Presented by

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Technology and Management Consulting, Director

Focus on providing guidance on a great diversity of technology disciplines: Virtualization, server hardware, wireless, Active Directory and group policy best practices, mobile device management, cloud and managed services, local area network/wide area network design, storage area network and storage, datacenter power and cooling analysis, business continuity and disaster recovery.
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THE DIGITAL CONTRACTOR

The Digital Contractor

- Secure
- Mobile
- Cloud
- On-time
- In-demand
- Always Connected
- Informed
- Project Visibility
- Seamless Communication
- Automated
- Adaptable

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5

6
The Digital Contractor

Digital Contractors possess:

- Automated and dynamic processes
- End-to-end system integration
- Real-time information
- Full alignment of business and IT strategy
- Internal channels leveraged to enhance customer experience
- Rich mobile capabilities
- Team-wide adoption of technology
- Excellent reporting capabilities
- Technical expertise
- Role-based controls & access

Risks of not adopting digital processes

The majority of contractors operate in a pre-digital world. Rapid growth, increased project size, and constantly changing business landscapes mean more and more contractors risk being constrained by their own internal operations.

- Incomplete knowledge of project scope
- Limited visibility to project status or profitability
- Lag in capturing project forecasts can lead to inaccurate budgeting, job costing, and planning
- Inaccurate materials management
- Manual processes
- Siloed data systems
- Manual processes
What is it?

Digital transformation is about finding ways to digitize all aspects of your business—from eliminating paper, to automating business processes, to leveraging massive data sets to personalize products and services.

Digital Evolution

Becoming an Innovative Organization

The path to becoming a digital disruptor is directly aligned with modernizing the finance function. Many C-level’s consider themselves further along than they truly are.

Strategic direction

<table>
<thead>
<tr>
<th>People</th>
<th>From</th>
<th>To</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication challenges</td>
<td>Open communication</td>
<td></td>
</tr>
<tr>
<td>Organization tension</td>
<td>Shared vision</td>
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<tr>
<td>Ad hoc approach to training</td>
<td>Formalized training</td>
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<tr>
<td>Lack of knowledge management</td>
<td>Controlled knowledge management</td>
<td></td>
</tr>
<tr>
<td>Manual &amp; paper-based processes</td>
<td>Automated &amp; paperless processes</td>
<td></td>
</tr>
<tr>
<td>Data mismanagement</td>
<td>Robust data integrity and governance</td>
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Strategic direction

Strategic direction: These directional statements demonstrate the strategic changes contractors should implement to enable digital transformation.

<table>
<thead>
<tr>
<th>Strategic Program</th>
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Finance organization supports primarily analytical activities to drive business activities.
WHY YOU SHOULD CARE

One Source of Information

Those who have been involved in the construction industry long enough understand the pressures surrounding a tight budget and a fixed deadline. Yet, unforeseen circumstances often arise, sending established plans out the window and requiring workers to set a new schedule and new margins for the project.

Hi Jen,

Could you send me the foundation detail for that project? I seem to have misplaced it.

Yes Robert, I will send it over now!

This isn't right Rob. The engineer is calling for #8 rebar in the front wall, these are #6. I'm sorry but this needs to be addressed before you can begin the pour.

Jen sends the original blueprints stored in one of her desktop folders.

Not realizing that the plan is inaccurate – Robert analyzes the drawings, orders new material, assigns responsibilities, and schedules an inspection for the end of week.

Job Site Needs & Current Environment

<table>
<thead>
<tr>
<th>Area</th>
<th>Issue</th>
<th>Current Environment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collaboration</td>
<td>High volume of large files being shared has increased demand for new collaboration tools.</td>
<td>Files are often shared via the wrong platform/tool causing business disruption.</td>
</tr>
<tr>
<td>Scale &amp; Agility</td>
<td>Relative small size of firms.</td>
<td>Job sites are not agile enough to adapt in size as projects change scope.</td>
</tr>
<tr>
<td>Repeatability</td>
<td>Many disparate players, functions, and systems.</td>
<td>Limited adoption of new technology and processes across job sites and mass duplication of effort.</td>
</tr>
<tr>
<td>System Architecture</td>
<td>Aging system architecture and lack of integration between legacy systems.</td>
<td>No single system of truth.</td>
</tr>
<tr>
<td>Project Visibility</td>
<td>Paper-based invoices are misplaced in the shuffle from locations to headquarters.</td>
<td>Limited visibility into invoice payment status.</td>
</tr>
<tr>
<td>Mobility</td>
<td>Lack of mobile capabilities.</td>
<td>Limited ability to communicate quickly and effectively on or off site.</td>
</tr>
</tbody>
</table>

