HfS Blueprint Report

Smart Analytics

Excerpt for Accenture

May 2018 | Authors:

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# What you’ll read

<table>
<thead>
<tr>
<th>Topic</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction and key definitions</td>
<td>3</td>
</tr>
<tr>
<td>Executive summary</td>
<td>7</td>
</tr>
<tr>
<td>Key market trends</td>
<td>12</td>
</tr>
<tr>
<td>Research methodology</td>
<td>23</td>
</tr>
<tr>
<td>Service provider grid and profile</td>
<td>28</td>
</tr>
<tr>
<td>Market direction and recommendations</td>
<td>33</td>
</tr>
<tr>
<td>About the author and HfS</td>
<td>39</td>
</tr>
</tbody>
</table>
Introduction and key definitions
Introduction to the HfS Blueprint Report: Smart Analytics

» The *HfS Blueprint: Smart Analytics* is a periodically refreshed analysis of the enterprise analytics services capabilities of key service providers, with an emphasis on the smart analytics sub-set of the HfS Triple-A Trifecta of intelligent automation technologies. The 2018 Blueprint builds on the previous years’ reports that can be found on www.hfsresearch.com/research, including reports on the broad enterprise analytics services markets and sector-specific analyses.

» The scope for this study includes services across the data to insight lifecycle, including analytics consulting, data management, reporting and visualization, and advanced analytics.

» In the market, we see the emphasis shifting to favor service providers with innovative capabilities, such as using automation, mobility, and cloud to improve analytics outcomes. Moreover, the quality and availability of talent that service providers are developing to help their clients transform their analytics capabilities and achieve real value beyond cost has become a major differentiator.

» This Blueprint covers market trends and direction, as well as analysis of participating service providers and recommendations for service providers and client organizations. We also include a grid, mapping the Innovation and Execution capabilities of the key service providers in this market.
As HfS has outlined in its Triple-A Trifecta framework, the Trifecta is where AI intersects with automation and smart analytics. While each element of the Trifecta has a distinct value proposition, there is increasing convergence between the three elements. For instance, smart analytics are increasingly reliant on AI tools such as natural language processing (NLP) to conduct search-driven analytics, neural networks for data exploration, and learning algorithms to build predictive models. In fact, the holy grail of service delivery transformation is at the intersection of automation, analytics, and AI.

The Trifecta is non-linear, without a definite starting point. Transformation is not a linear progression. Enterprises can start anywhere across the Trifecta. It is not necessary to start with basic analytics and then advance to AI-based solutions. However, it is critical that you understand the business problem that you are trying to solve and then apply the relevant value lever or combination of value levers.
<table>
<thead>
<tr>
<th>HfS definition of smart analytics across the value chain</th>
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</thead>
<tbody>
<tr>
<td>Enterprise analytics services value chain</td>
</tr>
</tbody>
</table>

**Analytics software, infrastructure design, and maintenance**
- Enterprise data warehouse design and implementation
- Infrastructure design and implementation
- Implementation of batch-based or near real-time ETL software product(s), reporting software product(s), advanced analytics software product(s).

**Data preparation and management**
- Data prep, ingestion, and integration
- Data entry, de-duplication of records
- Data and analysis enrichment through primary and secondary data sources
- Data quality and governance
- Metadata and data lake management.

**Reporting and visualization**
- Design and generation of routine reports
- BI support
- Data discovery
- Visualization and dashboard design and generation
- Reporting data analysis.

**Advanced analytics modeling and ongoing decision support**
- Interpretation and analysis of structured, semi-structured, and unstructured data
- Development, implementation and maintenance of customized analytics model(s)
- Communication and implementing recommendations from interpretation of analysis.

**Analytics consulting**
- Strategic planning and business case development through analytics consulting
- Analytics and data infrastructure road mapping.

**Smart analytics technologies across the value chain—Automation of data, reporting, and analytics tasks and augmentation of decision-making**

In-scope for this Blueprint

To HfS, smart analytics includes the use of cognitive and machine learning techniques to improve the impact of enterprise analytics services. Examples include using neural networks to undertake data exploration, using NLP to do search-driven analytics, using machine learning and automation tools to auto-generate reports and dynamic visualizations, and using supervised, unsupervised, or reinforcement learning algorithms in model building and validation.
Executive Summary
Key highlights: smart analytics (1)

» Data and analytics take center stage as key business drivers: Data and analytics have found new stakeholders and executive support in 2018 as automation, AI, and machine learning have become commonplace terms in boardroom discussions. Managing data has become a strategic imperative for business growth, with renewed interest and accompanied investments across business functions.

» Continued momentum with double-digit growth for most service providers: Smart analytics continues to be the biggest revenue driver within the “digital” portfolios of most global technology services firms in our research. HfS observes double-digit growth for this market, with several providers reporting between 20% and 35% revenue growth YoY as the demand for smart analytics continues to grow exponentially.

