DIGITAL REGULATION: ETHICS, FAIRNESS AND GOVERNANCE IN AN ERA OF PLATFORMS AND ARTIFICIAL INTELLIGENCE

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Facebook Bars Trump Through End of His Term

Mark Zuckerberg, Facebook's chief executive, said the risks of Mr. Trump using the service were too great, even as Twitter lifted its lock on the president's account.

Twitter suspends 70,000 accounts linked to QAnon

Airbnb cancels all bookings for DC during Inauguration week

- Fake news, disinformation, polarization, infodemics
- Privacy, data ownership, digital surveillance
- Questioning of the ability of humans to reason
- Evolution in the nature of global capitalism
- Perceived bias in artificial intelligence systems
- Delegating complex ethical problems to machines
- Heightened inequality fears due to AI and automation

how do we “regulate?”

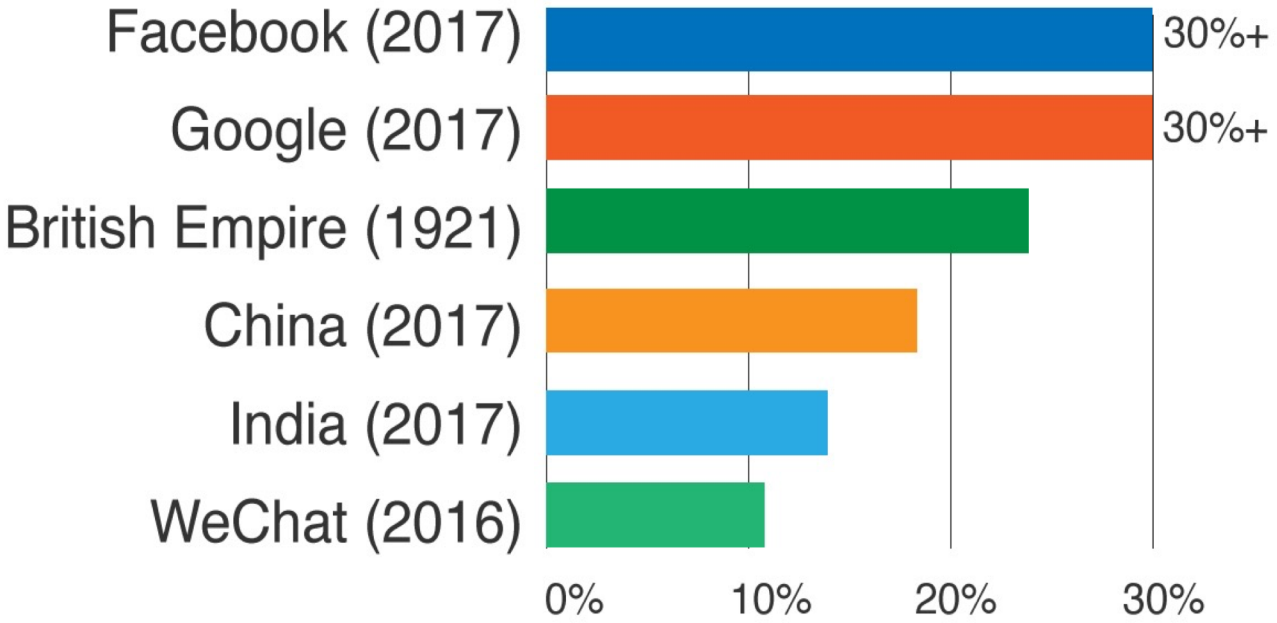
what do we regulate?

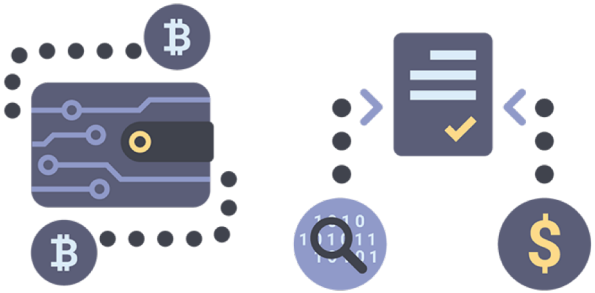
what are some principles?

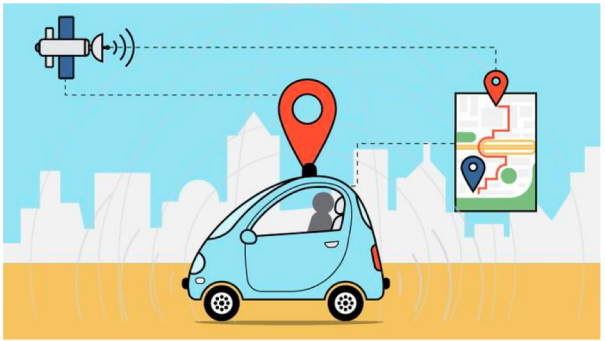
- **Principles for platform governance**
- **Algorithmic bias and fairness**
- **Rethinking automation and digital inequity**

