MANAGING THE ADOPTION OF TECHNOLOGY IN THE FIELD

Andy Lambert | Director of Learning

WHAT WE'LL COVER

- **Setting the Stage** – Technology in Construction
- **Why** Construction firms need to adopt mobile technology
- **What** are the pitfalls to a technology strategy
- **How** to adopt and implement a technology strategy that works
- **The future is bright** – to those who adopt!

ANDY LAMBERT

DIRECTOR OF LEARNING

Andy has over 17 years' experience in both Construction and Construction technology. Andy is passionate about continuous learning and leveraging best practices for training and knowledge transfer that drive business efficiencies. Prior to joining Penta Technologies, Andy worked for various Electrical Contractors as a member of IBEW 494 of Milwaukee, Wisconsin. Andy holds a bachelor's degree in Accounting from the University of Wisconsin - Milwaukee as well as a degree in Electrical Construction. He is also a member of the Association for Talent Development where he collaborates with industry peers on best-in-class learning and development methodologies.

Andy is responsible for the PENTA Academy where he drives continuous learning for the PENTA ERP user community via various training mechanisms, as well as bringing users together to tackle tough business challenges.

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SETTING THE STAGE
TECHNOLOGY IN CONSTRUCTION

OUR INDUSTRY

7%

of the worlds workforce works within the construction industry.

$10

... more like $10 trillion globally.

20

years behind in the adoption and use of technology in day-to-day work.

TECHNOLOGY ADOPTION IN CONSTRUCTION

61%

of construction firms are utilizing BIM, but do not invest in a single integrated PM system.

40%

of construction firms are utilizing mobile technologies that are not linking to an integrated system or ERP

70%

of construction firms used **1% or less** of their revenue to invest in technology.

CHANGE HAPPENS FAST

Despite the evidence that technology change is a very real force shaping the business landscape, most people are ignoring the forces at work

- The 2017 survey at the right includes over **300+ execs** at firms with more than $2B in revenue
- Only **4%** of execs surveyed **disagreed** with a need to transform their business
- Yet just **10% expected competition** from new industries

Chart 2: Most Executives Say They Need to Transform

To what degree do you agree or disagree with this statement:

"Our company recognizes the need to transform—that is, to change our core offerings or business model—in response to rapidly changing markets and disruption."

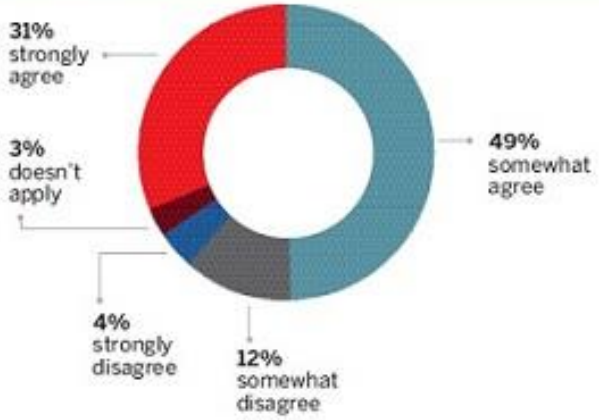
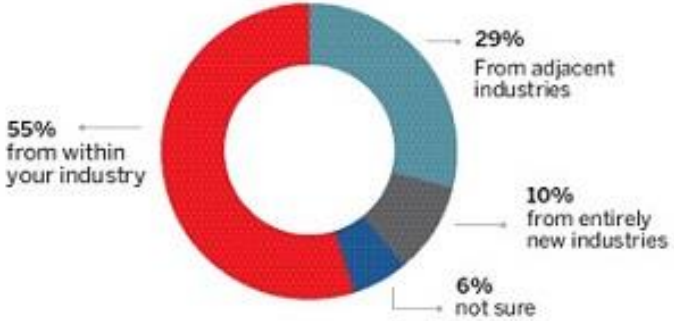


