

Digital Business Models

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Data driven business models

The emergence of big data

- Gartner (2012): “Big data is **high-volume, high-velocity and high-variety** information assets that demand cost effective, innovative forms of information processing for enhanced insight and decision making”.
- **uncertainty** of big data, namely veracity, referring to the reliability of a certain data type.

“Data is the new oil”

- The exponential growth of data compounded by the internet, social media, cloud computing and mobile devices – or big data – has an embedded value potential that must be commercialized (Hartmann et al. 2016).

Building a data-driven, smart business model

(Zeng, 2018)

Smart businesses

- All players involved in the ecosystem are coordinated in an online network and use machine-learning technology to efficiently leverage data in real time;
- Most operational decisions are made by machines, allowing companies to adapt dynamically and rapidly to changing market conditions and customer preferences

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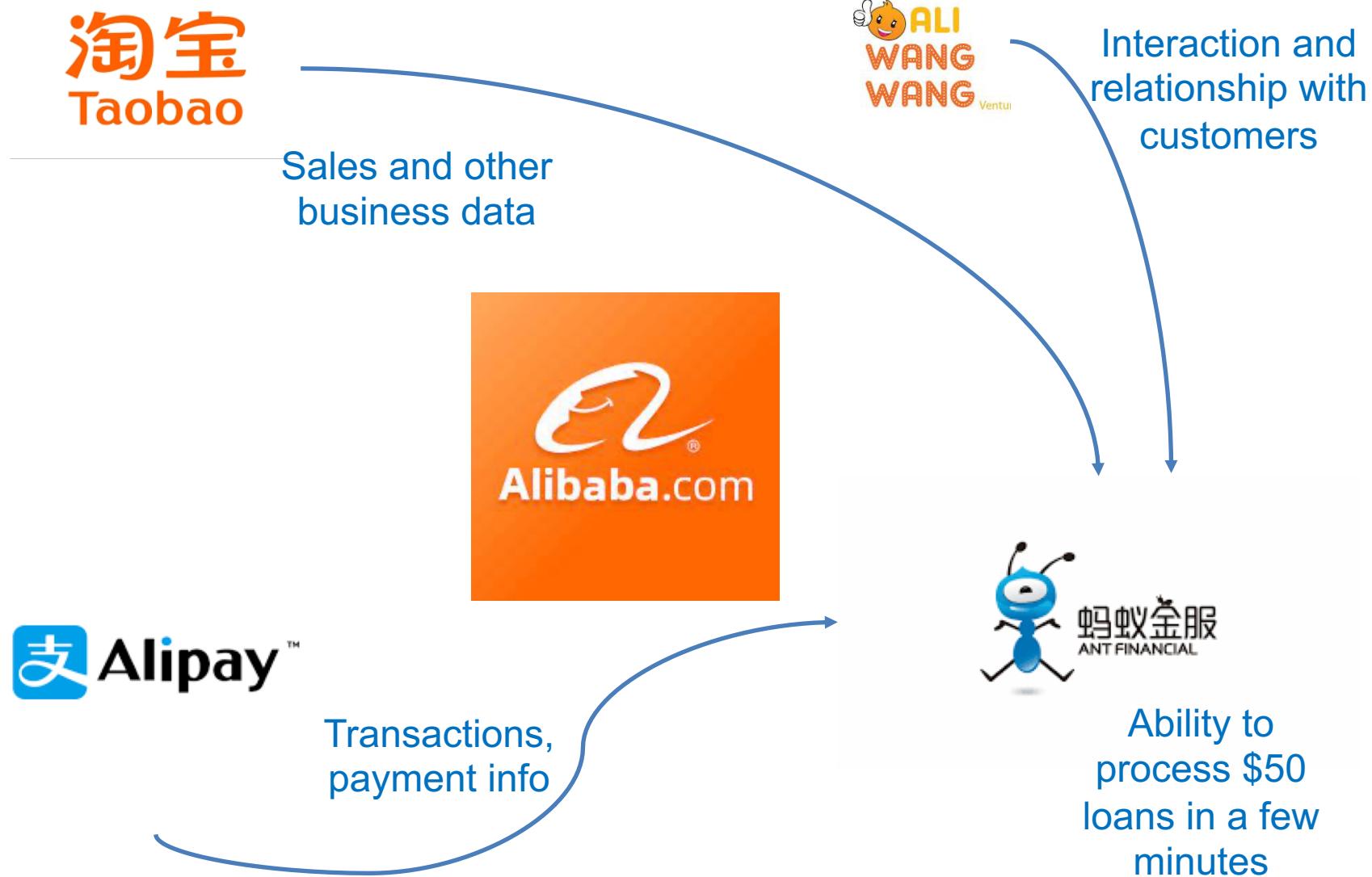
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Becoming a smart business

