

# Impact of Current Technology Trends on Information Management

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# Presentation at a glance

- **Information technology progress**
- **Present state of information management**
- **The future of information management**
- **Current information technology trends**
- **Aggregated trends**
- **Impact on information management**
- **Disruptive technologies**

# Information technology progress

- **Tremendous development**
- **Boundary-pushing innovations**
- **Constant change**
- **Fast pace**

## Examples

- "Moore's law" the number of transistors in a dense integrated circuit has doubled approximately every 18 months
- The processing power of computers from 1956 to 2015 increased 1 trillion-fold
- 1994 first mobile phone to feature software applications (IBM Simon); 2007 iPhone (first commercial smartphone to use finger input); 2010 the Samsung Galaxy S
- 1975-2008 one billion PCs sold; in 2013 alone 1 billion cell phones sold
- 89% of China's 668 million Internet users access the web from their mobile devices. Similar with other developing nations
- In January 2014, mobile phone Internet usage overtook PC Internet usage
- In January 2016, Google's AlphaGo crossed a major artificial intelligence threshold by besting human grandmaster Lee Sedol at the famously complex game of Go

# **Present state of information management**

- **Libraries and information centers disappearing**
- **Staff count and professional work decreasing; Evident skill gaps**
- **Budgets for library and information centers dropping**
- **External content price increasing, access to it more difficult**
- **High cost of new systems and applications**
- **Intellectual property management challenges**
- **External competition (e.g. Amazon, Google)**
- **Increased user demands (e.g. delivery speed, format, added value)**

# the future of information management?



- **Current trends that impact the future**
- **Disruptive innovation**

# Current information technology trends - 2016

## Gartner

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

*Gartner's top 10 strategic technology trends for 2016*

## Forbes

1. Connecting customers
2. Embracing millennials
3. Remote employee development and training
4. Strength based leadership
5. Add extra value to commodity products you sell
6. Corporate culture of customer service
7. Deliver results, not just solutions
8. Engage customers through fun and games
9. Integrate impartial content to support customer decisions
10. Develop "selling/solving" skills for non-salespeople

*Top 10 Business Trends That Will Drive Success In 2016*

## Forrester

1. Smart connected world
2. Systems of insight
3. APIs as strategy
4. Digital CX limitations
5. Security and risk rethink
6. Hyper-connected hyper-adopters
7. Business tech acceleration
8. Infrastructure snowballs
9. Software as part of the brand
10. Workforce technology

*The Top Technology Trends To Watch: 2016 To 2018*

1. From customer-aware to customer-led
2. From data-rich to insight-driven
3. From perfect to fast
4. From silos to connected

## Deloitte

1. Right-speed IT
  2. Augmented & virtual reality go to work
  3. Internet of Things: From sensing to doing
  4. Reimagining core systems
  5. Autonomic platforms
  6. Blockchain: Democratized trust
  7. Industrialized analytics
  8. Social impact of exponential technologies
- Tech Trends 2016: Innovating in the digital era*

1. Organizational design
2. Leadership
3. Culture
4. Engagement
5. Learning
6. Design thinking
7. Changing skills of the HR organization
8. People analytics
9. Digital HR
10. Workforce management

*Global Human Capital Trends 2016*

## Accenture

1. Intelligent automation
2. Liquid workforce
3. Platform economy
4. Predictable disruption
5. Digital trust

*Technology Vision 2016 - People First: The primacy of people in a digital age*

# Aggregated trends

## Technology

- Secure architecture
- Autonomous agents
- Machine learning (algorithms)
- Internet of things (from sensing to doing)
- Application Program Interface (API)
- 3D printing

## Products/services

- Added value
- Deliver results, not just solutions
- Social impact
- Predictable disruption
- Digital trust
- Analytics

## Customers

- Customer culture
- Connected world
- User experience
- Engage customers
- From data-rich to insight-driven

## Employees

- New generation
- Liquid workforce
- Remote work
- Learning & training
- New skills (leadership, sales)
- From silos to connected

# Information management - Technology impact

- Secure architecture
- Autonomous agents
- Machine learning (algorithms)
- Internet of things (from sensing to doing)
- Application Program Interface (API)
- 3D printing
- **More difficult access to information resources (IR)**
- **Higher level of IT investment required to access and process IR**
- **More tech-driven and dynamic documents and IR**
- **Increased amount of big data**

# Information management - Products and services impact

- Added value
  - Deliver results, not just solutions
  - Social impact
  - Predictable disruption
  - Digital trust
  - Analytics
- **Available resources**
  - **Competition with ‘big players’**
  - **Lack of interest to use classic channels**
  - **Increasing role of local repositories**
  - **Intellectual property protection**
  - **Disappearing e-archives and older materials**

# Information management - Customer impact

- Customer culture
- Connected world
- User experience
- Engage customers
- From data-rich to insight-driven
- **High expectations and demands (comprehensiveness, relevance, aggregation, added value)**
- **Interconnectivity**
- **Top of the line finding tools**
- **Web 2.0 features (social networking, collaboration, user generated content)**
- **Tools to exploit big data**
- **Mobile addiction of the new generation**
- **Lack of patience and understanding**

# Information management - Employee impact

- New generation
- Liquid workforce
- Remote work
- Learning & training
- New skills (leadership, sales)
- From silos to connected
- **Lack of proper education**
- **Career development possibilities**
- **Frequent change of jobs and interests (lack of continuity and long-term planning)**
- **Changing technical requirements**
- **Business focus**
- **Missing culture of preservation**
- **Multitasking and rapid delivery**

# Disruptive technology

## Iteration

**Doing the same things better** (*business as usual*)

## Innovation

**Doing new things** (*compete for the moment*)

## Disruption

**Doing new things that make the old ones obsolete**  
(*compete for the future*)

# Disruptive technology #1

## Mobile devices

- 1975-2008 one billion PCs sold; in 2013 alone 1 billion cell phones sold
- 89% of China's 668 million Internet users access the web from their mobile devices.
- 72% of children in South Korea own a smartphone by the age of 11 or 12
- In January 2014, mobile phone Internet usage overtook PC Internet usage
- Mobile-first and mobile-only world repurpose the web to become more dynamic, personal and useful
- The end of a traditional information-broadcast, page/form-based, keyword system



# Disruptive technology #2

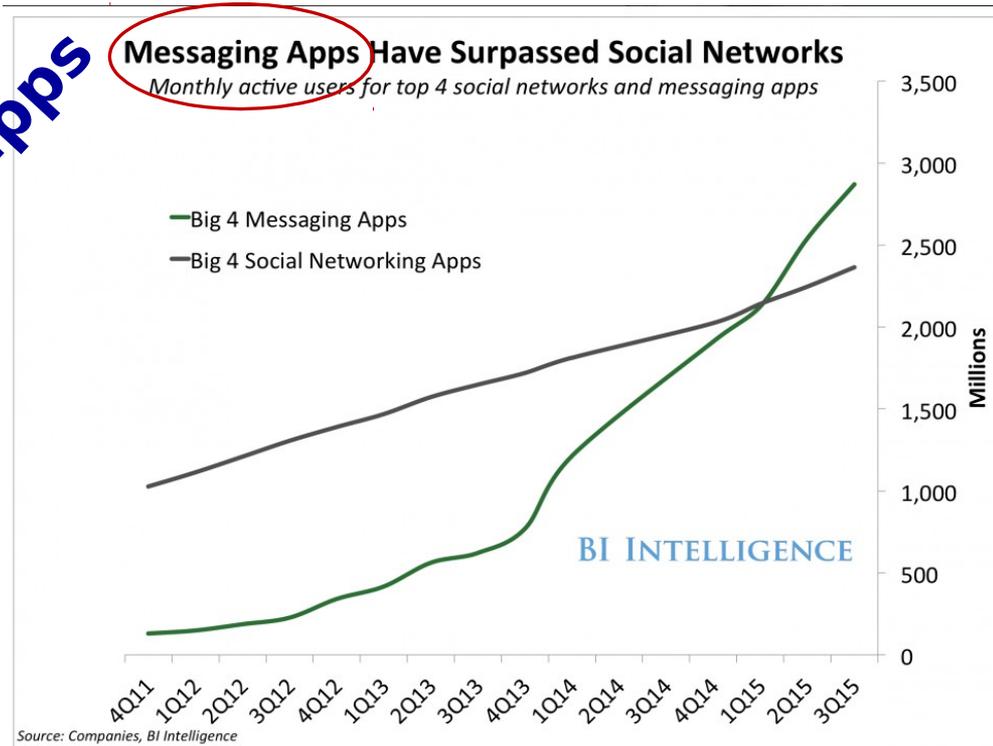
## Chatbots

(A computer program designed to simulate conversation with human users over the Internet)

- Virtual assistants offering predictive services with the help of machine learning and A.I.
- Two types: one functions based on a set of rules and the other one uses machine learning
- Subject areas: Weather, grocery, news, life advice, personal finance, scheduling, a bot that's your friend
- Examples: Microsoft Cortana, Google Now, Amazon Alexa, Apple Siri, Facebook Jarvis
- Alex, the Staffordshire University Library chatbot service; Dewey; Pixel
- Reference interviews

# Disruptive technology #3

Messaging apps



WhatsApp, Facebook Messenger, WeChat, and Viber have 2.125 billion monthly active users globally (users who accessed the apps at least once in a 30-day period). And these are all mobile users.

Numbers for Facebook, Twitter, LinkedIn, and Instagram also include millions of computer-only users!

# Disruptive technology #4

## Smart supermarkets - COOP Milano, Italia

- Smart shelves and interactive food display tables offer a range of product information, such as provenance, allergens, nutritional data and carbon footprint.
- Shoppers have the tools and information to make their experience convenient, relevant and personalized.
- Digital displays share real-time information on promotions, best-sellers and more.
- A mobile app helps customers navigate the store, augments product information, and identifies products that are compatible with their lifestyle needs.
- The supermarket enhances customer interaction and efficiency and
- Staff can speak to customers and procure new assortments and



# Disruptive technology #5

## Books

- 140M total number of books
- 70M grey literature
- 2.2M new book titles annually
- The average U.S. nonfiction book sells less than 250 copies per year and less than 3,000 copies over its lifetime
- A book has less than a 1% chance of being stocked in an average bookstore

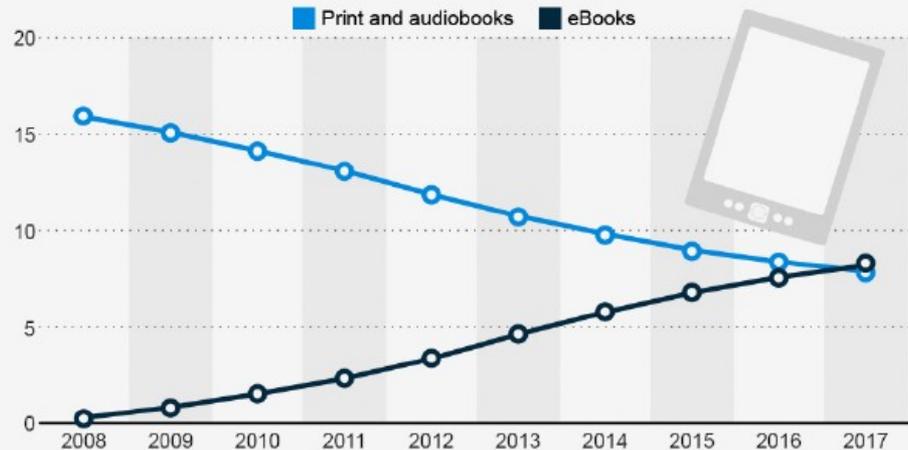
## Amazon.com

- In 2014 Amazon sold more than 60% of all books purchased online
- In July 2010, Amazon's Kindle e-book sales outpaced hardcover book sales
- Audible 2008
- Goodreads 2013 (social network for book-lovers)

## eBooks

### U.S. eBook Sales to Surpass Printed Book Sales in 2017

Consumer book sales in the United States from 2008 to 2017 (in billion U.S. dollars)



statista  
The Statistics Portal

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@StatistaCharts

Source: PwC

# Disruptive technology #6

## Web

- 1B websites (host names); 70% not active (parked)
- 50B webpages
- 4.75B pages indexed by Google
- 3.6B Internet users (world population 7.5B)

## 1 second on the Web

- 7000 Tweets sent
- 1140 Tumblr posts
- 733 photos posted on Instagram
- 2207 Skype calls
- 55,364 Google searches
- 127,354 YouTube videos viewed
- 2 million emails sent

To download the Web using a PC  
would take approximately  
11 trillion years!

***Disrupt or be disrupted!***

**Thank  
you!**