Models for the governance of data economics

Prof. Dr. Ingrid Schneider  
University of Hamburg, Germany  
Dep. of Informatics, Ethics in Information Technology  
Ingrid.Schneider@uni-hamburg.de

Who Governs the Data Economy? Session at the MyData Conference, Helsinki, 26 September 2019
Angela Merkel, 27 January 2018 in Davos: „There are large American companies that have access to data - data is the raw material of the 21st century. The answer to the question "Who owns this data?" will ultimately decide whether democracy, participation, sovereignty in the digital era and economic success go together. (...) "We need a social market economy 4.0, not just an industry 4.0."
Structure

☐ 1. Introduction: The rise of digital platforms
☐ 2. Concerns on asymmetries of power
☐ 3. Legal status of data
☐ 4. Four models for data ownership
☐ 5. Conclusions
1. Introduction: The rise of digital platforms

- Digitalization of economy and society, age of big data, new business models, disruption
- Revenue model for Internet companies relying on tracking online activity
- “Personal information has become a substantial intangible asset used for the purposes of value creation, comparable to copyright, patents, intellectual capital and goodwill” (European Data Protection Supervisor 2014: 9).
- Extracting value from big data has become a significant source of power for the large players (especially internet platforms)
- Network effects tend to lead to monopolization or oligopolization
Apple Hits US-$1 Trillion Threshold in Market Value

Apple’s $1 Trillion Milestone Reflects Rise of Powerful Megacompanies

New York Times; Bloomberg
Both: Aug. 2, 2018
Microsoft has become the third US company to achieve a trillion-dollar valuation

Microsoft’s better-than-predicted quarterly financial results prompted a share price increase that saw the company’s market capitalization briefly surpass the trillion-dollar mark, a feat previously achieved only by Apple and Amazon.

By Jack Schofield for Jack’s Blog | April 26, 2019 -- 08:51 GMT (09:51 BST) | Topic: Microsoft

Following Microsoft’s excellent third-quarter financial results, the company’s share price climbed high enough to push its market capitalization above the trillion-dollar mark, if only for about half an hour.

Apple was the first publicly quoted US corporation to pass the trillion-dollar barrier on August 2 last year, while Amazon was the second, on September 4. But, as with Microsoft, their share prices retreated shortly afterwards.

MORE FROM JACK SCHOFIELD

- Hardware
  Getac launches a ruggedized K120-Ex Windows 10 tablet for explosive environments

- Networking
  UK finally makes it onto Europe’s list of the top countries in fibre broadband (right at the bottom)

- Innovation
  More than just a giant smartphone:
Growth charts compared 3 years
Amazon Alphabet Apple Facebook

finanztreff.de:

www.finanztreff.de, 29 August 2019, 3 years 2017-2019
Amazon + Apple: market value: more than 1 trillion US-$ in August 2018

Characteristics of digital platforms

- Platforms are digital infrastructures that enable two or more sides to interact, e.g. customers, advertisers, and service providers.
- Platforms produce network effects: The more users, the more valuable that platform becomes for everyone else.
- Platforms often use cross-subsidisation: one arm of the company provides a service or good for free, another arm creates revenues to make up for these losses.
- The rules of service and product development are set by the platform owner. In that respect, platforms ‘embody a politics’ as they not only gain access to data but also ‘control and governance over the rules of the game’ (Nick Srnicek 2017: 47),
Data and market power

“We believe that modern technology platforms, such as Google, Facebook, Amazon and Apple, are even more powerful than most people realize (...), and what gives them power is their ability to grow – specifically, their speed to scale. Almost nothing, short of a biological virus, can scale as quickly, efficiently or aggressively as these technology platforms and this makes the people who build, control, and use them powerful too.” Eric Schmidt, Executive Chairman of Alphabet Inc./Google (2013)

Opinion 7/2015

Meeting the challenges of big data

A call for transparency, user control, data protection by design and accountability

Preliminary Opinion of the European Data Protection Supervisor

Privacy and competitiveness in the age of big data:

The interplay between data protection, competition law and consumer protection in the Digital Economy

March 2014
New business models in the internet and social media

'If you're not paying for the product, you are the product being sold (e.g. to advertising companies, to third parties)

Concerns about violation of privacy and clashes with human rights and civil liberties
Arnaud Montebourg, (former) French Economy Minister (2014):
  — “We don’t want to be a digital colony of US Internet giants.”
  — “What’s at stake is our sovereignty itself.”