» The analytics services value chain is undergoing a complete change due to technology shifts: The proliferation of intelligent automation technologies, the mainstreaming of open source platforms and big data infrastructure, and trends in broader digital transformation are starting to change the face of data and analytics services. Enterprise clients are demanding new efficiencies and smarter processes across the board. Leading service providers have been willing to invest in new services and solutions to support future growth. Examples include the use of:
  • machine learning for automating data discovery, cataloguing, and correcting master data
  • NLP and virtual assistants to improve self-service
  • RPA to auto-populate routine reports
  • machine learning to automate model validation and maintenance, and improve algorithmic accuracy and predictive and prescriptive capability through deep learning techniques.
Key highlights: smart analytics (2)

» Market changes are a direct reflection of working around talent gaps: Both service providers and clients are struggling to attract—and then retain—analytics talent across global markets. Some of the biggest challenges with the industry are thus around improving the productivity and quality of work of data and analytics teams, who spend an inordinate amount of time with low-value work in areas like data prep. We see a consequential response by service providers to focus on automation and technology enablement to improve processes across the lifecycle to get the most out of the available talent in their own and their clients’ teams.

» Market is increasingly centering around the ability to manage data: Enterprises are realizing that data connects everything inside and outside of their walls, but are yet to use data in an industrialized way. However, the scope of work they are demanding is starting to include more capabilities around handling semi-structured and unstructured data. The boutique analytics specialists are developing data engineering arms, the large service providers are modernizing and re-skilling their data management workforce, and analytics modeling is being presented as a way to better monetize and experiment with unstructured data to create new value.

» “Smart analytics” is a small sub-set of work being done today: While there are changes underway, we see the majority of work for service providers still being in legacy data management and traditional BI support. Few clients have gone down the path of working with providers to create end-to-end intelligent data orchestration and realize the vision of smart analytics. We see a few promising examples for most leading service providers, while they still carry legacy work forming the major components of their services portfolio today.
Key highlights: smart analytics (3)

» **Service providers are consolidating capabilities around platforms and ecosystems:** Whether it’s Accenture’s AIP, Wipro’s DDP, Atos’ Codex, Genpact’s Cora, or Cognizant’s BigDecisions platform, enterprise clients are increasingly finding themselves subscribing to ecosystems being setup by their smart analytics service provider. HfS sees progress from the supply side in organizing not only their product and data model catalogs, but also a consolidation of best practices such as ingestion frameworks, environments for data infrastructure, access to IP, and connections to partner technologies and capabilities through “LEGO block”-style modular ecosystems.

» **Commercial models make a slow move toward value:** The vast majority of the data and analytics services market operates on FTE-based or fixed-cost pricing, working on a per-project basis, or through established CoEs or using providers toward staff augmentation. However, as service providers productize and consolidate IP through platforms, examples of consumption-based commercial arrangements are emerging.

» **Talent remains the key differentiator among leaders and specialists:** Domain-centered advanced analytics teams ruled the roost as differentiation in the past, for boutiques and large service providers alike. Today, these firms need to attract broad-based talent to fulfil the demands of clients with diversified needs. From specialists in new technology platforms to a growing list of programming languages and certifications for company-specific specializations (e.g., Watson engineers), service providers are still differentiating on talent, but with a far bigger range of skills than in the past.
The smart analytics service provider landscape

» The HfS Winner’s Circle includes service providers that are continuing to make the biggest investments in increasing value over time for analytics clients. They have the strongest vision for smart analytics and are successfully collaborating with clients to explore new operating models and technologies to execute on their services vision.

» The HfS Winner’s Circle service providers have highly scaled data and analytics practices and are leading the discussions on the use of intelligent automation technologies, platform-based services, and driving business outcomes for smart analytics:
  • Accenture, Cognizant, EY, Genpact, IBM, Infosys, KPMG, TCS, Wipro.

» The High Performers have good execution capabilities and are making strategic investments to grow their footprint across the analytics services value chain.

» Several of the High Performers have industry-leading vision and need to focus on consistent execution among their client base:
  • Atos, Capgemini, DXC, eClerx, EXL, Fractal Analytics, Hexaware, LTI, MuSigma, Syntel, Tech Mahindra, WNS.

» The High Potentials are niche challengers that present good innovation potential in terms of technology roadmaps and talent expansion plans, but lack the scale and execution experience, as of today:
  • BRIDGEi2i, CSS Corp, NIIT Technologies.
Key market trends
The need for better data is a fundamental business driver today

Q. Which of the following business drivers will have a major impact on your business?

<table>
<thead>
<tr>
<th>Business Driver</th>
<th>Impact (%)</th>
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<tbody>
<tr>
<td>The shift toward digital, online, and virtual experiences and away from physical and face-face engagements</td>
<td>27%</td>
</tr>
<tr>
<td>Making more predictive decisions based on rapidly accessible real-time data across the organization</td>
<td>26%</td>
</tr>
<tr>
<td>Combating the threat of potentially disruptive digital competitors</td>
<td>25%</td>
</tr>
<tr>
<td>Micro targeting customers and hyper personalization and customization of products to customer requirements</td>
<td>24%</td>
</tr>
<tr>
<td>Building relationships with external ecosystem and industry partners to drive innovation and growth</td>
<td>18%</td>
</tr>
<tr>
<td>Driving out costs through process automation</td>
<td>16%</td>
</tr>
</tbody>
</table>

Data explosion, digital disruption, and increasing consumerism are the three main challenges that enterprises face in today’s business environment.