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Digitization is unavoidable, but US construction firms need to take the lead in adopting an integrated construction management platform to streamline project communication, increase efficiencies, and create a single source of truth.

Establishing a single source of truth across organizations
- When software can’t adapt to a contractor’s business, performance suffers. And if the technology isn’t relevant to their partners’ day-to-day needs, they simply won’t use it. This results in technology investments unable to deliver the return it should.

Aligning new tech tools with existing processes
- When it comes to cyber threats in the construction industry, there are two types of companies: those who have been hacked and those who could be. Cyberattacks from hackers is a growth industry and construction is not immune.

Mitigating cybersecurity risks
- Technology Needs

Focus on your building differentiating capabilities
- ERP, CRM, and Analytics

Key Triggers
1. Disjointed IT environment; functionality gaps
2. Systems are not scalable for growth
3. Business decisions are not made in a strategic way; no strategic sourcing
4. Multiple sources of information/misaligned information

Key Benefits
- Improved customer experience and relationships
- Better decision making; powerful business insights
- Easier regulatory compliance
- Enhanced data security and user controls
- Increased collaboration amongst business functions

Focus on your building differentiating capabilities
- PM, Mobile, and Scheduling

Key Triggers
1. Missed deadlines
2. Over/under supply of resources
3. Lack of communication
4. Lack of integration

Key Benefits
- Improved team environment
- Better budget tracking and labor allocation
- One source of information
- Improved visibility; enables up-to-date tracking
Focus on your building differentiating capabilities

Automation and Modeling

Robotic process automation (RPA) is a type of software that allows processes to be completed through human interactions within an IT environment.

Financial process automation is a tool used to streamline complex, manual, and repetitive accounting processes.

Key Benefits:
- Enables departments to focus on value-added work
- Improved employee morale; reduces mundane processes
- Decreased cycle times and improved throughput
- Improved data security
- Eliminates data silos; enables single source of truth
- Lowers operational risk
- Reduce costs and waste
- Improved internal data controls; clear audit trail
- Improved accuracy; reduces human error

When to use Automation:
1. Rule-based process (no human decision required)
2. Digital trigger initiated process supported by digital data
3. Functioning, high volume, and stable process
4. High-volume process

DIGITAL CAPABILITIES

Cloud Technology

The construction industry presents two constant obstacles -
- The rate at which projects change
- The rate at which information is captured

With inherently disparate workforces between the field and office, construction businesses can benefit from cloud and mobile technologies to access information from any job site at any time.
Having the right technology in place and the ability to gather data is important, but organizations need the ability to translate this raw data into meaningful insights towards production, job costing, profitability, and other performance indicators.

**Key Benefits**
- Enables teams to focus on value add analysis of data
- Delivers timely and accurate information to enable efficient decision making
- Provides powerful analytical capabilities and ability to rapidly consolidate information
RPA Overview

Robotic Process Automation ("RPA")

RPA refers to a set of modular software programs (or "bots") to complete structured, repeatable, and logic-based tasks by mimicking the actions taken by existing human staff.

**RPA Value Proposition**

Across industries, RPA enables organizations of all sizes to efficiently scale operations with minimal impact to existing business processes.

- Developed bots are capable of interacting with and integrating disparate enterprise applications, databases, and files to meet the business need to develop custom, application specific integrations.
- A set of scheduled bots are capable of running on multiple servers within a company’s environment simultaneously with minimal impact to resource and network capacity.