Mathias Döpfner, CEO of Axel Springer media company, open letter to Eric Schmidt (2014): “Why We Fear Google”
  — concerns whether Google will become a digital supra-state
  — and about „long-term integrity of the digital economy’s ecosystem. This applies to competition, not only economic, but also political. It concerns our values, our understanding of the nature of humanity, our worldwide social order and, from our own perspective, the future of Europe."
  — “The question of who these data belong to will be one of the key policy issues of the future”.

(Bloomberg Business 06.08.2015, FAZ, 16.04.2014)
A Big Choice for Big Tech

Share Data or Suffer the Consequences

By Viktor Mayer-Schönberger and Thomas Ramge

Over the last two decades, a few technology giants have come to dominate digital markets. Google performs about nine out of every ten Internet searches worldwide. Facebook, the world’s leading social media platform, has well over two billion users. Together, the two companies have seized well over half of the online advertising market. Apple, originally a computer

Die Tech-Riesen des Silicon Valleys gefährden den fairen Wettbewerb

Die Digitalisierung muss im Dienst der gesamten Gesellschaft stehen. Das bedeutet auch, die Monopolstellung von Tech-Riesen wie Google oder Amazon zu brechen.

Andrea Nahles

Foreign Affairs Sept/Oct 2018
Handelsblatt, 13.08.2018
3. Legal status / protection of data

- **Data as such** are not regarded as property but can be protected via trade secrets, copyright, and other means.
- For structured **databases**, a sui generis database right was created by the *EU Database Protection Directive (29/9/EC)* which protects the "substantial investment in either the obtaining, verification or presentation of the contents" [Art. 7(1)] – but data as such are not content!
- Similarly, pro-arguments for ownership and trade in data often rely on "*return on investment*" justifications.
- But: who invests, and who pays – with what? Many different stakeholders and "currencies"!
4. Property in data?

- challenges traditional concepts of civil law
- data are **intangible** goods
- match the public good character of information and knowledge (Arrow 1962; Nelson 1959), at least with respect to non-rivalry in use
- a **non-rivalrous good** to be used **infinitely** by **multiple actors** even **simultaneously** without being “used up” → “overuse” can never occur!
- questions of collection, access and exclusion of data are strongly associated with distribution of **power**
- **4 Models to be scrutinized**
Model 1: Individual ownership and micropayment

- Proposed by: **Jaron Lanier (2013)**
- “humanist information economy”
- Sources of data – humans – are not less valuable than aggregation, storage, algorithms, data analytics
- → humans to be taken up in the value chain by allowing for individual ownership and commercialisation of personal data
- establish “micro-payments” for users to “empower prosumers”
- Pay-per-view remuneration
- Establish a kind of market for data, human data provider decides for which purposes to provide his/her data and at which price
- End of current business models (free service vs personal data)
Model 2: Data as public good

- Proposed by: Evgeny Morozov (2015)
- Data should be part of a public infrastructure
- Personal data should become a public good
- To be accessed by anyone (in anonymized form), esp. by communities, cities, public service providers to make services more efficient (e.g. public transport, energy) and sustainable
- Companies and scientists could also participate in access, if their applications are in the public interest
- Digital companies could continue to offer personalized services – but for money, not for free
- Aim is to transform personal data in public good which is not part of commercial value-chains
- Model to be financed by taxes, to establish public infrastructure and effective control (by the state or city)
Model 3: Data as commons

- Proposed/inspired by: **Elinor Ostrom** (1990)
- Data as Common Pool Resource (CPR)
- Managed by community according to rules and community institutions
- Self-organized governance systems, including effective communication, internal trust and reciprocity
- Design principles: boundaries between users and non-users, coherence with local conditions, collective decision-making, monitoring, conflict resolution mechanisms and sanctions,
- Self-determination of the community recognized by higher-level authorities
- For larger common-pool resources: multiple layers of nested enterprises
- (Examples: Wikipedia, Open Street Map)
Model 4: Fiduciary Trust/ Charitable trust

- Private administration of databases
- but tied to trust of data-donors & strengthening their rights
- Goals of the charitable trust must be directed to the benefit of the whole society
- Institutional review board supervises and monitors the database, ensures accountability, sanctions
- Data-donors allow fiduciary „to keep or use the property for the benefit of a specified party, the beneficiary“ (203: 1182)
- Fiduciary relationship
- Fiduciary must be trustworthy, professional, and independent (legally and financially)
- Access to database: for all, provided legal & legitimate goals
- Funded by: initially private money, later by fees for users
The Government-commissioned ‘AI Review’ in 2017 concluded that “Government and industry should deliver a programme to develop data trusts”, where data-holders and data-users can share data in a “fair, safe and equitable way”.