Source: HfS Research, 2018; “Intelligent Operations Study” conducted in association with Accenture
Sample: Enterprise Buyers = 460
Yet organizations struggle to harness data to make better decisions

Q. Can you estimate the proportion of structured vs unstructured data in your organization?

Only 22% of organizations have more than half their data structured.

Source: HfS Research, 2018; “Intelligent Operations Study” conducted in association with Accenture
Sample: Enterprise Buyers = 460
Enterprises are realizing what becoming “data-driven” really entails, with challenges across people, process, and technology

» All organizations are at different stages of their smart analytics journey. From the ones that have declared analytics as a strategic imperative to the ones that are just getting started, there is a long road to becoming truly data-driven.

» Mature enterprises that may have already focused on one or two pillars of organizational change will need to take a multi-pronged approach to succeed in the future.

» Smart analytics needs multi-disciplined talent acquisition and retention, a new approach to process design to enable more intelligent decision-making and workflows, the accompanying cultural changes, broad-based technology modernization and investments, and a reorientation to play within a larger ecosystem of interconnected data, partners, and vendors.
Challenge #1: managing talent

» Innovative hiring and retention strategies to grow data and analytics talent

» Hiring talent across the enterprise with a proclivity to use data and insights

» New training programs and certifications

» Growing multi-disciplined talent including:
  • Data engineers with specific platform skills, such as MapReduce, Apache Pig, Apache Hive, and Apache Hadoop
  • Data scientists coming from a variety of fields including PhDs in statistics, math, and computer science
  • Data visualization experts with backgrounds in stats, graphic design, UX
  • Data analysts with experience in different programming languages, increasingly Python.
Challenge #2: embedding analytics into the organization

» Using new tools and methodologies like design thinking to rethink processes

» (Re)designing processes with digital data and analytical insights as native components

» Re-inventing roles and responsibilities with new processes in mind

» Ongoing training and education to embed a strong culture of insight-driven decision-making across the enterprise

» Ongoing development of governance models for the use of data and analytics

» Ongoing evolution of the operating model to deliver data and analytics services to the enterprise, including:
  • Analytics CoEs
  • Centralized and federated models
  • IT- vs. business-driven
  • Learning and collaboration across groups.
Challenge #3: a technology roadmap built on openness and collaboration

- Setting a holistic roadmap that views the industrialization of smart analytics across processes, beyond siloed engagements and projects
- Building interfaces and overlays to extract digital data and value from legacy systems and processes
- Using a broader ecosystem of curated data sets, playing in the API economy
- More intelligent workflows, hand-offs, and integration between data, analytics, and IT groups

Making technology platform investments such as:
- Big data infrastructure, data lakes, cloudification
- Mobile BI
- Data ingestion, integration.
State of the smart analytics market: data prep and management

Data preparation and management

» Data prep, ingestion, and integration
» Data entry, de-duplication of records
» Data and analysis enrichment through primary and secondary data sources
» Data quality and governance
» Metadata and data lake management.

» Key client concern
  • Making data available for discovery, mining, and analytics.

» Trends in services and solutions
  • Investments in planning, setting up, and managing data lake environments have surpassed all other investments and discussions in the last two years. Enterprises are embracing open source platforms and putting in place trust and security mechanisms to increasingly store and manage data in the cloud.
  • GDPR-related solutions are coming to the front, including data protection services, readiness assessments, and anonymization services.
  • Data quality as-a-service continues to be an integral need for many clients as their data sources grow.
  • Cognitive data ingestion and data cataloguing are getting deployed on a wider scale, as technologies mature and clients gain more confidence in capabilities.
State of the smart analytics market: Reporting and visualization

» Design and generation of routine reports
» BI support
» Data discovery
» Visualization and dashboard design and generation
» Reporting data analysis.

» Key client concern
  • Providing business users the best ways to consume data and insights.

» Trends in services and solutions
  • New kinds of workbenches for data discovery and visualization are evolving to give analysts and data scientists better ways to sift through data.
  • Automated generation and delivery of routine rules-based BI reports is emerging on the back of RPA applications.
  • We see more solutions that build connectors to embed actionable insights within enterprise applications.
  • User interfaces are seeing the next generation of evolution as machine learning, other AI techniques, and visualization technologies become more mature. Examples include:
    1. The use of natural language search and querying is sharply on the rise within BI applications and interfaces as NLG is deployed more and more.
    2. Virtual agents and assistants that interact with, alert, and guide business users through action items in their daily work routines.
    3. Initial pilots of AR and VR tech to create new data overlays.
State of the smart analytics market: advanced analytics

» Key client concern
  • Finding the most accurate and relevant insights from data patterns.

