

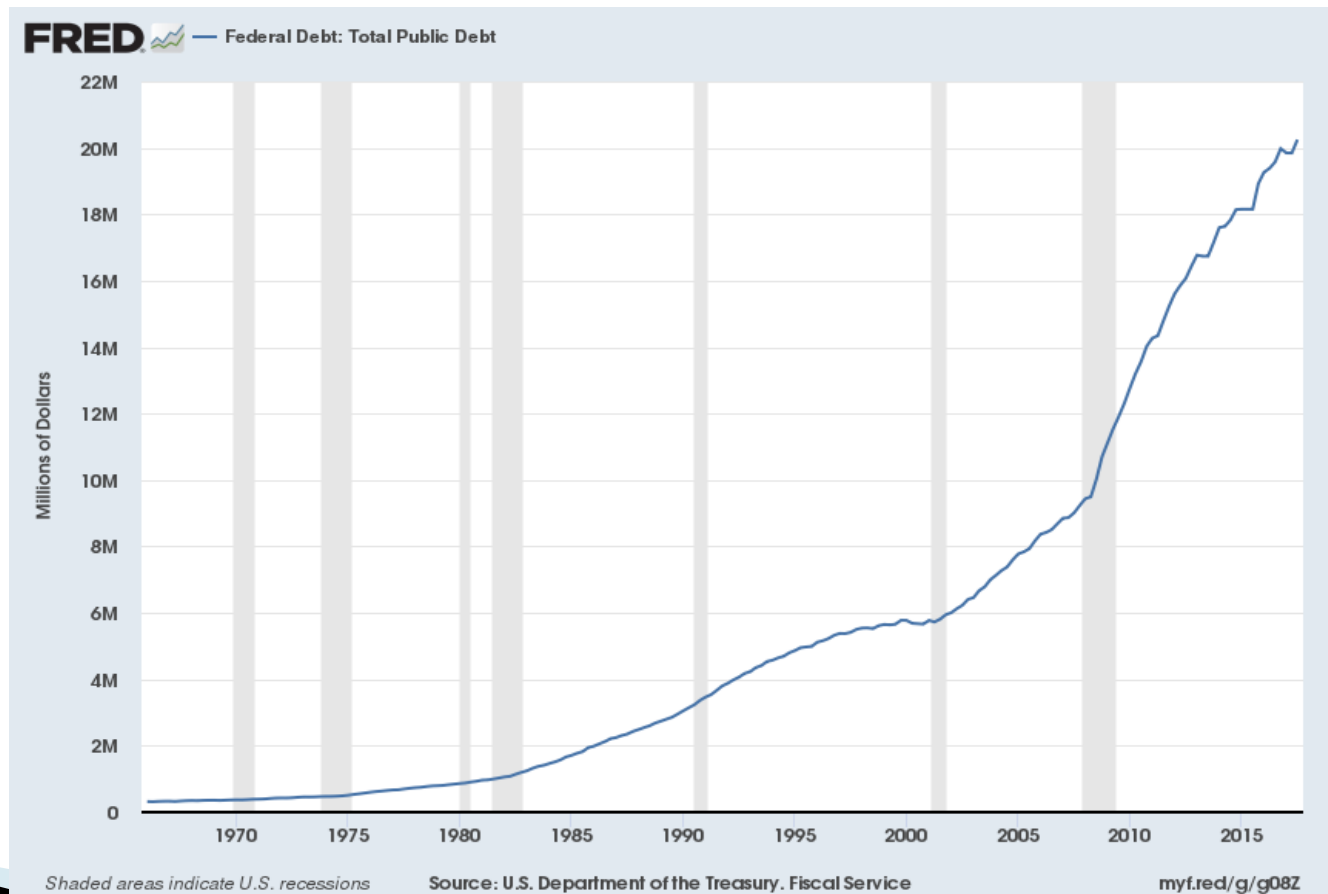
Artificial Intelligence, the Economy, and Amnesty