The idea behind ‘data trusts’ is that they facilitate sharing between multiple organisations, but do so in a way that ensures that the proper privacy protections and other relevant protections are in place, that there is a governance of the data, which ensures that the voices of interested parties are represented in that governance, and that there is a fair sharing of the value that can be derived from those data. (UK Report 2018: 15-16)
## Synopsis

<table>
<thead>
<tr>
<th></th>
<th>Private good</th>
<th>Public good</th>
<th>Commons</th>
<th>Charitable trust</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Main actor</strong></td>
<td>Lanier</td>
<td>Morozov</td>
<td>Ostrom</td>
<td>Winickoff</td>
</tr>
<tr>
<td><strong>Funding</strong></td>
<td>user</td>
<td>state</td>
<td>community</td>
<td>fiduciary</td>
</tr>
<tr>
<td><strong>Administration</strong></td>
<td>platforms</td>
<td>taxes</td>
<td>communitarian</td>
<td>fees</td>
</tr>
<tr>
<td><strong>Legitimate goals of use</strong></td>
<td>economic and social good</td>
<td>benefit to society</td>
<td>benefit of community, if consented</td>
<td>Ex-ante declared purposes, i.c.</td>
</tr>
<tr>
<td><strong>Who decides - legitimacy and purpose</strong></td>
<td>user</td>
<td>IRB</td>
<td>Community of users</td>
<td>IRB</td>
</tr>
<tr>
<td><strong>Supervision &amp; Sanctions</strong></td>
<td>state</td>
<td>state</td>
<td>community of users</td>
<td>fiduciary</td>
</tr>
<tr>
<td><strong>Participation/Access</strong></td>
<td>All those paying</td>
<td>Companies academics</td>
<td>community of users</td>
<td>Everyone who applies for</td>
</tr>
<tr>
<td><strong>Precondition for legitimacy of purpose</strong></td>
<td></td>
<td></td>
<td></td>
<td>Legality</td>
</tr>
</tbody>
</table>
Assessment, critique and open questions

1) Lanier: Private good & micropayment
   + Sources of data brought back in, possible regulation and control of use by third parties
   - Asymmetry of power between many data-sources and data platform remains: small micropayment vs huge profits?
   - Bargaining power of individuals is low
   - Bureaucratic administration, decision-overload
   - Many open questions about operability
   - Regulation by which „state“?
## Cookies

<table>
<thead>
<tr>
<th>Webseite</th>
<th>Anzahl von Verbindungen (Durchschnitt 4 Versuche)</th>
<th>Third Party</th>
<th>Anzahl von Verbindungen (Durchschnitt 4 Versuche)</th>
</tr>
</thead>
<tbody>
<tr>
<td>timesofindia.indiatimes.com</td>
<td>122,25</td>
<td>doubleclick.com</td>
<td>87,50</td>
</tr>
<tr>
<td>bbc.co.uk/news</td>
<td>96,00</td>
<td>facebook.com</td>
<td>69,00</td>
</tr>
<tr>
<td>weather.com</td>
<td>85,00</td>
<td>google.com</td>
<td>67,75</td>
</tr>
<tr>
<td>wowhead.com</td>
<td>83,00</td>
<td>google-analytics.com</td>
<td>63,50</td>
</tr>
<tr>
<td>pcgamer.com</td>
<td>81,25</td>
<td>scorecardresearch.com</td>
<td>61,00</td>
</tr>
<tr>
<td>bbc.co.uk/sport/o/football</td>
<td>78,50</td>
<td>google-syndication.com</td>
<td>60,25</td>
</tr>
<tr>
<td>time.com</td>
<td>78,00</td>
<td>adnxs.com</td>
<td>48,25</td>
</tr>
<tr>
<td>goal.com</td>
<td>77,75</td>
<td>2mdn.net</td>
<td>46,75</td>
</tr>
<tr>
<td>foxnews.com</td>
<td>77,75</td>
<td>gstatic.com</td>
<td>46,00</td>
</tr>
<tr>
<td>huffingtonpost.com</td>
<td>76,25</td>
<td>googleapis.com</td>
<td>45,50</td>
</tr>
<tr>
<td>usatoday.com</td>
<td>74,50</td>
<td>cloudfront.net</td>
<td>44,75</td>
</tr>
<tr>
<td>nbcnews.com</td>
<td>74,00</td>
<td>yahoo.com</td>
<td>44,25</td>
</tr>
<tr>
<td>thesaurus.com</td>
<td>71,75</td>
<td>moatads.com</td>
<td>43,75</td>
</tr>
<tr>
<td>forbes.com</td>
<td>71,75</td>
<td>bluekai.com</td>
<td>42,00</td>
</tr>
<tr>
<td>sbnation.com</td>
<td>70,00</td>
<td>twitter.com</td>
<td>39,00</td>
</tr>
<tr>
<td>cbsnewsports.com</td>
<td>67,25</td>
<td>advertising.com</td>
<td>38,75</td>
</tr>
<tr>
<td>reuters.com</td>
<td>67,00</td>
<td>rubiconproject.com</td>
<td>38,50</td>
</tr>
<tr>
<td>walmart.com</td>
<td>64,25</td>
<td>adsafeprotected.com</td>
<td>38,00</td>
</tr>
<tr>
<td>nytimes.com</td>
<td>63,25</td>
<td>rlcdn.com</td>
<td>36,75</td>
</tr>
<tr>
<td>nhl.com</td>
<td>62,00</td>
<td>imrworldwide.com</td>
<td>36,50</td>
</tr>
</tbody>
</table>

