THINK BOLD TO LEAD

Oil and Gas CFO Digital Survey

accenture consulting
In collaboration with a third-party research agency, Accenture conducted a global study of chief financial officers (CFOs) in oil and gas companies. High-level conclusions:

- Energy companies are rapidly maturing their digital finance capabilities and unlocking significant value.
- Ways of working are being fundamentally altered. Executives seek to refocus the workforce on value-add activities whilst balancing implementation speed with cost.

Companies that employ digital finance to surpass peers in value creation have leading capabilities:

- Provision of new services not previously possible.
- Close collaboration with the business.
- Ability to drive value from multi-speed IT—developing core systems such as ERP combined with emerging technologies such as artificial intelligence (AI).

The Leaders

Leaders are implementing efficiency improvements that support profitable business growth.

By redefining the role of finance as a strategic advisor to the business, they are more able to provide forensic-level insights and predictive foresight to inform better business decisions.

The Potential

As strategic advisors, digital finance leaders can transform "how" and "what" services are delivered to oil and gas businesses.

Digital processes are empowering a cross-functional, collaborative workforce capable of delivering insight for high performance.
EXECUTIVE SUMMARY
Think Bold to Lead: 5 Key Insights

1. Maturity in digital finance is unlocking multimillion-dollar value in oil and gas.

2. New services and analytics are helping tackle major challenges.

3. Digital investments and organizational changes are redefining the finance workforce.

4. Investments in analytics, ERP, automation and AI are creating leaders in digital finance.

5. Barriers include costs, talent and cyber-security.
INSIGHT #1

Maturity in Digital Finance is Unlocking Multimillion-dollar Value in Oil and Gas
MATURITY IN DIGITAL FINANCE IS UNLOCKING MULTIMILLION-DOLLAR VALUE IN OIL AND GAS...

around 20% of companies are achieving revenue and cost improvements in excess of 10%

Since implementation, what impact, if any, has digital finance had on your organization's revenue and cost?

<table>
<thead>
<tr>
<th>Revenue impact</th>
<th>Cost impact (capital + operating)</th>
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<tbody>
<tr>
<td>High increase (more than 10%)</td>
<td>1%</td>
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<tr>
<td>Medium increase (5-10%)</td>
<td>4%</td>
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<tr>
<td>Slight increase (less than 5%)</td>
<td>5%</td>
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<tr>
<td>Slight decrease (less than 5%)</td>
<td>23%</td>
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<tr>
<td>Medium decrease (5-10%)</td>
<td>23%</td>
</tr>
<tr>
<td>High decrease (more than 10%)</td>
<td>50%</td>
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Percentage of companies, n=80

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While 21% of companies self-reported double-digit revenue growth, and 18% of companies self-reported double-digit cost reduction, only 5% reported concurrent double-digit revenue growth and cost reduction. About 1 in 5 identify digital finance helping deliver:

- Double-digit revenue growth (21%)
- Double-digit cost reduction (18%)

Exploration and production companies are achieving cost takeout, while retail and oilfield services companies are capturing top-line growth. On average, oil and gas companies realize margin improvement of approximately US$ 600 million (median) following implementations of digital finance across their entire business.

*Median cash-flow impact of revenue impact and cost impact. Calculated based on average impact of revenue growth plus cost—operational expenditure (OPEX) plus capital expenditure (CAPEX) reduction, based on OPEX and CAPEX data provided by companies (n=34) and assuming revenue = 115% OPEX, in line with industry average.
Technology has played a key role. I think our expense base got spread over more production barrels and, hence, per-barrel operating cost has gone down. We have been able to reduce by more than 22% in G&A [general and administrative] expenses in the last three years.

North American Upstream Oil & Gas Company

We have been able to improve our bottom line in upstream by more than 30% in the last 2 years in the US region. There is a small impact on revenue increase. ... At a global level, we were also able to decrease debt by 20% in the last 2 years. ... The contribution of implementing digital in finance has been pivotal.