A Look to the Future by the
Numbers



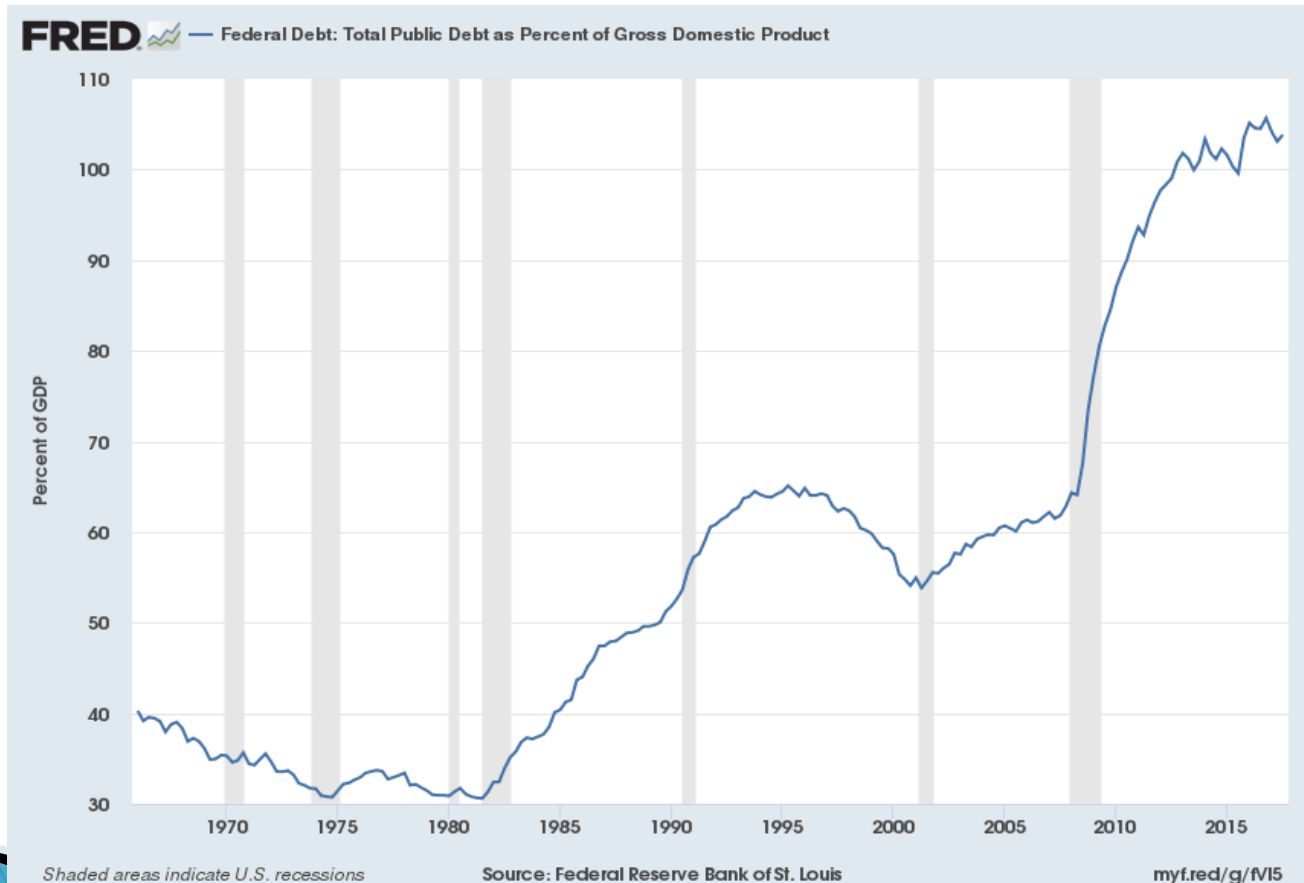
Where We Stand: National Debt

Total Federal Debt: 21 Trillion Dollars



Where We Stand: Total Debt

- ▶ **Total Public Debt As a Percentage of GDP:** Spending more than the economy generates in a given year