[Brookman et al.; PETS 2017 -- Federal Trade Commission]
2) Morozov: Public good

- + Small enterprises can access data and compete
- + Centralized public administration may facilitate social good oriented research and innovation
- - Danger of state surveillance, complete loss of privacy
- - Inflexible and bureaucratic?
- Regulation by which “state”? Nation state? Who decides?
3) Ostrom: Commons

- Transparency, participation by all sources and users
- Implementation? How & by whom? Who belongs to the community?
- Exclusion of externals?
- Which state authorises the community?
4) Winikoff: Charitable trust
- + Delegation of decision to fiduciary, but keeping control (right to withdrawal), stewardship model
- + More transparency over third-party uses
- Which state authorises the charitable trust?
- Supervising & auditing of purpose-bound use and withdrawal?
- Control of sources vis-a-vis-fiduciary?
Conclusions (1)

- Models provide important conceptional ideas but solutions are not immediately applicable
- Implementation for all four models unclear
- But all provide inspiring alternatives to the current platform models (B2C, B2B)
- For the future, hybrid models will be most feasible and successful, e.g. fiduciary trust and commons model
- Propertization of data? No, but rules for collection, access and use
- Fair balancing of interests needed
- Complexity of aggregation and analysis of (big) data will rise with internet of things, AI, and even more digitalization
Conclusions (2)

— Centralization (Morozov; Winikoff) or decentralization (Ostrom)?
   Pros and cons
— Questions about extent of informed consent and privacy in multiple uses and value-chains remain
— Fiduciary trust/ stewardship model may create trust and provide accountability of governance
— J. Lanier recently also favours third-party fiduciary trust
— Should there be limits to the use of personal data? (Profiling, microtargeting – for commercial purposes – for insurance and credit – for election campaigns?)
— Janus-faced role of state: For social good – but „Big Brother“?
— Loss of regulatory capacity of nation state for transnational data flows
Europe – opportunities for opening up a third way

- Technological races and platform economics create geostrategic tensions between large powers
- EU to defend the European social welfare state, democracy, market system, social cohesion, inclusion, and liberal values. Emergence as a regulatory power in the digital era (GDPR, antitrust, digitax?)
- Crucial role of the state as a facilitator, enabler and active regulator for data governance
- Investments in data infrastructure - tied to rule-making
- Public procurement as a means to impose rules on data access, sharing, capabilities and limits of data usage
- Development of a decentralized EU data infrastructure & data ecology – SMEs, public sector, private sector cooperation, data clearinghouses
- Important role of civil society and parliaments – trust, accountability, democratic control
- Transparency, oversight and supervision authorities as part of European self-assertion – and possibly a role model for other countries, especially in the Global South
Finnland’s EU Council Presidency as a window of opportunity
Thank you for your attention!

Ingrid.Schneider@uni-hamburg.de
www.inf.uni-hamburg.de/en/inst/ab/eit/team/schneider.html
@SchneiderIngrid

Publications: