

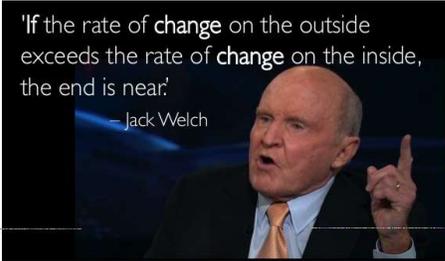
Leading Your Facilities Organization through an Age of Transformational Change

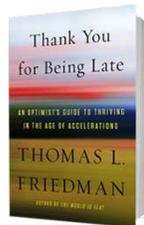
Lander Medlin, APPA
Don Guckert, University of Iowa



'If the rate of **change** on the outside exceeds the rate of **change** on the inside, the end is near.'

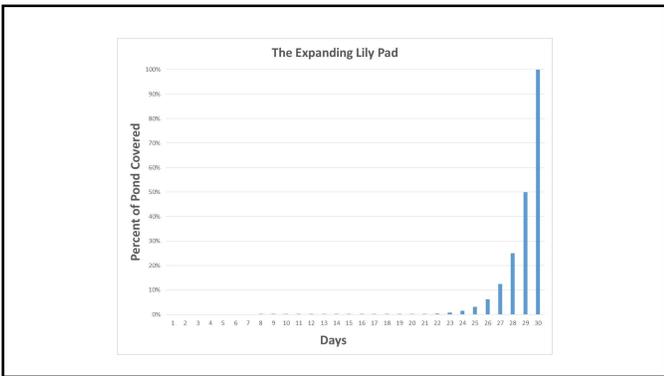
— Jack Welch

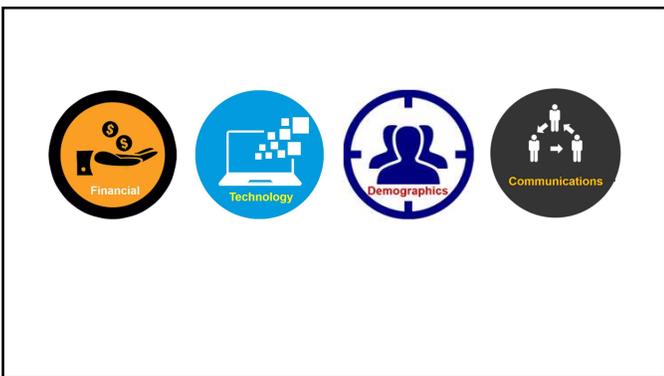




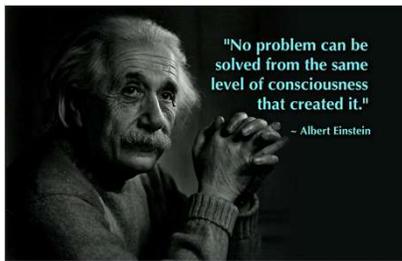
Thank You for Being Late
An Optimist's Guide to Thriving in the Age of Accelerations
Thomas L. Friedman





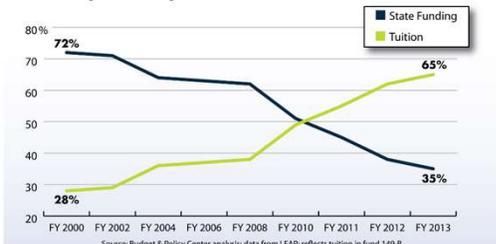






Student Tuition Accounts for Over Half of Higher Education Costs at 4-year Colleges

State funding as a share of higher education costs, FY2000 - FY2013



Modernization & Renewal



Not all buildings are created equal
 Developing a portfolio approach will allow for a focused investment approach based on the Institutional Strategic Direction.

