

# Disruptive technologies and their impacts

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**EuroGeographics General Assembly  
Vienna 2017**

# WHAT ARE DISRUPTIVE TECHNOLOGIES?

# DISRUPTIVE TECHNOLOGIES

Originally defined by Prof. Clayton M. Christensen  
“A new technology that unexpectedly displaces an established technology” (1995)

Ground-breaking product, service or technology that makes the existing ones obsolete

2003: Disruptive innovation

MANAGING PEOPLE: TEN ESSENTIAL BEHAVIORS		PAGE 10
Harvard Business Review		
JANUARY-FEBRUARY 1995		
		
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# DISRUPTIVE TECHNOLOGIES

## EXAMPLES

Personal Computer



E-mail



Cell phones



Social Media



# DISRUPTIVE TECHNOLOGY

Are typically

- Cheaper
- Smaller
- Simpler, and
- More convenient to use
- Accessible to new users

# DISRUPTIVE TECHNOLOGIES

## 2017



Mobile  
Internet



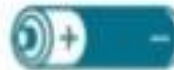
Cloud  
technology



Internet of  
Things



Renewable  
energy



Energy  
storage



Advanced  
robotics



Automation  
of knowledge  
work



Advanced  
materials



Next-  
generation  
genomics



Advanced  
oil and gas  
exploration  
and recovery



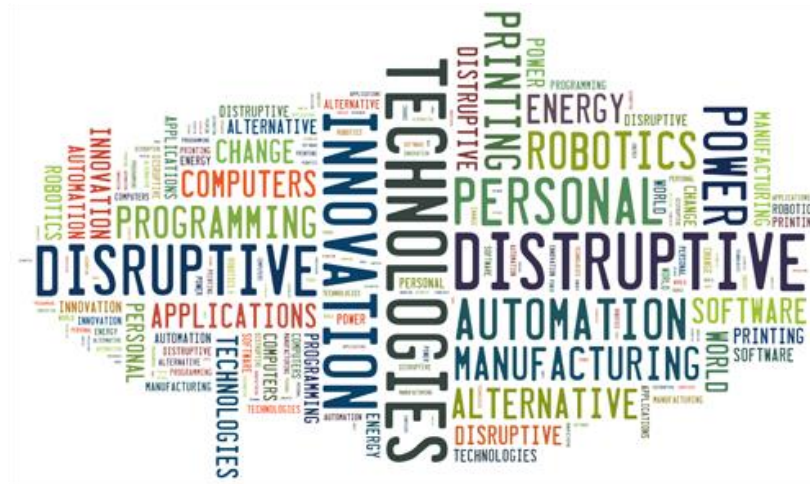
Autonomous  
and near-  
autonomous  
vehicles



3D printing

# WHAT IS THE IMPACT OF DISRUPTIVE TECHNOLOGIES?

# An Important Question...



**Hey, this is new  
and exciting**

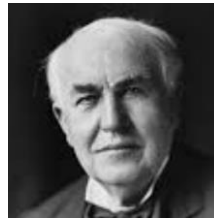


**Yeah, seen this  
all before**



# Two Predictions...

**“Books will soon be obsolete in the public schools. Scholars will be instructed through the eye. ... Our school system will be completely changed inside of ten years.”**



