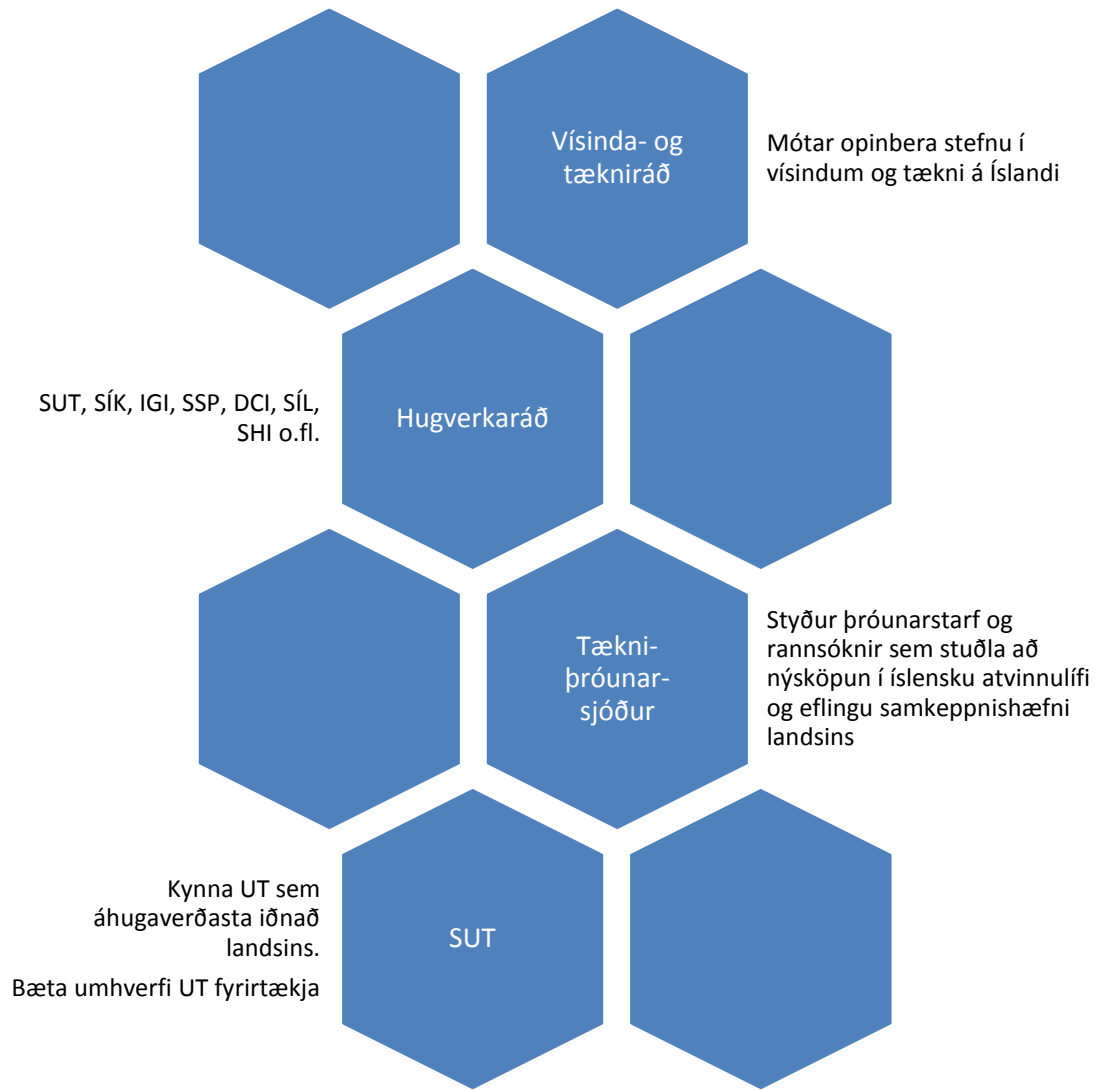
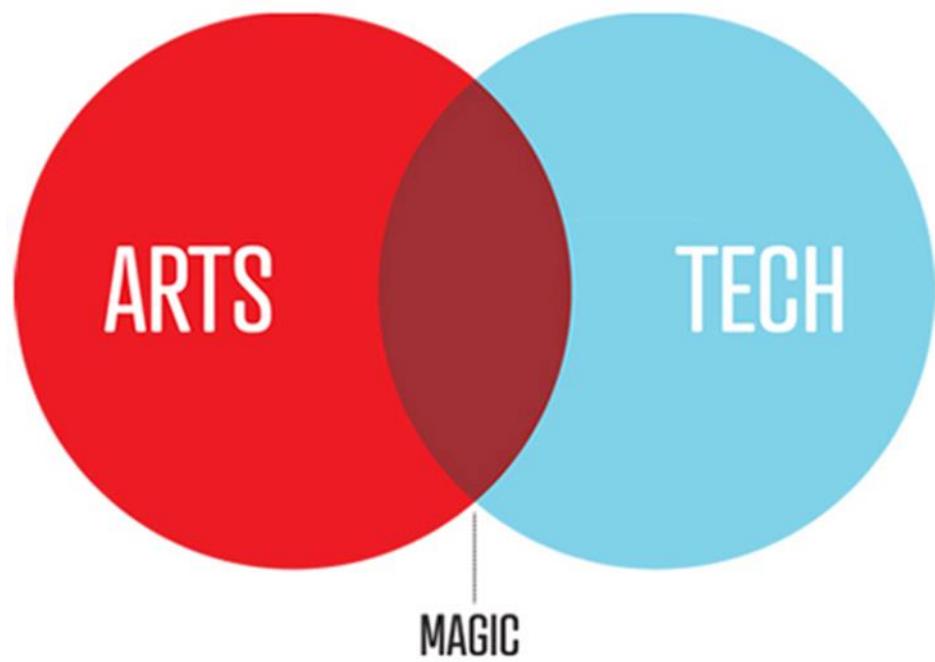


