# **Cost/Benefit Analysis of Automation** by Jacob Dill (2019)

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## Motivation

To compare the potential costs and benefits of transitioning into an automation-oriented economy to determine its utility and/or potential policy action that need by taken.

## Benefits

Cheaper overall production costs, and therefore cheaper consumer costs

Potentially dangerous and grueling work will be occupied by machines rather than people, allowing for the populace to pursue careers in safer environments

Less human lives in danger during jobs such as driving, farming, flying, mining, combat etc.

Less civilian casualty in war, and less violation of international law

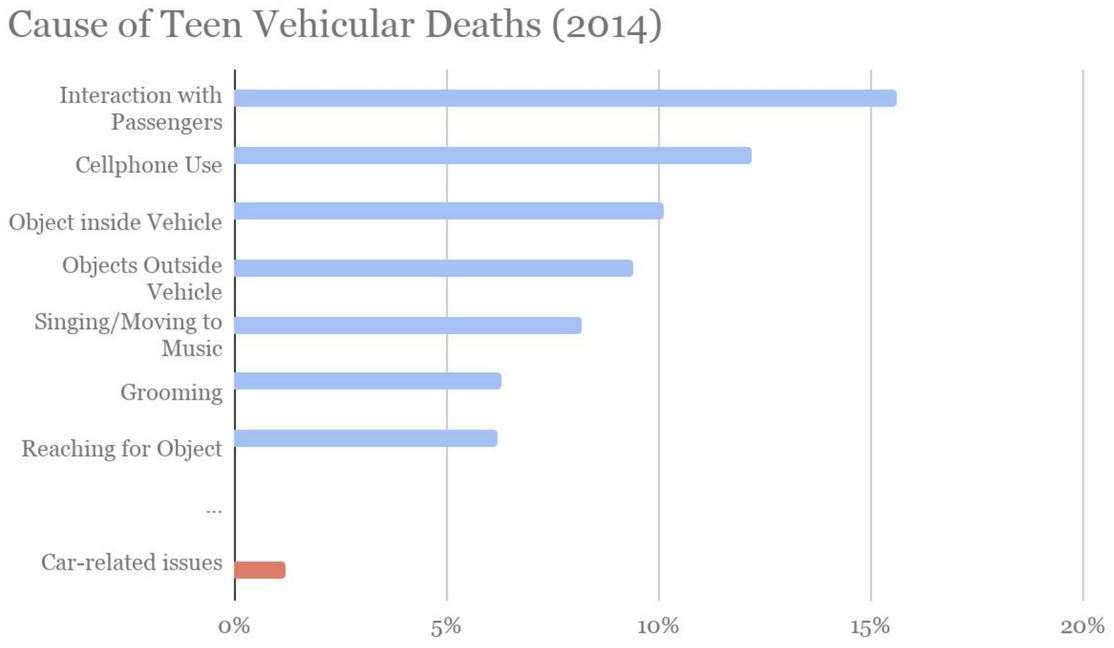
Potentially unprecedented production of wealth and capital (excess to combat poverty)

## Costs

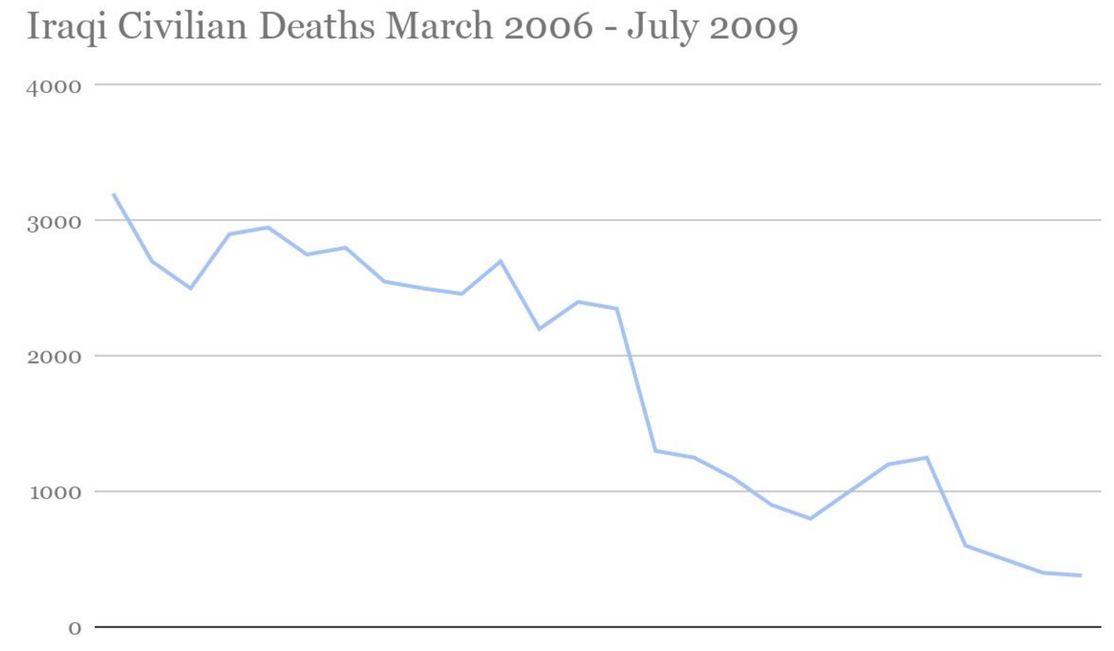
As the push to automation accelerates, many jobs will be displaced in the short term, e.g. truck drivers, factory workers, etc.

May require policy action, e.g. basic income, increase unemployment benefits

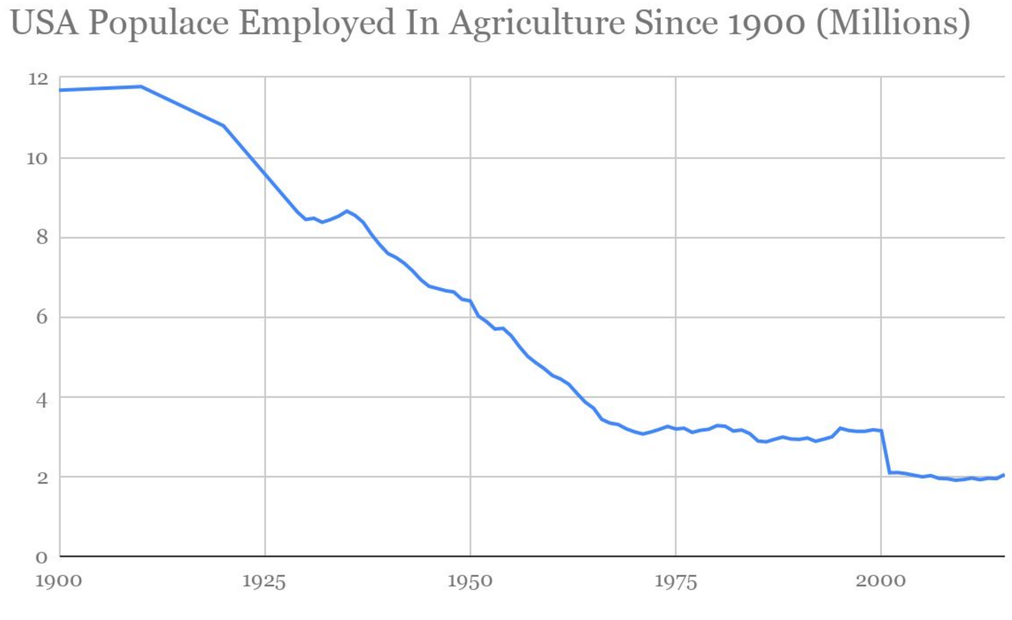
Potential ambiguity in assigning responsibility for the failures of highly automated systems




*Source: Insurance Institute for Highway Safety (IIHS), 2014*




*Source: Iraqi Body Count, 2016*




*Source: Our World in Data based on Herrendorf et al (2014)*

## Fields of Automation

### *Automotives*

In 2014, the IIHS reports the leading causes in teens vehicular deaths. These leading causes involve primarily *human* error, rather than vehicle-related problems. Hence, many car accidents can be prevented by replacing the human driver with an autonomous system.

### *Warfare*

Human error carries over to warfare. Civilians may be mistaken for the enemy or caught in the crossfire. Automated technologies can offer more precise modes of attack, and potentially distinguish intentions between persons to minimize civilian casualty.

### *Agriculture/Manufacturing*

Agriculture and manufacturing has seen the impacts of automation more than perhaps any other industry. The price of goods plummeted, as did mortality rates, with little indication of large-scale unemployment, even with less employed in agriculture

## Policy

*Basic Income* - minimum income guaranteed to citizens by the government to combat the degree of automation in the economy

*Automation tax* - tax on use of automation to disincentivize robo-labor over numan labor

*Deregulation/tax breaks* - Incentivize hiring people over automation by decreasing burden (less mandatory benefits, minimum wage, etc.)

*Education reform* - Policy designed to lower the cost to train workers to qualify for advanced jobs as a result of the new automation economy

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