Information Technology
in
Facilities Management

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APPA Institute for Facilities Management

AIA
Continuing
Education
Provider

What would you do?

Ian @12sh0tsDeep · 3h
@███████ #SOS please it's so hot in ███████ (has been for a while) and the professor can't figure out how to turn it down. #Please

2   4

twitter

Ian @12sh0tsDeep · 3h
@VTSandsman #SOS please it's so hot in Pamplin 30 (has been for a while) and the professor can't figure out how to turn it down. #Please

2   4

Virginia Tech 1872

Timothy D Sands
@VTSandsman   Follow

.@12sh0tsDeep I understand that today is the big day when @VTFacilities flips the campus switch from heating to cooling.

RETWEETS   FAVORITES
7   25

9:25 AM - 13 Apr 2015

Virginia Tech 1872

Ian @12sh0tsDeep · 3h
@VTSandsman @VTFacilities God bless love all of you thanks!!

VT Facilities @VTFacilitiesm · 2h
@12sh0tsDeep We have a crew in route to look into Pamplin 30, but we are flipping the switch on the appropriate campus buildings @VTSandsman

Virginia Tech 1872

Ian @12sh0tsDeep · 2h
@VTFacilities @VTSandsman thank you guys so much, y'all rock!!

1

Administrivia

Course Description

530 - Information Technology in FM

Information technology plays a critical role in the day-to-day operation of a Facilities Management organization. This course will provide a discussion of how FM organizations can leverage information technology to improve the effectiveness and efficiency of their organizations. Topics discussed include work management systems, analytics and reporting, and mobile technology.

Faculty Member: Chris Smeds

Learning Objectives

1. Learn how information technology plays a critical role in day-to-day operations
2. Discuss how FM organizations can leverage information technology to improve their organization
3. Discuss work management systems
4. Learn how analytics, reporting, and mobile technology will increase productivity.

4 Questions

What is one tool that would make your job better/easier/quicker.

What is one thing that if you KNEW it, it would make your job easier/better/quicker?

What is one thing (process) your organization does well?

What is one thing (process) your organization doesn't do well?

Demystifying technology

"Today's cutting edge technology is tomorrow's broken legacy system."

Middle Ages Tech Support

http://www.youtube.com/watch?v=pQHX-SjgQvQ

Kids of Today vs 1980's Technology

http://www.youtube.com/watch?v=7v75QpvlSUs

What is technology?

- The application of scientific knowledge for practical purposes

- Nicholas Carr suggests 4 categories of technology:
    - 1) those that extend our physical strength – the plow, hammer, fighter jet
    - 2) those that extend the sensitivity of our senses – the microscope, Geiger counter, smoke alarm
    - 3) those that reshape nature to better serve our needs – reservoirs, plumbing, genetically modified corn
    - 4) those that extend or support our mental powers – calculator, the book, the computer, the Internet

"Technology by itself is not the point."
- Tim Cook

Information Technology
It's not just for nerds…

- Tools
- Information
- Process

And…

- People

Tools
If all you have is a hammer, everything looks like a nail.

- Things that help us do our job or get things done
  - Email, word processor, spreadsheet, cell phone, GPS

- Easy to see why we use them:
  - They make us more effective
  - Save time & money
  - Allow us to do things we otherwise couldn't do

- But, there are challenges:
  - We have to make them easy to use
  - Making sure you have the right tool for the job | which is faster: pencil or iPad?
  - Cost vs. benefit – how do you measure?
  - "Access to technology" issue
    - How do you get tech to people (or vice versa)?
    - Lost productivity – is he a plumber or a data entry clerk?

Information
Just the facts, ma'am

- Data! Facts! Knowledge!

- Why collect information?
  - Sometimes, you just have to
  - Measure success
  - Helps you improve process…
  - Helps you tell your story

- Different information matters to different people
  - What information does a mechanic need?
  - What information does a frontline supervisor need?
  - What information does a superintendent need?
  - What information does an executive need?
  - What information does a customer need?

- Reporting vs. Analytics vs. Business Intelligence (BI)

Process
That's how we roll

- Simply defined: the way we do things
  - Some are good … some are, well, bad!

- Why is process important?
  - We want to do the right things the right way
  - Because we don't want to do bad things more effectively!!!

People
Mother knows best

- People love change... or do they?
  - Do people really resist change?

