



Technology Changes and the impact to Business Analysis

(and the future of the profession)



Ken Fulmer

Presentation Objectives



- 1. Examine the Disruptive Technology Landscape and identify forces of Technology that are most impactful.
- 2. Examine the larger business environment and how changes in technology impact business expectations.
- 3. Examine the BA role and what skills will need to evolve to meet the expected changes.
- 4. Examine the Business Analysis 'Discipline' and how the future will be more about integration and an evolving role.

Traditional view of the BA



- Focus on Project Level Assignments
- Key Role is to link the business to the project
- Activities focus around Requirements and Project Solution Concepts (Tactical)
- Very strong core skills and ability to handle details
 - Elicitation and Facilitation
 - Process oriented
 - Good people-side skills (unlike many programmer/engineers)
- Some BA's are more enterprise and strategic oriented

Critical Question –
Are we getting better business
outcomes when we apply BA ??



- Business Executives do not always see the contribution of the Business Analysts
- Business Analysts themselves wonder about their ability to influence the big picture outcomes.
- Even if we apply better ‘traditional’ business analysis is that enough to drive the kind of results that business leaders expect?
- What about the rise of the “Digital” era?

McKinsey & Company
McKinsey Global Institute

12 Disruptive Technologies

Renewable energy

- 21,000 TWh annual global electricity consumption
- 13 billion tons in annual carbon dioxide emission from electricity generation
- \$1.5 trillion value of global electricity consumption
- 80% lower price for solar photovoltaic cell per watt since 2000

Advanced oil & gas exploration & recovery

- 30 billion barrels of crude oil produced globally
- \$1.4 trillion revenue from global sales of crude oil
- 3x increase in efficiency of US gas wells between 2007 & 2011, 2x increase for oil wells over the same period

Advanced materials

- \$1000 vs \$100: Price difference of 1 gram of nanotube over a decade
- 116x strength-to-weight ratio of carbon nanotubes vs steel
- \$4 billion revenue from global carbon fibre sales

3D printing

- 10% decrease in price of home 3D printers compared to 2009
- \$11 billion worth in global manufacturing GDP
- 8 billion pieces of toys manufactured globally a year

Energy storage

- 40% price decline in lithium-ion battery pack in electric vehicle since 2009
- 1.3 billion estimated value of electricity for households currently without access
- 1.3 billion people without access to electricity
- 100% increase in average of genetically modified crops between 1994 to 2012; 2.5 billion people employed in agriculture

Next-generation genomics

- 10 months to double sequencing speed per dollar
- \$6.5 billion global health-care costs

Mobile Internet

- Fastest supercomputer in 100s costs \$1m, with equal performance as iPhone 4, which costs \$400
- 4.5 billion people yet to be connected to the Internet today
- \$1.7 billion worth of GDP related to the Internet
- 1.1 billion smartphone users, with potential to use automated digital assistance apps

Automation of knowledge work

- 100% increase in computing power from Bill's Deep Blue (1997) to Watson (2011)
- \$1+ trillion global cost of employing and managing workers, which is 21% of global employment costs

Internet of Things

- 300% increase in connected machine-to-machine devices since 2008
- 1 billion things that could be connected to the Internet across different industries
- \$36 billion operating cost of affected industries
- Healthcare
- Manufacturing

Cloud technology

- 18 months to double server performance per dollar
- 2.7 billion Internet users served by 50 million servers worldwide
- \$3 trillion spending by enterprises on information technology

Advanced robotics

- 1,700% growth in sales of industrial robots between 2009 and 2011
- 320 million manufacturing workers may be potentially affected

Autonomous and near-autonomous vehicles

- 30,000+ miles driven by Google's autonomous cars with only 1 accident (which was human-caused)
- \$4 trillion in global manufacturing employment costs, which is 1% of global workforce
- 1 billion cars & trucks, 450,000 civilian pilots & general aviation pilots globally
- \$4 billion automotive industry revenues

Created by:
 Daniel Tay
 May 2013 Singapore
 boingx5@gmail.com
 www.tayxiangsheng.com
 @tayxiangsheng

The source of information in this Mind Map comes from http://www.mckinsey.com/insights/business_technology/disruptive_technologies

Focus on 3 areas



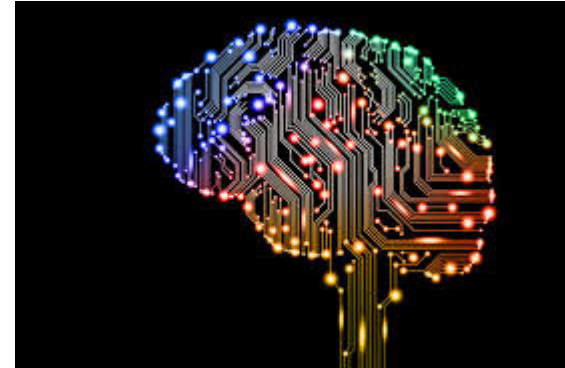
- Cloud Computing
 - SaaS – Software as a Service
 - Mobility Platforms
- Artificial Intelligence
 - Automation of knowledge work
- Process Automation
 - Robotics
 - Internet of Things
 - 3D Printing

Cloud Computing



- Impact will be around the way applications are built and delivered
 - Concept of Endless Upgrades on short lifecycles (Read Agile)
- Business Impact of this is to drive a new cost curve with less upfront investment of purchased apps and more pay as you go.’
 - Facebook owns no content, AirBnB owns no real estate,
- BA impact is that more functionality is constrained by the package offerings and the approach will be package configuration (not code change), and adjust business process to fit package options.
- Demise of the Data Center for many organizations and migration to the cloud even for ‘custom applications’
- Massive Storage accelerates – more video and image information
- More “product capability” is built with software and is tied to a network via the cloud and internet. More real time / on Demand.

Artificial Intelligence –



- Impact to knowledge professions – Augmented Decision Analysis
 - Examples – lawyers in many areas such as real estate law & research efforts
 - Medical areas – doctors currently being supported by IBM Watson for medical diagnosis.
 - Research and Experiments done virtually as the machine learns a problem and selects a few promising ones to be done physically.
 - Aviation – Pilots with Full Autopilot capability – Military aviation drones
- Concepts of how to use this technology combined with massive storage of information – think Google level concepts
- How do we analyze these types of areas? What level of BA knowledge can be automated and what skills are more critical?
- How will we use AI to improve our work, and how will we work on AI initiatives?

Automation



- Impact to business is substantial and game changing in some industries. In a recent executive survey, this was identified as a top area of need.
- Manufacturing will be impacted by Robotics and AI to substantially alter productivity.
 - Logistics Drones, Self-Driving Vehicles (cars, fork lifts, tractors)
- 3D printing tied to advanced CADD will have profound impact on manufacturing scale – combine this with new materials concepts and technology will change profoundly – even printing human organs.
- The Internet of Things (IoT) – will link more devices and engage more sensors in all sectors – (linking devices not just documents)
 - Example of Intelligent Irrigation systems in Agriculture (water the lawn).
 - Example of Intelligent Buildings that tie many systems together

External and Business Impacts



- More Sophisticated Consumers
 - Business managers and executives have higher expectations based on the consumer marketplace experience.
 - More Connected
 - More Collaborative in Problem Solving
 - Time to Market Pressure with rapid changes – MVP mentality
- Disruptive Business Models – Everywhere challenges and opportunity
 - Music Industry Impacts – iTunes, Pandora, Spotify, Studio Equipment
 - Taxi Business – Uber
 - Retail – competition from Walmart to Amazon
 - Photography – The end of cameras, film, and software editing
 - Real Estate – buying and renting – Zillow, Realtor.com, Rent.com
- Changing Ecosystem - :customers are changing as well as their needs, shareholders, competitors are changing, the entire ecosystem where a company lives is changing

Career Challenges for the Business Analyst

- Technology Change is driving business model change
 - Robotics, AI, IoT, Cloud will alter how we work
 - Will alter what we work on – new tools and methods will evolve
- Velocity of Information is Accelerating
- Volume of Information is expanding
 - Content forms are changing
- Digital Era is expanding Communications methods
- Digital Vulnerability is increasing the demand for security in core requirements not just the perimeters.
- Expectations of design and ease of use are growing

- NET to the BA = Need to be a lifetime learner

- **Organizations will need to invest in support of learning, and invest in maintaining competency in the BA's to remain competitive.**



BA Impacts -Expanded Role

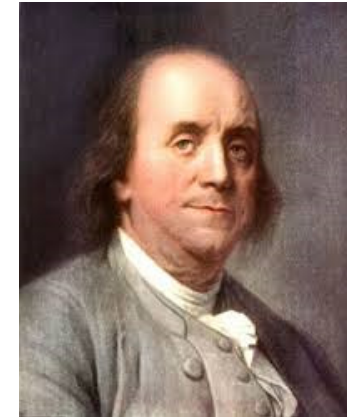
- Key Future skills
 - Expanded Role in pre-project level (Strategic)
 - Business case – focus on value and business benefits
 - Project Solution approach
 - Change, Testing, deployment, adaption planning
 - Agile Roles – Changing for PM, BA, DA, etc.
 - Product Owner Role (limits)
 - User Experience Design (UX)
 - Emphasis on **DESIGN** – “Change by Design”
 - Data and Content Level –
 - Gartner concept of “citizen data scientist”
 - Big Data and Business Intelligence (BI) will be BA tools
 - Security – requirements built in
 - Expanded Critical Thinking
 - People, Process, Information, and Technology
 - Data / evidence based analysis
 - Next Generation Elaboration – Forensic analysis
 - Visualization



Core Concepts of current and future BA

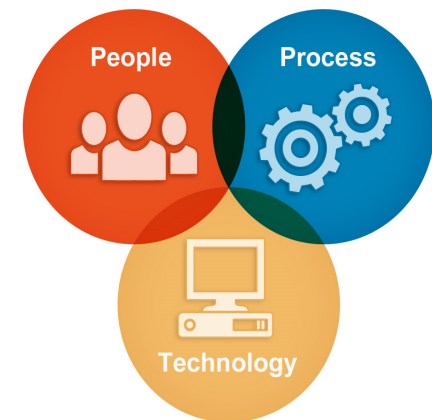
- Three Core concepts:

1. BA will always need to: understand needs (Requirements)
2. Define solutions
3. Work together with the project team to make sure the business **value** is implemented – It will always be about “better business outcomes”



- Dimensions:

- People
- Process
- Technology
- Data
- Change
- Value & Outcomes



Rise of the Digital Business Analyst



- BA as the glue between business and technology
 - Business- technology-designer- implementers
- **Design Thinking** - becomes a new skill area
- **Agile — Product Owner Proxy**
- **Tactical to Strategic – from value to details**
- **Reactive to Prescriptive** – beyond elicitation to solution
- **Analytical to Creative** – Think visually – Think critically
- **Customer Experience** – Outward focus that ties to the business model -
 - Customer Journey Mapping
 - Customer Unique Context

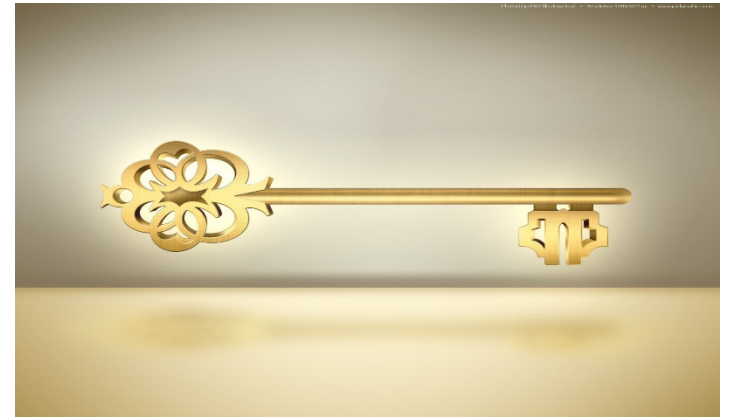


Conclusions – beyond just the BA career



- More collaboration between BA and related areas
 - Take note of IIBA recent partnering announcements
 - Bridge the cultural divide that separates different professionals
- More linking of practice areas at the knowledge and practice level
 - Going beyond job titles – more expanded view of BA ‘discipline’
- Social implications of Technology
 - Technology will make many jobs go away, and dramatically alter others
 - BA skills will need to change but demand for core skills will continue
- More need for thought leadership across all Business Support areas
 - Business Analysis is one part of a large group of professions
 - We do need to “unite a community of professionals” for all of us to contribute to better business outcomes.

Recommendations



- ✓ Become a lifetime learner –
- ✓ Encourage a collaborative approach to solutions that focus on the ‘business outcome’
- ✓ Be flexible but retain the core competencies of business analysis – Be Agile
- ✓ Be a trusted Advisor to the Business – your whole career
- ✓ Contribute to the profession / discipline of Business Analysis by pushing for recognition of the expanded role of the BA.

QUESTIONS & Comments



- Ken Fulmer
 - Former CTO – Sunoco, Inc
 - Former CIO – Delek, US
 - Principal – Information Workplace Solutions, Inc.
 - Current – Chair, IIBA Board of Directors, Past President Philadelphia Chapter
 - kenfulmer2@msn.com