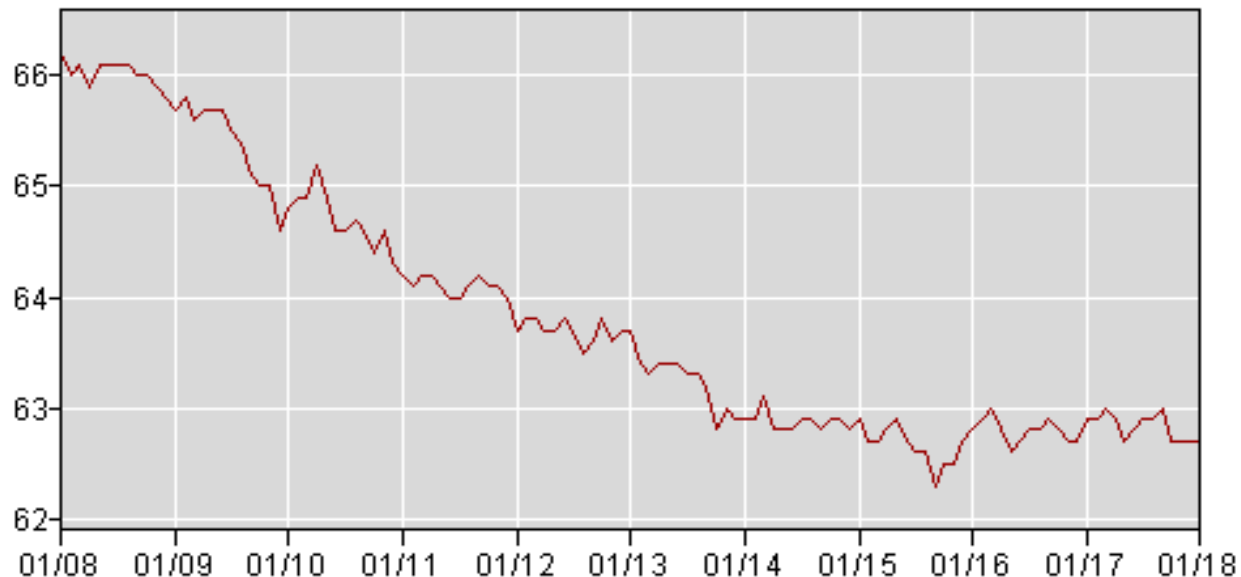
FRED Accessed 2/2018

Where We Stand:

Labor Force Participation Rate

Labor Force Statistics from the Current Population Survey

Series Id: LNS11300000
Seasonally Adjusted
Series title: (Seas) Labor Force Participation Rate
Labor force status: Civilian labor force participation rate
Type of data: Percent or rate
Age: 16 years and over

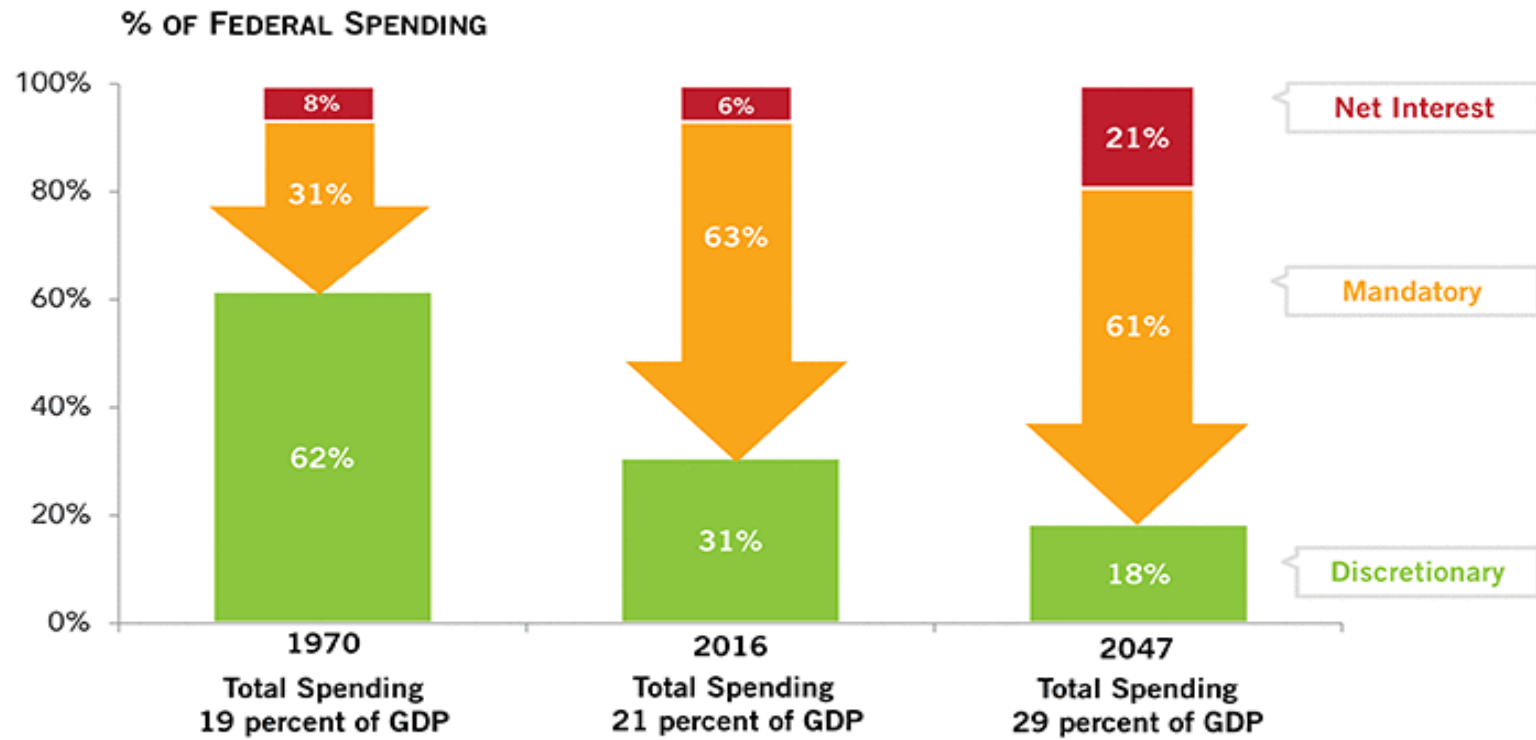


Where We Stand:

Decreasing Flexibility in Spending



Mandatory programs and interest costs will take over more of the federal budget, crowding out discretionary programs

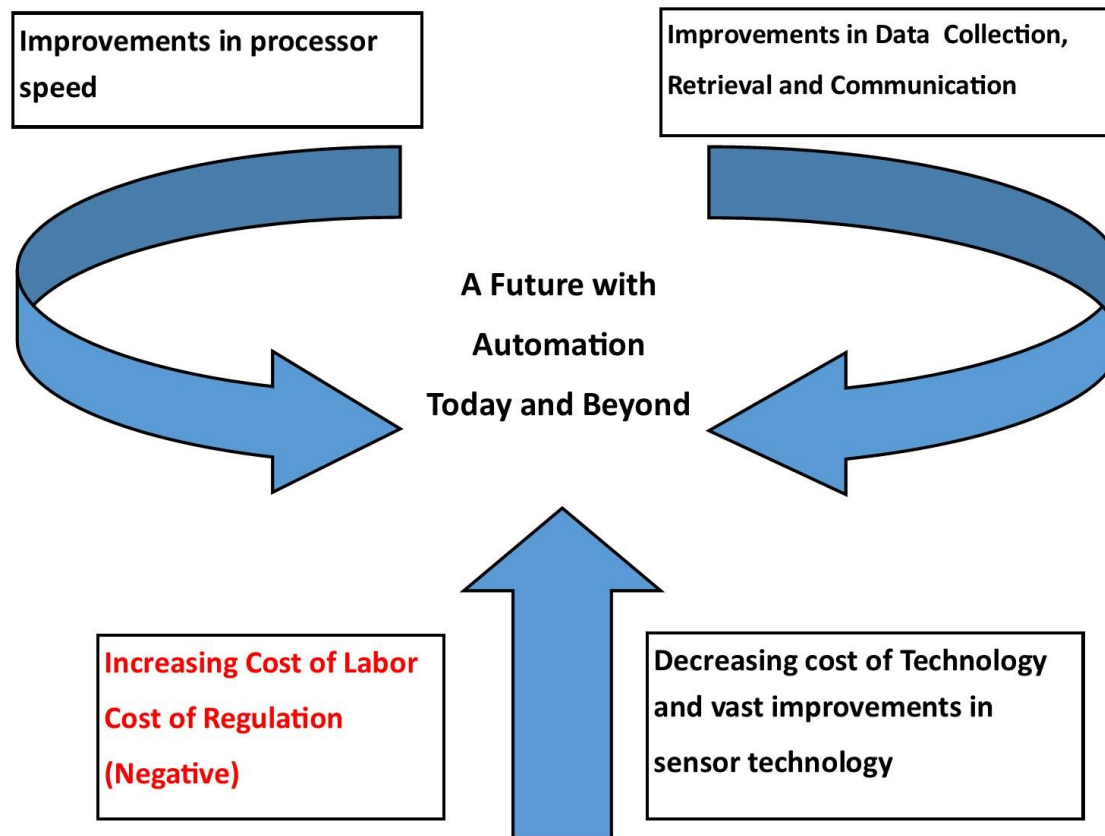


SOURCE: Office of Management and Budget, *Budget of the United States Government, Fiscal Year 2018*, May 2017; and Congressional Budget Office, *The 2017 Long-Term Budget Outlook*, March 2017. Calculated by PGPF.

NOTE: Numbers may not sum to totals due to rounding. Mandatory programs include Social Security, major federal health programs, other entitlement programs and offsetting receipts.

Why Now? The “Quickening” of Technology

The Convergence of Innovation



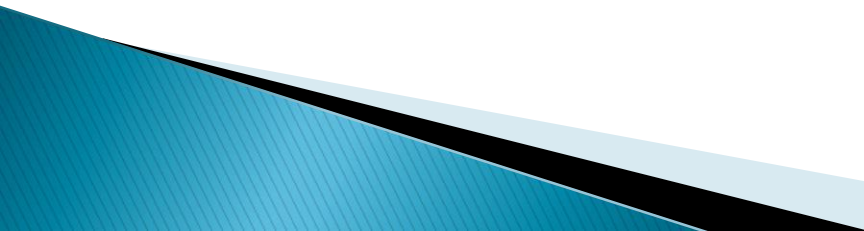
Why Now? The “Quickening” of Technology

For Example:

1996 the U.S. Government built the *ASCI Red* computer for \$55 million as part of the Accelerated Strategic Computing Initiative

- ▶ Occupied 100 cabinets over 1,600 square feet
- ▶ Designed to simulate nuclear test
- ▶ One teraflop of processing power—trillion operations a second

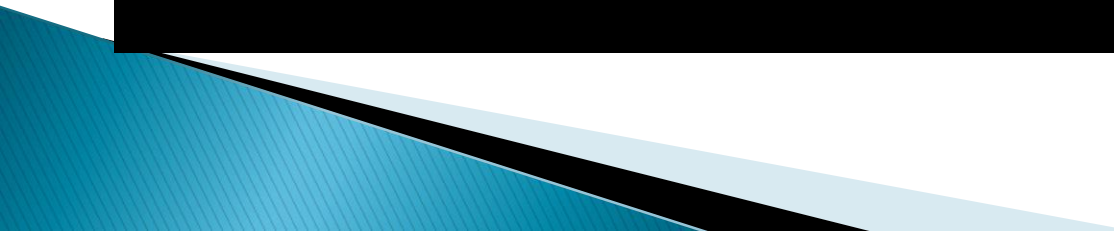
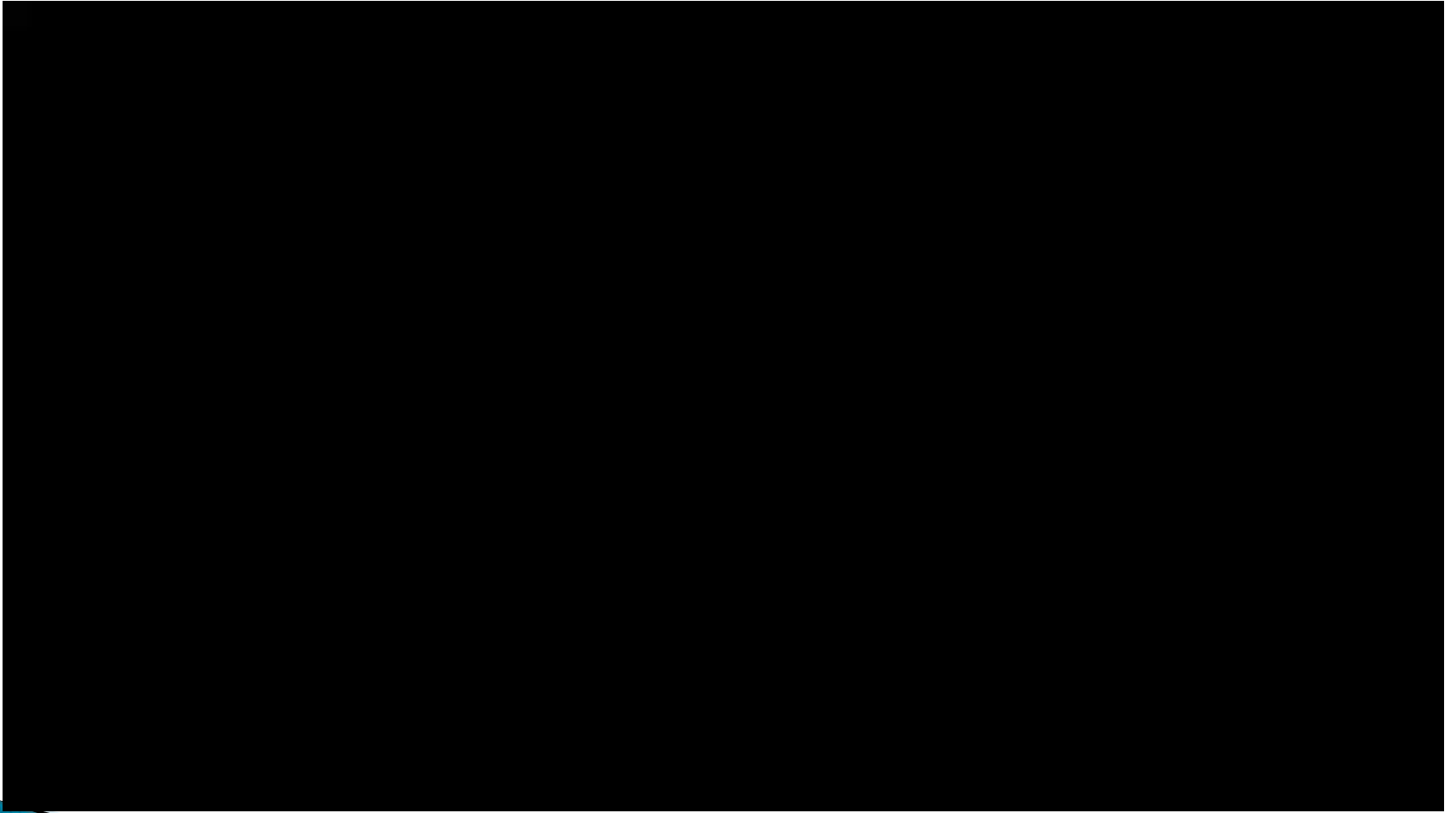
2005 Introduction of the *Sony PlayStation 3*

- ▶ Cost of \$500 dollars
 - ▶ Operates at 1.8 teraflops
- 

Examples of The Technological Revolution in Use

- ▶ AP and Forbes.com uses AI and the computers of the Narrative Science Company to write corporate earnings previews
- ▶ 3D printers used to make repair parts on site eliminating delays in supply chain/delivery
 - Print parts for NASA's latest generation moon rover
 - Print parts for faulty engines instead of stockpiling parts
 - "print" prosthetic replacement jawbone
- ▶ OrCam Device attaching to blind person's glasses capable of "reading" a description of what is before an individual
- ▶ FDA recently approved study on retinal implants
- ▶ Amazon/Online vendors eliminating brick and mortar competition
- ▶ Heart Surgery without cracking the sternum

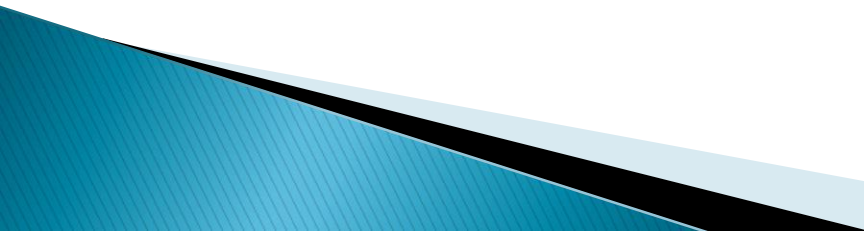
Everyday AI/Automation



By The Numbers: Examples of affected professions

Bureau of Labor Standards 2016 (Latest Figures)

Number of Americans employed:

- **3.5 million** cashiers
 - **850,000** picking/sorting crops
 - **295,000** bricklayers and masons
 - **3.9 million** warehouses/material transfer
- 

By The Numbers: Example-Driving

From *Artificial Intelligence, Automation and the Economy*

Council of Economic Advisors forecasts:

- **2.2 and 3.1 million** existing part and full-time U.S. “driving” jobs may be threatened or substantially altered by Automatic Vehicles (Artificial Intelligence)
- **364,000** jobs in ride sharing (Uber, Lyft) are threatened by AV technology
- Approximately 40,000 traffic deaths a year
- Automated driving advantage over human drivers; LIDAR Technology scanning 1.3 million data points a second (The Second Machine Age)

By The Numbers

The Columbus Dispatch

Subscription Now

\$5000 HOUZZ SHOPPING SPREE IN THE US (with over 1000 participating businesses) ENTER TO WIN

Men's basketball | Ohio State ends Purdue's 17-game winning streak

City delays snow-removal effort

Nearly half of Ohio workers hold jobs likely to be automated in the future

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BY PHOTO

VIDEO

Angie Denton, the CEO of Bealix Inc., describes the ongoing research and development in 3D food printing at the company's office. (Caroline J. Dennis/Dispatch)

In *The Future of Employment* researchers “rated 702 jobs on a scale from zero–one meaning they can’t be automated, to one, meaning they certainly will be automated. Of those, 297 jobs rated a 0.7 or higher, meaning there is at least a 70 percent chance the jobs will face disruption from computerization and automation.

By the Numbers

Findings:

- **There is potential to disrupt the current livelihoods of millions of Americans** – Obama Administration *Artificial Intelligence, Automation and the Economy (2016)*
- **45% of the activities** people perform could be automated by today's technologies
- **60% of all occupations** could see **30 percent** or more of activities automated with today's technologies – McKinsey and Company, McKinsey Quarterly July 2016
- **47% of all jobs could be automated in the next 20 years** – Oxford Martin School study *The Future of Employment: How susceptible are Jobs to Computerization*

By the Numbers: What does 47% look like?

Oxford's Martin School estimate of job automation within 20 years

- 47%

Current Employment Bureau Labor Standards

- 125.99 Million

Total jobs either replaced or altered by automation

- 59,215,000

Note: It is predicted, as programming and algorithms improve jobs presently not considered automatable – those dealing with less repetitive tasks will also be candidates for automation

By the Numbers: Who is Impacted ?

Job displacements impact low skilled middle class and working poor (Obama Council of Economic Advisors)

- ▶ 83% of jobs making under \$20 per hour would be “under pressure” from automation
- ▶ 42% of all workers earn less than \$15 per hour (NELP 2015)
- ▶ 31% of jobs making between \$20 and \$40 per hour would be “under pressure”
- ▶ 4% of jobs making \$40 per hour and greater would be “under pressure”
- ▶ 44% of American workers with less than a high school degree hold jobs made up of highly automatable tasks
- ▶ 1% of people with a bachelor’s degree or higher hold such a job

By the Numbers: Who is Impacted Internationally

America is not alone A world bank economist estimates automation of similar percentages simultaneously occurring worldwide over the next 20 years

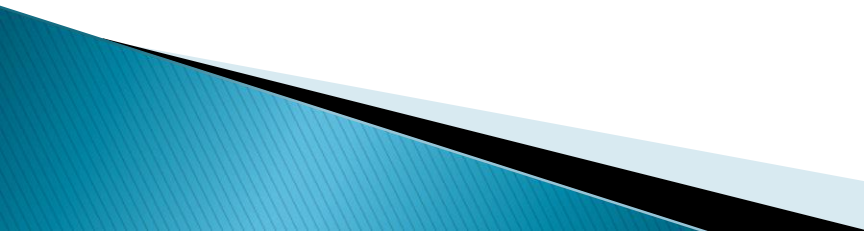
World Bank: The risk of jobs being replaced by automation varies by country

▪ OECD average	57%
▪ Thailand	72%
▪ Nigeria	65%
▪ Argentina	65%
▪ China	77%
▪ India	69%
▪ Ethiopia	85%
▪ United Kingdom	35%

Source: Technology at Work v2.0 Citi/GPS

By the Numbers: Who is Impacted Internationally

According to the World Bank Automation:

- World Bank President Jim Kim noted automation would disrupt the pattern of economic growth in developing countries which would disrupt the pattern of economic growth in developing countries.
 - “We all know that technology has and will continue to fundamentally reshape the world”. “But the traditional economic path from increasing productivity of agriculture to light manufacturing and then to full-scale industrialization may not be possible for all developing countries”
- 

Why is this 'Automated' Economy Different?

In 1870 nearly 50 percent of Americans were employed in the agricultural industry

Today, thanks to technological change, agriculture employs less than 2 percent of American workers and, American food production exceeds domestic demand

Displaced farm workers despite "low skill" sets could make the transition to mechanized labor relatively easily

Current job disruptions are faster and more 'skills intensive'

"Low skill" Americans making the transition to a "high skills" economy will require time, training/retraining and support



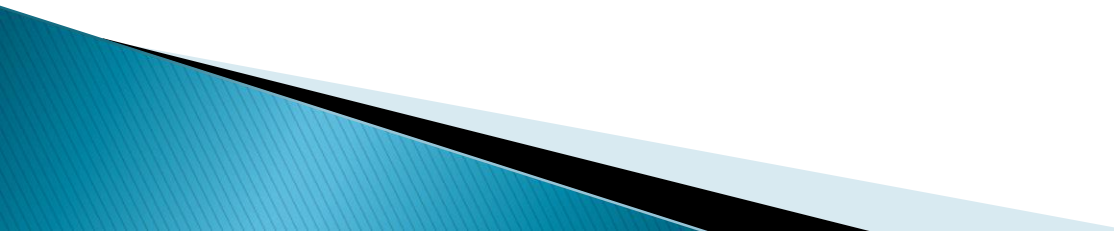
MONEY (LOTS)

Why is this 'Automated' Economy Different?

The "Decoupling of Productivity v. Compensation



Finding Solutions: Not the End of Work

- What we are experiencing is not “The End of Work” but a transition to a new technological economy changing the types of jobs available
 - This looming shift however presents significant and deep political consequences
 - Increased divergence between the have’s and have not’s as rapid advances in automation creates unprecedented wealth for those who can participate in the “new economy”
- 

Finding Solutions: Not the End of Work

An imbalance between rich and poor is the oldest and most fatal ailment of all republics Plutarch

- The divergence between those who can and cannot participate in the economy is a societal problem
- Without a strong middle class we see weak consumption
- Without maximum economic participation may be tapping the creativity and potential of a small fraction of our population
- *“Work keeps at bay three great evils: boredom, vice, and need.”*
 - Voltaire

Finding Solutions: Two Approaches

Small Government/Private Market

Benefits


- Allows for maximum flexibility by using creativity of free market/entrepreneurship
- Less regulation
- Requires less financial support from government

Drawback: 2/3 of those who will be in the workforce by 2030 have already completed their education

(National Interest July 2016)

Finding Solutions: Private/Small Government

Stop Spending Money We Do Not Have!

- Balance the Budget
 - Address Unsustainable Entitlement Spending
 - Reduce Overseas Commitments
 - Reduce needless regulations
- 

Finding Solutions: Private/Small Government

Education – Make Education Competitive

- **School choice**–Allow parents not zip codes to determine where kids go to school
- **The Higher Education Reform and Opportunity Act (HERO)**
 - Heritage Foundation–Accreditation: Removing the Barrier to Higher Education Reform
 - *The HERO Act would allow states to work with a variety of educational institutions, nonprofits, and even businesses to accredit high-quality alternative education programs and individual courses so students are equipped with directly applicable skillsets employers are looking for and our global competitive workforce demands.*
- Take away authority from the U.S. Department of Education
- Give states the power to create their own, alternative systems of accrediting Title IV-eligible higher education providers (Student Loan Eligible)
 - States could accredit:
 - formal, degree-issuing colleges
 - Specialized programs, apprenticeships, professional certification classes, competency tests, and even individual courses
 - Businesses, labor unions, trade associations, non-profit groups, and any other applicant that met the state's requirements could be empowered to accredit.
 - Access to lifelong learning
- Post Secondary high skilled job training–Mike Rowe
- Restore dignity of work

Finding Solutions: Private/Small Government

Reduce Regulation/Encourage Entrepreneurship

Small business, its ability to innovate and its ability to adapt to technology should be encouraged as creative ideas will prompt job creation

Finding Solutions: Two Approaches

Big Government Intervention

Benefits

- Immediate—as fast as Congress can pass a new tax law

Drawbacks


- Spending money we do not have
- Increasing a never ending cycle of dependency
- Time—moving at the speed of government
- Radically redefining the relationship of government:
 - government becomes provider/citizen recipient
- Track record of inefficiency, incompetence and misaligned priorities “Shovel ready did not mean as shovel ready as we thought”

Finding Solutions: Bigger Government

Increase Minimum Wage/Livable Wage?

Increasing the cost of labor will hasten the adoption of automation and technology unless the cost of technology increases (which it is not)

Modernize Social Safety Net Increase spending on:

- Expand Unemployment Insurance, Medicaid
 - Create new programs to compensate for decreased wages due to displacement from old job and loss of seniority
- 

Finding Solutions: Bigger Government

Universal Basic Income

- Popular amongst many in the IT community who anticipate large numbers of people will be unemployable – unable to transition to a high tech community
- Concept popularly advocated by National Welfare Rights Movement in 1960's to address possibility of widespread demands for greater government involvement

Universal Basic Adjustment Benefit

- Support, wage insurance, job counseling, relocation subsidies, career and financial help (Relentless Pace of Automation MIT)

Finding Solutions: Bigger Government

Universal Basic Employment – if unable to find work in the private sector work for government on infrastructure projects (<https://www.singularityweblog.com/ubet-technological-unemployment/>)

“New” New Deal

- Andrew Ng of Baidu and Google’s Brain project suggested at a recent MIT Conference the creation of a new “New Deal” to address large numbers of unemployable displaced workers

In Conclusion: The Economy Amnesty/ Chain Migration

- In the next 10–20 years we will see unprecedented U.S. job displacements
 - Particularly amongst those:
 - Who are **Low Skilled**
 - Who receive **Low Pay**
 - Who possess **Lower Skill Set/Training**
 - Dependent on **Increased demand social services**


In Conclusion: The Economy Amnesty/ Chain Migration

With Amnesty and “Chain Migration” particularly:

- In the next 10–20 years we will see unprecedented immigration
 - Newcomers:
 - Who are **Low Skilled**
 - Who receive **Low Pay**
 - Who possess **Education/Language/
Culture Issues/Lower Skill Set**
 - Dependent on **Increased demand on
social services**

In Conclusion: The Economy Amnesty/ Chain Migration

The Collision of Automation, the Economy and Amnesty

- Our leaders are making decisions on immigration which will affect this nation for decades, must meet current needs and provide for the national defense
 - While Congress and the President , at the same time, must look ahead decades to determine how the future economy will change and how those changes impact American citizens
 - New, unidentified jobs will be created in the future. During this time of transition the question is will we have the time and resources for Americans to take advantage of the new economy?
- 

Contact

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- ▶ <https://futurebythenumbers.weebly.com/>

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