- Change management & unintended consequences

- User experience (UX)
  - Ease of use
  - Efficiency
  - Aesthetic

- **TRAINING!!!**

- The ideal IT solution: bake information (collection) into your process – use technology (tools) as needed and REMEMBER the PEOPLE!
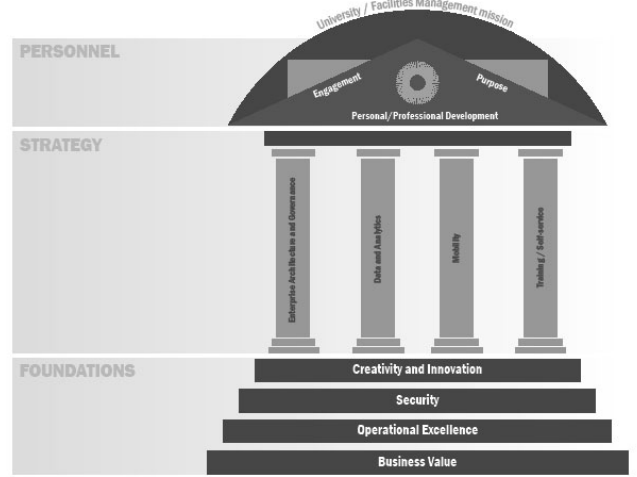
Putting it all together…

- What is your mobile technology? Survey says…

- An example… Time Entry
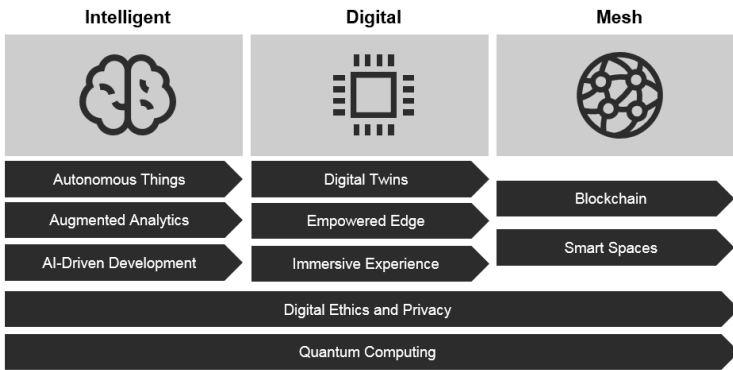
Discussion:
IT Success Stories

Discussion:
IT Horror Stories

The Value / Role of IT

- Efficiency vs. Effectiveness

- Alignment with Mission, Business Model

- Value

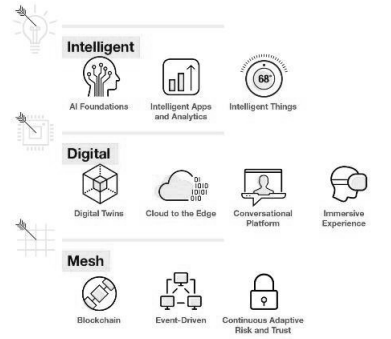- Bi-modal IT: Operational & Strategic

and...

- Innovation

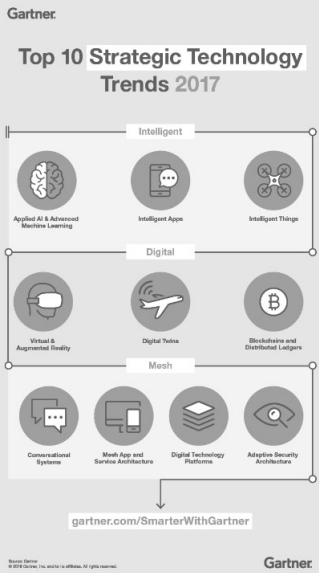

Top 10 Strategic Technology Trends for 2019

Intelligent	Digital	Mesh
Autonomous Things	Digital Twins	Blockchain
Augmented Analytics	Empowered Edge	Smart Spaces
AI-Driven Development	Immersive Experience	

Digital Ethics and Privacy

Quantum Computing

ID: 374252   © 2018 Gartner, Inc.