North American Integrated Oil & Gas Company

Our finance department has been prioritizing procurement and payment processes, which helped us save almost US$ 3 million in the last 15 months. Additionally, adopting such tools and technology has driven our organization's revenue almost up to 60% in the past 3-4 years.

Central American Oilfield Services Company
INSIGHT #2

New Services and Analytics Help Tackle Major Challenges
INSIGHT #2
NEW SERVICES AND ANALYTICS HELP TACKLE MAJOR CHALLENGES

New services and analytics can alleviate service performance and execution challenges

What has been the impact of digital on finance management systems?

The primary impact of digital on finance services is **improved speed and efficiency**. One respondent cited productivity gains of 15% over 18 months.

**Governance and control.** Another respondent reported reduced compliance irregularities by more than 70% over 5 years by identifying deviations from budgeted parameters.

**Accuracy and quality.** Improvements in analysis, auditing, reporting and processing.

**Automated processes.** 19% of respondents identified automated processes as a key outcome from their digital finance programs. Companies cited the use of automation to unlock capacity within their finance functions, enabling them to redeploy resources to ‘new’ services.
INSIGHT #2
NEW SERVICES AND ANALYTICS HELP TACKLE MAJOR CHALLENGES

Has digital been leveraged by finance to provide new services to the business/enable new business services/products?

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<thead>
<tr>
<th>Digital leveraged for new services</th>
<th>Yes</th>
<th>No</th>
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</thead>
<tbody>
<tr>
<td>82%</td>
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<td>18%</td>
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82% credit digital with enabling new services, such as analytics pertaining to risk, credit, pricing, expenditure monitoring and cost variance.

Percentage of companies, n=56
INSIGHT #2
NEW SERVICES AND ANALYTICS HELP TACKLE MAJOR CHALLENGES

Stronger governance, higher productivity gains in robotic process automation

“Digital advances have enabled us to combine IT [information technology] and OT [operations technology] across all the functions in our organization, including finance. We have embedded the digitalization with our operations, and it is expected to improve our company’s performance to a greater extent. Investment, revenues and policies related to taxation are critically examined and controlled.

The impact of digital on finance management systems is immense. Starting from data storage and management to complex data analysis, digital has transformed the traditional methods of working into smarter and quicker processes.

Today, robotic process automation is reducing the dependence on resources for niche work without compromising the quality of the work.”

Asia Pacific Integrated Oil & Gas Company
INSIGHT #3
Digital Investments and Organizational Changes Are Redefining The Finance Workforce
INSIGHT #3

DIGITAL INVESTMENTS AND ORGANIZATIONAL CHANGES ARE REDEFINING THE FINANCE WORKFORCE

Over 60% of companies have boosted workforce efficiency, skills and capability

What has been the impact of digital on your finance workforce?

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<th>Workforce execution</th>
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<td>Improved workforce efficiency</td>
<td>Redefined work</td>
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<td>Improved workforce skills and capability</td>
<td>Restructured jobs</td>
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<td>Improved workforce health, safety, security</td>
<td>Enabled increased collaboration</td>
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<td>Improved employee engagement</td>
<td>Improved work flexibility</td>
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<tr>
<th></th>
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<tbody>
<tr>
<td>Improved workforce efficiency</td>
<td>64%</td>
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<tr>
<td>Improved workforce skills and capability</td>
<td>62%</td>
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<tr>
<td>Improved workforce health, safety, security</td>
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As finance services pivot from an efficiency focus to an insight focus, the workforce requires greater cross-functional collaboration and alternative structures to partner productively with the business.

Digital’s impact on finance workforce performance:

• **Efficiency.** Automated reporting and analyses in real-time compress working hours while delivering faster insight.

• **Skills and capabilities.** The workforce can manage sophisticated/complex activities and contribute to innovation initiatives, which requires upskilling as part of broader digital-finance implementation.