Core considerations to the portfolio approach

- Building Age
- Building Condition
- Building Location
- Institutional focus
- Academic requirements
- Student needs
- Historical Significance
- Safety/Code requirements
- Recruitment/Retention
- Transitional Space
- Adaptive Reuse

Institutional Leaders for buy in and communication

- Institutional Priorities
- Building Needs
- Future Campus Direction

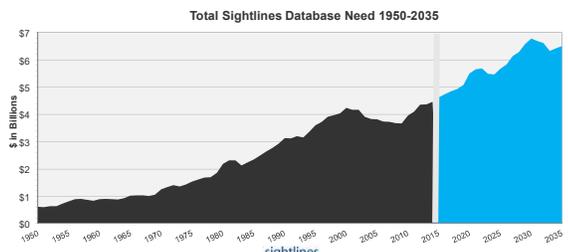
Facilities Condition Equilibrium



Facilities Condition Index (FCI)
2009-2015

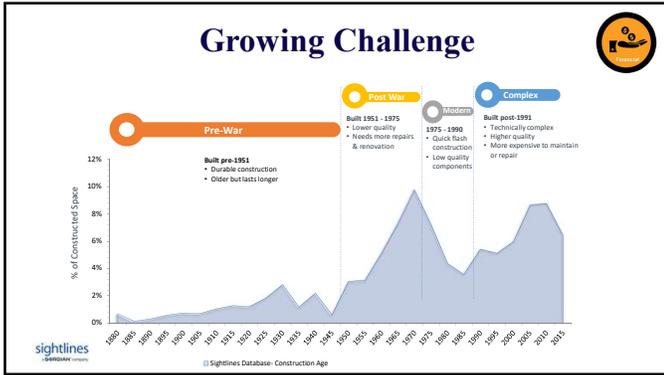
Year	FCI
2009	0.072
2010	0.070
2011	0.065
2012	0.060
2013	0.062
2014	0.061
2015	0.065

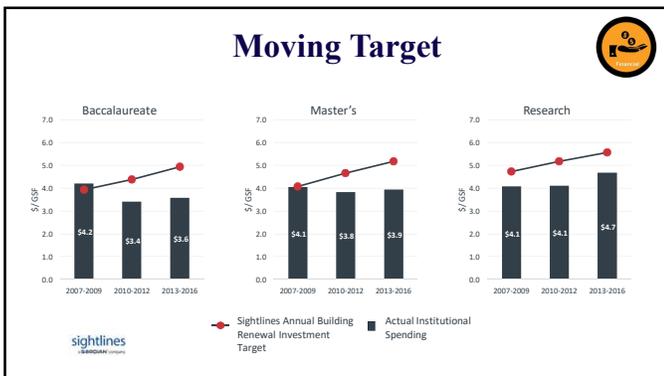
Growing Challenge

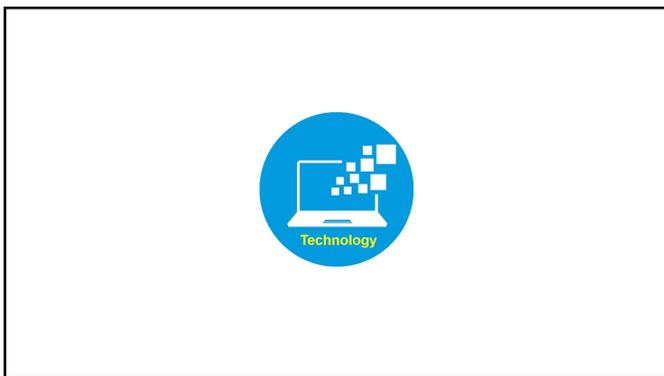


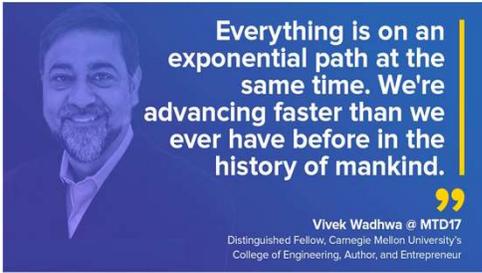
Total Sightlines Database Need 1950-2035

Year	Need (\$ in Billions)
1950	0.5
1960	0.8
1970	1.2
1980	1.8
1990	2.5
2000	3.2
2010	3.8
2015	4.5
2020	5.5
2025	6.2
2030	6.8
2035	6.5









Everything is on an exponential path at the same time. We're advancing faster than we ever have before in the history of mankind.