Automate decision making

- Step 1 – “Datafy” every customer exchange
 - Making sure every interaction yields as much data as possible; engage in creative datafication to enrich the pool of data the business uses to become smarter
- Step 2 - “Software” every activity
 - Ensure that all business activities are mediated by software; software the business to put workflows and essential actors online
- Step 3 - Get data flowing
 - Using API's and other interface protocols to ensure smooth interaction among software systems; institute standards and APIs to enable real-time data flow and coordination
- Step 4 – Apply the algorithms
 - Apply machine learning to make sense of data in real time and to generate “smart” business decisions

Step 1 – “Datafy” every customer exchange

- Capture all information generated during exchanges and communications with customers and other network members as the business operates and then let the algorithms figure out what data is relevant.
- Ex: datifying the bike renting service in China – QR code, payments, sensors

Step 2 - “Software” every activity.

- All activities are configured using software so that decisions affecting them can be automated
- This way, live data can be collected naturally as part of the business process, building the foundation for the application of machine-learning technologies
- Ex: Taobao has an instant message tool called Wangwang, through which buyers and sellers can talk to each other easily. Using the tool, the sellers greet buyers, introduce products, negotiate prices, and so on, just as people do in a traditional retail shop, but enabling data collection.

Step 3 - Get data flowing

- Communication standards, such as TCP/IP, and application programming interfaces (APIs) are critical in getting the data flowing among multiple players while ensuring strict control of who can access and edit data throughout the ecosystem.
- Ex: Taobao's recommendation engines need to work with the inventory management systems of sellers and with the consumer-profiling systems of various social media platforms; Setting the tight incentives for companies to share data

Step 4 – Apply the algorithms

- The firm must create models and algorithms that make explicit the underlying product logic or market dynamics that the business is trying to optimize
- Ex: In Taobao, when customers log on, they see a customized webpage with a selection of products curated from the billions offered by our millions of sellers. The selection is generated automatically by Taobao's powerful recommendation engine to optimize conversion rates

Data Driven Business Models (DDBM)

Hartmann, Zaki, Feldmann and Neely,
2016

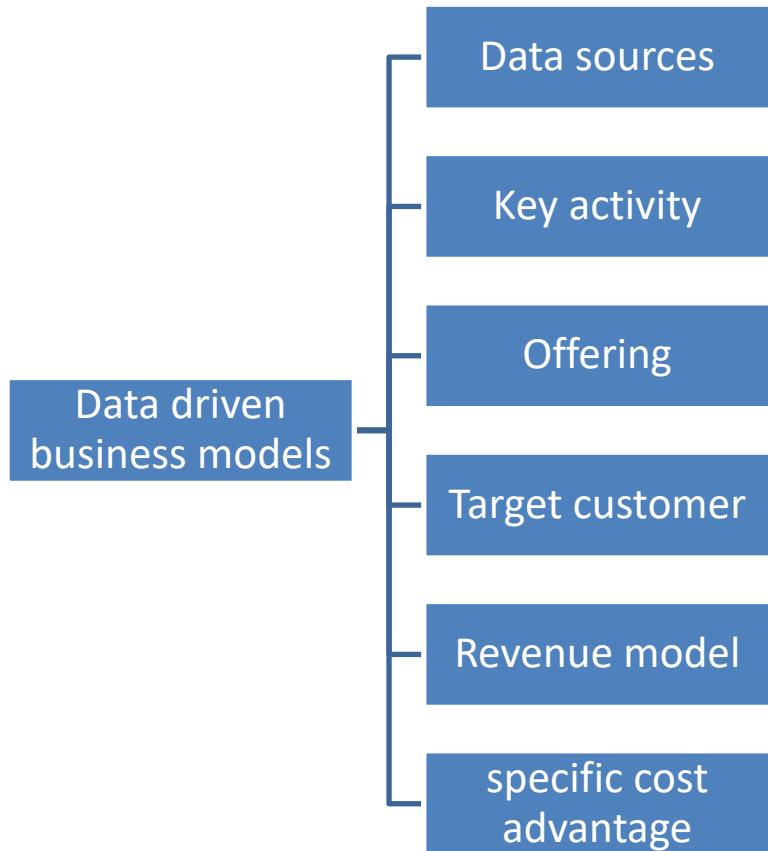
Data Driven Business Models (DDBM)