Applying a Digital Workforce to Digital Processes

**Data Capture**
- Collect and synthesize your data

**Data Enrichment**
- Modify, rationalize, normalize your data

**Data Validation**
- Validate, authenticate your data

**Process**
- Perform the process steps
- Ensure consistency and accuracy

**Analyze & Report**
- Reliable, accurate, timely analysis and reporting

Integrated Finance – Record to Report

Value of Modern Cloud Technology
US Technology Investments – Forrester Report

<table>
<thead>
<tr>
<th>Industry</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
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<td>2.9%</td>
<td>2.8%</td>
<td>2.8%</td>
<td>2.9%</td>
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<tr>
<td>Transportation &amp; logistics</td>
<td>2.1%</td>
<td>2.1%</td>
<td>2.4%</td>
<td>2.4%</td>
<td>2.5%</td>
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<tr>
<td>Professional Services</td>
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<td>3.2%</td>
<td>3.3%</td>
<td>3.3%</td>
<td>3.3%</td>
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<tr>
<td>Construction &amp; engineering</td>
<td>3.1%</td>
<td>3.2%</td>
<td>3.2%</td>
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<td>3.3%</td>
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<tr>
<td>Utilities &amp; Communications</td>
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<td>3.4%</td>
<td>3.6%</td>
<td>3.4%</td>
<td>3.4%</td>
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<td>Utilities</td>
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<td>2.3%</td>
<td>2.3%</td>
<td>2.3%</td>
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<tr>
<td>Telecommunications</td>
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<td>6.8%</td>
<td>6.6%</td>
<td>6.7%</td>
<td>6.7%</td>
<td>6.4%</td>
</tr>
<tr>
<td>Finance &amp; Insurance</td>
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<td>7.3%</td>
<td>7.2%</td>
<td>7.2%</td>
<td>7.4%</td>
<td>7.6%</td>
</tr>
<tr>
<td>Financial services</td>
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<td>3.2%</td>
<td>3.2%</td>
<td>3.6%</td>
<td>3.6%</td>
<td>3.8%</td>
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<tr>
<td>Insurance</td>
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<td>4.8%</td>
<td>5.1%</td>
<td>5.1%</td>
<td>5.2%</td>
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<tr>
<td>Total US</td>
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<td>5.3%</td>
<td>5.2%</td>
<td>5.5%</td>
<td>5.6%</td>
<td>5.6%</td>
</tr>
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</table>

Of the 1.2% spending budget towards technology in 2017, 34% is dedicated to outsourcing, 15% towards IT staff, 13% for Telecommunications services, with just 5% towards software licensing.
Tech Trends in Construction

1. Always On!
   - These days nearly everyone carries a smartphone with a 24/7 internet connection, but most contractors are using only a fraction of the device’s capabilities on the job.
   - A true technology solution that doesn’t leave mobile access as a partial solution at best. Mobile apps can let an owner or worker with the right information to make more decisions and act faster on the job site.

2. BIM & 3D modeling
   - The BIM platforms of the future will be capable of delivering insights that include both cost and scheduling functionality, which will add more value to clients beyond what is expected today. BIM can be used to steer clear cost and time advantages to early adopters and will rapidly become a requirement for major infrastructure projects.

3. Big data & prediction analytics
   - Big data has the potential to reveal hidden opportunities, and safety gains not yet imagined. Business analytics can help companies implement systems that can capture and analyze this data across their key processes.

4. Tech Trends Continued
   - Cloud adoption
     - Increasingly, fully integrated IT systems offering real-time data and increased collaboration.
   - IT outsourcing
     - Corporate Performance Management (CPM) tools improve FP&A efficiency, enabling strong visibility into financial performance, budgeting, forecasting, and reporting.
   - Modernizing the Finance Function
     - Business Intelligence platforms allow for quick insights from big-data.
   - Mobile Capabilities
     - Construction and Engineering firms are spending the highest portion of their tech budget on mobile solutions.
   - Robotic Process Automation (RPA)
     - RPA is an innovative way of reducing daily data entry/grunt work associated with manual tasks. This technology is expected to grow while avoiding errors and increasing employee and user productivity.