» Trends in services and solutions
  • Biggest investments and solutions are in bringing in unstructured data into existing and new analyses.
  • Strong client interest and green lighting of new model development using machine learning, deep learning, and other AI techniques, most prominently computer vision and NLP.
  • Continued progress from service providers to develop industry and function-specific catalogs of (mostly) reusable assets and IP to speed up new projects.
  • Renewed interest in model lifecycle management solutions with the advent of intelligent automation technologies that can automate parts of the monitoring and governance roles.
  • Executive mandate for AI and intelligent automation is driving new needs for the industrialization and scaling of models, going beyond the project and department silos of the past.
State of the smart analytics market: analytics consulting

» Strategic planning and business case development through analytics consulting
» Analytics and data infrastructure road mapping.

» Key client concern
  • Determining the best course of action on data, platforms, infrastructure, and operating model.

» Trends in services and solutions
  • Strong client demand in strategy and consulting work to redefine the role of data and analytics in the era of AI.
  • We see a gradual rise in the use of design thinking to help stakeholders discover and prioritize use cases.
  • Greater use of collaborative work spaces to help clients imagine the “art of the possible”, with an emphasis on rapid prototyping of new models with test data.
  • The need for organizational change management is going to skyrocket as enterprises realize the impact of smart analytics on traditional processes and job roles.
  • The operating model for delivering data, insights, and analyses is gradually evolving, and consulting engagements are helping clients to plan for new groups and capabilities.
Research Methodology
Research Methodology

» Data summary
We collected data in Q4 2018-Q1 2018, covering buyers, service providers, and advisors and influencers of data and analytics services.

» Service providers mentioned

*Note: Fractal Analytics and MuSigma did not participate in this Blueprint and have been represented throughout the document based on best available information.

This report is based on:

» Tales from the trenches: Interviews with buyers who have evaluated service providers and experienced their services. Some contacts were provided by service providers, and others were interviews conducted with participants in global market research studies.

» Sell-side executive briefings: Structured discussions with service providers regarding their vision, strategy, capability, and examples of innovation and execution.

» Publicly available information: Thought leadership, investor analyst materials, website information, presentations given by senior executives, industry events, etc.
<table>
<thead>
<tr>
<th>Execution</th>
<th>100%</th>
<th>Innovation</th>
<th>100%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quality of service delivery</td>
<td>20%</td>
<td>Vision for and investments in the evolution of smart analytics</td>
<td>25%</td>
</tr>
<tr>
<td>Ability to attract and retain key skills</td>
<td>10%</td>
<td>Tool, data, and platform strategy for smart analytics</td>
<td>20%</td>
</tr>
<tr>
<td>Flexibility and creativity in pricing and contracting</td>
<td>10%</td>
<td>Framework for integration of insights into operational decision making</td>
<td>5%</td>
</tr>
<tr>
<td>Overall size and scale</td>
<td>15%</td>
<td>Fostering culture of creative problem finding, more meaningful analysis and analytical storytelling</td>
<td>15%</td>
</tr>
<tr>
<td>Scale and repeatability of deployments</td>
<td>15%</td>
<td>Collaborative engagement (consultative sales, design thinking, thought leadership)</td>
<td>10%</td>
</tr>
<tr>
<td>Breadth and depth of industry and horizontal specific solutions that drives use case identification and approach</td>
<td>15%</td>
<td>Ecosystem development including alliances, partnerships and consortiums</td>
<td>15%</td>
</tr>
<tr>
<td>Development of capabilities across value chain into advanced analytics, predictive modeling, and machine learning</td>
<td>15%</td>
<td>Framework for multi-disciplinary talent acquisition and development</td>
<td>10%</td>
</tr>
</tbody>
</table>
## HfS Blueprint scoring: smart analytics

<table>
<thead>
<tr>
<th>Execution</th>
<th>Question</th>
<th>Weighting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quality of service delivery</td>
<td>What are the clients’ overall impressions of the quality of service?</td>
<td>20%</td>
</tr>
<tr>
<td>Ability to attract and retain key skills</td>
<td>How is the service provider addressing scaling deployments within and across clients? Is the service provider seeking to move to repeatability of solutions and projects?</td>
<td>10%</td>
</tr>
<tr>
<td>Flexibility and creativity in pricing and contracting</td>
<td>How well does the service provider tap into industry practices and expertise? Any specific solutions or services within different segments?</td>
<td>10%</td>
</tr>
<tr>
<td>Overall size and scale</td>
<td>How much progress has the service provider made in developing ongoing decision support, advanced analytics, and predictive modeling capabilities, beyond traditional data management, ETL, BI, and reporting services?</td>
<td>15%</td>
</tr>
<tr>
<td>Scale and repeatability of deployments</td>
<td>Do service buyers have access to the skills and capability needed to deliver relevant, continuous, quality work? What is the workforce management and development capability of the service provider. Is the attrition at, above, or below average for the industry?</td>
<td>15%</td>
</tr>
<tr>
<td>Breadth and depth of industry and horizontal specific solutions that drives use case identification and approach</td>
<td>How competitive and flexible are service providers in determining contract pricing? Are they willing to make investments in clients for long-term growth? What percentage of the contracts are FTE, transaction, gain-sharing? Anything innovative in the contracting?</td>
<td>15%</td>
</tr>
<tr>
<td>Development of capabilities across value chain into advanced analytics, predictive modeling, and machine learning</td>
<td>Overall practice maturity, including revenues, headcount, number of clients</td>
<td>15%</td>
</tr>
</tbody>
</table>
## HfS Blueprint scoring: smart analytics

<table>
<thead>
<tr>
<th>Execution</th>
<th>How well does the service provider execute on its contractual agreement? How well does the provider manage the client-provider relationship?</th>
<th>Weighting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Framework for multi-disciplinary talent acquisition and development</td>
<td>How well is the provider updating its strategy towards the recruitment and development of data and analytics technology, domain expertise, and statistical talent to address emerging needs?</td>
<td>10%</td>
</tr>
<tr>
<td>Tool and platform strategy for smart analytics</td>
<td>What is the role of tools and platforms in the service provider’s offering strategy? Are the selected platforms developed in-house, or are they provided by third parties? Is there a demonstrable intent to maintain and enhance the in-house platforms?</td>
<td>20%</td>
</tr>
<tr>
<td>Vision for and investments in the evolution of smart analytics</td>
<td>Does the service provider have, share, and engage in dialogue regarding the future of smart analytics? Is the vision communicated clearly?</td>
<td>25%</td>
</tr>
<tr>
<td>Framework for integration of insights into operational decision-making</td>
<td>How well does the service provider facilitate the “last mile” actioning of analytical insights and operational decision making for clients? How well does smart analytics capabilities relate back into the HfS Triple A Trifecta technologies, back into service delivery</td>
<td>5%</td>
</tr>
<tr>
<td>Collaborative engagement</td>
<td>Does the service provider work as a partner in collaboration and increase the value of the engagement over time? Or does it mostly take direction and deliver based on KPIs? Are there outcome-based engagements and contracts? What is the level of use of design thinking, problem solving, and consultative sales to develop and deliver solutions?</td>
<td>10%</td>
</tr>
<tr>
<td>Ecosystem development including alliances, partnerships, and consortiums</td>
<td>How well does the provider leverage a broader ecosystem of partnerships and alliances to put forward the most integrated solution for clients?</td>
<td>15%</td>
</tr>
<tr>
<td>Fostering culture of creative problem finding, more meaningful analysis and analytical storytelling</td>
<td>What innovative techniques and methodologies is the service provider investing in to drive more creative problem solving to drive more value in data, reporting, and analytics engagements?</td>
<td>15%</td>
</tr>
</tbody>
</table>
Service provider grid and profiles
Guide to HfS Blueprint Grid

To distinguish service providers that show competitive differentiation across innovation and execution, HfS awards these providers the “HfS Winner’s Circle” designation.

<table>
<thead>
<tr>
<th>Category</th>
<th>Execution</th>
<th>Innovation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>HfS Winner’s Circle</strong></td>
<td>Collaborative relationships with clients, services executed with a combination of talent and technology as appropriate, and flexible arrangements.</td>
<td>Articulate vision and a “new way of thinking,” have recognizable investments in future capabilities, strong client feedback, and are driving new insights and models.</td>
</tr>
<tr>
<td><strong>High Performers</strong></td>
<td>Execute some of the following areas with excellence: worthwhile relationships with clients, services executed with “green lights,” and flexibility when meeting clients’ needs.</td>
<td>Typically, describe a vision and plans to invest in future capabilities and partnerships for As-a-Service, and illustrate an ability to leverage digital technologies or develop new insights with clients.</td>
</tr>
<tr>
<td><strong>High Potentials</strong></td>
<td>Early results and proof points from examples in new service areas or innovative service models, but lack scale, broad impact, and momentum in the capability under review.</td>
<td>Well-plotted strategy and thought leadership, showcased use of newer technologies or roadmap, and talent development plans.</td>
</tr>
<tr>
<td><strong>Execution Powerhouses</strong></td>
<td>Evidence of operational excellence; however, still more of a directive engagement between a service provider and its clients.</td>
<td>Less evident vision and investment in future-oriented capability, such as skills development, “intelligent operations,” or digital technologies.</td>
</tr>
</tbody>
</table>

Legend for offering maturity on provider profiles:

- Mature
- Developing
- Nascent
**Execution highlights**

- **Scale and repeatability of deployments:** Clients seek help in scaling out their operating model, going beyond use case and project-based work. Creating reusable assets and libraries not only helps clients to kickstart their engagements faster, but also to consolidate knowledge and IP for providers. KPMG, Cognizant, and Accenture are playing strongly in this space to build out scale for clients.

- **Development of capabilities across the value chain into advanced analytics, predictive modeling and machine learning:** Advanced analytics has always been a high-value offering that’s highly dependent on maintaining specialized talent pools—a work in progress for most service providers. Accenture, IBM, EXL, Genpact, KPMG, and TCS have made great progress on expanding their capabilities in the advanced analytics part of the services value chain.

- **Ability to attract and retain key skills:** Our research questioned clients on the biggest strengths of their service providers. In more than half the responses, we saw the theme of access to talent rise to the top. Analytics clients are looking for the trio of technical expertise, data science knowledge, and domain knowledge in their engagements today. HfS found Winner’s Circle providers including Accenture, IBM, TCS, Cognizant, KPMG, and Genpact to score high on this capability, as well as BRIDGEi2i, EXL, WNS, and NIIT.

- **Ecosystem development including alliances, partnerships and consortiums:** Service providers across the board have recognized the need to develop alliances, but few are comprehensive as of today. Clients would like to see more structured ways of accessing startup innovations and more ways to plug in partner capabilities into provider solutions overall. The breadth of ecosystem development and level of strategic partner connect will truly differentiate providers in the next two years. We see Accenture, KPMG, Wipro, TCS, and Cognizant investing significantly to drive ecosystems for smart analytics.

- **Collaborative engagement:** These require consultative sales frameworks that focus on problem solving, using thought leadership and design thinking to truly collaborate alongside a client. As of today, Capgemini, IBM, and KPMG are progressing quickly with new ways of engaging clients through structured workshops, investments in collaborative experiential spaces, and other activities.

- **Vision for and investments in the evolution of smart analytics:** Accenture, KPMG, and IBM stand out overall, and are leading the industry forward on smart analytics. Their vision is well articulated, brings clients along from different stages in the analytics journey, and is starting to plan for the connected data ecosystems that enterprises will need in the near future.
Leading the industry forward on applied intelligence

**Strengths**

- **Thought leadership across the data and analytics landscape.** Accenture enjoys a high brand recall and mindshare with analytics clients, who view the service provider as being on the “cutting edge” of industry advancement for machine learning with its Applied Intelligence group.

- **Analytics consulting and strategy.** Accenture’s consulting stands out as a key strength, helping clients in defining their analytics strategy and think about data more holistically.

- **Alignment of solutions around AIP platform.** Accenture has spent considerable time and investments to evolve its AIP platform in the last three years. The solution is available in the cloud and on-premise, with as-a-service offerings and a comprehensive framework for integration, from data ingestion to insight discovery and visualization.

- **Global practice with wide range of capabilities.** Overall service execution is a key strength for Accenture. In particular, clients point out that the service provider has developed a truly global data and analytics practice, and when local teams need any kind of help, Accenture is able to pull together remote expertise swiftly. It is able to “think locally with global resources.”

**Challenges**

- **Continued perception as expensive.** Several clients in our research maintained that while Accenture’s premium pricing generally correlates with the quality it provides, it needs to find ways to make engagements more cost effective.

- **Potential attrition risk for high-value talent.** The skillsets and training that Accenture’s analysts, data scientists and engineers, and consultants possess make them targets for competing employers. A client mentioned that they have seen some turnover due to the high quality talent in their engagement.

- **Persistent focus on open source technologies.** Accenture was slightly late to the market with catching up on open source technologies, leading clients to work with some competitors in the last few years. It has since pivoted to expand to a broader ecosystem of partners and solutions developed on open source technology stacks. Accenture will have to continue to look outward as the industry grows more diverse.

**Relevant Acquisitions and Partnerships**

- **2018:** acquired Search Technologies to expand content analytics and big data engineering expertise
- **2016:** acquired OPS Rules to expand its machine learning and operations analytics capabilities
- **2016:** acquired dGroup, MOBGEN, and Tecnologica to expand digital transformation capabilities
- **Partnerships with:**
  - Technology alliances: SAP, SAS, AWS, IBM, Google, Paxata, 1QBIt, Informatica, Cloudera, Qlik, Tableau, Teradata, Hortonworks, Talend, Avanade and Microsoft
  - Academic alliances: MIT, Harvard, Stanford, Duke University, Georgia Tech, Stevens Institute of Technology, Turing Institute, ESSEC Business School and Das Deutsche Forschungszentrum für Künstliche Intelligenz (DFKI)

**Client split by geography:**
- NA: 25%
- LATAM: 10%
- EMEA (including UK): 45%
- APAC: 20%

**Vertical specialization includes:**
- Products, financial services, CMT, resources, health, public service, customer and channel, supply chain and operations, finance and risk, and enterprise performance
- 2,500 clients, including:
  - US federal government
  - Boston Scientific
  - Ducati
  - Melia
  - Biesse
  - Airbus
  - BBC

**Key Clients**

- **Headcount:** 19,500
- **Data scientists:** 2,200

**Global Operations Centers**

- Delivery and innovation centers in 50+ countries with center locations broken down as follows:
  - North Americas: 10%
  - EMEA: 15%
  - Other APAC: 75%

**Key Proprietary Technologies**

- Accenture Insights Platform (AIP): analytics-as-a-service platform
- Accenture Intelligent Automation Platform: scalable, agile, and insightful customer experience-focused platform
- Accenture Connected Platform as a Service: IoT platform that is integrated with AIP
- Intelligent Data Quality Platform: Learning-enabled data quality tool
- Accenture Cyber Intelligence Platform: augmented security
Market Direction and Recommendations
Enterprises are planning and piloting smart analytics as a strategic priority in 2018 and beyond...