Vivek Wadhwa @ MTD17
Distinguished Fellow, Carnegie Mellon University's College of Engineering, Author, and Entrepreneur





Technological change is picking up speed.

But human capacity is struggling to keep up.



What the Hell Happened in 2007?



What the Hell Happened in 2007?



In the past,
one innovation
led to the next.
Now, the rate of
change is exponential.

What the Hell Happened in 2007?



Can you imagine
what the world
will be like
a decade from now?

The Expanding Lily Pad



What is Big Data?



Merriam-Webster's Collegiate Dictionary added Big Data in 2014....

An accumulation of data that is too large and complex for processing by traditional database management tools.

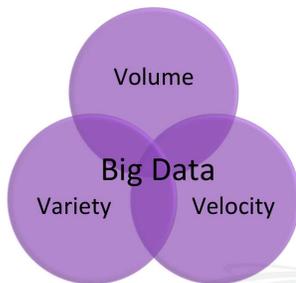
What is Big Data?



Industry Definition:

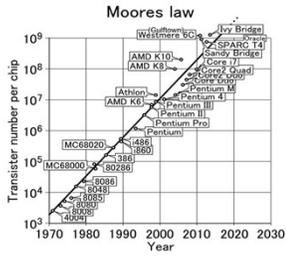
High volume, high variety and high velocity of information assets that demand cost effective and innovative forms of information processing for enhanced insight and decision making.

What is Big Data?



© 2013 R Wang & Insider Associates, LLC. All rights reserved.

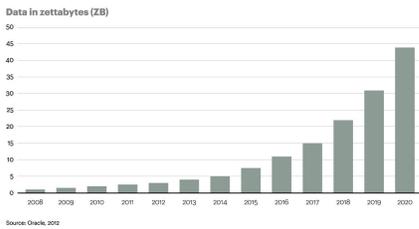
Velocity



Volume



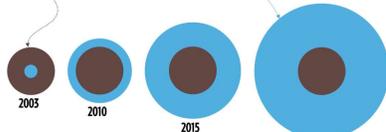
Data is growing at a 40 percent compound annual rate, reaching nearly 45 ZB by 2020



Variety



During 2010, the number of things connected to the Internet exceeded the number of people on earth.



By 2020 there will be 60+ billion things...and they are starting to talk to each other

source: iStock

Internet of Things

The diagram shows a central building with several IoT categories around it:

- Energy:** Smart meters, demand response
- Lighting:** Occupancy sensing
- Fire:** Functionality checks, detector service
- 24/7 monitoring:** Condition monitoring, parking lot utilization
- Water:** Smart meters, use and flow sensing
- HVAC:** Fans, variable air volume, air quality
- Elevators:** Maintenance, performance
- Access and security:** Badge in, cameras, integration perimeter, doors

Credit: IBM

Internet of Things

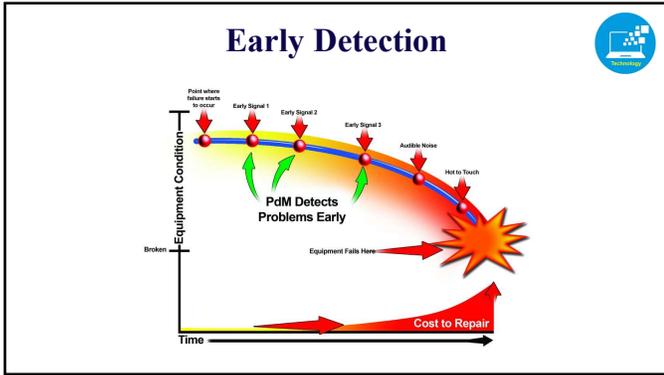
The screenshot shows a METASYS interface for a 'MERF - General Air Handling Unit 1'. It displays a complex piping diagram with various sensors and actuators. Key data points include:

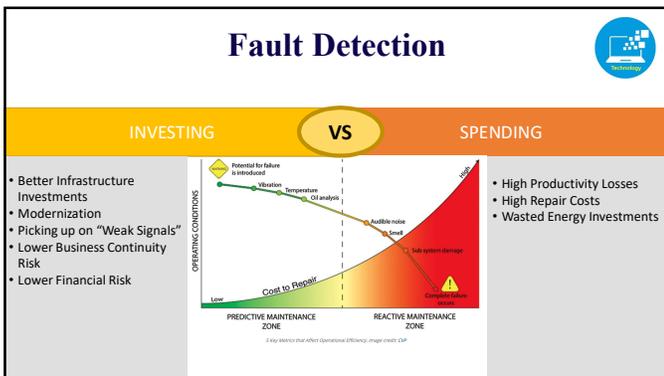
- Heat DH Fresh Supply: 4.08 °C, 7.08 °C
- CO2: 82.00, 82.00, 82.00
- Static Pressure: 82.00, 82.00, 82.00
- Supply Air Temperature: 17.00, 17.00, 17.00
- Return Air Temperature: 17.00, 17.00, 17.00
- Make-up Air Temperature: 17.00, 17.00, 17.00
- Supply Air Flow: 17.00, 17.00, 17.00
- Return Air Flow: 17.00, 17.00, 17.00
- Make-up Air Flow: 17.00, 17.00, 17.00

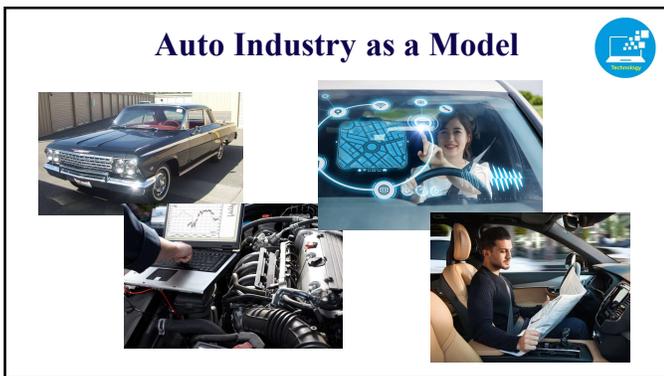
Internet of Things

Air Handler Performance

- Fan Runtime
- Fan Power
- VFD Control
- Static Pressure
- Heating Control
- Cooling Control
- Ventilation Air Control
- Economizer Control
- CO2 control
- Outside Air Temperature
- Return Air Temperature
- Make-up Air Temperature
- Supply Air Temperatures
- Freeze Stat Alarms
- Smoke/Fire Alarm
- Pressure Drop Alarm







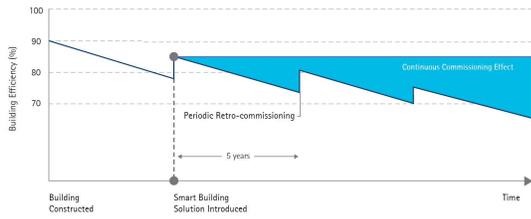
Conditioned-Based Maintenance



“Preventative maintenance was: change the oil every six thousand miles, whether you drive it hard or not. The new approach is “predictive maintenance” and “prescriptive maintenance” We can now predict nearly the exact moment when a tire, engine, car or truck battery, turbine fan or widget needs to be changed.”

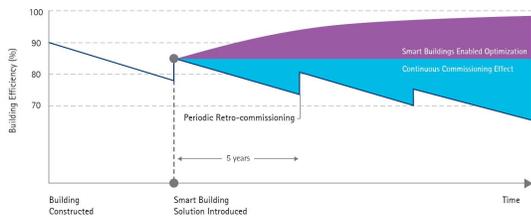
*Thank You for Being Late
An Optimist's Guide to Thriving in the Age of Accelerations
Thomas L. Friedman*

Continuous Commissioning



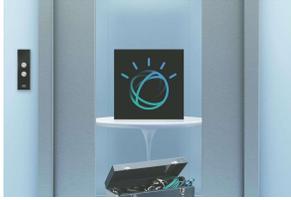
Microsoft Smart Buildings White Paper 11/2011

Continuous Commissioning



Microsoft Smart Buildings White Paper 11/2011

Cognitive Computing



- **Cognitive computing** simulates the human thought processes using self-learning algorithms that use data mining, pattern recognition and natural language processing to mimic the way the human brain works.

• Source: Forbes Magazine, March 23, 2016







“Employability depends less on what you already know and more on how well you can learn, apply and adapt.”

Mara Swan
Executive Vice President,
Global Strategy and Talent,
ManpowerGroup



Succession Planning



Succession planning focuses on identifying and preparing select individuals for specific roles.



Succession Preparation



Succession preparation focuses on developing adaptable talent and leadership for an evolving organization.



OUR JOB IS NOT TO PREPARE STUDENTS FOR SOMETHING. OUR JOB IS TO HELP STUDENTS PREPARE THEMSELVES FOR ANYTHING.
- A.J. JUJANI -



The Melbourne Model



“The Melbourne Model is a distinctive curriculum that gives students a wider understanding of the world beyond their degree. With a breadth and depth of knowledge, our talent is prepared for everything your workplace will become.”



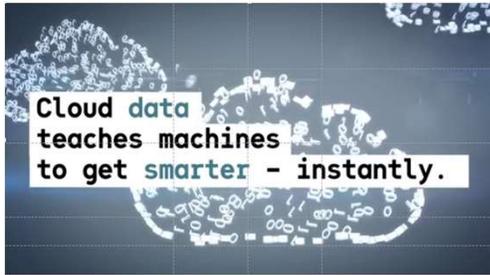
Rising Demand for Soft Skills



People with the right qualities will thrive in this complex future.



Rising Demand for Soft Skills



Rising Demand for Soft Skills



Rising Demand for Soft Skills



Rising Demand for Soft Skills

Creativity
Feeling
Integrity
Learning
Collaborating
Curiosity

Generational Differences

What Millennials Want

From LinkedIn...
Finally, the three factors you should highlight to get a millennial to accept a job are

- 1 Compensation package
- 2 Professional development
- 3 Opportunities for advancement

From the Harvard Business Review and Gallup...
What Different Generations Look for When Applying for a Job
According to a survey of 1,000 U.S. workers.

PERCENTAGE RESPONDING "EXTREMELY IMPORTANT"	Baby Boomers	Gen Xers	Millennials
Opportunity to learn and grow	~15	~25	~45
Quality of management	~15	~25	~45
Quality of management	~15	~25	~45
Interest in the type of work	~15	~25	~45
Opportunity for advancement	~15	~25	~45
Overall compensation	~15	~25	~45
Organization encourages creativity	~15	~25	~45
Organization has a fun place to work	~15	~25	~45
Informal work environment	~15	~25	~45

From ManpowerGroup...

Where Millennials Get it RIGHT

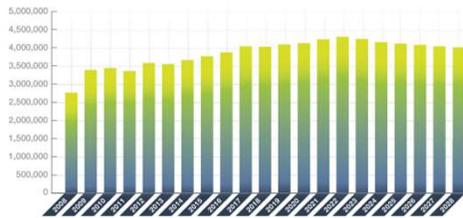
- ↳ Learning and growth opportunities
- ↳ A job that isn't just a job
- ↳ Encouraging support for their independence from job leaders
- ↳ A job that will be challenging and fun to do

Be patient. Learn all you can from the role you have. Money will come and so will more responsibility if you show motivation and willingness to learn.
— ManpowerGroup Hiring Manager

The Gen X Senior Leader



Baby Boomer Retirements



Weak Signals



“The intuition about how a machine is operating on a factory floor used to come from working there thirty years and being able to detect a slightly different sound signature emanating from the machine, telling us something is not exactly right. That is a weak signal. Now with sensors, a new employee can detect a weak signal on the first day of work – without any intuition.”

Thank You for Being Late
An Optimist's Guide to Thriving in the Age of Accelerations
Thomas L. Friedman

Weak Signals



“Experienced workers knew how to process weak data. But now with Big Data, with a much finer grain of fidelity we can make finding a needle in the haystack the norm - not the exception. And we can augment the human worker with machines so they work as colleagues and enable them to process weak signals together and overnight become like a thirty year veteran.”

Thank You for Being Late
An Optimist's Guide to Thriving in the Age of Accelerations
Thomas L. Friedman

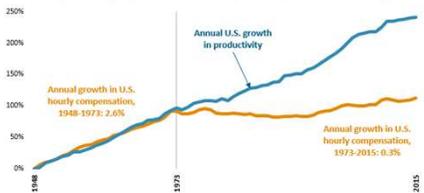
Skills Gap



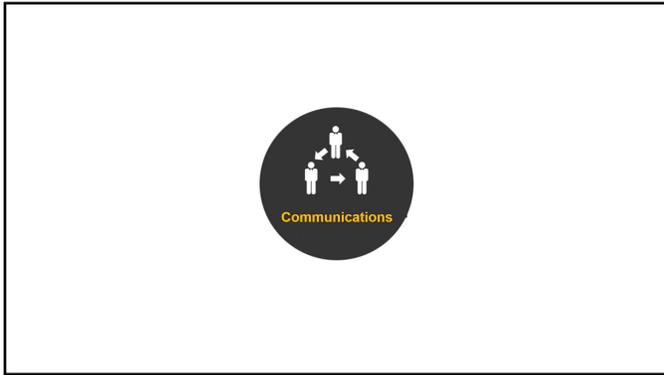
Wage Stagnation



A Large Gap Has Opened Between Wage and Productivity Growth Since 1973
Cumulative Change in U.S. Hourly Wages for Private-Sector Production/Non-Supervisory Workers and Net Productivity, 1948-2015



Sources: Economic Policy Institute analysis of unpublished Total Economy Productivity data from Bureau of Labor Statistics' Labor Productivity and Costs program, wage data from the Bureau of Labor Statistics' Current Employment Statistics, Bureau of Labor Statistics' Employment Cost Trends data, and the Bureau of Economic Analysis' National Income and Product Accounts. Note: Wages are the inflation-adjusted average hourly compensation of private-sector production/nonsupervisory workers.



Value Proposition



A **value proposition** is a [promise](#) of [value](#) to be delivered, communicated, and acknowledged. It is also a belief from the [customer](#) about how value (benefit) will be delivered, experienced and acquired.

Source: Wikipedia

Communicating Value



The diagram shows a central hexagon labeled 'Total Cost of Ownership' surrounded by six other hexagons: 'Optimal Space Utilization & Configuration', 'High Value Project Investments', 'Optimal Building Operation', 'Asset Life Extension (Renewal)', 'Managed Risks and Regulations', and 'Energy Efficient Operation'.



Speed of Now



HEALTH NEUROSCIENCE

You Now Have a Shorter Attention Span Than a Goldfish

Kevin McSpadden @KevinMcSpadden May 14, 2015

No longer can we boast about 12 seconds of coherent thought

The average attention span for the notoriously ill-focused goldfish is nine seconds, but according to a new study from Microsoft Corp., people now generally lose concentration after eight seconds, highlighting the affects of an increasingly digitalized lifestyle on the brain.

Researchers in Canada surveyed 2,000 participants and studied the brain activity of 112 others using electroencephalograms (EEGs). Microsoft found that since the year 2000 (or about when the mobile revolution began) the average attention span dropped from 12 seconds to eight seconds.

WE KNOW HUMAN ATTENTION IS DWINDLING

12 SECONDS	8 SECONDS	9 SECONDS
The average human attention span in 2000	The average human attention span in 2015	The average attention span of a GOLDFISH



Communication Media



#MeToo



LeanIn.org pushes female mentorship as it reveals a survey showing growing backlash against #MeToo



Financial Technology Demographics Communications



The answer: keep learning in a world that never stops changing.