Top 10 Strategic Technology Trends for 2018

Intelligent
AI Foundations | Intelligent Apps and Analytics | Intelligent Things

Digital
Digital Twins | Cloud to the Edge | Conversational Platform | Immersive Experience

Mesh
Blockchain | Event-Driven | Continuous Adaptive Risk and Trust

gartner.com/SmarterWithGartner

Gartner

Top 10 Strategic Technology Trends 2017

Gartner's Top 10 Strategic Technology Trends for 2016
1. The Device Mesh
2. Ambient User Experience
3. 3D-Printing Materials
4. Information of Everything
5. Advanced Machine Learning
6. Autonomous Agents and Things
7. Adaptive Security Architecture
8. Advanced System Architecture
9. Mesh App and Service Architecture
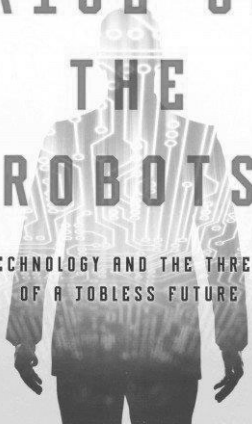10. Internet of Things Architecture and Platforms

Top 10 Strategic Technology Trends for 2015

Merging the Real World and the Virtual World	1	Computing Everywhere
	2	The Internet of Things
	3	3D Printing
Intelligence Everywhere	4	Advanced, Pervasive and Invisible Analytics
	5	Context-Rich Systems
	6	Smart Machines
The New IT Reality Emerges	7	Cloud/Client Computing
	8	Software-Defined Applications and Infrastructure
	9	Web-Scale IT
	10	Risk-Based Security and Self-protection

Slide 1:
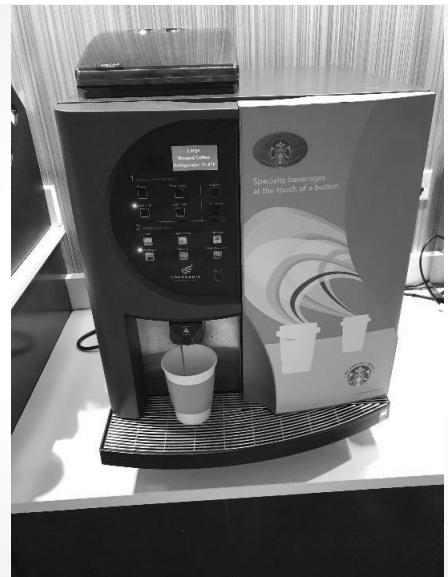
MARTIN FORD

RISE OF THE ROBOTS

TECHNOLOGY AND THE THREAT
OF A JOBLESS FUTURE

Slide 2:

ARKit

ARKit demo:
https://www.youtube.com/watch?v=vKnGTOQQM-I

BIM demo:
http://www.youtube.com/watch?v=nHGhH9g4_gg

Slide 3:

Computing everywhere

⌚WATCH

GLASS

nest 72

Slide 4:

Wearable tech – too far?

What we say to dogs

Okay, Ginger! I've had it!
You stay out of the garbage!
Understand Ginger? Stay out
of the garbage, or else!

What they hear

blah blah GINGER blah
blah blah blah blah blah
blah blah GINGER blah
blah blah blah blah.

FitBark:
https://www.fitbark.com/

www.MyDogsVoyce.com

CapturX Smart Pen

Big Data & Analytics: Prism Instep

Google Flu Trends
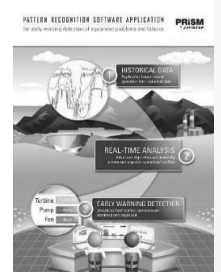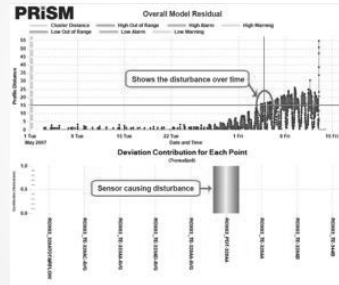
http://www.google.org/flutrends/us/#US

Google's driverless car is now safer than the average driver.

What does innovation really mean to you and me?

- Yesterday:
  - Reporting
  - Client-server
  - Cloud/SAAS/hosted solutions (really about sourcing)
  - Social

- Today:
  - Mobility
  - Location awareness
  - Business Intelligence | Analytics | Big Data | Modeling

- Tomorrow:
  - Wearable tech
  - Augmented reality
  - Internet of devices
  - 3-D printing
  - Predictive Analytics | Modeling | AI
  - Facilities Informatics
  - Digital twins

Perils of IT

- Technology for technology's sake a.k.a. "Shiny Object Syndrome"
- Cost vs. Benefit
- Security
- Privacy
- Policy
  - Privacy
  - Data management
  - Data Protection
  - Freedom of Information Act (FOIA) / eDiscovery
  - Bring Your Own Device (BYOD)
- Unintended consequences
- Risks of reliance on technology

Sourcing IT

- Where do you get IT Services?

