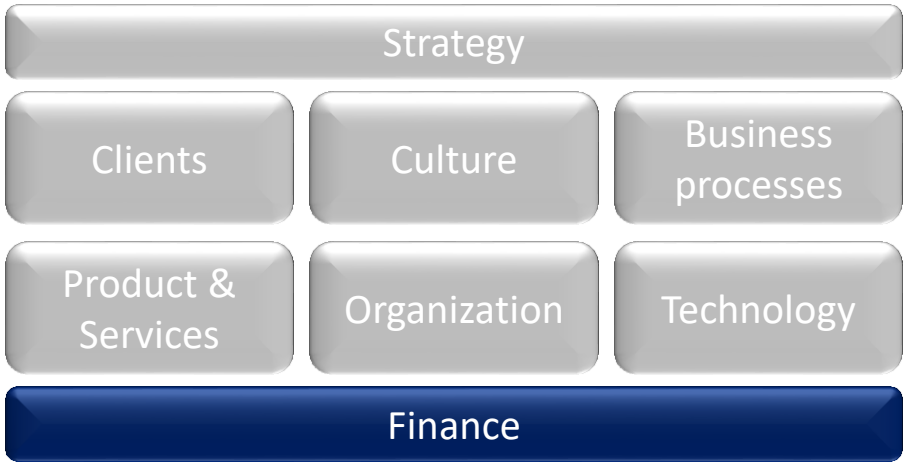
# Business Analytics

UNIVERSITAT DE BARCELONA
Facultat d'Economia i Empresa

# What are we going to do?

- Presentation.
- What is Business Analytics?
- Impact of Business Analytics in a Company. General approach.
  - Objectives: We will dedicate this sessions to analyze what is the impact of gathering, managing and analyzing data in the different areas of a Company
    - Strategy.
    - Technology.
    - Business Processes.
      - Internet of Thinks.
    - Clients, Products & Services. Marketing.
      - Social Media.
    - Organization
    - Finance

# Finance


Strategy
Clients
Culture
Business processes
Product & Services
Organization
Technology
Finance

# The information asset and data valuation.

# What do you think information/data value is?

Information is one of our biggest business assets.

CEO

COO

Information is one of our biggest competitive assets.

Information is one of our biggest business risks.

CFO

CIO

Information is one of our biggest problems.

# What is an asset.

| Source | Definition |
| --- | --- |
| Webster | A single item of ownership having Exchange value or convertible into cash. Total resources of a person or business such as cash, notes and goodwill. |
| American Institute of CPA's | Any economic resources (tangible/intangible) that can be owned or produce value. Assets have a positive economic value. |
| Financial Accounting Standards Board | A probable future economic benefit obtained or controlled by a particular entity as a result of past transactions or events. |
| International Accounting Standards Board | A resource controlled by the enterprise as a result of past events and from which future economics benefits are expected to flow to the enterprise. |

# Where are the information assets in the Balance Sheet?

| | 2010 US$m | 2009 US$m |
|---|---|---|
| **Noncurrent assets** | | |
| Goodwill | **3,412** | 3,125 |
| Other intangible assets | **1,233** | 1,189 |
| Property, plant, and equipment | **451** | 479 |
| Investments in associates | **243** | 332 |
| Deferred tax assets | **176** | 13 |
| Trade and other receivables | **8** | 5 |
| Available-for-sale financial assets | **33** | 26 |
| Other financial assets | **88** | 61 |
| **Current assets** | | |
| Inventories | **3** | 4 |
| Trade and other receivables | **800** | 738 |
| Current tax assets | **4** | 17 |
| Other financial assets | **27** | 21 |
| Cash and cash equivalents | **175** | 129 |
| Assets classified as held for sale | **25** | - |