Key enablers for improved execution:

• **Redefinition of work.** Examples: cross-functional roles, real-time operations, transitioning to new roles (e.g. data scientists, cybersecurity specialists, application developers).

• **Restructuring of jobs.** Redefining and redeploying rather than eliminating jobs through automation. Leveraging digital technologies (e.g. automation) enables greater efficiency and strengthens capabilities (e.g. powerful analytics).
INSIGHT #3
DIGITAL INVESTMENTS AND ORGANIZATIONAL CHANGES ARE REDEFINING THE FINANCE WORKFORCE

Reshaping job responsibilities — such as accountants becoming data scientists

“Emerging digital technologies have worked more for the sake of redefinition, in comparison to elimination of jobs. ... [Training enables] personnel to work with more complicated transactions so they can give their best in challenging situations. Flexibility of workers is also improved.

North American Upstream Oil & Gas Company

“... It won't be wrong to call the accountant a data scientist. Their skills and capabilities have broadened. I can say that a tech- and digital-savvy worker has the ability to transform day-to-day operations and can become a catalyst for maximizing value capture for finance operations.

European Upstream and Midstream Oil & Gas Company
INSIGHT #4

Investments in Analytics, ERP, Automation and AI Are Creating Leaders in Digital Finance
INSIGHT #4
INVESTMENTS IN ANALYTICS, ERP, AUTOMATION AND AI ARE CREATING LEADERS IN DIGITAL FINANCE.

10% of companies are exploring emerging technologies like quantum computing.

On which digital technologies are you focusing your investment in finance?

- Big data/advanced analytics: 64%
- Traditional ERP: 53%
- Robotic process automation (RPA): 27%
- Machine learning/cognitive/AI: 12%
- Next-generation ERP: 11%
- Cloud: 11%
- Blockchain: 7%
- Internet of things (IoT): 4%
- Mobile: 4%
- Quantum computing: 3%

Are there any emerging technologies that your finance organization is currently exploring?

- Big data/advanced analytics: 42%
- Next-generation ERP: 39%
- Machine learning/cognitive/AI: 27%
- RPA: 19%
- Quantum computing: 10%
- Traditional ERP: 6%
- Blockchain: 6%
- Mobile: 6%
- Cloud: 5%
- IoT: 5%

Percentage of companies, n=76

Percentage of companies, n=62

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INSIGHT #4
INVESTMENTS IN ANALYTICS, ERP, AUTOMATION AND AI ARE CREATING LEADERS IN DIGITAL FINANCE.

10% of companies are exploring emerging technologies like quantum computing.

Well over half are currently investing in big data, advanced analytics and traditional ERP solutions.

- **Big data/advanced analytics** support real-time pattern recognition and predictive capabilities (e.g. scenario-based modelling) to support decision-making in investments and resources.

- **Traditional ERP** solutions support core processes (planning, reporting and transactions) with a growing shift to **next-generation ERP** (e.g. SAP S/4HANA).

- **RPA** helps with processing and standardized reporting while boosting accuracy and speed.

- **AI** technologies take the form of **cognitive assistants** to manage support services, queries, reconciliations and reporting.

- **Quantum computing**, which exceeds blockchain’s percentage of emerging areas being explored, could have value in areas such as portfolio optimization and fraud detection.
INSIGHT #4
INVESTMENTS IN ANALYTICS, ERP, AUTOMATION AND AI ARE CREATING LEADERS IN DIGITAL FINANCE.

Efficiency up by 5.5%... AI helping transform accounts payable and procurement

"Digital technology for efficient finance operations has increased our operational efficiency by 5.5 percent, year on year, over the past three years. We are leveraging process automation, advanced analytics and big-data analytics.

Asia Pacific Integrated Oil & Gas Company"

"Around two years back, we initiated an AI [artificial intelligence] project. We have been leveraging it in our accounting section. It has got a strong capability of AP [accounts payable] support and servicing. Also, within the procurement team, a lot of queries regarding the open PO [purchase order] or retrospective PO or invoicing or timely payments are addressed by it, answering questions from vendors regarding payments and invoices.

