

Value of Data:

There's No Such Thing As A Free Lunch in the Digital Economy

Wendy Li, U.S. Bureau of Economic Analysis (Presenter)

Makoto Nirei, University of Tokyo

Kazufumi Yamana, Kanagawa University and Japan's Ministry of Finance

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Motivation

Value of Data

Example 1: Apple: share consumer data with app developers/30% commission/Revenue: US \$42.8 billion in past decade

Example 2: Farecast – **analytics service**/acquisition price: **US \$110 million** by Microsoft in 2006

vs. ITA Software – **data owner**

/acquisition price **US \$700 million** by Google in 2008

→ **Data driven business models**

→ **Online platform companies**

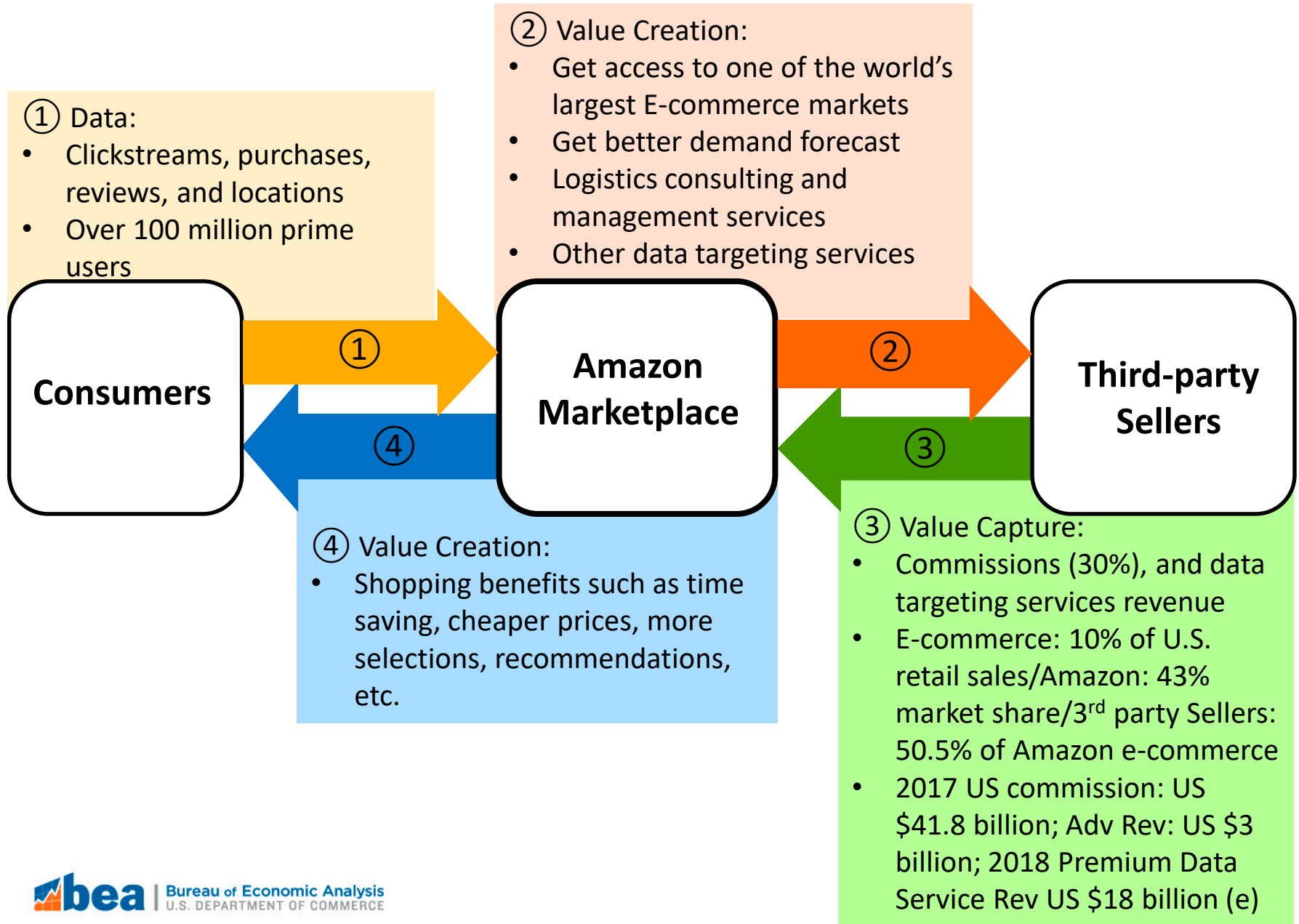
Outline of the Talk

- Eight types of online platforms: 8 case studies

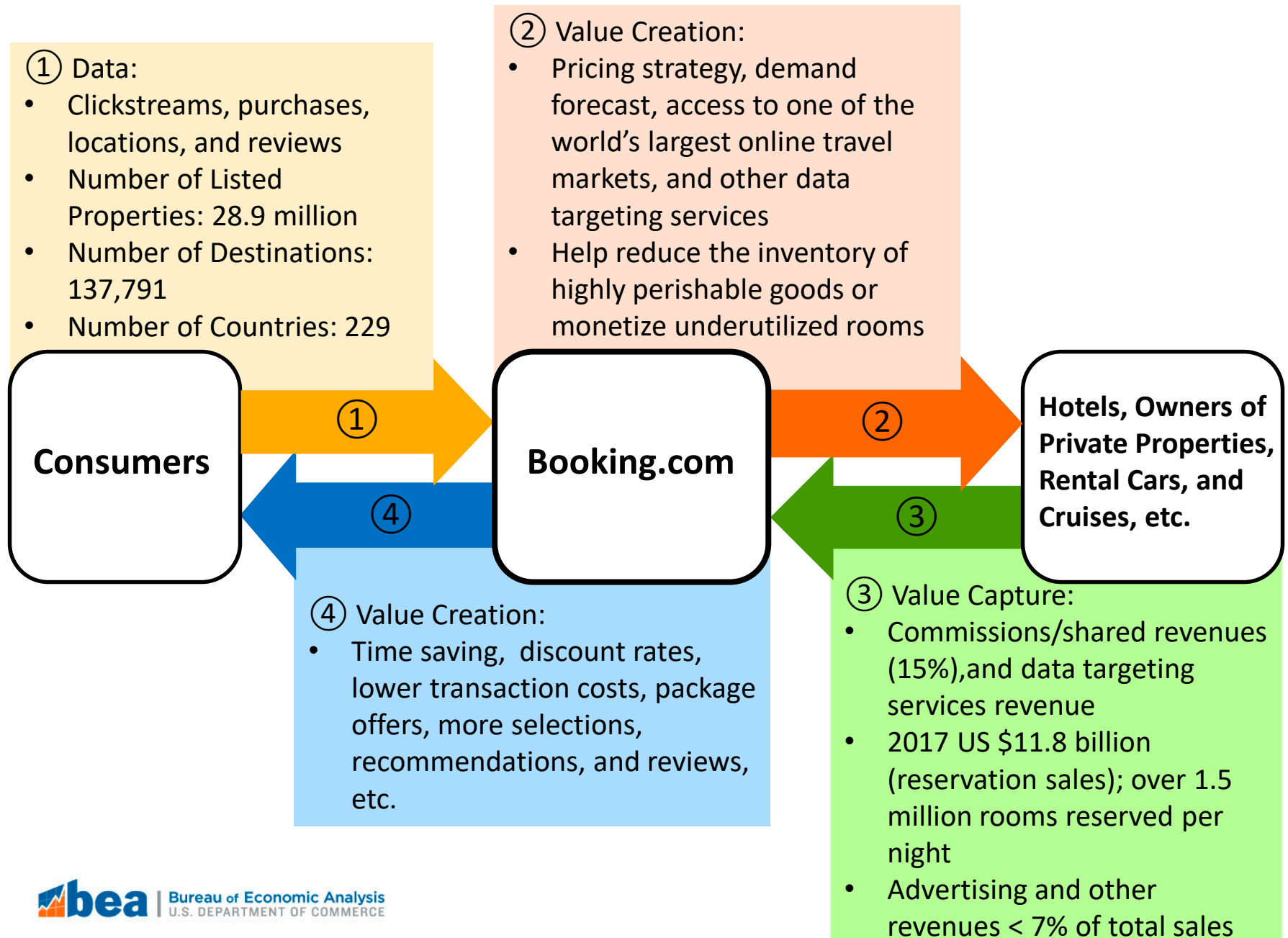
Definition of Online Platforms (European Commission, 2015): “an online platform is an undertaking operating in two- or multi-sided markets, which uses the internet to enable interactions between two or more distinct but interdependent groups of users so as to generate value for at least one of the groups.”

- Analyzed dimensions: business model, data flow, value creation for consumers, value creation for third parties, and how the online platform company monetize its data
- Creation of the Value of Data and Data Value Chain
- Valuation of Data
- Welfare
- Key findings and future trends

Type I: E-commerce Online Platform



Type II: Online Resource Sharing Platform



Type III: E-financial Service Online Platform

① Data:

- Clickstreams, daily consumption and lending behaviors, locations, and bank account information
- Number of Users: 870 million active users globally (mainly in China)
- More than 200 banks, 60 insurance companies, and over 700,000 stores

② Value Creation:

- Cheaper credit ranking/risk management, and data targeting services
- Help banks reach customers that previously have no credit history
- Targeting demand and credit score services to vendors such as hotels

**Consumers
Micro-
businesses**

①

Ant Financial

②

**Third Party Sellers;
Banks; Institutional
Investors; Asset
Managers; Charities**

④

④ Value Creation:

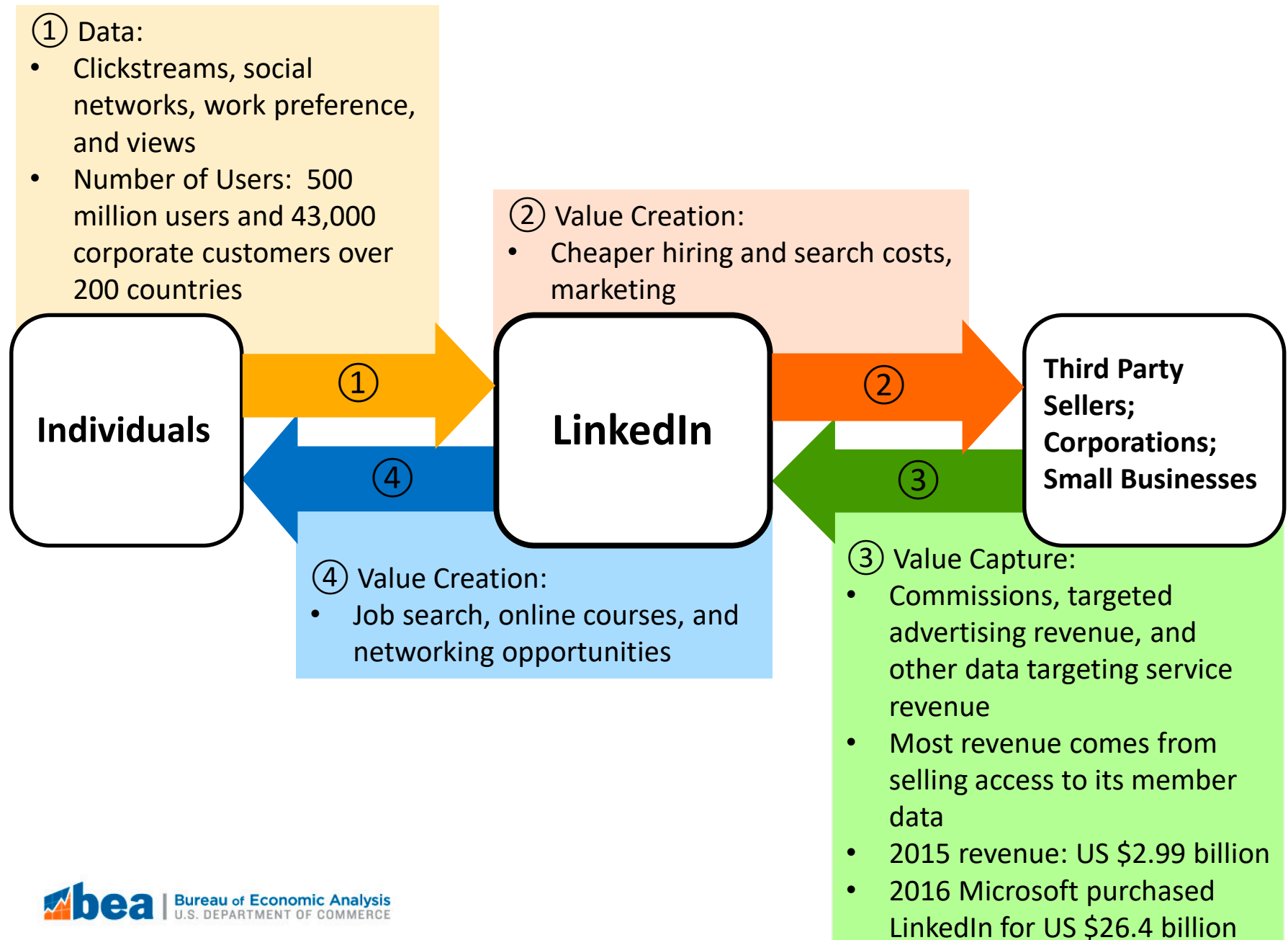
- Help consumer get cheaper loans
- Easier and flexible payment methods
- Faster solution for credit

③

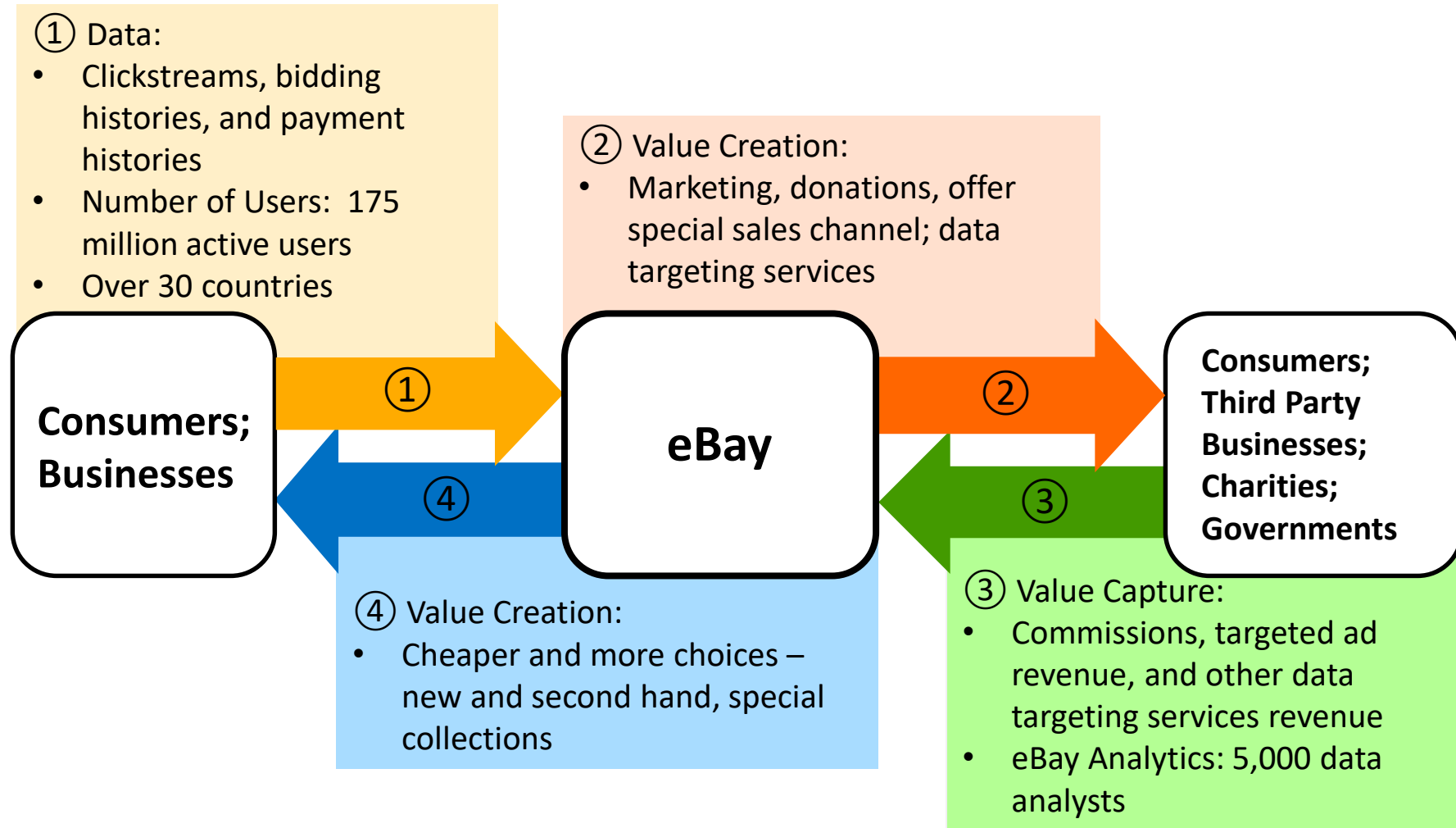
③ Value Capture:

- Commissions and interest revenue, advertising revenue, and other data targeting service revenues
- 2017 estimated net profit from Alipay: US \$1 billion (54.3% market share in China)

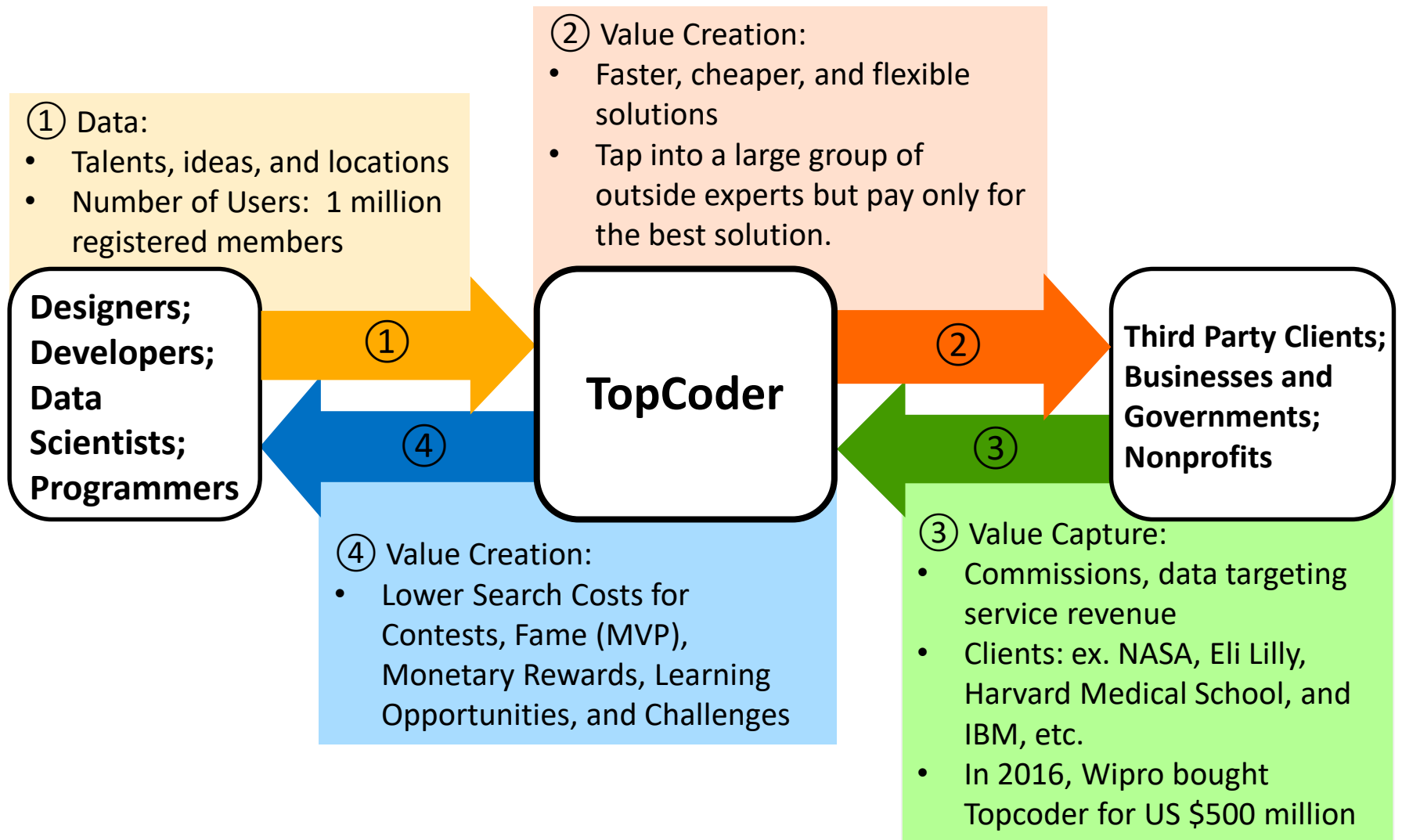
Type IV: Online Social Network Service Platform



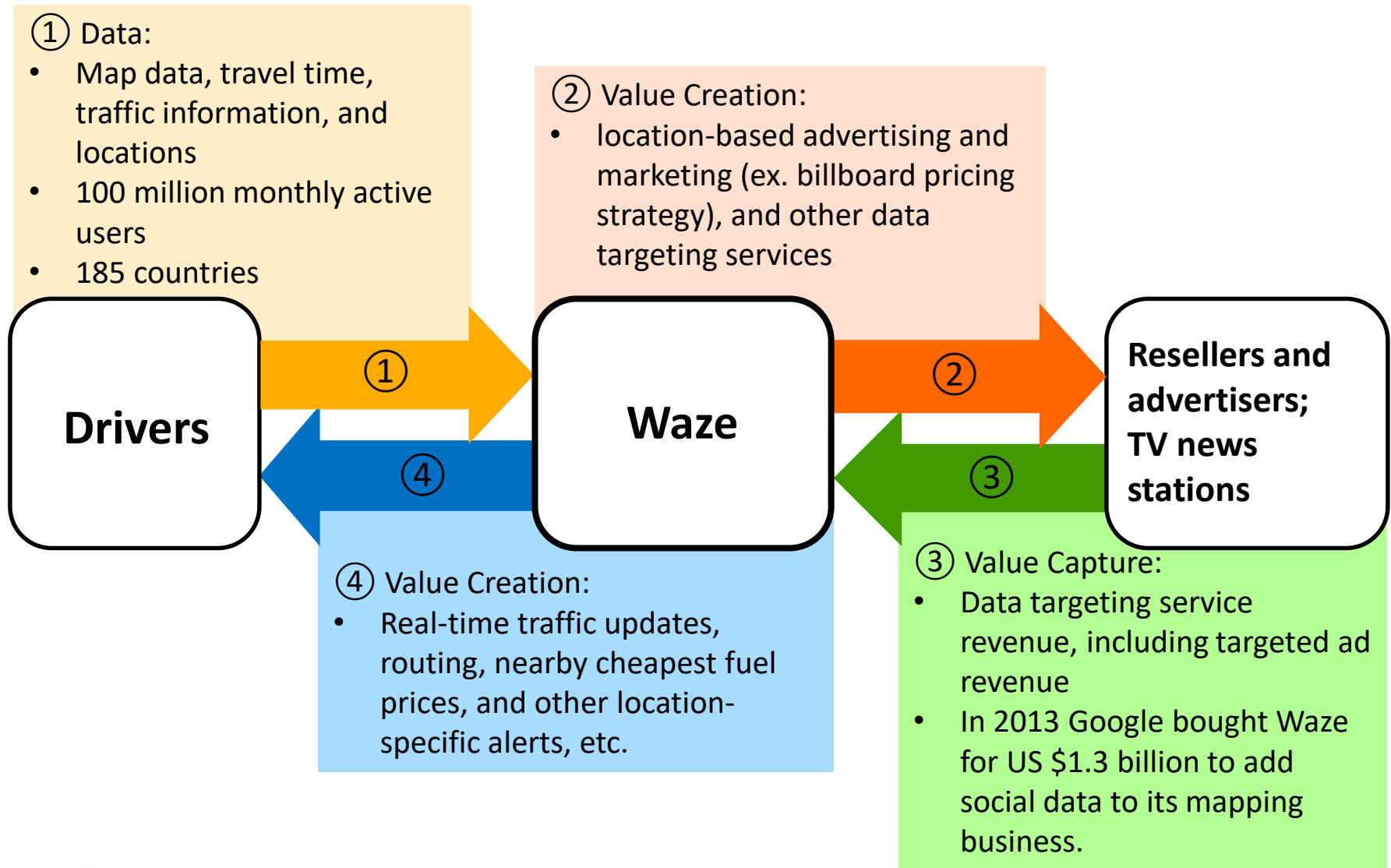
Type V: Online Auction/Matching Platform



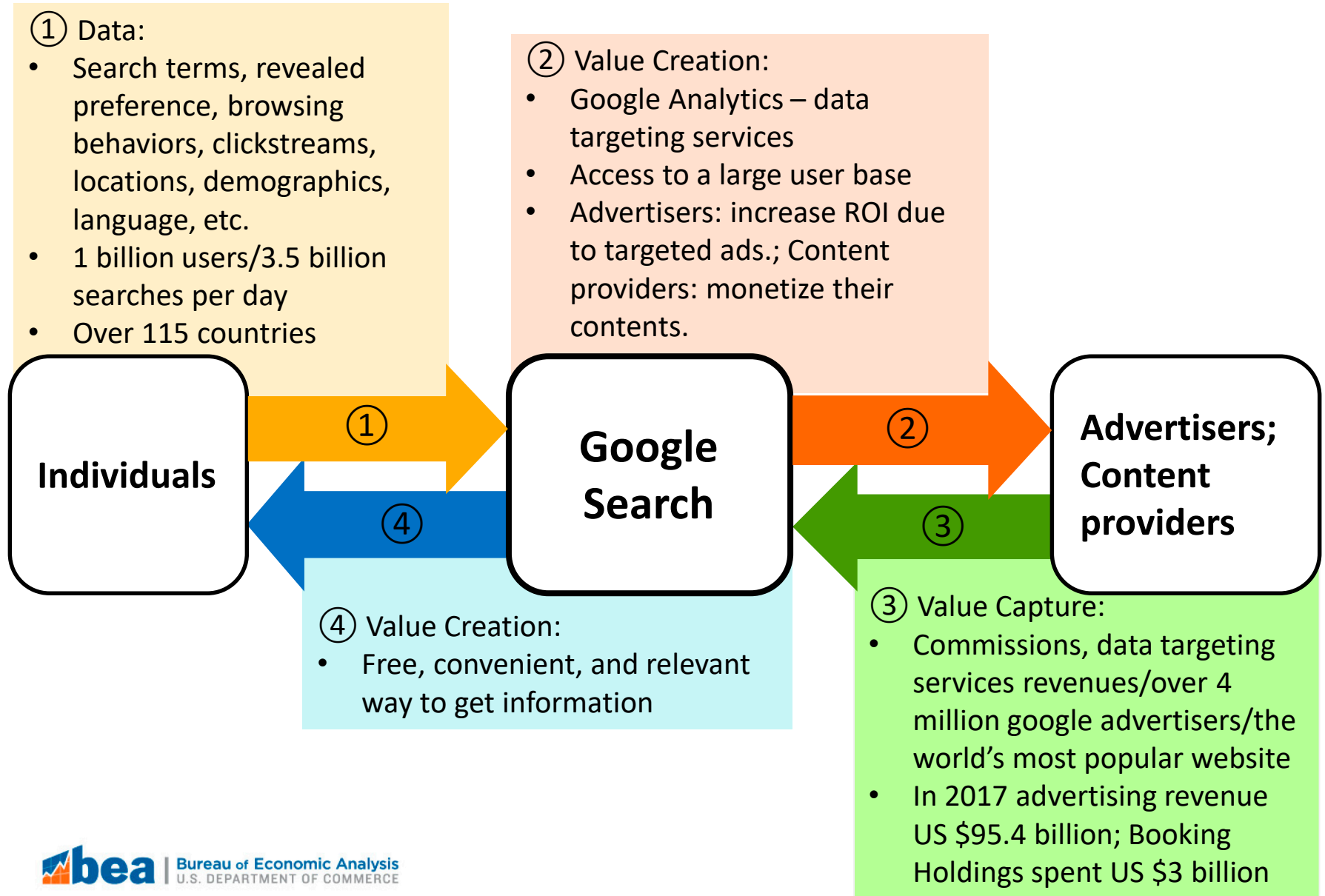
Type VI: Online Competitive Crowdsourcing Platform



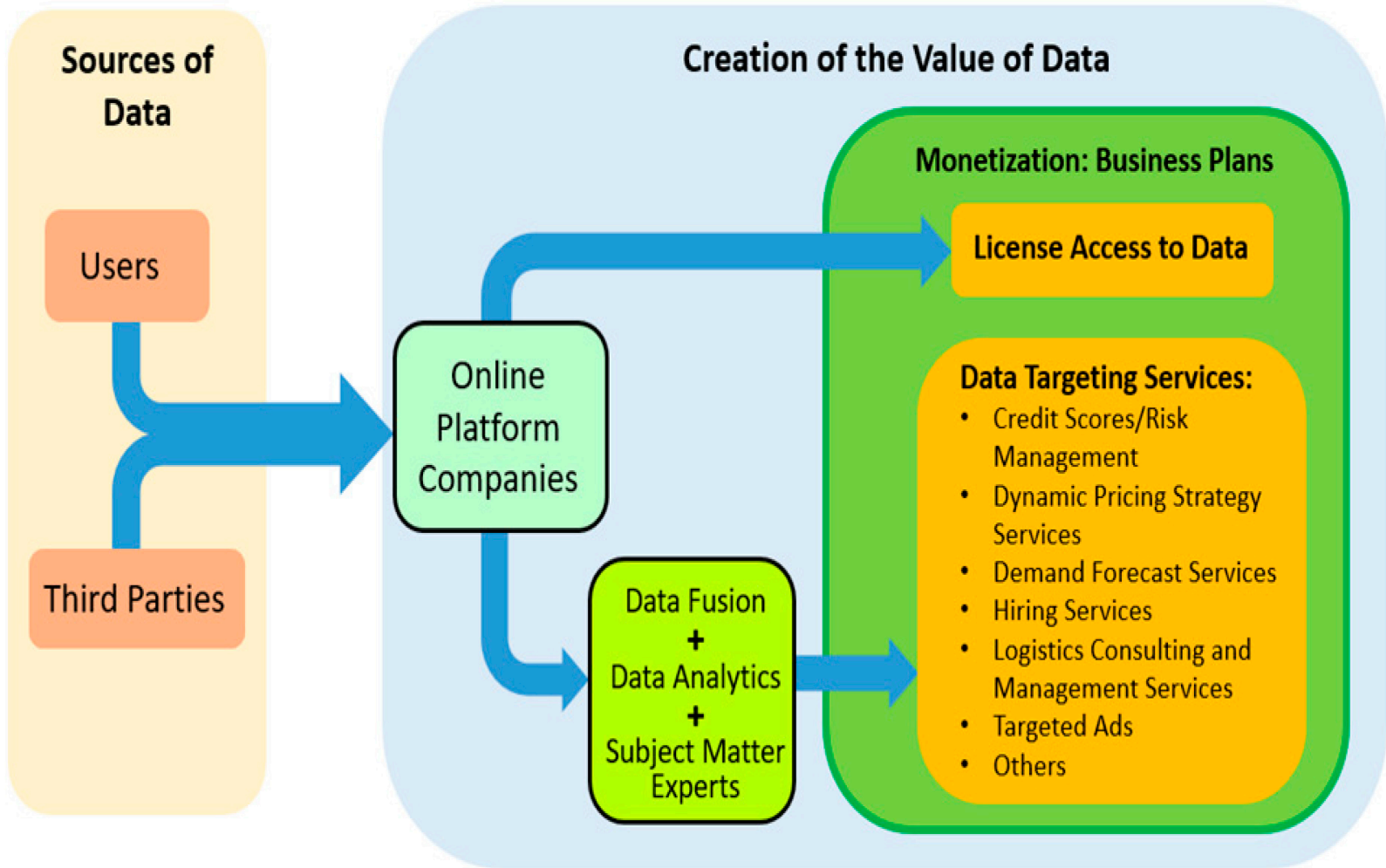
Type VII: Online Noncompetitive Crowdsourcing Platform



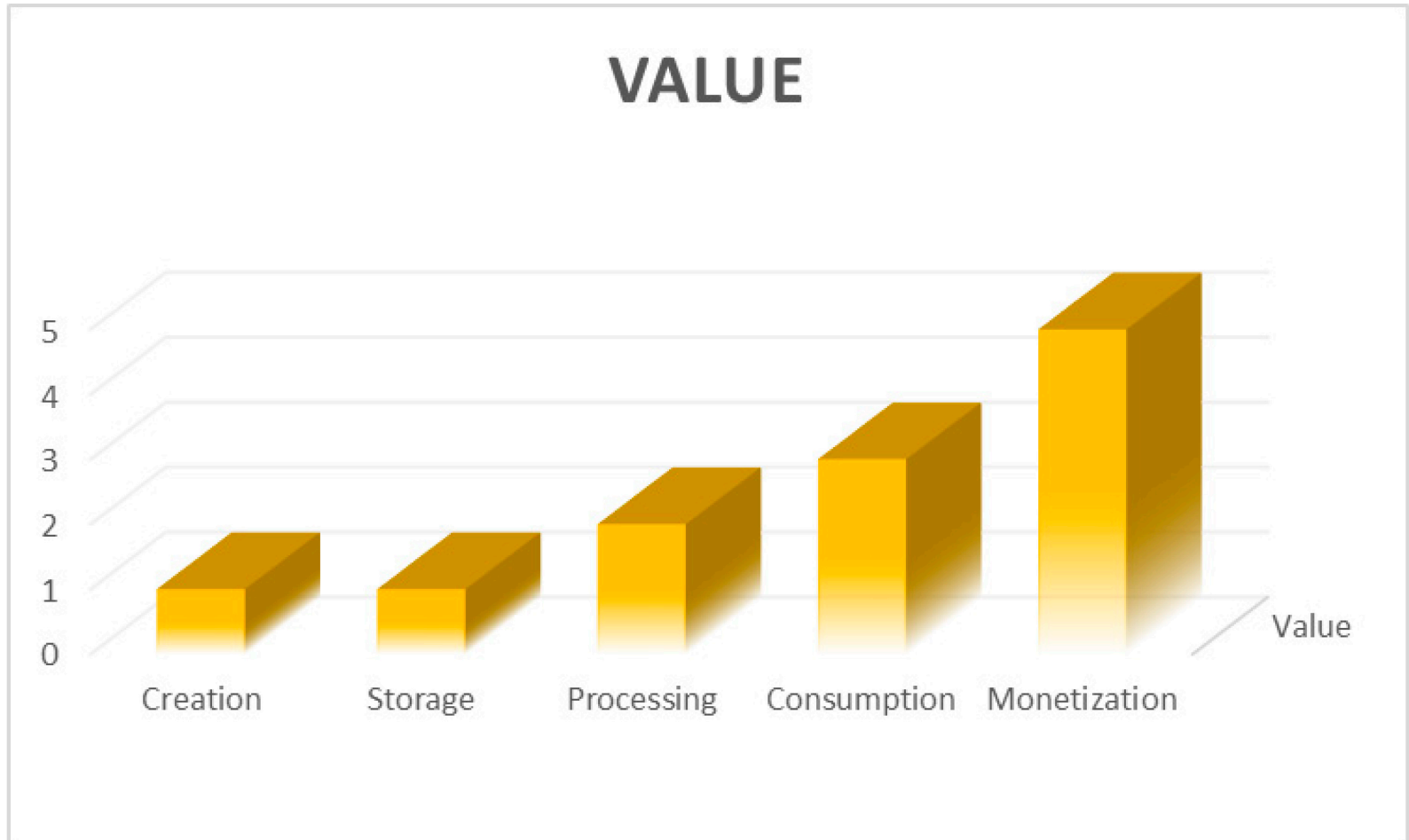
Type VIII: Online Search Platform



The Creation of the Value of Data



Data Value Chain



Source: Visconti et al. (2017)

Conventional Measurement Approaches

- Cost-Based Approach
 - Seriously underestimates
- Market-Based Approach
 - M&A Cases: we have not found impacts
 - Mispriced issue
- Income-Based Approach
 - Lacks data
 - Only for licensing access to data

Estimated Value of Data Based on Data-Driven Business Model

Data: Selling, general and administrative (SG&A) expenditures (Eisfeldt and Papanikolaou, 2013)
 Methodologies: 1) Forward looking profit model for depreciation – Li and Hall (2018)
 2) Stock of data-driven business model (Hall, 1993)

Type of Online Platform	Company	Annual Commission or Licensing Access to Data	Value Based on Data-driven Business Model	Merger & Acquisition Price
E-commerce	Amazon	Commission Revenue: US \$41.8 billion (2017) Premium Data Service Revenue: US \$18 billion (2018)*	US \$125 billion; Annual Growth Rate: 35%	
Online Resource Sharing	Booking	US \$11.8 billion (2017)	US \$15.7 billion; Annual Growth Rate: 40%	
E-financial Service	Ant Financial	No public financial statement.		
Social Network Service	LinkedIn	US \$2.99 billion (2015)**		US \$26.4 billion by Microsoft in 2016
Auction/Matching	eBay		US \$16 billion; Annual Growth Rate: 30%	
Competitive Crowdsourcing	Topcoder	No public financial statement.		US \$500 million by Wipro in 2016
Non-competitive Crowdsourcing	Waze	No public financial statement.		US \$1.3 billion by Google in 2013
Search	Google	US \$95.4 billion (2017)***	US \$48.2 billion; Annual Growth Rate: 21.8%	

Discussion on Welfare

Scenario I: Identity of a consumer is disclosed

- 1) Privacy Breach or Identify Theft (Acquisti et al., 2016)
- 2) Dynamic Pricing Discrimination

Scenario II: Identity of a consumer is not revealed or used by the service provider

Data Network Effect

Decreasing returns to scale?

Creative destruction phenomenon (Li, Nirei, and Yamana, 2018)

Data sharing (Jones and Tonetti, 2018)

Conclusion

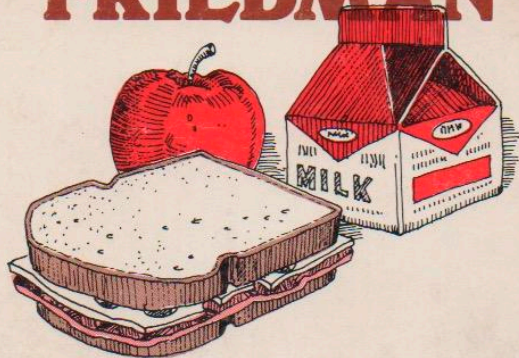
- Online platform companies are data companies and our initial estimations show that the value of data they created can be tremendous.
- Data is an asset.
- Online platform companies can vary in the degree of the vertical integration in the data value chain.
- The variation can determine how they monetize their data and how much economic benefits they can capture.
- Policy implications:

Corporate: investment, outsourcing, and competition strategies

Nation: trade and growth policy

THERE'S NO SUCH THING AS A FREE LUNCH

**MILTON
FRIEDMAN**



ESSAYS ON PUBLIC POLICY

Including Milton Friedman's *Playboy* interview