# Hugverk og nýsköpun

Rannsóknarþing 2016









# Top 10 skills

## in 2020

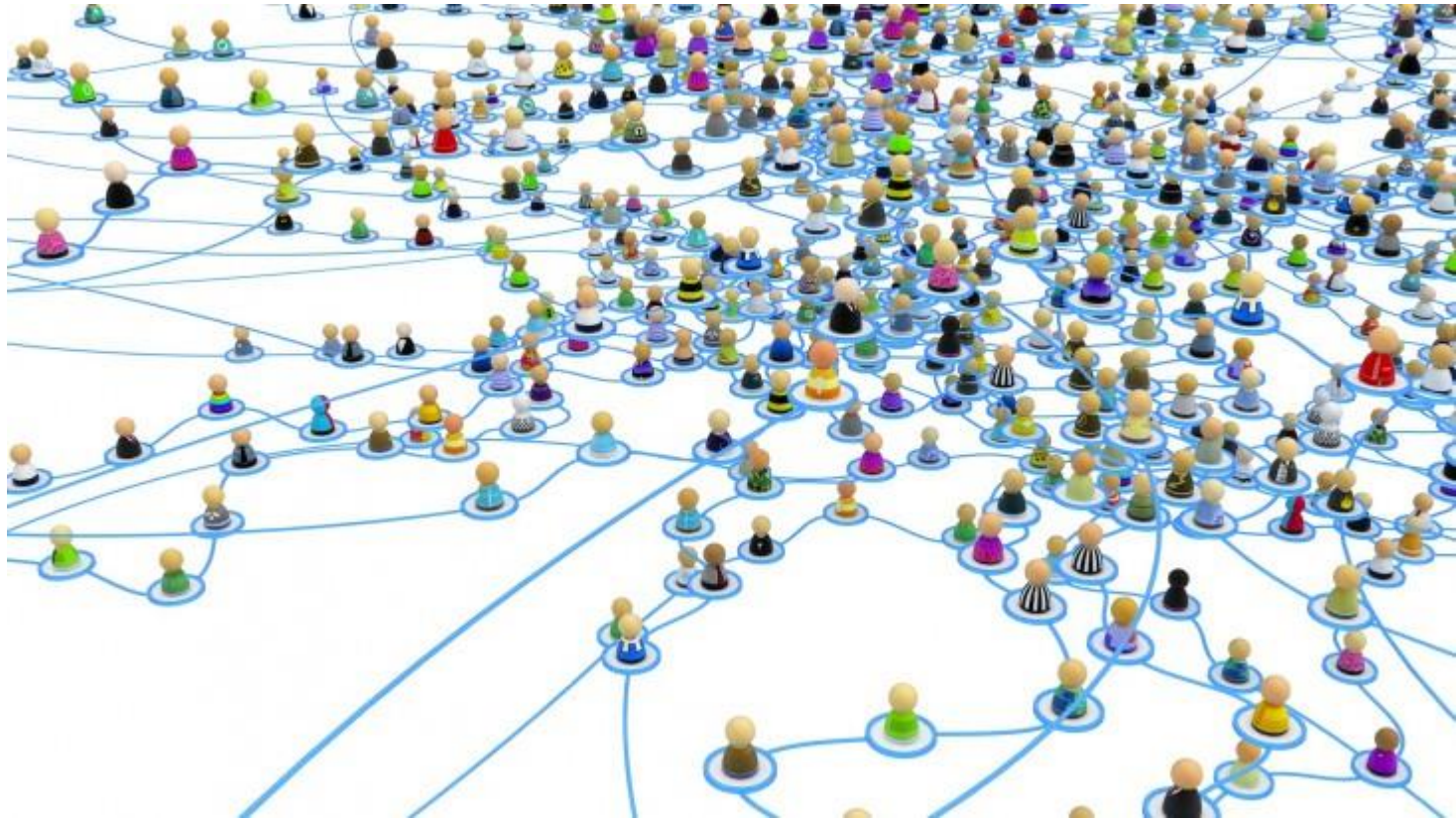
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1. Complex Problem Solving
2. Critical Thinking
3. Creativity
4. People Management
5. Coordinating with Others
6. Emotional Intelligence
7. Judgment and Decision Making
8. Service Orientation
9. Negotiation
10. Cognitive Flexibility

*Source: Future of Jobs Report, World Economic Forum 2016*











Aldrei verið eins  
auðvelt að búa á eyju



# Grasrótin



**Guide to Iceland**

Uber

The world's largest taxi company, owns no vehicles.

The world's most popular media owner, creates no content.

Facebook

Alibaba

The most valuable retailer, has no inventory.

The world's largest accommodation provider, owns no real estate.

Airbnb

*An Investment in Knowledge Pays the Best Interest*

- Benjamin Franklin

# Efling menntunar

- 60% af störfum barnana okkar eru óþekkt
- Mikilvægt að viðhalda sérfræðiþekkingu sem er nauðsynleg fyrir hagkerfið
- Menntakerfið þarf að vera í stöðugri þróun
- Einstaklingsmiðað nám mikilvægt
- Háteknihagkerfi víðsvegar um heiminn hafa byrjað að kenna forritun allt niður í grunnskóla

DAVEY ALBA BUSINESS 01.30.16 6:00 AM

# OBAMA PLEDGES \$4 BILLION TO COMPUTER SCIENCE IN US SCHOOLS



Blómstrandi nýsköpun



Hugverk – þvert á atvinnugreinar

20% vöxtur á hverju ári

# Verðmætasköpunin á pari við fiskveiðar

Hluttur greinarinnar í landsframleiðslu  
árið 2014 var 4,9%

Útflutningur hugverkaiðnaðarins

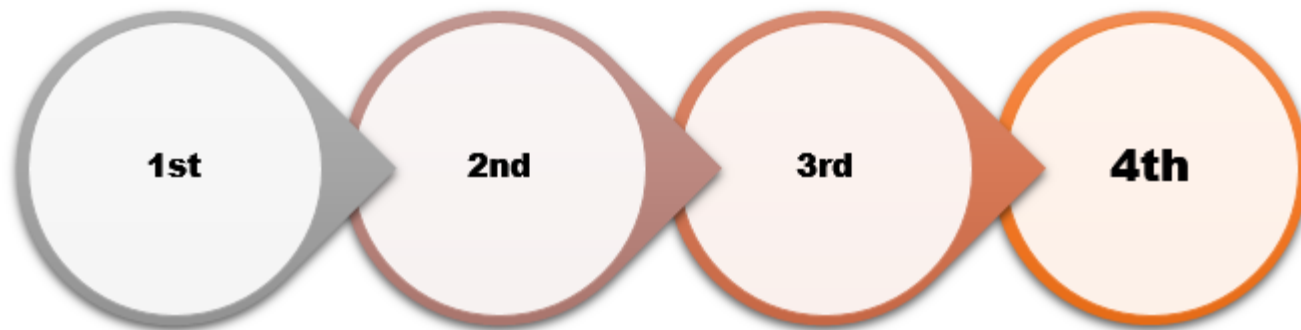
44 milljarðar 2014

90 milljarðar 2015

# Samkeppnishæfni

Frá 30 í 23

Frá 2010 til 2016



**1st**

- **Mechanization**  
Machines replace animal and manual labor.  
Late 18th-Early 19th Century

**2nd**

- **Mass Production**  
Mass manufacturing, machines and processes.  
Late 19th-Mid 20th Century

**3rd**

- **Digital Revolution and Globalization**  
Analog to digital technology.  
Internet and World Wide Web (WWW).  
Globalization.  
Second half of 20th Century-early 21st Century

**4th**

- **Automation, Analytics, and IoT**  
Cyber-physical devices, analytics, and Internet of Things (IoT).  
Early 21st Century-?

# 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

\$3.5 trillion value of global electricity consumption

85% lower price for solar photovoltaic cell per watt since 2000

### Advanced oil & gas exploration & recovery

3x increase in efficiency of US gas wells between 2007 & 2011; 2x increase for oil wells over the same period

30 billion barrels of crude oil produced globally

\$3.4 trillion revenue from global sales of crude oil

### Advanced materials

\$1000 vs \$50: Price difference of 1 gram of nanotube over a decade

1.15x strength-to-weight ratio of carbon nanotubes vs steel

\$4 billion revenue from global carbon fibre sales

### 3D printing

90% decrease in price of home 3D printers compared to 2009

\$111 billion worth in global manufacturing GDP

8 billion pieces of toys manufactured globally a year

### Energy storage

40% price decline in lithium-ion battery packs in an electric vehicle since 2009

1.2 billion people without access to electricity

\$100 billion estimated value of electricity for households currently without access

### Next-generation genomics

10 months to double sequencing speed per dollar

\$4.5 trillion global health-care costs

100% increase in acreage of genetically modified crops between 1996 to 2012; 2.5 billion people employed in agriculture

### Mobile Internet

Fastest supercomputer in 1975 cost \$5m, with equal performance as an iPhone 4, which cost \$400

4.3 billion people yet to be connected to the internet today

\$1.7 trillion worth of GDP related to the internet

1.1 billion smartphone users with potential to use automated digital assistance apps

### Automation of knowledge work

100x increase in computing power from IBM's Deep Blue (1997) to Watson (2011)

\$9+ billion global costs of employing knowledge workers, which is 27% 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 costs of key affected industries

### 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

170% growth in sales of industrial robots between 2009 and 2011

320 million manufacturing workers may be potentially affected

### Autonomous and near-autonomous vehicles

\$4 trillion automobile industry revenues

300,000+ miles driven by Google's autonomous cars with only 1 accident (which was human-caused)

\$6 billion in global manufacturing employment costs, which is 1% of global workforce

1 billion cars & trucks, 450,000 civilian military & general aviation aircraft globally

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The source of information in this Mind Map comes from [http://www.mckinsey.com/insights/business\\_technology/disruptive\\_technologies](http://www.mckinsey.com/insights/business_technology/disruptive_technologies)

Alþjóðlegar áskoranir



- Flóttamenn
- Fólksflutningar
- Loftlagsbreytingar
- Græn orka
- Sjálfbærni
- Fjórða iðnbyltingin
- Heilbrigðistækni
- Jafnrétti
- Robotics
- Internet of Things
- Sýndarveruleiki
- 3D prentun
- E-learning
- Nano-tækni
- Efnistækni
- Selfdriving cars

Getum við valið okkur  
nokkur áhersluatriði?



# Aðlaðandi staður fyrir fólk og fyrirtæki



# Takk!

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