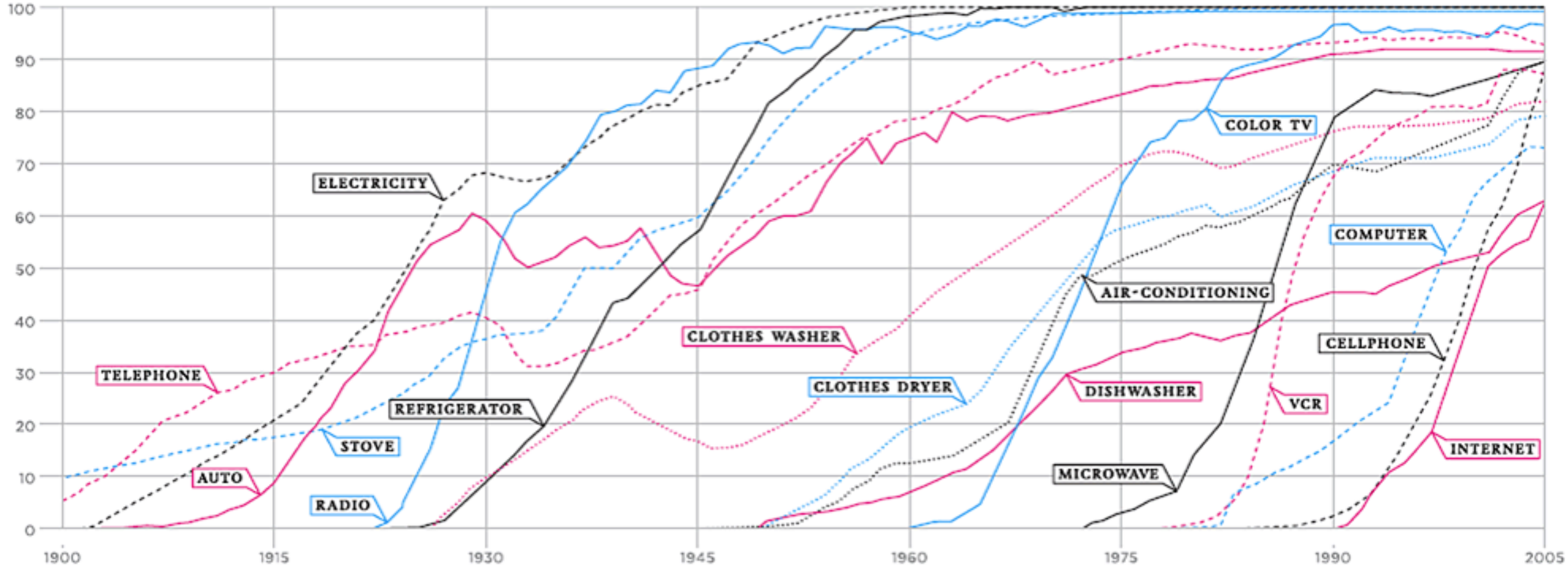
Chart 3: Most Executives Expect Competitors to Remain the Same

Where do you see the greatest competition coming from in the next five years?



