
• 4 animations on digital challenges
The World Economic Forum would like to acknowledge and extend its sincere gratitude to a broad community of contributors across Partner companies, technology start-ups, academicians and experts.

### Participating Organizations

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- Egon Zehnder
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- GitHub
- Glassdoor
- Heidrick & Struggles
- Infosys
- Kaggle
- Korn Ferry
- KPMG
- Linklaters
- Manpower
- March Client Advisory Services
- Marsh
- McKinsey & Company
- Mercer
- MMC
- Oliver Wyman
- Oxford University
- PwC
- Tata Consultancy Services
- Upwork
- Willis Towers Watson

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