- Commercial Off the Shelf (COTS) Packages vs. In-house development

- Hosting vs. on premise systems

- Contracting vs. in-house development

- Enterprise Resource Planning (ERP) System vs. Best-of-Breed

- System Integration

Brainstorm!
How would you use…

- Maintenance
- Custodial
- Landscape
- Project Management
- Energy & Utilities
- Finance
- HR
- …

- iPad (tablet)
- iPhone (smartphone)
- Google Glass
- Augmented Reality
- Business Intelligence/Analytics
- A drone
- …

An Interlude
(a Public Service Announcement)

- Safe computing

- What is the #1 way attackers compromise systems?

  - Us!!!
  - Social Engineering

- Protect your passwords
- Antivirus isn't enough!
- Malware
- Phishing

- YOU have to be aware … and suspicious!

- A note on copyright

What systems are used in Facilities Management?

Evolution of Maintenance Management Systems

- Computerized Maintenance Management System (CMMS)
  - Maintenance management

- Enterprise Asset Management System (EAM)
  - Asset management

Evolution of Maintenance Management Systems

- Computer-Aided Facility Management System (CAFM) aka Facility Management System (FMS)
  - Space management, alphanumerical and graphical
  - Facility management
  - Reactive Maintenance management

- Integrated Workplace Management System (IWMS)
  - Real Estate and Lease management
  - Facilities and Space management
  - Maintenance management
  - Project management
  - Environmental sustainability

Maintenance Management Systems

- AiM
- Maximo
- TMA
- School Dude

- Discussion:
  - What are you using?
  - What do you like?
  - What don't you like?
  - What does it do well? What is it missing?
  - How are you using it?

Capital Project Management Systems

- Schedule
- Financials
  - Budget
  - Expenses
  - Forecasting
- Resource Allocation
- Project & Portfolio Management

- Discussion:
  - What are you using?
  - What do you like?
  - What don't you like?
  - What does it do well? What is it missing?
  - How are you using it?

Space Management Systems

- Computer-Aided Design (CAD)
- Geographic Information Systems (GIS)
- Space Management Systems
- Building Information Modeling (BIM)
- Construction Operations Building Information Exchange (COBie)

- Discussion:
  - What are you using?
  - What do you like?
  - What don't you like?
  - What does it do well? What is it missing?
  - How are you using it?

Energy & Utilities Systems

- Building Automation Systems (BAS) & Supervisory Control and Data Acquisition (SCADA)
- Metering
- Monitoring
- Modeling
- Smart buildings
- Dashboards

- Discussion:
  - What are you using?
  - What do you like?
  - What don't you like?
  - What does it do well? What is it missing?
  - How are you using it?

Other Systems

- Finance
- Human Resources
- Procurement
- Inventory
- Document Management
- Collaboration (e.g. SharePoint)
- Web sites

- Discussion:
  - What are you using?
  - What do you like?
  - What don't you like?
  - What does it do well? What is it missing?
  - How are you using it?

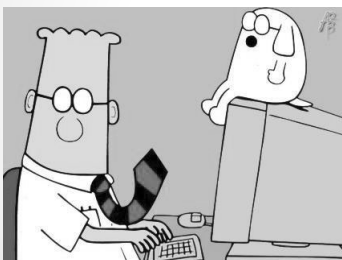## How else are smart organizations (you) using IT?

Imagine...

- What are we going to be using in 2029 (ten years)?

- Think back to your answers to the four questions...
  - Can you imagine a tool?
  - What information will you be you utilizing?
  - How will they change your processes?

Q & A – or other topics

"Mr. Osborne, may I be excused?
My brain is full."
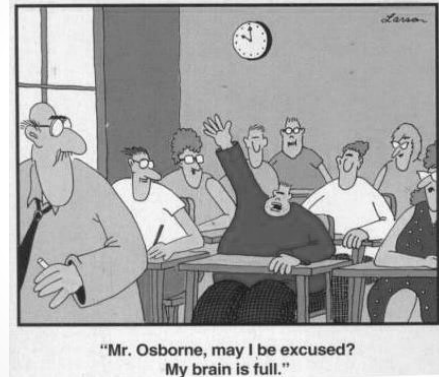
You can be a nerd, too!

Tools

Information

Process

This concludes The American Institute of Architects Continuing Education Systems Course