(Hartmann et al. 2016)

- “A business model relying on data as a key source”
- DDBM is not limited to companies conducting analytics, but includes companies that are “merely” aggregating or collecting data.
 - A company may sell not just data or information but also any other product or service that relies on data as a key resource.
 - Although any company uses data in some way to conduct business, these companies use data as a key resource for their business model

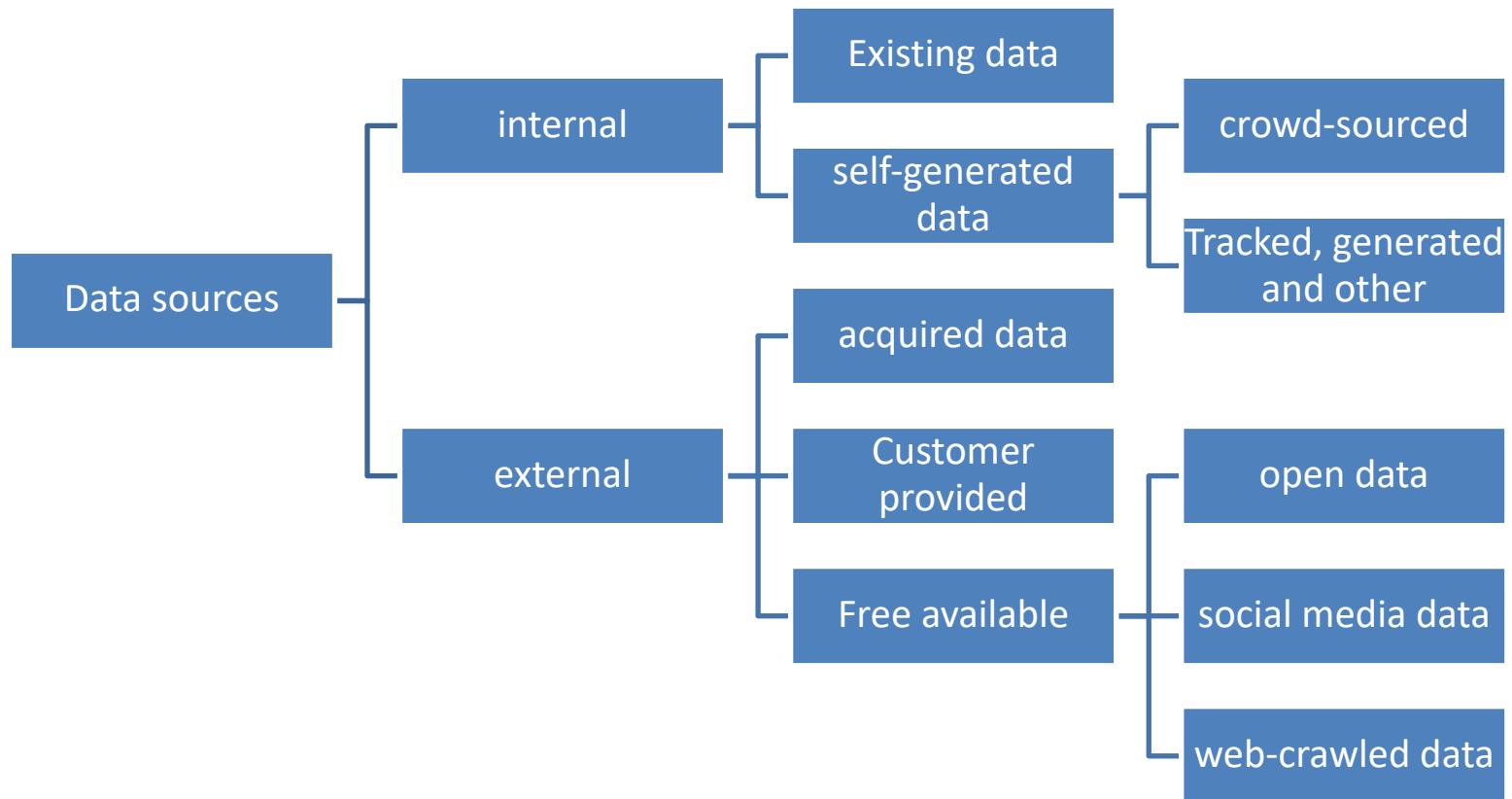
The DDBM framework - variables

(Hartmann et al. 2016)

