



BRIE

Berkeley Roundtable on the International Economy

University of California, Berkeley

WORK IN THE DIGITAL ERA: CHOOSING A FUTURE

Work2015

Turku Finland

August 2015

John Zysman

Professor, Political Science

Co-director, BRIE

<http://www.brie.berkeley.edu/>



BRIE

Berkeley Roundtable on the International Economy
University of California, Berkeley

The Challenge of A Finnish Audience



BRIE

Berkeley Roundtable on the International Economy

University of California, Berkeley

How Revolutionary is the Digital Revolution?



BRIE

Berkeley Roundtable on the International Economy

University of California, Berkeley

WHAT NEW ECONOMY AND SOCIETY WILL WE SHAPE WITH OUR DIGITAL TOOLS?

<http://www.brie.berkeley.edu/>



Utopia / Dystopia: Pioneers and Skeptics

- The Pioneers: Creating a Utopia
 - Noyce, Jobs, Sanders, Sporck, Gates in Seattle
- Skeptics: Generating a Dystopia
 - Vonnegut (Player Piano)
 - Davidow -Mohr Davidow (HBR)



Berkeley Roundtable on the International Economy
University of California, Berkeley

Utopia or Dystopia:

Which Will It Be?



Utopia or Dystopia: Which Will It Be?

- Work:
 - How many jobs?
 - What sort?
 - Where will they be?
 - Organized how?



Berkeley Roundtable on the International Economy
University of California, Berkeley

Utopia or Dystopia: Which Will It Be?

- Work:
- Value creation:
 - How is it created
 - Who capture the gains



Premise

Technology does not dictate:

- Consequences depend on ***deployment***,
how technology is used



Premise

- Technology does not dictate:
- Deployment outcomes rest on policy, as well as corporate strategy:
 - Regulating Protections: Workers, Communities, Clients
 - Social policy: Markets, Employment, Citizenship
 - Competition Policy: Who gains and how do we compete



Re-Setting the Scene: Technology and Work in the Digital Economy

- The Algorithmic Revolution:
 - The Internet and The services transformation
- The Cloud Acceleration/ The Platform Era:
 - Algorithms live in the Cloud as Platforms

Where Will Work Come from in A Digital Age John Zysman and Martin Kenney
<http://www.brie.berkeley.edu/>



I. The Algorithmic Revolution

- The Commodity Trap and Globalization
 - Everybody makes everything
 - Price becomes the key



I. The Algorithmic Revolution

- The Commodity Trap and globalization
- Escape from the commodity trap?
 - Radical product innovation (iPhone)
 - The Services Transformation (iTunes)



I. The Algorithmic Revolution

- The Commodity Trap and globalization
- Escape from the commodity trap?
- Aspects of activities can be converted into:
 - Formalizable, codifiable, processes
 - Often with clearly defined rules for their execution
 - These are computable algorithms



I. The Algorithmic Revolution

- The Commodity Trap and globalization
- Escape from the commodity trap?
- Aspects of activities can be converted into:
- The Services Transformation: Services with Everything
 - Products sold as services: Tires and airplane engines
 - Automated information services: Search
 - Hybrid systems: Ag equipment/accident response
 - Augmented human services: Restaurants and doctors

Services with Everything: The Digital Transformation of Services <http://brie.berkeley.edu/publications/wp187a.pdf>
The Algorithmic Revolution: The 4th Services Transformation: Communications of the ACM, Vol. 49 No. 7,
available at: <http://www.brie.berkeley.edu/publications/wp171.pdf>



Algorithms: Software layer over everything: Software Layer Across Production



The Routine The Algorithmic/Services Dilemma

- The Routine can be automated
- Automation can be copied
- Sustained innovation requires human imagination and implementation:
 - The high road adaptation to the algorithmic revolution is effectively using People



BRIE

Berkeley Roundtable on the International Economy

University of California, Berkeley

II.

Cloud and The Era of the Platform

Algorithms Go to Live in the Cloud:



Cloud Computing Will Accelerate the Production Transformation

- Architecture (how) not just geography (where)
- The IT platform in an era of “computing resource” abundance



What is Distinct about Cloud? The Magic of Abstraction

- **The Stack:**
 - Infrastructure
 - Platform
 - Services/apps
- **Layers of abstraction enable loosely-coupled architectures**
 - Loose-coupling enables elastic scaling and resource pooling
 - Program state, data and logic decoupled from each other
 - Applications decoupled from Infrastructure



Cloud Computing

- Delivers: **elastic computing services** - data storage, computation and networking - to users at the time, to the *location and in the quantity they wish to consume, with costs based only on the resources used.*
- Procure: **only the computing needed**
- Provides: **the illusion of infinite resources on demand**
- Moves: Computing costs from **CapEx to OpEx**



Implications of Cloud Computing: A First Cut

- Users:
 - Radically lowers the cost of access and use
 - Digitally based Tools widely available
 - For SMEs and individuals
 - For larger firms:
 - Time to value will be crucial
- Providers: A competitive offering
 - Scale matters
 - The flavor matters
 - The “rules” of provision matter
 - The Providers are principally American



BRIE

Berkeley Roundtable on the International Economy
University of California, Berkeley

Tools :

Cost Lowered / Availability Extended

- Cloud
- Open source
- Tech Shop model with software layer



Berkeley Roundtable on the International Economy
University of California, Berkeley

Recombinations of Tools and Activities

:



BRIE

Berkeley Roundtable on the International Economy

University of California, Berkeley

Recombinations of Tools and Activities

What Will the Next Production System Look Like



BRIE

Berkeley Roundtable on the International Economy

University of California, Berkeley

Toward A Platform Economy

- Cloud
- Platforms
 - Layers -- diverse variety
 - Who controls the systems, the places
 - Authority and power



Algorithms, as Digital Platforms

- Digital Platform is a computing framework in which a range of activities can be conducted.
 - Platforms are then, can be, sources of new work or methods for reorganizing the existing work
 - Platforms Grow on Platforms
- (Not everything is a platform -- two sided markets)



BRIE

Berkeley Roundtable on the International Economy

University of California, Berkeley

Platforms: Parsing the Variety

- Primarily Digital Platforms
- Network of things/Industrial Internet/Internet of Everything



Algorithms in the Cloud: An Era of Platforms

- Platform for Platforms: Amazon Web Services
- App Stores: Apple/Android
- Globally biddable work: Odesk
- Transforming traditional business:
 - Converting personal consumption goods into investment
 - Uber
 - Airbnb
 - Occasional work:
 - Task Rabbit
 - Virtual consignment: Ebay
- Finance and independent start up projects: Kickstarter



BRIE

Berkeley Roundtable on the International Economy

University of California, Berkeley

Platform Economy? Sharing Economy?



Naming the Beast

- What is in a name?
 - What's in a name? that which we call a rose
By any other name would smell as sweet;
- A platform by any other name is not just a platform



Sharing Economy or Platform Economy?

- Origins of Sharing discussion
 - Open Source
 - Peer to Peer – (Napster)
 - Zipcar
 - Wikipedia



Sharing Economy or Platform Economy?

- Can Share What?
- Who plays and who controls
- And On What Terms



Berkeley Roundtable on the International Economy
University of California, Berkeley

Whatever the name....

QUESTIONS



Whatever the name....

QUESTIONS

- What Happens to Work?
- How is value created?



What Happens to Work in a Platform Economy?

- Tasks
- The Firm
- Legal arrangements
- Social welfare arrangements



BRIE

Berkeley Roundtable on the International Economy

University of California, Berkeley

Tasks in a Platform Economy

- Tasks:
 - How many?
 - What Sort?
 - Where?



Tasks in the Platform/Digital Age

- We know: Routine will be automated
 - (over time-usually)
- We Don't know
 - Entirely new products will emerge
 - Services, platform based markets, manufactures
 - Production processes for them
 - Skills and reorganizing existing production



The Transformation

New Tasks in the Digital Era

- Consider Internet of Things– Smart Building:
 - Designing; Developing; Maintaining; Building out; Innovating
- Consider 3D printing and Tech Shops: Automation on the classic shop floor, but
 - Lower costs for prototypes
 - Designers become key



BRIE

Berkeley Roundtable on the International Economy

University of California, Berkeley

Tasks in the Platform/Digital Age

Balance of creations and Destruction?



BRIE

Berkeley Roundtable on the International Economy

University of California, Berkeley

Tasks in the Platform/Digital Age

The Balance?

To Be Determined!



What Happens to the Firm?

- Disintermediation
- What are the limits
- When does hierarchy continue to matter



Legal Arrangements

Packaging the tasks

The “packages” matter-- issues include:

- Who bears risks and responsibilities
- Are contractors entrepreneurs or vulnerable gig workers



Berkeley Roundtable on the International Economy

University of California, Berkeley

Legal Arrangements: Packaging the Tasks

Vocabulary and choices vary by country



Berkeley Roundtable on the International Economy
University of California, Berkeley

Legal Arrangements: Packaging the Tasks

Vocabulary and choices vary by country

– Packaging the tasks in the US

- Gig
- Contractor
- Employment



8-4-15

<http://rall.com/comic/the-gig-economy>



BRIE

Berkeley Roundtable on the International Economy
University of California, Berkeley

-
- <http://rall.com/comic/the-gig-economy>



BRIE

Berkeley Roundtable on the International Economy

University of California, Berkeley

Welfare arrangements in a Platform Economy

- Lessons from the Nordic World



BRIE

Berkeley Roundtable on the International Economy

University of California, Berkeley

IV. Policy and Politics in A Platform Era

The Policy issues

The Political Issues



Premise

Technology does not dictate:

- Consequences depend on ***deployment***,
how technology is used



Outcomes Depend on Deployment

- RFID (radio frequency ID) in retail
 - Denmark v. Walmarts
- Industrie 4.0/ Smart Services Welt
 - German v. US



Shaping Outcomes: Policy and Work in the Platform Age

- **Protections/regulations**
 - Protect the client
 - Protect the workers
 - Protect the community
- **Social protections and arrangements**
 - Welfare rights tied to employment?
 - Welfare rights tied to citizenship?
- **Terms of competition and taxation**



The Political Issues

- Decomposition of Work and Firms
 - What are the consequences for Interest formation?
- Implications for political organization



BRIE

Berkeley Roundtable on the International Economy

University of California, Berkeley

Research: Comparative Work and Labor Studies

- Labor market adjustments
- Growth strategies in a platform era



BRIE

Berkeley Roundtable on the International Economy

University of California, Berkeley

Thank You

Related materials can be found at:

<http://www.brie.berkeley.edu/>