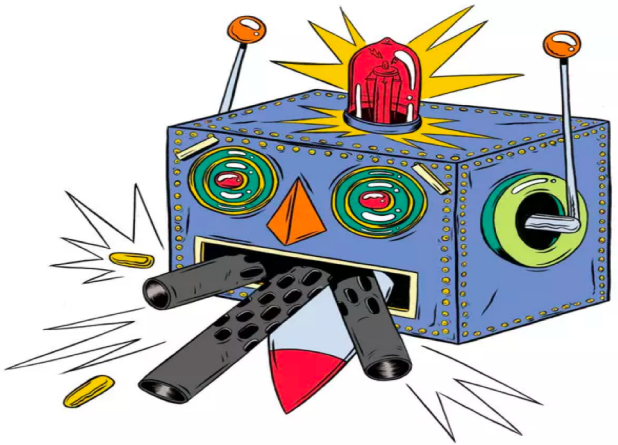
platform governance

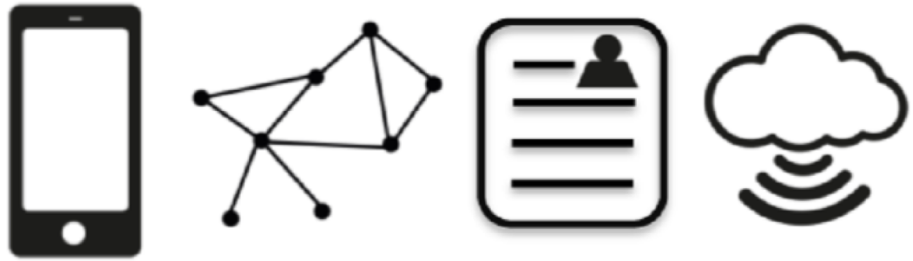
fraction of the world's population











many dimensions of platform governance

- **Define neutrality and independence**
- Assess scope of compliance oversight
- Choose level of transparency
- Define data property rights
- Create due process
- Optimize algorithmic bias

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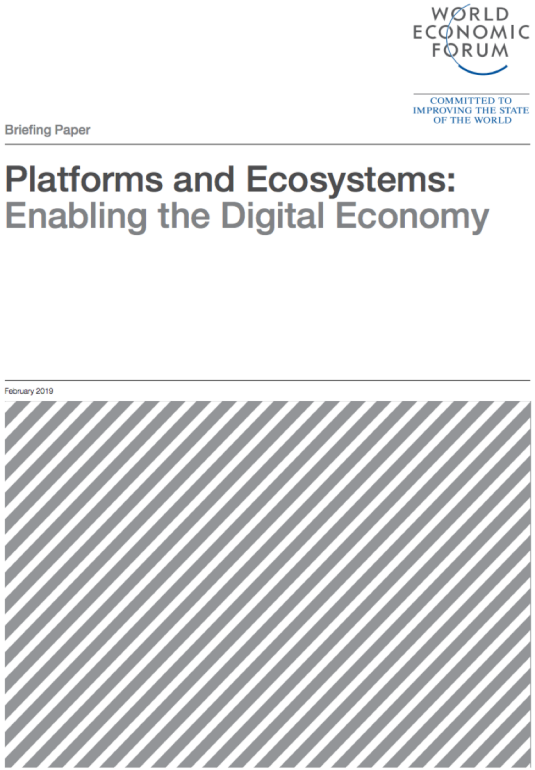

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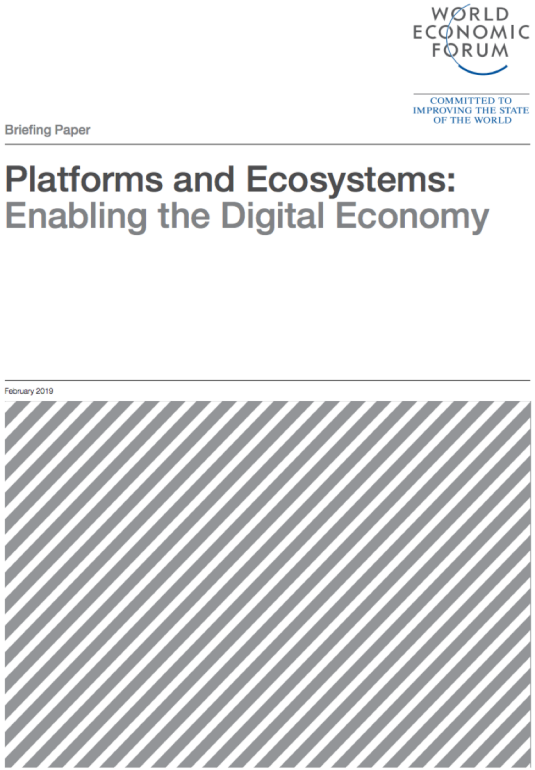

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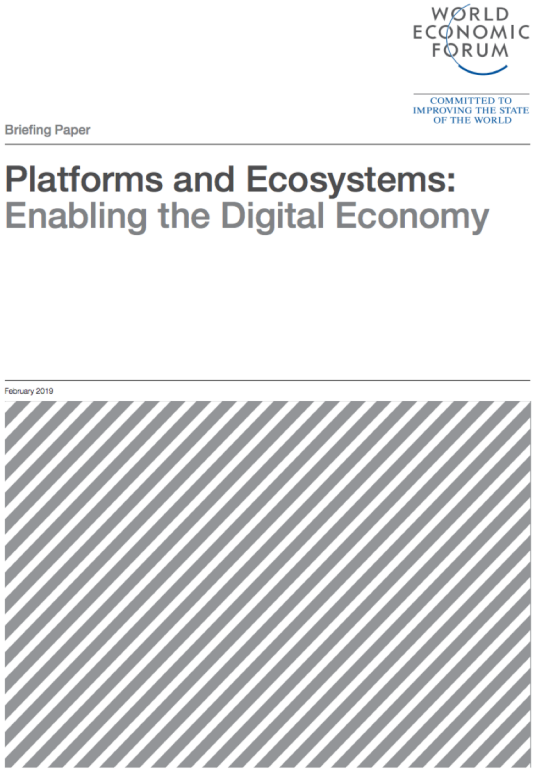


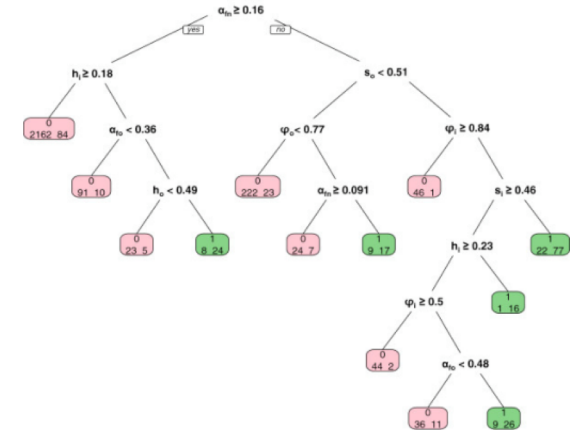
algorithmic bias

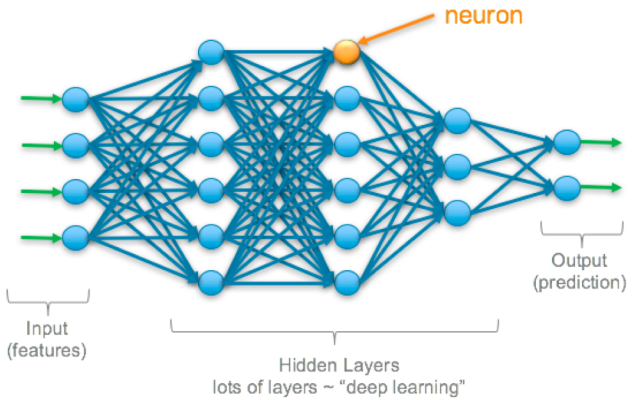
- Facial recognition
- Voice recognition
- AI-assisted recruiting
- Performance evaluation
- Deployment of law enforcement
- Bail decisions and criminal sentencing

written versus trained “code”

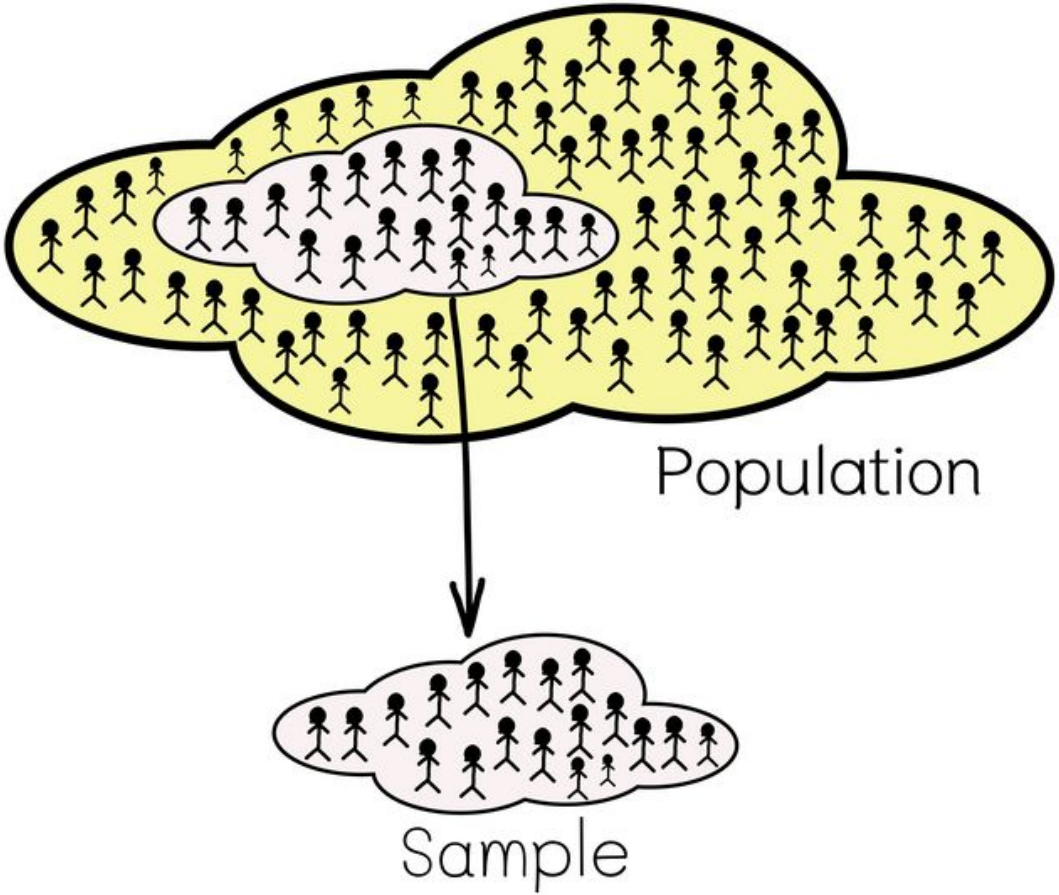
```
      C
            PIN=0.02
            IF(DDT.NE.0.0)  THEN
            DT=DDT
            ELSE
            DT=PIN
            ENDIF
            WRITE(*,'(A)') '    PLEASE ENTER NAME OF OUTPUT FILE (FOR EXAMPLE
           *  B:ZZ.DAT)'
            READ(*,'(A)') FNAMEO
            OPEN(6,FILE=FNAMEO,STATUS='UNKNOWN')
            PV=WFLX/TH
            RS=NEQ*ROU*KD/TH
            C0=CS
      C
            TIME=0.0D0
            EF=0.0D0
        5   CONTINUE
            GAMMA=DT/(2.D0*DX*DX)
            BETA=DT/DX
            IF((BETA*PV).GT.0.50D0) GO TO 7
            IF((GAMMA*D/(BETA*PV)).LT.0.5D0) GO TO 6
            GO TO 8
        6   DX=DX/2
            GO TO 5
        7   DT=DT/2
            GO TO 5
        8   CONTINUE
            N=COL/DX
            NM1=N-1
            NM2=N-2
            NP1=N+1
            GAMMA=DT/(2*DX*DX)
```

vs.