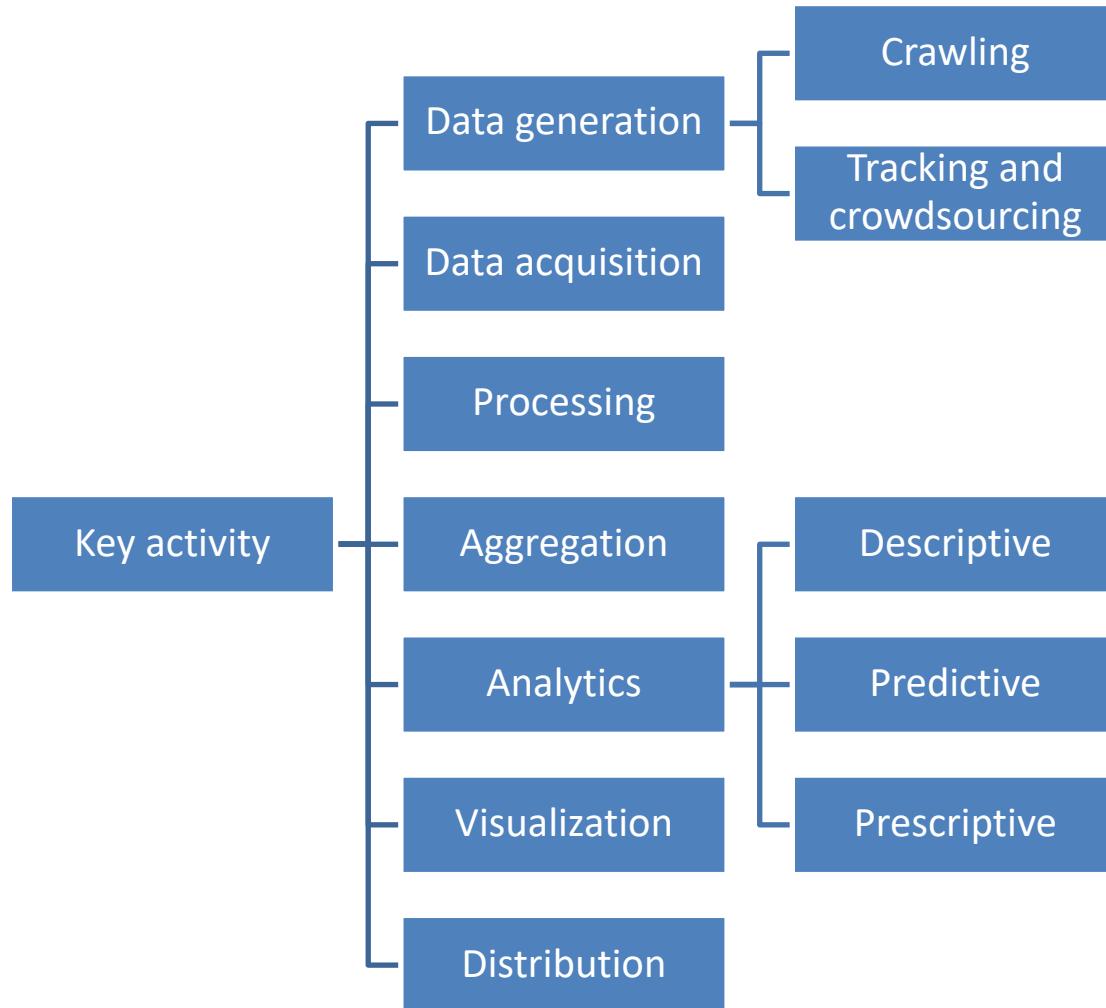


DDBM – sources of data

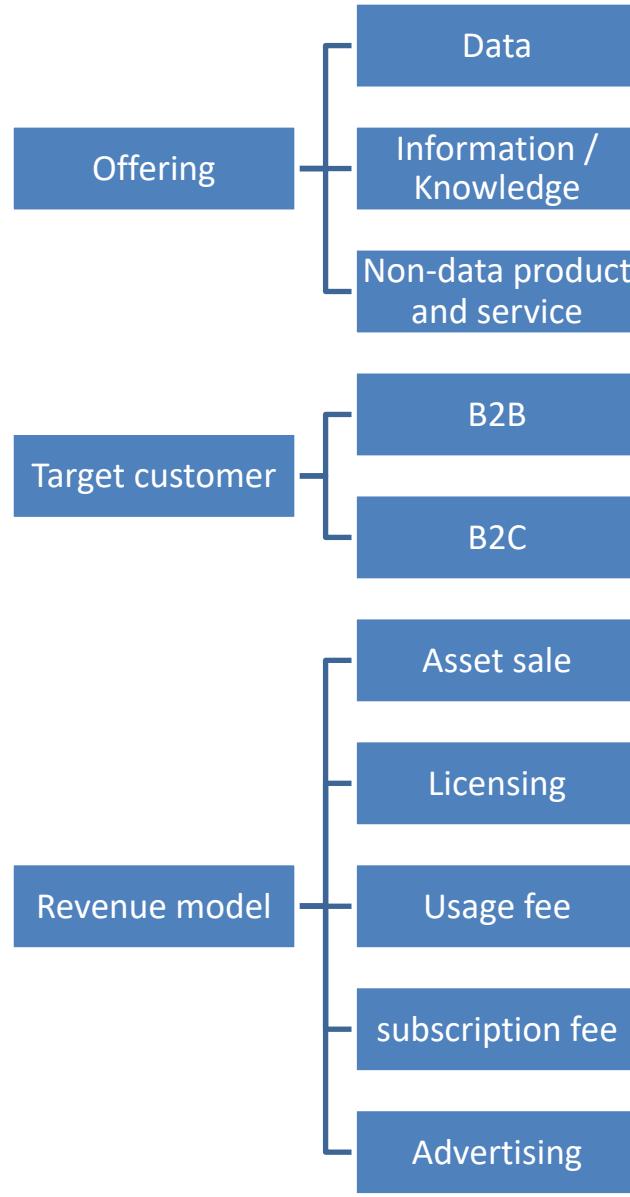
- Data as a key resource



DDBM – key activity

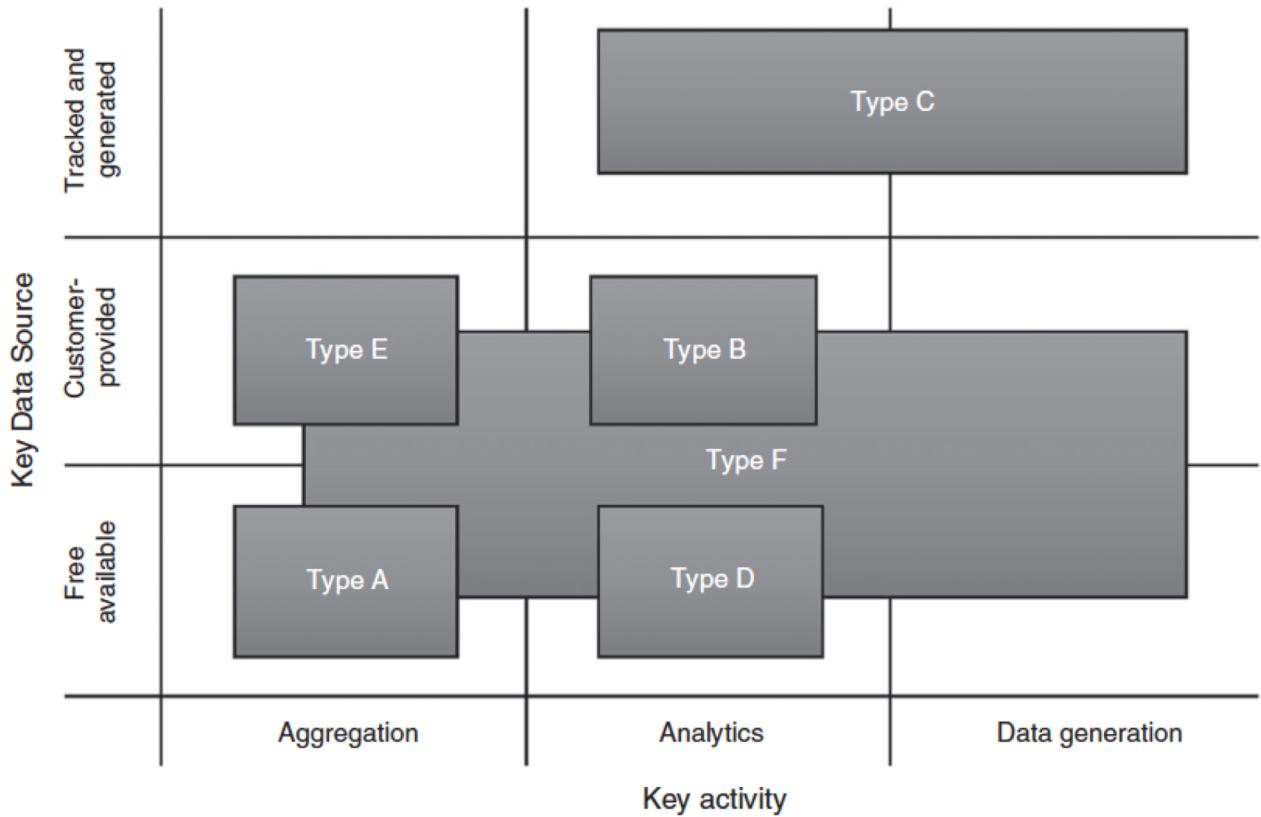


DDBM – Offering, Target customer & revenue model



The DDBM framework building blocks