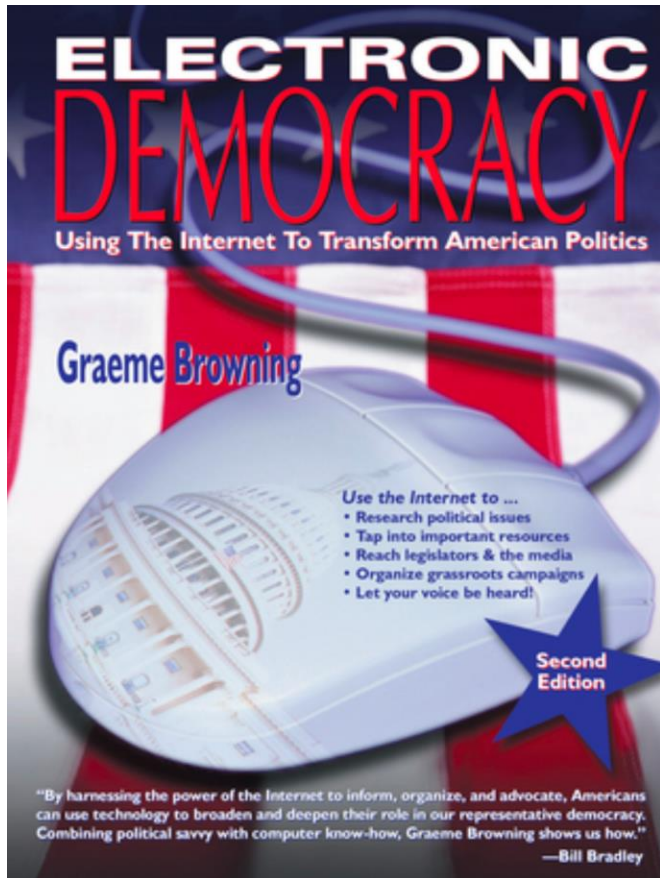
*Thomas Edison - 1913*

**“In from three to eight years we will have a machine with the general intelligence of an average human being. I mean a machine that will be able to read Shakespeare, grease a car, play office politics, tell a joke, have a fight. At that point the machine will begin to educate itself with fantastic speed. In a few months it will be at genius level and a few months after that its powers will be incalculable.”**