algorithms learn from biased samples



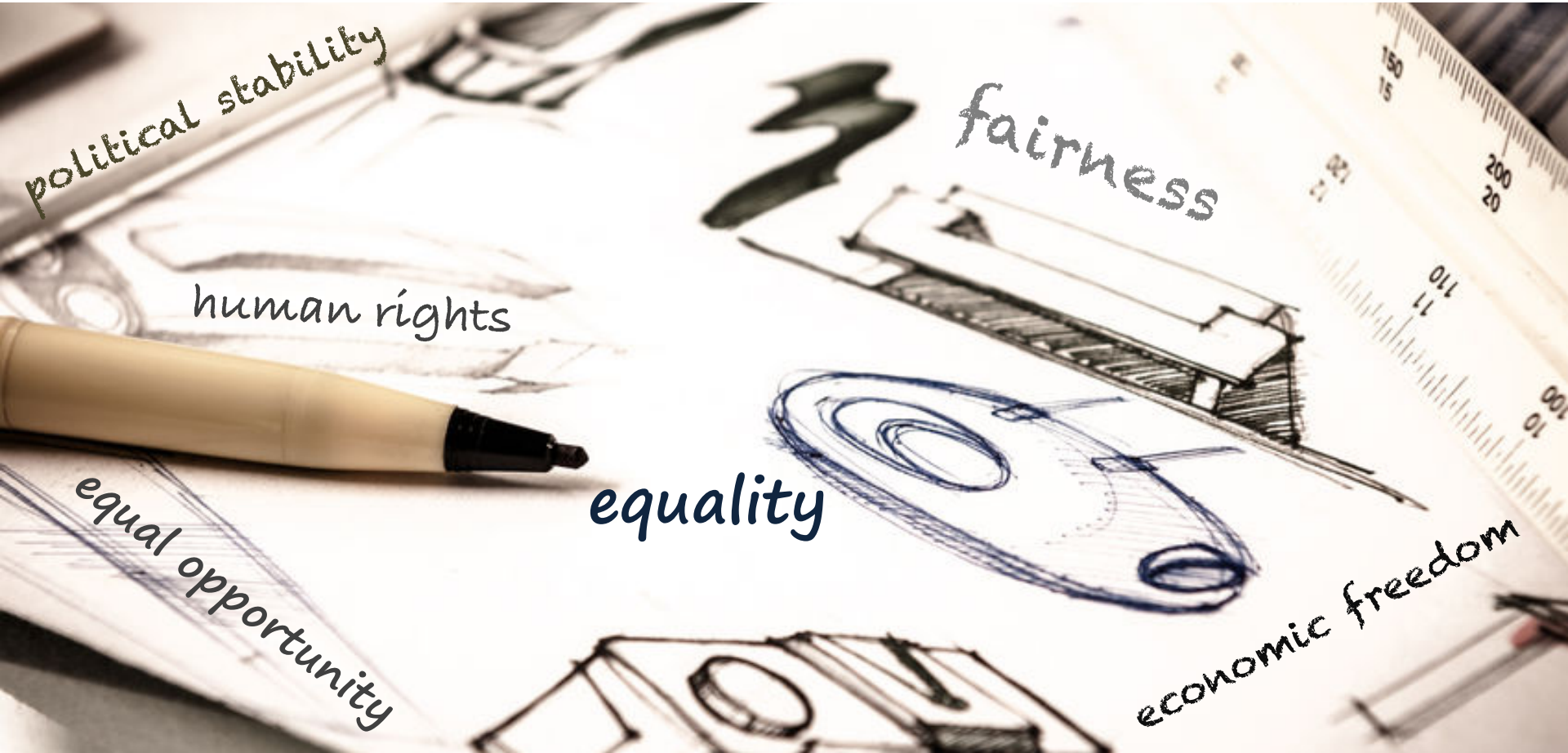
algorithms learn from biased samples

machine learning can reinforce bias from the past

choice of objective function can be complex

$$f(x) = \ldots$$

algorithmic bias **and society**



algorithmic bias is bad for business

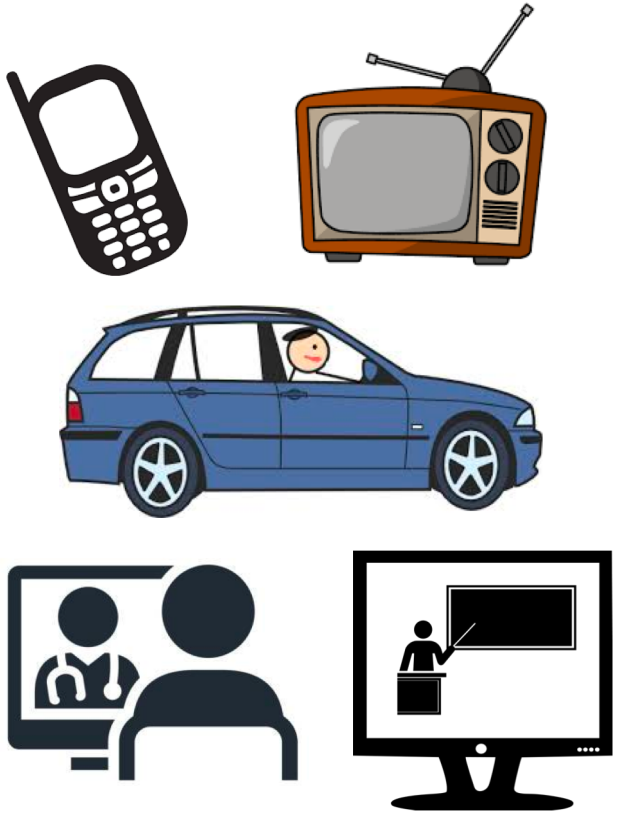
- reputational risk
- lower profits
- market shifts

- Choosing the right benchmark
- Pretest, test and audit for fairness
- Bring humans into the decision loop
- Encourage and invest in “explainable” algorithms
- Consider transparency, but with care
- Create robust systems for due process
- Create government-led incentives for fairness

automation and digital inequity

the currency of inequality

vs.