North American Oilfield Services Company"
INSIGHT #4
INVESTMENTS IN ANALYTICS, ERP, AUTOMATION AND AI ARE CREATING LEADERS IN DIGITAL FINANCE.

From A(nalytics) to Z(ero-based budgeting): an opportunity to optimize budgets and reduce costs

Finance executives have yet to get costs under control.

The opportunity to optimize budget allocations – enabled by zero-based budgeting – is being met by some companies through analytics. Analytics is being leveraged for:

• Transparency of costs (to enhance traceability)
• Modelling of historic costs to a more granular level
• Identifying trends to optimize expenditure or capital investment.

A small set of companies are applying advanced analytics for forensic-level insights and predictive foresight to boost productivity.

Predictive analytics are also being applied by companies to forecast market trends, production, and price gaps, as input into budget planning, and to define future expenses with greater accuracy reducing the risk of cost overruns.²

Do you believe you fully optimize allocated OPEX?³

Percentage of companies, n=69
INSIGHT #4
INVESTMENTS IN ANALYTICS, ERP, AUTOMATION AND AI ARE CREATING LEADERS IN DIGITAL FINANCE.

From A(nalytics) to Z(ero-based budgeting): optimizing budgets and reducing costs

Which digital technologies are you focusing your investments in finance?

“
A successful example of using predictive analytics in finance is that we [reduced] operating expenses by more than 25% in 2016. Our supply-chain efficiency has increased, and there are accurate revenue and portfolio-investment projections.

North American Integrated Oil & Gas Company”
INSIGHT #5

Barriers: Implementation Cost, Talent, Cybersecurity
INSIGHT #5
BARRIERS: IMPLEMENTATION COST, TALENT, CYBERSECURITY

Opportunities to leverage the digital finance ecosystem

What are the key barriers or challenges you face leveraging/implementing digital finance today?

Many finance executives are unsure how to overcome challenges such as implementation cost, skill shortages and legacy technology infrastructure.

• Top challenge is implementation cost in light of reduced margins and other cost pressures (e.g. infrastructure upgrades, employee training, external services)—challenges felt acutely by smaller businesses.

• 2nd most-cited challenge: digital skills. There is a need to upskill the workforce due to scarcity of experts and project-delivery personnel (e.g. experienced in agile delivery methods) to implement advanced digital platforms.

• 3rd most common challenge is infrastructure. Outdated platforms and server/network/portal capacity present constraints on advanced technology systems.

These challenges can be overcome through greater collaboration across the broader finance ecosystem enabled by digital technologies.

Percentage of companies, n=72

<table>
<thead>
<tr>
<th>Challenge</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Implementation cost</td>
<td>53%</td>
</tr>
<tr>
<td>Digital skills shortage</td>
<td>49%</td>
</tr>
<tr>
<td>Technology infrastructure</td>
<td>25%</td>
</tr>
<tr>
<td>Cybersecurity</td>
<td>24%</td>
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<tr>
<td>Regulation and compliance</td>
<td>22%</td>
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<tr>
<td>Implementation complexity</td>
<td>18%</td>
</tr>
<tr>
<td>Organizational structure</td>
<td>14%</td>
</tr>
<tr>
<td>Cultural/change management</td>
<td>14%</td>
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INSIGHT #5
BARRIERS: IMPLEMENTATION COST, TALENT, CYBERSECURITY

Challenges to advancing the digital-finance journey

The key barriers to leveraging/implementing digital finance processes:
1. Lack of talent who can identify, innovate, improve and implement these digital technologies to realize the benefits;
2. Change management, a big issue within our organization because people are very reluctant to change from the traditional means of carrying out financial processes;
3. Top leadership a lot of the times does not approve or support these changes because they perceive these changes as investment risks.