*Marvin Minsky - 1970*

# The Problem of Hyperbole

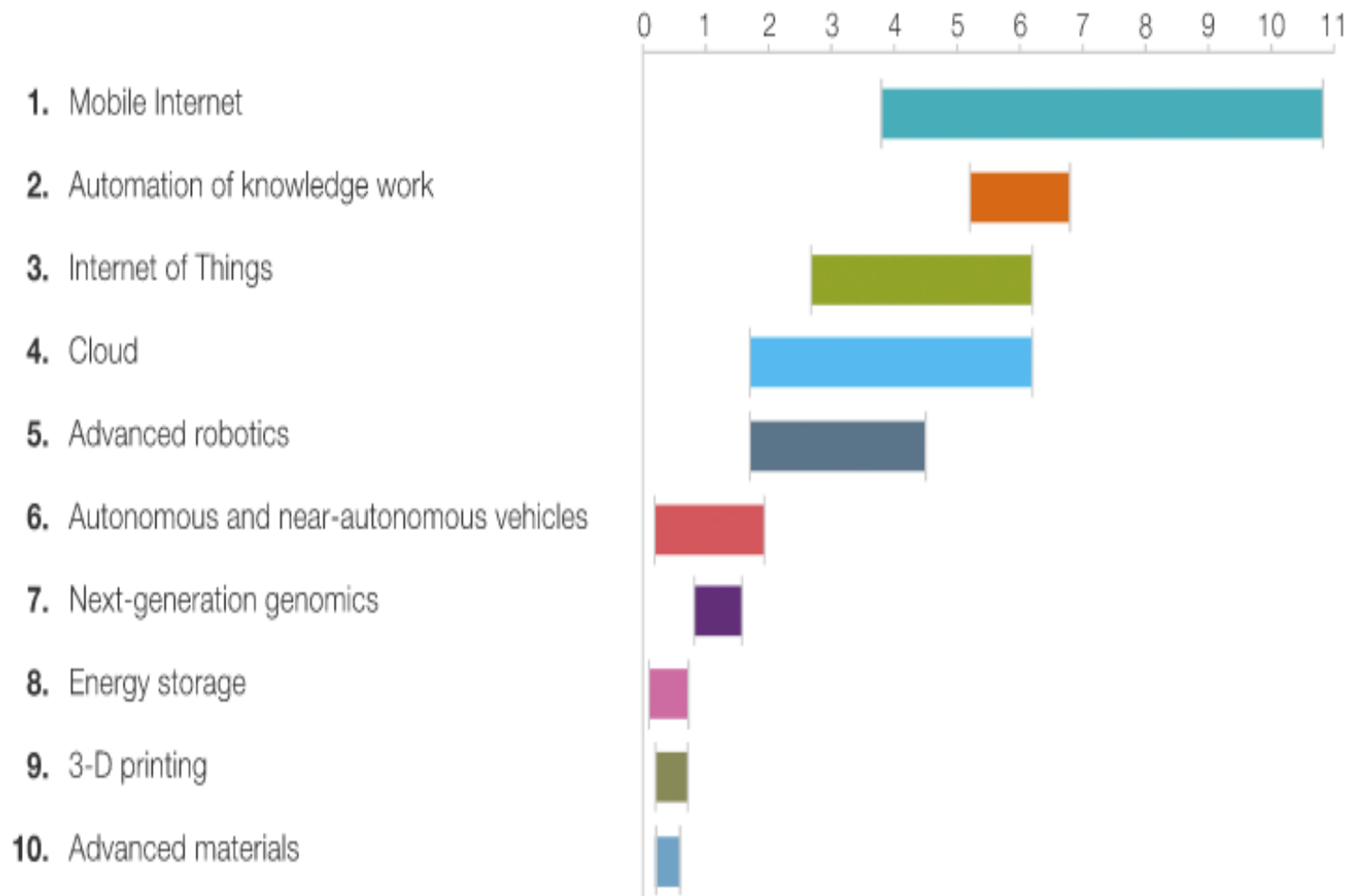


The mechanics of hyperbole in four easy steps:

1. *Pick a technology*
2. *Make a world-changing/ disrupting prediction*
3. *Cherry pick some case studies to 'prove' your point*
4. *Write a book.*

***In particular - Disruptive technologies are no exception***

# Estimated potential economic impact of technologies across sized applications in 2025, \$ trillion, annual

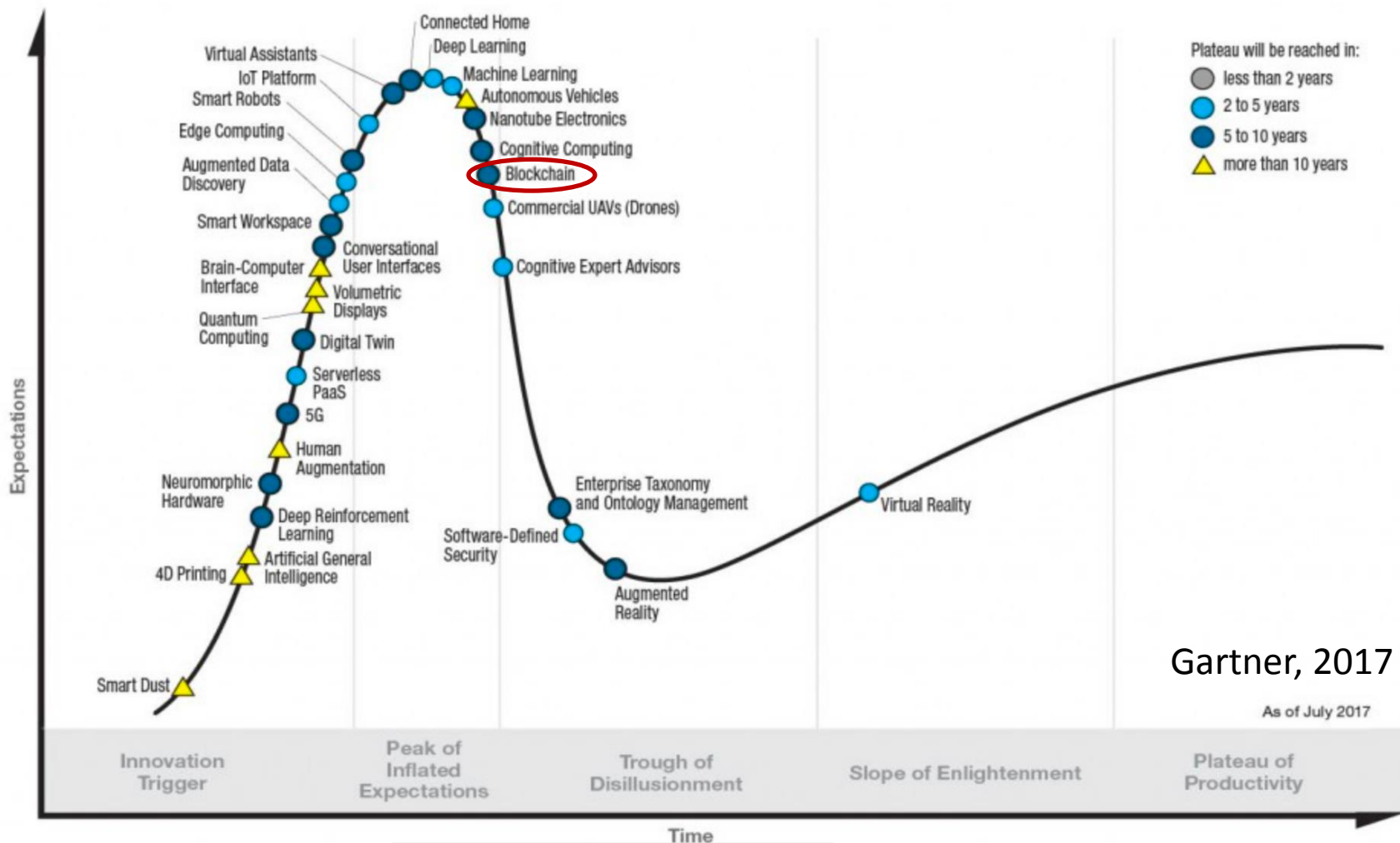


McKinsey Global Institute

# IMPACTS OF DISRUPTIVE TECHNOLOGIES

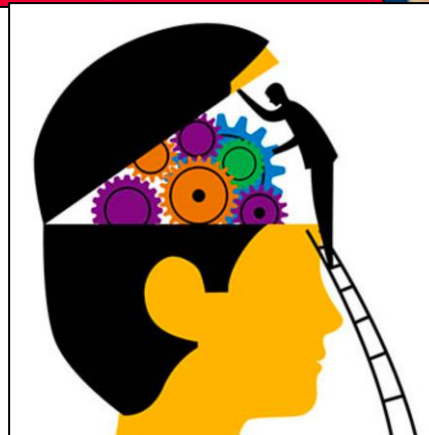
- **Implications for individuals and societies**
- **Implications for organisations (such as NMCAS)**
  - Creates new products and services
  - Shifts surplus from producers to consumers!
  - Changes in organizational structures
- **Implications for Economies and Governments**
  - Poses new regulatory and legal challenges

# Gartner **Hype Cycle** for Emerging Technologies, 2017



*Time for some cooling off?*

# The Dark Side





# The Dark Side



## Threats/risks include:

- Wrong investments
  - Market loss
  - De-anonymisation
  - Unethical usage
  - Citizens' privacy
  - Discrimination
  - Exclusion
  - Illegal usage
  - Misplaced trust
- and not least...
- Misguided public policies

# Take control of disruptive technology risks



## EDUCATE

yourself about disruptive technology, terminology, innovations, and relevance to your company.



## EXPAND

your network and foster collaboration through cross-functional teams and relationships and with outside experts.



## PUSH

for investments in relevant data and analytics tools and skilled people to use them.



## CONSIDER

the wider impacts — beyond cybersecurity — of disruptive technology on your company's risk profile.



# Concluding Reflections



**Yes, disruptive technologies are new and yes, they may turn out to be valuable**

## It would be wise not to expect miracles and radical changes

## Need to think carefully about how you use a specific disruptive technology

## One part of a much larger and more complex set of issues

## If you torture technologies long enough they will confess to anything



Strategy: How to deal with disruptive technologies?

Thanks for your attention

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