Q. Please characterize your organization’s current use of the following value creation levers to achieve the business outcomes described in the previous question [accelerating speed to market, improving customer experience, driving down operating cost].

<table>
<thead>
<tr>
<th>Technology</th>
<th>Planning</th>
<th>Piloting</th>
<th>Implementing</th>
<th>Production environment</th>
<th>No plans</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smart analytics</td>
<td>41%</td>
<td>38%</td>
<td>11%</td>
<td>7%</td>
<td>4%</td>
</tr>
<tr>
<td>Machine learning</td>
<td>40%</td>
<td>35%</td>
<td>11%</td>
<td>5%</td>
<td>10%</td>
</tr>
<tr>
<td>Design thinking</td>
<td>37%</td>
<td>30%</td>
<td>9%</td>
<td>5%</td>
<td>19%</td>
</tr>
<tr>
<td>Internet of Things (IoT)</td>
<td>35%</td>
<td>41%</td>
<td>9%</td>
<td>5%</td>
<td>11%</td>
</tr>
<tr>
<td>Augmented reality</td>
<td>33%</td>
<td>36%</td>
<td>6%</td>
<td>3%</td>
<td>22%</td>
</tr>
<tr>
<td>Cognitive agents</td>
<td>32%</td>
<td>35%</td>
<td>10%</td>
<td>4%</td>
<td>18%</td>
</tr>
<tr>
<td>Blockchain</td>
<td>31%</td>
<td>40%</td>
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<td>7%</td>
<td>15%</td>
</tr>
<tr>
<td>Robotic process automation (RPA)</td>
<td>26%</td>
<td>40%</td>
<td>9%</td>
<td>5%</td>
<td>19%</td>
</tr>
<tr>
<td>Shared services</td>
<td>24%</td>
<td>36%</td>
<td>24%</td>
<td>12%</td>
<td>4%</td>
</tr>
<tr>
<td>Cloud-based business process services</td>
<td>24%</td>
<td>29%</td>
<td>27%</td>
<td>16%</td>
<td>3%</td>
</tr>
<tr>
<td>Outsourcing - offshore</td>
<td>13%</td>
<td>16%</td>
<td>34%</td>
<td>31%</td>
<td>7%</td>
</tr>
<tr>
<td>Outsourcing - onshore</td>
<td>6%</td>
<td>12%</td>
<td>38%</td>
<td>43%</td>
<td>2%</td>
</tr>
</tbody>
</table>

Source: HfS Digital Transformation, 2018; Total n = 352
What’s next: developing smart analytics capabilities across the Digital OneOffice conceptual framework (1)

» HfS envisions the future of business operations as the OneOffice organization, collapsing the silos of front-, middle- and back-office processes and reorienting to deliver better experiences and outcomes for all stakeholders, leading with the end customer (read more here).

Source: HfS Research, 2018

Creating OneOffice customer-centricity
What’s next: developing smart analytics capabilities across the Digital OneOffice conceptual framework (2)

» The OneOffice evolution will use Smart Analytics and digital technology to drive predictive insight for proactive action and better outcomes—higher quality, speed, and profitability.

» The smart orchestration of data and insights will be the foundational pillar that will support all the fundamental principles of OneOffice initiatives:

• **Fundamental 1—Fostering genuine digital customer, partner, and employee engagement.** The use of ethnographic research and behavioral sciences to augment traditional customer data will drive a more nuanced understanding of customer, employee, and partner experiences and the motivators and influencers to improve them.

• **Fundamental 2—Embedding design thinking techniques to achieve continuous digital outcomes.** Using design thinking principles can greatly improve the end user experience on the collection, analysis, and interpretation of data and insights (read more [here](#)).

• **Fundamental 3—Building a scalable digital underbelly that automates and digitizes.** Moving to cloud-based data infrastructure, creating data lakes, and overall data consolidation and modernization efforts are critical to developing a digital underbelly.

• **Fundamental 4—Achieving an intelligent digital support function without hierarchies and silos.** Embedding operational insights across horizontal business and IT functions, creating self-serve analytics and reporting interfaces, and providing better access and real-time availability of data are all goals that will create intelligent digital support functions.

• **Fundamental 5—Establishing intelligent, cognitive processes that promote predictive decision-making.** The focused use of machine learning and deep learning and other advanced analytics technologies to provide predictive and prescriptive guidance will help enterprises to better anticipate and respond to market changes.
Recommendations: services buyers

» Go beyond “better math” with intelligent automation technologies: Several analytics leaders in our research pointed to the planning and piloting of machine learning and neural network based algorithms to augment existing data models. However, there is still a lack of wider acceptance on the use of intelligent automation technologies to improve the data, reporting, and analytics processes themselves. Bar a few pioneering examples, we see a strong opportunity for services buyers to introduce modern automation tools to speed up and improve the quality and accuracy of connected data and insights.

» Challenge your service provider on the assumption of “retraining” talent for Smart Analytics: Large service providers today manage vast estates of legacy work for enterprise clients in the areas of data management, reporting, and traditional statistical analysis. While they are all investing in creating new capabilities with change in technology platforms and languages, the emerging narrative has been around retraining talent to take on new tasks. HfS cautions clients against this strategy; the talent availability and skillsets for traditional ETL and BI work or statistical analysis are significantly different from new needs around data engineering and machine learning. A segment of a service provider’s workforce may be upskilled or retrained, but for the large part, this industry will need to create and infuse new talent to take on these roles. Work with the service providers that are realistic and pragmatic about these changes, and truly committed to closing the talent gap for the future.

» Drive governance and coordination across data, analytics, and automation CoEs: HfS sees a resurgence of strategic investments and modernization of data and analytics CoEs across enterprises. Many enterprise clients in our research are in the transitionary phase of moving from regional hubs or limited data centralization efforts to creating a focused analytics COE to drive organization-wide data strategy. The operating model for delivering smart analytics will need to build on the existing structures already created in the past, augmented with better coordination across other Triple A Trifecta technology initiatives.
Recommendations: service providers

» Invest in adjacent capabilities that will help clients with data-driven transformation: Enterprises are increasingly seeking to buy business outcomes, not individual technologies. In this vein, one client set their expectation, “they should be my main partner in all business of transformation we are planning, developing other capabilities that will help me not only in data and analytics but finding broader ways to transform our business with digital.” Continue to expand on partnerships, acquisitions, and organic investments that go across digital technologies such as IoT, automation, and AI, and methodologies that help enterprises adopt them, such as using design thinking, behavioral sciences, and ethnography.

» Investigate new ways to bring holistic integration and orchestration across client environments: Service providers working at any stage of the data, reporting, and analytics lifecycle must invest in better ways to design the integration of new technologies and solutions with client data architectures and platforms. Further, as advanced analytics and machine learning capabilities start to scale out in enterprise operations, service providers have the opportunity to play more of an orchestrator role to simplify, improve, and better manage collaboration between data scientists, IT operations, and business analysts.

» Develop broader ecosystem of partners to continue to deliver on innovation: Most clients in our study pointed to areas like machine learning and other AI techniques as areas of innovation that they want to see from service providers in the next two years. Developing an eye for outside-in innovation and forging partnerships with a wider base of partners will greatly benefit service providers in the quest to be innovative partners for smart analytics in the future.
About the author and HfS
Reetika Fleming is Research Director, Insurance, Smart Analytics & AI at HfS Research. Her research extends into defining future business operations for property and casualty, life and annuities and reinsurance companies. She studies the broad use of data and analytics within enterprises, with a new research focus on machine learning and AI techniques to improve business decision making. Reetika regularly contributes to HfS’ research content in the form of evaluation studies, surveys, and point-of-view papers. She also supports custom research and strategy projects; analyzing data, supporting client inquiry, conducting regular discussions and briefings with both enterprises and service providers, providing consultative, analytical and expert support to HfS clients.

Prior to HfS, Reetika worked in the sourcing research wing of business research and consulting firm ValueNotes. Her responsibilities as Project Manager included research product design and development, managing custom research engagements, developing thought leadership through targeted content and community interaction. She also managed the unit’s web and social media strategy and presence.

Based in Cambridge, MA, Reetika has led numerous research assignments spanning global technology and business operations, and has spoken at multiple forums about the future of work.

Reetika has completed her Masters in Marketing Management with distinction from Aston University, UK, receiving Beta Gamma Sigma honors. Prior to this, she received her Bachelor’s in Business Administration with distinction from Symbiosis International University, India.

On a more personal note, she enjoys reading fantasy series, traveling to world heritage sites, and teaming up with her husband on strategy/simulation gaming.
HfS Research: Defining Future Business Operations

The HfS mission is to provide visionary insight into the major innovations impacting business operations: Automation, Artificial Intelligence, Blockchain, Internet of Things, Digital Business Models and Smart Analytics.

HfS defines and visualizes the future of business operations across key industries with its OneOffice™ Framework.

HfS influences the strategies of enterprise customers, to help them develop OneOffice backbones to be competitive and to partner with capable services providers, technology suppliers, and third-party advisors. The "As-a-Service Economy" and "OneOffice" are revolutionizing the industry.

Read more about HfS and our initiatives on our website.