digital process and human labor

machines replace humans

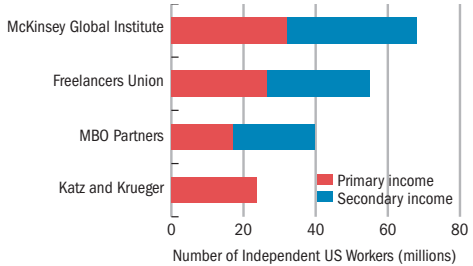
machines augment humans

humans augment machines

new business models
alter the need
for human labor

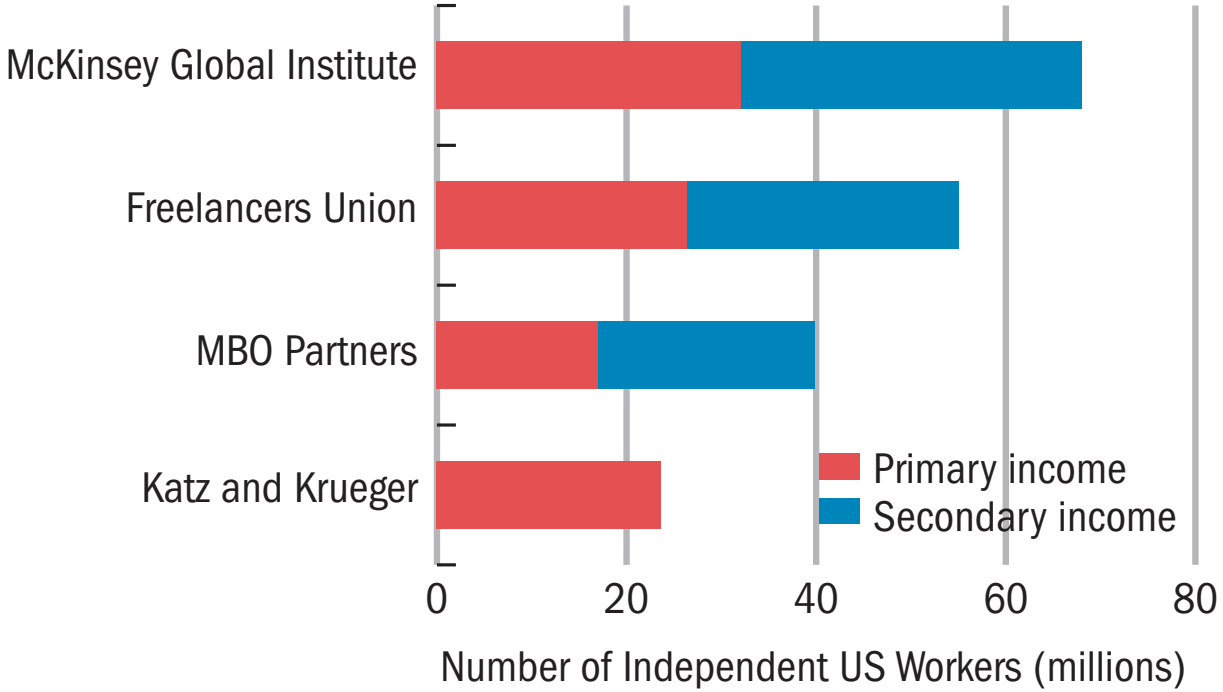
COVID-19 accelerates the digital future of work

- ❑ platform-based commerce has grown dramatically
- ❑ labor market shock removes barriers to automation
- ❑ legitimization of remote work removes barriers to platform talent
- ❑ change-oriented mindset complements automation investments
- ❑ recession catalyzes willingness to experiment with gig work
- ❑ …but recession may also slow capital expenditures needed for automation