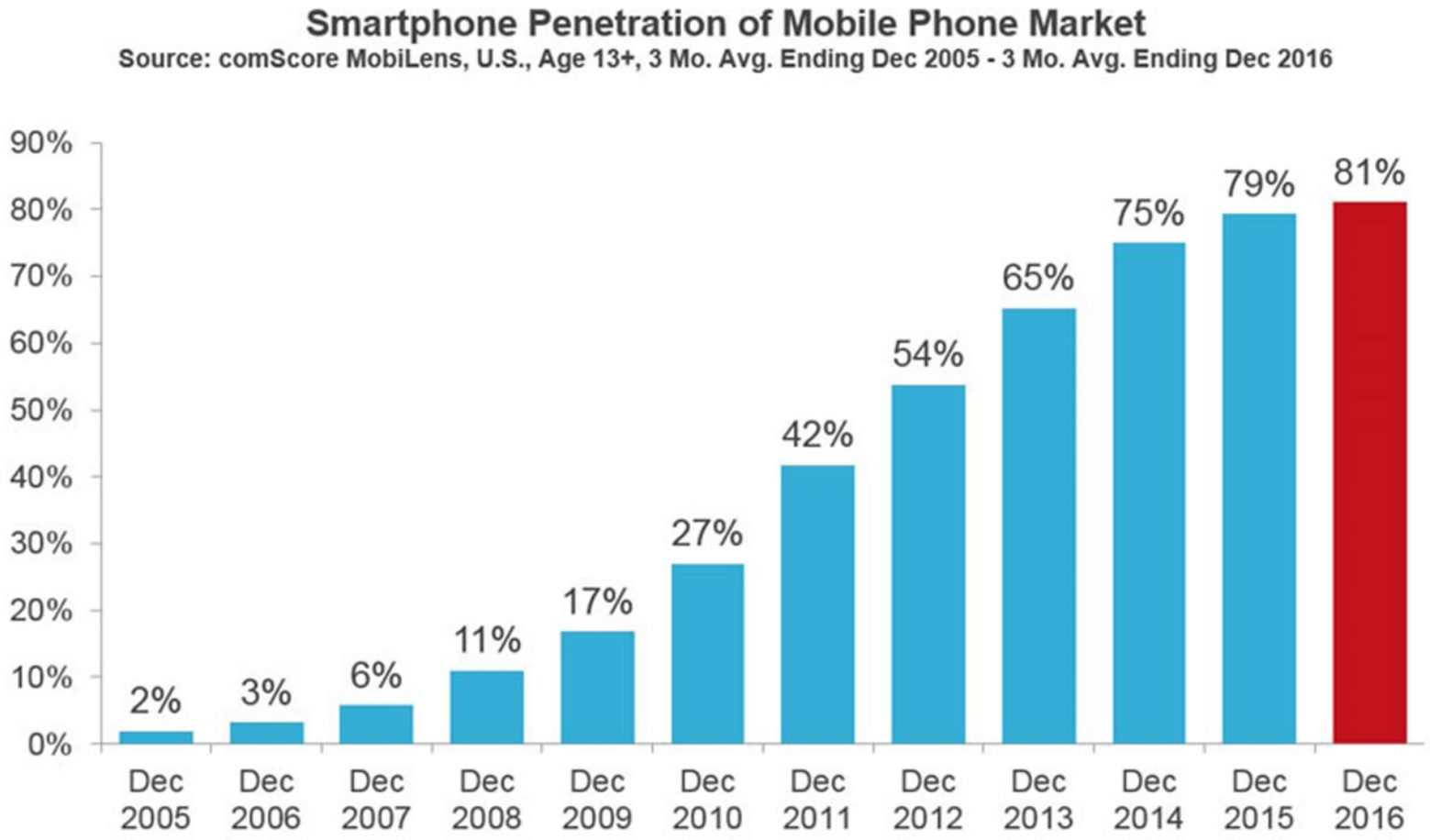
Data: 2017 Innosight survey of 300+ executives at firms with $2B+ in revenues

DIGITAL DISRUPTION



It took electricity over **30 years** to reach **80%** of households
It took cell phones less than **10 years**!

DIGITAL DISRUPTION

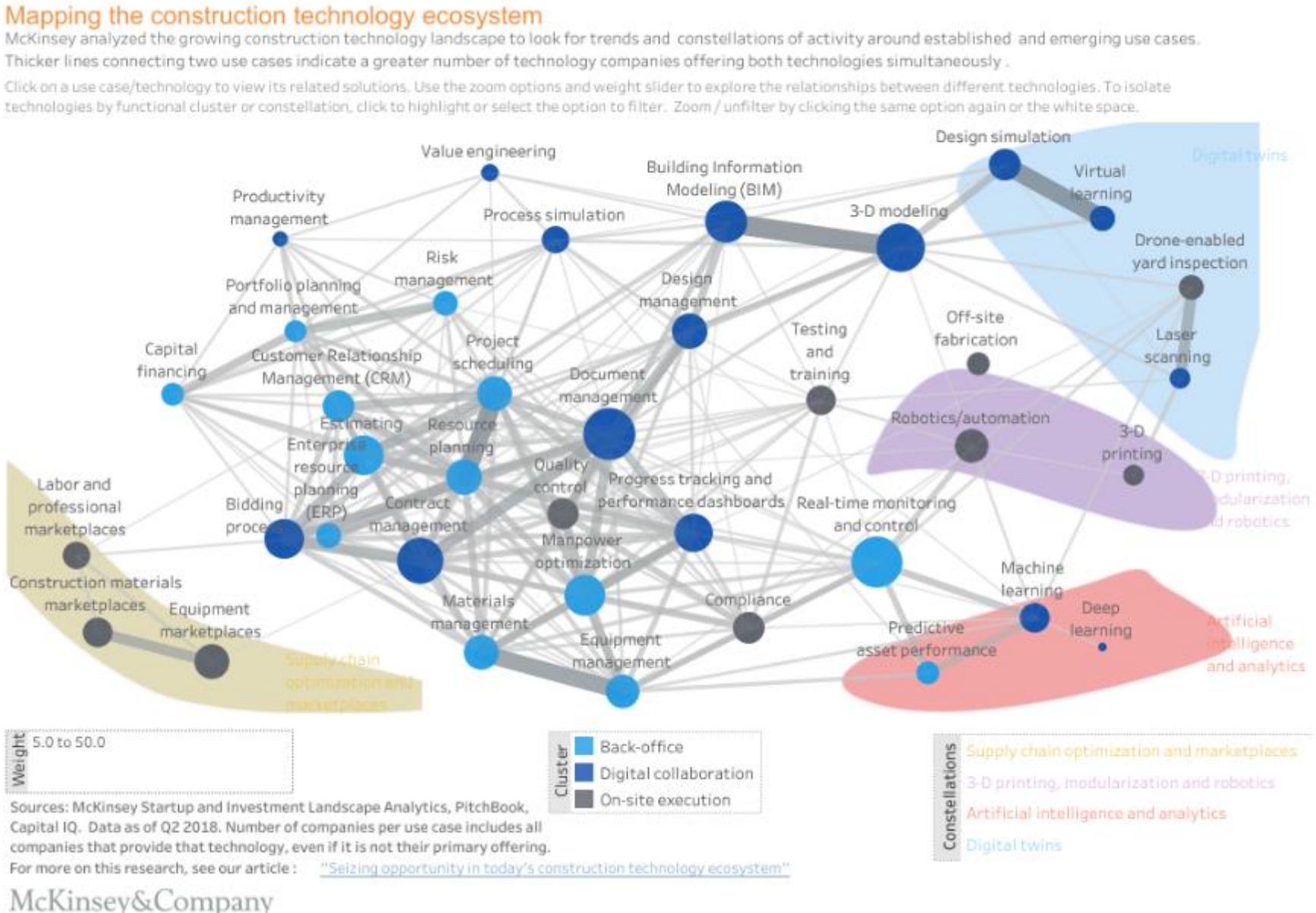


Over **80%** of Americans aged 13 or older have a smartphone

CONSTRUCTION TECHNOLOGY ECOSYSTEM LABOR SHORTAGES – AUTOMATION IMPACT TECHNOLOGY ON THE JOBSITE

CONSTRUCTION TECHNOLOGY ECOSYTEM

Today, the most prominent constellations include 3-D printing, modularization, and robotics; digital twin technology; artificial intelligence (AI) and analytics; and supply chain optimization and marketplaces



LABOR SHORTAGES AND IMPACT OF AUTOMATION

- The construction industry added **210,000 jobs** in 2017
  - This is up from the 155,000 added in 2016 but still **down from the 336,000** added back in 2015.
- **75%** of firms are planning to add headcount in 2018.
- **78%** of firms are currently having a hard time filling skilled labor positions and **82%** of firms expect it to remain difficult or become harder to do so.
- A 2017 survey found that only **3% of young adults** wanted to pursue construction based careers.

This guy is the #3 Google Image result for 'young construction worker'

TECHNOLOGY ON THE JOBSITE

- According to OSHA**, 21.4%** of all worker fatalities in the U.S. in 2015 occurred in the construction industry.
- Microsoft has used construction as the industry for Proof of Concept demos at the last two Microsoft Build Developers Conference
  - Jobsite Safety and Access Control with AI-enabled Cameras
  - Drone-powered Visual Inspections and Automated Work Order Issuance
- Caterpillar CAT Detect and CAT Smartband stop machines from reversing into people and stop tired operators from making mistakes
- Triax and XOi are bringing wearables to the jobsite that solve real-world use cases in safety, job cost, etc.

WHY CONSTRUCTION FIRMS NEED TO ADOPT MOBILE TECHNOLOGY, AND FAST!

ADOPTING TECH AND FAST!

- From downturn to upswing
  - Cutting costs and minimal margins
  - LEAN methodologies
- Owners are demanding it
  - Virtual Reality (VR)
  - Document Control/Content Services
  - Collaboration
  - Financial Reporting
  - Change Control

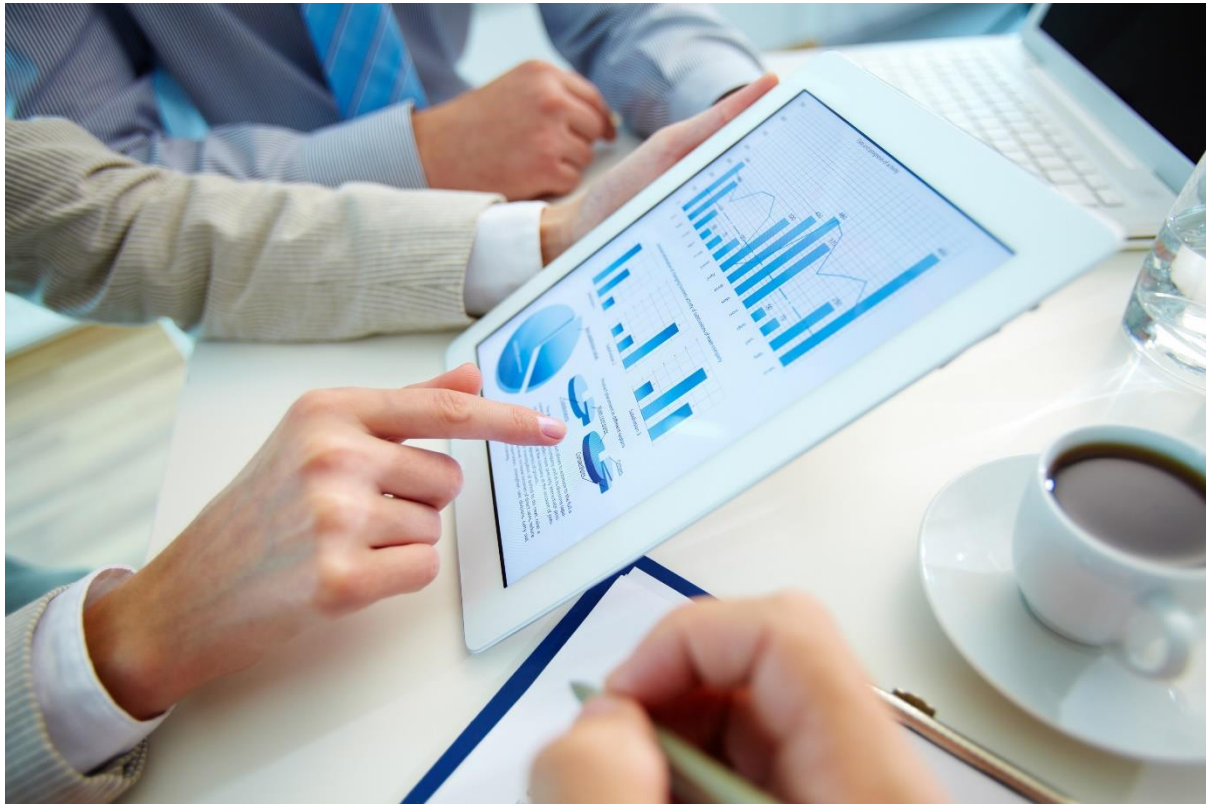
ADOPTING TECH AND FAST!