1. Key resources – DDBM have data as a key resource (e.g. internal, external)
2. Key activities - For DDBMs these activities must be related to the key resource data (e.g. data generation, acquisition, aggregation, analytics...).
3. Value proposition – the VP is data driven, either as data or information/knowledge
4. Customer segments – either B2C or B2B
5. Revenue model – renting, subscription fee, usage fee...
6. Cost structure



Type A: "Free data collector and aggregator"

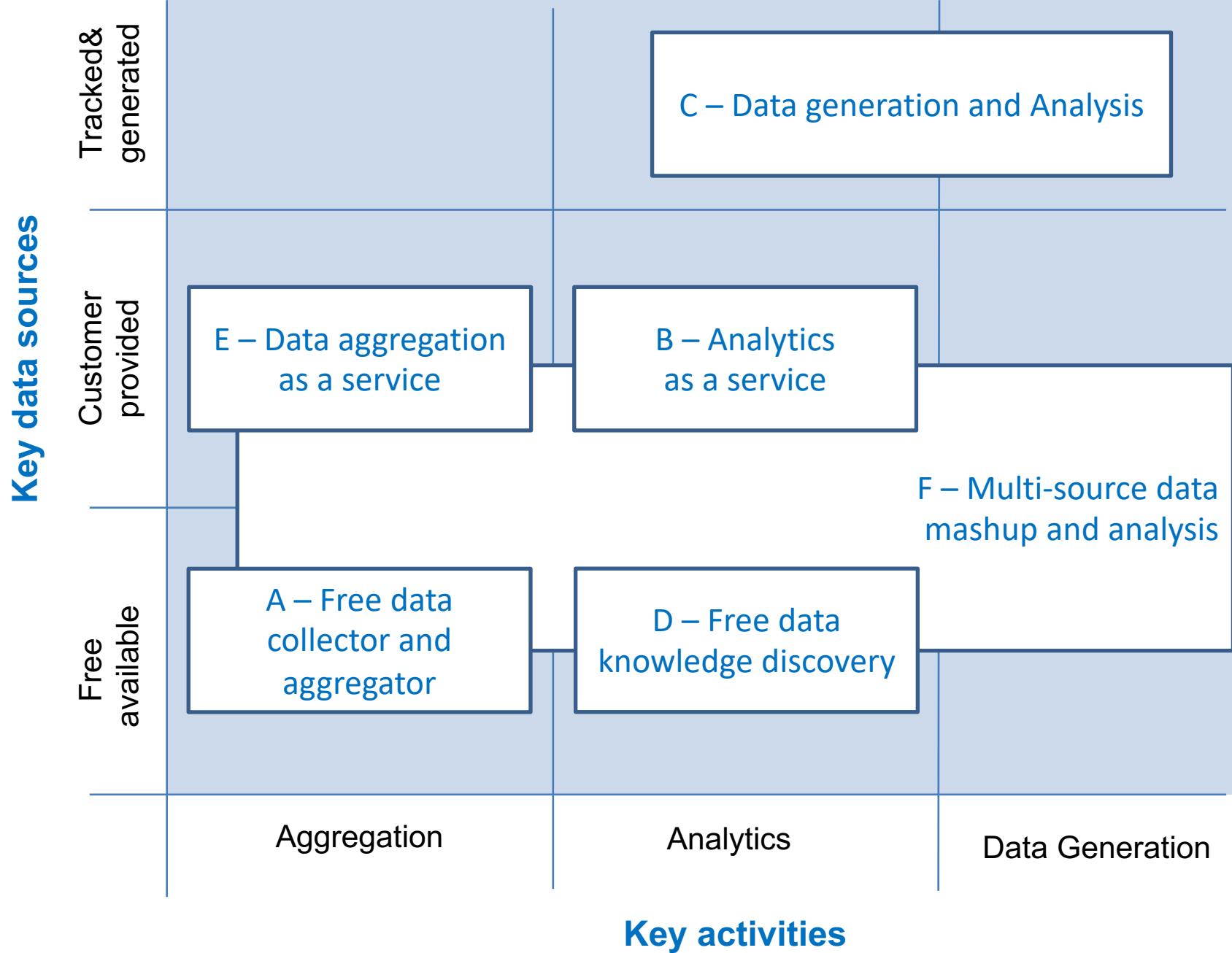
Type B: "Analytics-as-a-service"

Type C: "Data generation and analysis"

Type D: "Free data knowledge discovery"

Type E: "Data-aggregation-as-a-service"

Type F: "Multi-source data mash-up and analysis"



A – Free data collector and aggregator

Key data sources	a vast number of different, mostly free, data sources: e.g. Social media data, proprietary acquired data, and crowdsourced data
Key activities	collecting and aggregating data from a vast number of different, data sources, and then distributing it, for example, through an API. To a lesser extent, also, data crawling and visualization.
Value proposition	easy, reliable access to a large number of different data sources through a single API
Customer segments	B2B and B2C
Revenue model	a mixture advertising, brokerage fees, subscription, and usage fees.
Example	Ex: AVUXI https://www.avuxi.com/topplace Gnip - https://en.wikipedia.org/wiki/Gnip

B – Analytics as a service

Key data sources	data from the company' customers and external datasets
Key activities	companies conduct analytics on data provided by their customers and provide access to the analytics results via an API: Collecting customer data; Distributing data through API development; Visualization of the analytics results
Value proposition	information/knowledge, insights generated by data analytics with customer data: Improving marketing activities, improving customer service and relationships, increase in sales
Customer segments	B2B
Revenue model	predominantly based on subscription or usage fees.
Example	https://shield.com (Sift Science)

C – Data generation and analysis

Key data sources	data generated by the company: Self-generated Data - Tracked, generated and other
Key activities	generating data rather than relying on existing data, and performing analytics on the data: Data generation - Tracking and crowdsourcing, Analysis, Aggregation
Value proposition	a combination of data and analytics, such as web analytics services; leads....
Customer segments	B2B , B2C
Revenue model	usage fee-based models, asset sales (devices)
Example	https://www.gosquared.com

D – Free data knowledge and discovery

Key data sources	free available data sources: Stack Overflow; Q&A websites; Review sites; Booking websites; Social media (Twitter, Facebook); Stock markets
Key activities	performing analytics on free available data (and crawl data from the web)
Value proposition	Aggregate large amounts of data and identify or predict trends, viral contents and key influencers for any topic in real-time
Customer segments	B2B & B2C
Revenue model	subscription, usage-fee-based models, advertising and brokerage fees;
Example	http://trendspottr.com

E – Data aggregation as a service

Key data sources	data from the company's customers
Key activities	aggregating data from multiple internal sources for their customers; provide data through various interfaces and visualize it
Value proposition	aggregated data from multiple customer sources; organize and distribute data, which simplify customers life
Customer segments	B2B (who possess data that needs organising)
Revenue model	predominantly based on subscription or usage fees.
Example	https://www.getalma.com

F – Multi-source data mashup and analysis

Key data sources	A combination of free data (from web scrapping) and customer provided
Key activities	aggregating data provided by their customers with other external, mostly free, available data; Sourcing and performing analytics on this data: Data aggregation + data analytics + data generation (Web Scrapping)
Value proposition	using other external data sources to enrich or benchmark customer data analytics
Customer segments	mostly B2B
Revenue model	mostly Subscription based
Example	https://www.amplaybook.com

What is your data driven business model?

- <https://ltplabs.com>
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