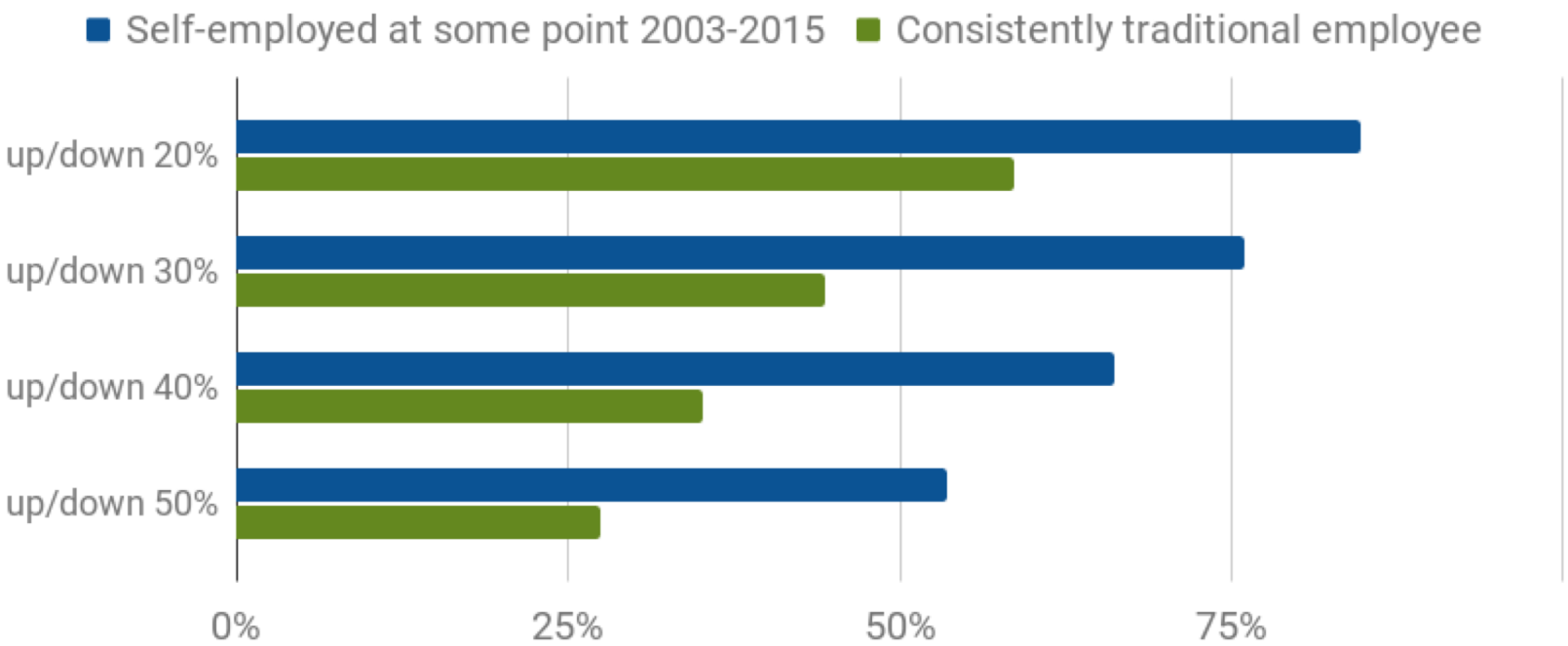
Independent employment

Four recent major studies found that a sizeable portion of the 160 million US workers earn income by working freelance.



Sundararajan, 2017, The Future of Work.

income volatility will rise as the future of work unfolds



Fraction of US workers who see large annual income shifts

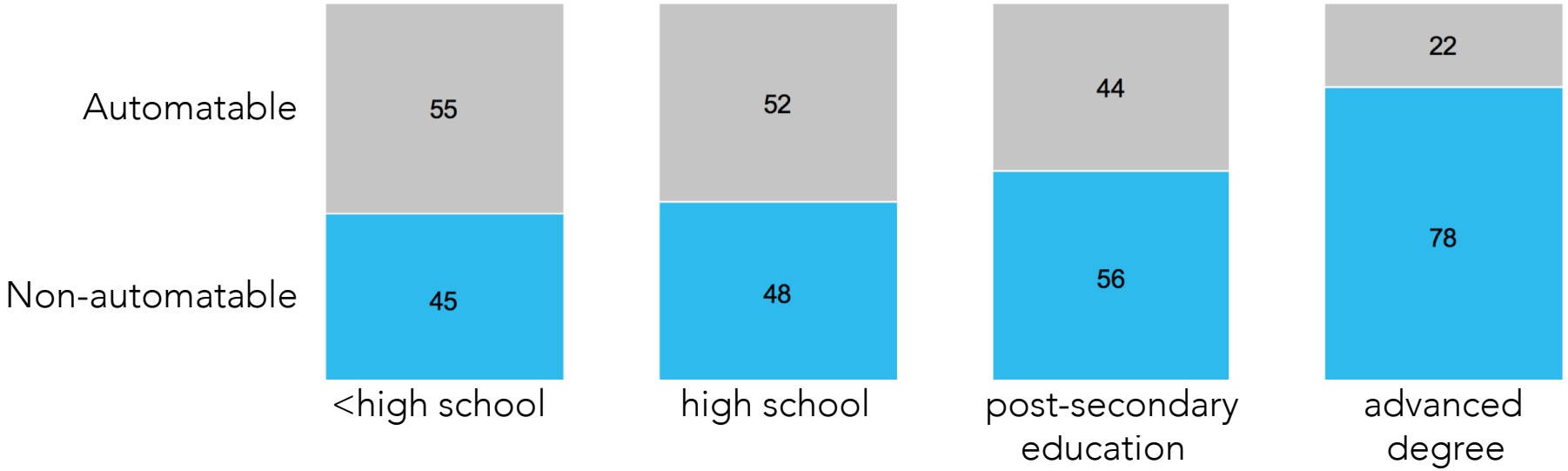
platforms redistribute economic risk

Q3 2020 vs Q3 2019

Airbnb: **17%** decline in Gross Booking Value

Marriot: **66%** decline in Revenue per Available Room

automation will impact different segments differently



Example occupations

- <high school
  - Logging equipment operators
  - Taxi drivers
- high school
  - Stock clerks
  - Travel agents
  - Dental lab technicians
  - Firefighters
- post-secondary education
  - Nursing assistants
  - Web developers
  - Electricians
  - Legal secretaries
- advanced degree
  - Lawyers
  - Doctors
  - Teachers
  - Statisticians
  - Chief executives

Source: McKinsey Global Institute

job losses will not be geographically balanced

lowest projected rates of automation

Metro Area	Average Income	Fraction of workers with Bachelor's degree or Higher
San Jose-Sunnyvale-Santa Clara, CA	$141,714	48.49%
Washington-Arlington-Alexandria, DC-VA-MD-WV	$130,723	49.50%
Ann Arbor, MI	$94,395	50.91%
Boston-Cambridge-Newton, MA-NH	$116,506	45.55%
Bridgeport-Stamford-Norwalk, CT	$149,214	46.38%
San Francisco-Oakland-Hayward, CA	$130,134	46.14%
Ithaca, NY	$80,545	48.14%
Raleigh, NC	$91,109	42.19%
Baltimore-Columbia-Towson, MD	$104,236	37.66%
Huntsville, AL	$83,250	35.50%
Santa Cruz-Watsonville, CA	$107,478	37.88%
Seattle-Tacoma-Bellevue, WA	$104,983	39.62%
Trenton, NJ	$116,014	40.47%
Austin-Round Rock, TX	$95,814	40.11%
Barnstable Town, MA	$99,181	41.31%

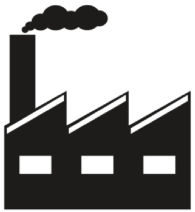
highest projected rates of automation

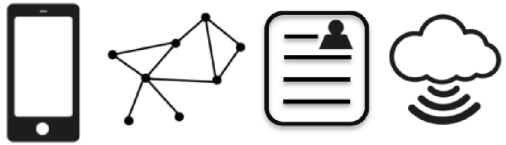
Metro Area	Average Income	Fraction of workers with Bachelor's degree or Higher
Lake Havasu City-Kingman, AZ	$57,408	11.798%
Merced, CA	$66,439	13.089%
Elkhart-Goshen, IN	$69,828	18.220%
Lima, OH	$65,278	16.848%
Mansfield, OH	$59,029	17.291%
Muncie, IN	$57,255	22.237%
Odessa, TX	$84,136	14.404%
Michigan City-La Porte, IN	$67,310	17.522%
Anniston-Oxford-Jacksonville, AL	$61,323	17.295%
Springfield, OH	$64,422	18.057%
Las Vegas-Henderson-Paradise, NV	$76,401	22.298%
Muskegon, MI	$61,403	18.146%
Rocky Mount, NC	$59,675	15.694%
Modesto, CA	$74,685	15.936%
Laredo, TX	$60,751	16.603%

stemming a rise in inequality: new individual issues

- Higher month-to-month income volatility
- Increases in large income shocks
- Redistribution of who bears business risk
- Inaccessible funding mechanisms for basic benefits
- Greater needs for mid-career occupation transition
- Increased need for geographic transitions
- Loss of institutional support: careers, community

a new individual-institution relationship





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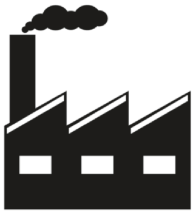
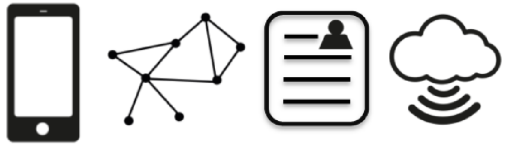
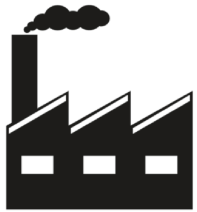
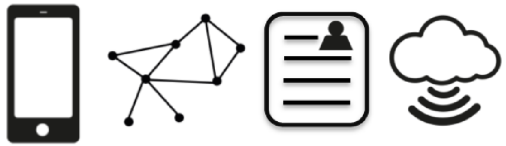
smoothing short-term income volatility



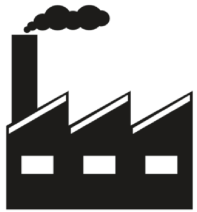


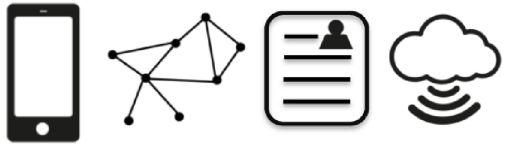
refashioning bankruptcy protections, “unemployment”insurance



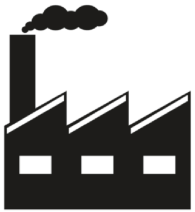


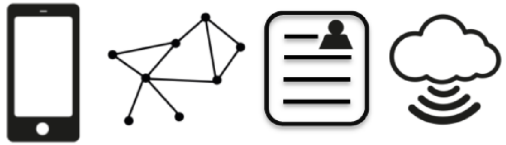
new mechanisms for funding benefits





broad institution-based transition education





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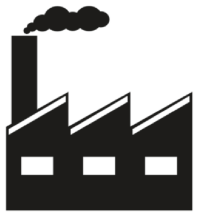
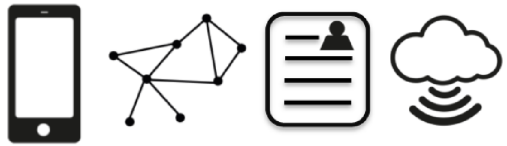
career paths and community





embed human values into digital systems