- Getting passed by your competition
  - Opportunities for efficiency, streamlining, reducing rework, and improving customer experience
- Labor shortages and knowledge transfer
  - Changes in the working generation require technology adoption
- Standardization within the industry
  - Use of BIM and requirements for public projects
- Processes and reporting mechanisms are outdated
  - In the era of BIG Data, need to be able to utilize (and quickly) the information made available to you
- High fragmentation

WHAT ARE THE PITFALLS TO AN OVERALL TECHNOLOGY STRATEGY?

10 PITFALLS TO A TECH STRATEGY

1) Lack of alignment
2) No roll-out strategy
3) Lack of implementation team, or wrong members on team
4) No integration plan, therein creating more information silos
5) Focus on cost and process without mapping out business value



10 PITFALLS TO A TECH STRATEGY

6) Poor resource allocation
   - People Time
   - Device allocation
   - Infrastructure
7) Single reward for a single person/department
8) Capital expenditures on hardware without clear ROI
9) Pushback due to reliance on outdated manual processes and paper
10) Assumptions that end users can't/won't adapt

SO…

HOW CAN YOU ADOPT AND IMPLEMENT A TECHNOLOGY STRATEGY THAT WORKS?

MOBILE TECHNOLOGY DOES NOT IMPLEMENT ITSELF

ADOPT AND IMPLEMENT THE RIGHT WAY

1|Create the Team

2|Set Your Goals

3|Evaluate Solutions

4|Selection

5|Plan

6|Implement

7|Monitor

8|Repeat

9|Change Management

1|CREATE THE TEAM

- **Integrator AKA "Tech Evangelist"**
  - Complete Visibility
  - Builds the team and the metrics for success
  - Accountable to adoption and business impact

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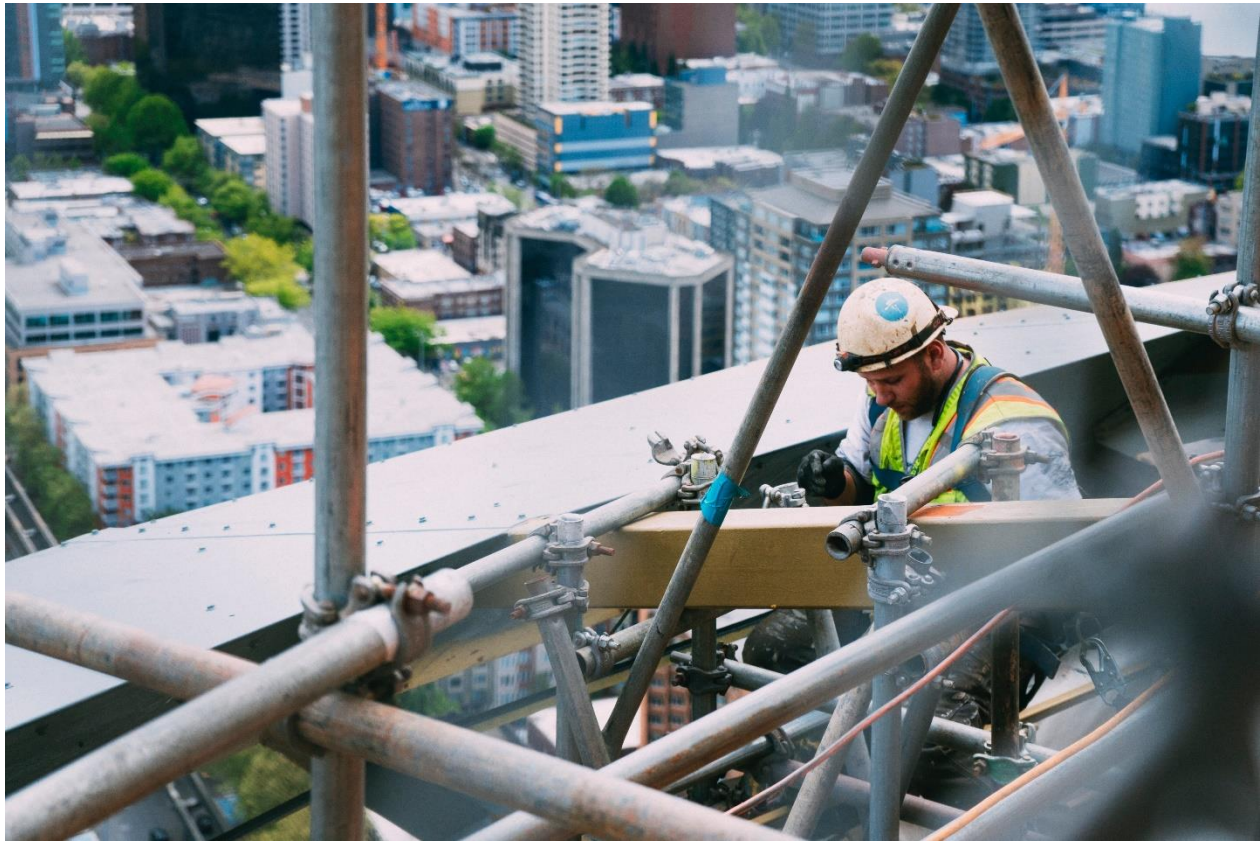
- **Integrator AKA "Tech Evangelist"**
    - Complete Visibility
    - Builds the team and the metrics for success
    - Accountable to adoption and business impact
- Stakeholders
    - Those affected by change
- IT Department
    - Responsible for all aspects of technical implementation
- Executive Sponsor
    - Champions the project for the company aka "Chief Accountability Officer
- Implementors
    - Responsible for training and roll-out
- Project Manager
    - Maintains the plan and schedule

2|SET YOUR GOALS

- Avoid Ad-Hoc one-offs
- Discuss over-arching objectives
- Owned by the “Integrator”
- Draft “Needs Analysis”
- Finalize and use as North Star



3|EVALUATE SOLUTIONS

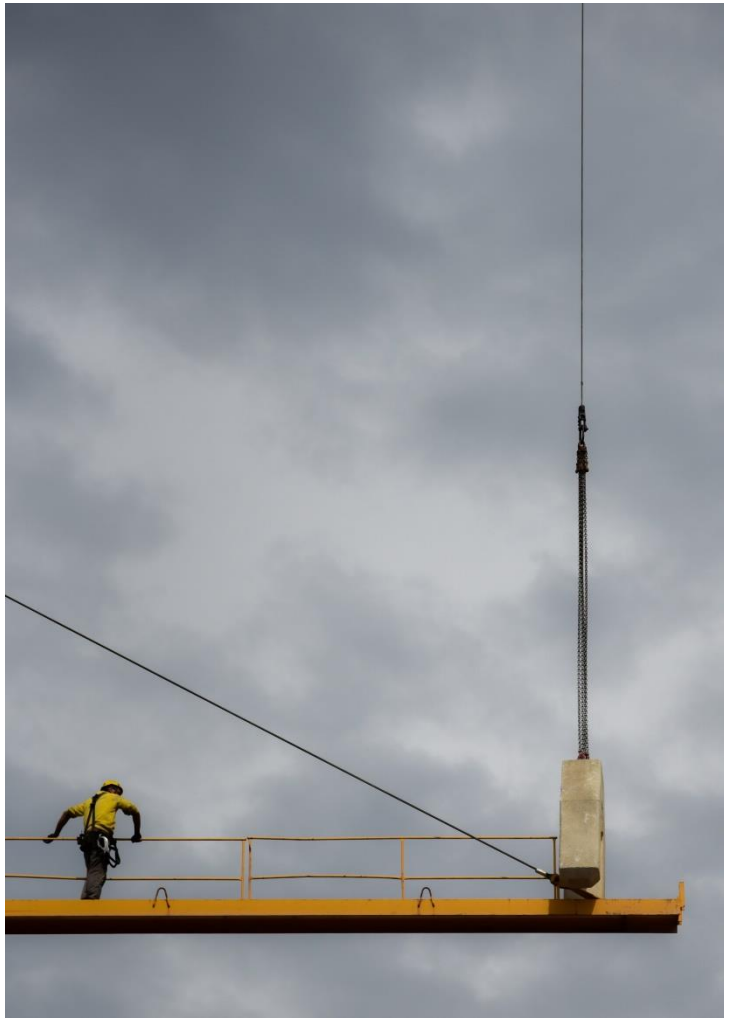
1) Creation of RFP
2) Checklist of Requirements
3) Pull Together Available Solutions
4) Review Solutions Against Solutions

4|SELECTION

- Review all solutions
  - Pros/Cons
  - References
  - Finalize Decision

5|PLAN

- Create:
  - Project Charter
  - RACI Matrix
  - Project Plan
- Use as accountability tools
- Clear expectations



6|IMPLEMENT

Create a training plan that works:

1. Level set on all questions - upfront
2. Build training materials geared towards end user
   - Simple vs Complex
3. Generate end user buy-in by creating a subset of “Subject Matter Experts”
4. Short and deliberate
5. Offer multiple training opportunities
6. Support your end users

7|MONITOR

- Create Scorecard
- Review trends and insights

8|REPEAT

- Never ending
- Enterprise Project Management Office (EPMO)

9|CHANGE MANAGEMENT

Technology does not solve business problems – It is merely a tool in the bigger equation.

Technology = Change = Emotions

- Anger
- Fear
- Rejection
- Resistance
- Tolerance
- Embrace

9|CHANGE MANAGEMENT

The 3 steps of change:

- Endings (where Negative Emotional Reaction 'NER's' are prevalent)
- Transitions
- Beginnings

Managing the emotional steps of change

1) Involvement
2) Clear benefit statements
3) Acknowledge and empathize with any negative emotions, and allow your people to vent
4) Sell the problem, not just the vision
5) Build in rewards
6) Provide as much training and support as possible
7) Be aware that every individual will be on their own 'Change Journey'

THE FUTURE IS BRIGHT TO THOSE THAT ADOPT

FUTURE OUTLOOK

9

deployments of BIM are covered by the cost-savings of the first initial deployment through productivity and iterations.

$10

billion has been invested into the technology industry as it relates to construction from 2011 to 2017.

$$

if it's done right, your technology budget can go from a cost center to a profit center.

FUTURE OUTLOOK

Real time reporting means real time decision making!

- Job Cost Management
- Manpower analysis
- Safety Incident management
- Construction delays
- Material & Equipment needs
- Change Management

Create efficiencies by being agile and Lean:

- Labor Planning
- Material Planning
- Equipment Planning

FUTURE OUTLOOK

Keep an eye open for:

- Tech innovators and disrupters are now zeroing in on fraud prevention and cash flow efficiencies.
- Digital Project Collaboration will continue to evolve, linking not only the field to the office, but all parties involved on a project.
- Wearables will become smarter and easier to use, pushing and pulling data to our field force
- Drone Imagery will get stronger and faster, allowing more site analytics
- Robots are real, check YouTube for the bricklaying robot

QUESTIONS?

penta
TECHNOLOGIES

THANK YOU!