Inefficient coordination between top-level managers and the finance workforce could lead to a slow, decision-making process. Generally management is looking for solutions which are more cost-efficient ... This restricts the oil and gas companies in adoption of digital finance. I think there is and would always be a trend of bureaucracy in the procurement functions of the oil and gas industry; this, too, can destabilize the advantages of digital finance.

Latin American Integrated Oil & Gas Company

North American Upstream Oil & Gas Company
INSIGHT #5
BARRIERS: IMPLEMENTATION COST, TALEN, CYBERSECURITY

Cybersecurity perceived as top area of risk in 5-10 years

What are the key risks you anticipate you will encounter developing digital finance in 5-10 years?

**Cybersecurity.** One company noted cybercrime risk is expected to increase four fold in next 5 years. As more data is stored on cloud networks, and shared across departments and partners, the risks rise.

**Implementation cost,** also cited as a significant challenge, is also seen as #2 risk in 5-10 years. Future digital projects are expected to be more advanced and expensive. Increasing volatility and uncertainty will make it harder to budget for multi-year digital finance programs.

Third on the list is **digital skills** – not just the existing workforce learning new skills but a company’s ability to recruit talent. Respondents stated that some graduates do not possess the relevant digital skills, with slow time to autonomy, exacerbated by high attrition of ‘tech-friendly’ workforce.
Almost 1 in 4 are successfully pioneering digital finance, to position for growth while concurrently realizing value from investments to deliver double-digit value (10% or greater revenue growth and/or cost reduction) (Digital Value Leaders). 

About 1 in 5 are pioneering digital finance, achieving leading maturity to position for future growth, but not fully realizing immediate value (Digital Challengers).

Nearly 1 in 10 outperform traditional peers, realizing double-digit value (10% or greater revenue growth and/or cost reduction) from traditional finance capabilities (Value Architects).

Nearly half are in the traditional paradigm – they continue to adopt "traditional" methods with limited insights to optimize investments and unlock cash-flow for reinvestment and growth. They have average digital capabilities and are realizing growth/cost savings (value) of less than 5% (Traditionalists).

**QUALITIES OF 'DIGITAL VALUE LEADERS'**

**LEADERS BUILD MATURITY WHILE MAXIMIZING VALUE**

Nearly half of companies are not seizing the opportunities

Digital Value Leaders move faster than peers, on average:

- Quarter-end close—up to 3 days faster
- Forecasting—up to 4 days faster
- Days sales outstanding—up to 4 days lower

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Segmentation of survey respondents

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### QUALITIES OF 'DIGITAL VALUE LEADERS' LEADERS' MATURE CAPABILITIES UNLOCK GREATER VALUE

## TRADITIONALISTS

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<tr>
<th>Digital value and maturity</th>
<th>Digital finance technologies</th>
<th>Impact of digital on services</th>
<th>Impact of digital on workforce</th>
<th>Challenges and risks</th>
</tr>
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<tbody>
<tr>
<td>Realize incremental (~5%) growth and/or cost-saving, supported by <strong>basic</strong> digital maturity to build and sustain value.</td>
<td>Invest in advanced analytics, traditional ERP and RPA today, and intend to explore next-generation ERP in future.</td>
<td>Execute services with <strong>efficiency, quality</strong> and <strong>control</strong>, and deliver <strong>process improvement</strong> (standardized, scalable).</td>
<td>Restructure workforce for new roles and skills.</td>
<td>Address cost, skill and infrastructure challenges today; assess cybersecurity and cultural-change risks in future.</td>
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## DIGITAL VALUE LEADERS

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<td>Realize <strong>double-digit</strong> (&gt;10%) growth and/or cost-saving benefits, supported by <strong>leading</strong> digital maturity to build and sustain future value.</td>
<td>Invest in advanced analytics, traditional ERP, RPA, blockchain today, and intend to explore AI, next-generation ERP and quantum computing in the future.</td>
<td>Execute services with efficiency, quality and control; and provide new services that offer insights and decision-making support (analysis, prediction).</td>
<td>Restructure workforce for new roles and skills, and drive greater collaboration and engagement.</td>
<td>Address cost, skill, infrastructure and cultural change challenges today; cybersecurity risks in future.</td>
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IMPLICATIONS FOR CFOs

3 DIGITAL FINANCE IMPERATIVES

1. Define a bold vision
   Digital finance requires a carefully considered plan and CFO focus to identify where it can help unlock value. Traditional capabilities are being transformed for new approaches to old problems (e.g. zero-based budgeting powered by analytics). Leaders have moved beyond advanced analytics, ERP systems and RPA with digital-human teams, to pilot blockchain (e.g. reporting, payments), and to explore technologies such as AI (e.g. cognitive assistants) and quantum computing (e.g. portfolio optimization, fraud detection).

2. Move fast – or very fast
   Cost uncertainty and capital pressures present obstacles to implementing the “New”⁸, which requires an agile approach that can fail or scale fast, and be adapted in response to changes in volatile commodity markets and technology. Cultural change management, which should be addressed today, can be implemented as part of re-skilling and re-structuring. Leadership needs to support the transition to organizational agility.

3. Collaborate for greater success
   Coordinate efforts, whether through a new approach to finance business partnering, or delivering finance as part of cross-functional teamwork for end-to-end, customer-centric services. Engage in industry organizations, with partners and other stakeholders (technology sector, government and regulators, education sector) to build cybersecurity capabilities, and to shape transparent, common regulations and standards aligned with industry interests. Partner with academic institutions to nurture talent for future success.
ABOUT THE SURVEY

Global research of oil and gas chief financial officers conducted by a third-party agency. In-depth, 60-minute interviews in person or by telephone between July and September 2017.

Corporate or business-unit CFOs for regional entities in 80 companies:

- Exploration and production companies (upstream only)
- Integrated energy companies (upstream and midstream; upstream, midstream and downstream)
- Oilfield services companies
- Participants identified as being in oil and gas but did not specify their operating segments.

Broad range of sizes of companies:

- Market capitalization where applicable ranging from approximately US$ 2 billion to $50 billion
- Company headcounts ranging from approximately 200 to 460,000 full-time employee equivalents.

Respondents’ companies headquartered in 16 countries:

- Australia
- Azerbaijan
- Bermuda
- Brazil
- Canada
- China
- France
- India
- Indonesia
- Italy
- Netherlands
- Nigeria
- Norway
- Russia
- United Kingdom
- United States
Median cash-low impact of revenue impact and cost impact. Calculated based on average impact of revenue growth plus cost—operational expenditure (OPEX) plus capital expenditure (CAPEX) reduction, based on OPEX and CAPEX data provided by companies (n=34) and assuming revenue = 115% OPEX, in line with industry average.

Synthesis of responses to the questions: “How do you leverage analytics to gain forensic-level insights into the cost drivers across your business?”; “How do you leverage analytics to track and forecast costs across your business?”

OPEX is short for operational costs. Chart findings are a synthesis of responses to two questions: “Do you believe you fully optimize allocated OPEX?”; and “Which digital technologies are you focusing your investment in finance?”

Digital value evaluated based on whether companies achieved 10% revenue growth and/or cost reduction, concurrently, by implementing digital finance.

Digital maturity evaluated based on companies’ evaluation of the proficiency of their digital capability—rated 1-5—for finance and accounting and enterprise performance management services; leaders scored at least a 4 or 5 in both categories.

Digital Value Leaders are defined as those companies that achieved a 10 percent improvement to revenue and/or cost (Digital Value) and scored at least a 4 or 5 in both ‘Finance & Accounting’ and ‘Enterprise Performance Management’ (Digital Maturity).

1 Synthesis of responses to the questions: “How do you leverage analytics to gain forensic-level insights into the cost drivers across your business?”; “How do you leverage analytics to track and forecast costs across your business?”

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