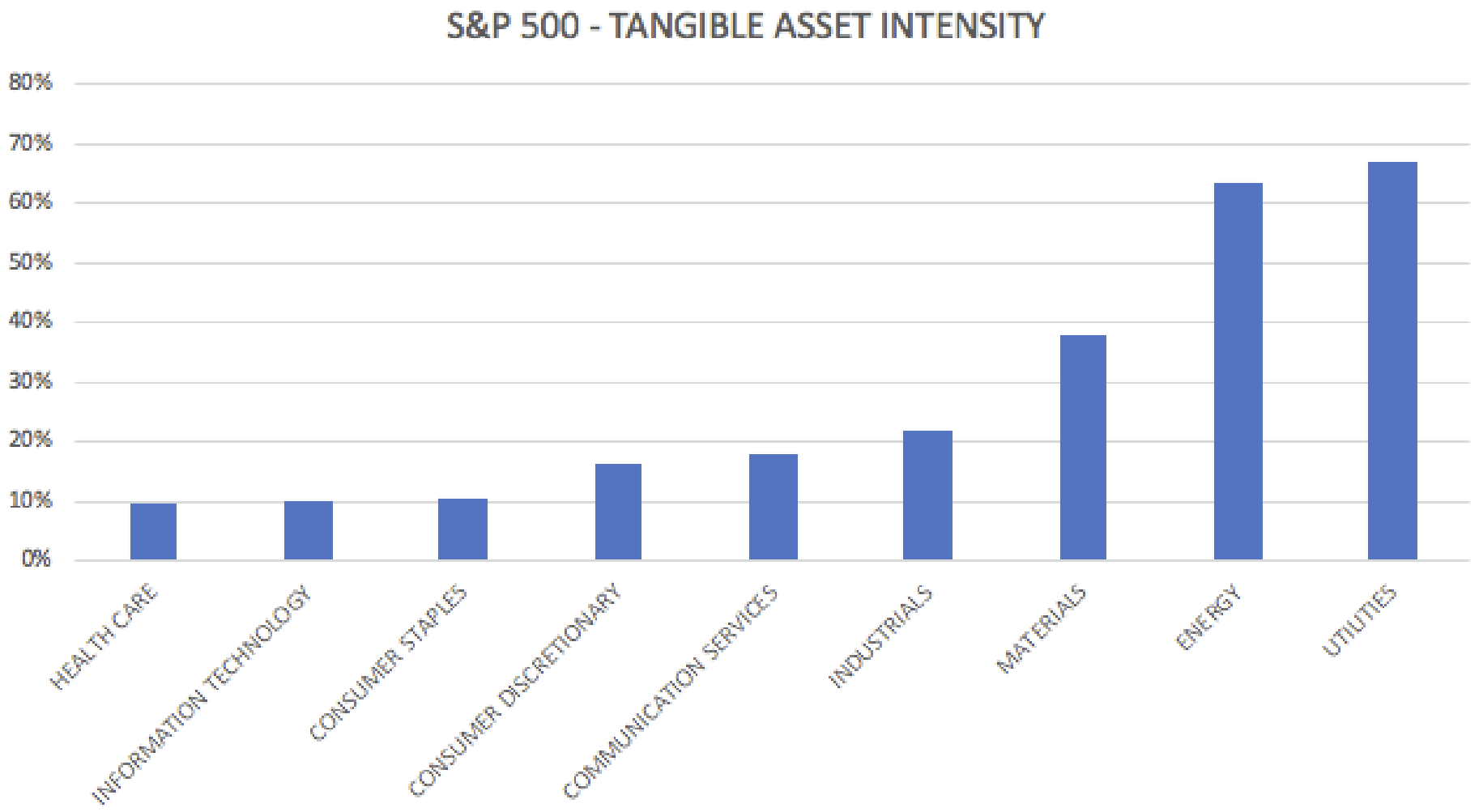
**NO**

- It is not on the balance sheet
- You can't account for it because it is so amorphous
- It is not really consumable like other assets.

**YES**

- It can have a exchange value.
- It can generate a positive economic value.
- Well, we could count/measure it, but how?

# Where are the information assets in the Balance Sheet?



# The Information Asset and Data Valuation: Parameters to understanding

## The Time Value of Data

**Example**: If it is March 1st and some prophet told you today that for a certainty the March 2nd closing price of IBM stock is going to be $10 higher than the March 1st price, you can exploit that piece of information today to buy as much IBM stock as you can and sell it at the $10 profit on March 2nd. Yet if I gave you the same information on March 3rd, you could not exploit it in the same way. In this case, a large portion of the value of that piece of information is bound to its timeliness.
**Example**, our direct mail database may be of high value at its initial creation, but because it is estimated that about 20% of the population changes addresses each year, then if that database is not updated with new addresses, its value declines with time.

## Sharable Resource

As opposed to any other raw resource used in a manufacturing process, data is a raw resource that are not used up. That means that information is sharable, and the value of information increases as more people use it.
**Example**: the knowledge of a process for sales professionals to alert them to the best time to contact a prospect. The knowledge of this process can streamline the process for any particular salesperson. But even if that salesperson were to share that knowledge with other members of the sales staff, there is no degradation in the value that can be achieved by any one of the individuals aware of that knowledge.

# The Information Asset and Data Valuation: Parameters to understanding

## Increasing Value – Increased Use

For most assets, as usage increases, there is some depreciation in asset value.
**Example**: every mile a car is driven decreases the value of the car. On the other hand, the value of data does not decrease with use, because there is no degradation in information based on the number of times it is viewed. When everyone in the organization knows what information is available, how to access that information, and how to exploit that information, the value of that information rapidly increases. If data is stored, managed, and never used, there is no added value it actually becomes a liability.

## Increasing Value - Quality

**Example**: The prophet is a false one and tells you that the stock price will fall $10 by the close of business tomorrow, although it really will rise $10.
The way you will have exploited what you believe to be true will ultimately result in a significant loss of value instead of an increase. This highlights the value of accuracy of information and the requirement for not only expecting high levels of information quality, but also having a means for defining quality
metrics and measuring using those metrics.

# The Information Asset and Data Valuation: Parameters to understanding

**Increasing Value – Merging**

The process of combining bits of knowledge provides significant leverage when increasing the value of information. Having sales channel information is of value; having supply channel information is valuable; combining supply channel information with sales channel information provides knowledge about the movement of products from supplier to customer.

# Barriers to information asset management.

- Lack of executive support
- Lack of responsibility and accountability
- CIO has technical focus
- Lack of measurement
- Resistance to change
- Compliance and risk are burdensome/costly
- Other priorities prevail
- Cost, value and benefits of information assets is unknown
- Technology shortcomings and poor IT reputation
- Accounting practices incapable of handling information assets

# Methods to valuate information/data.

# Non-financial methods

- **Intrinsic value of information.** This model doesn't take into account the business value at all but focuses instead on the data's intrinsic value.
  - The model quantifies data quality by breaking it into characteristics such as accuracy, accessibility and completeness.
  - Each characteristic is rated and then tailored for a final score.

$$IVI = \frac{(Accuracy * Completeness * Accessibility)}{Ubiquity}$$

# Non-financial methods

- **Business value of information.** This model measures data characteristics in relation to one or more business processes.
  - Accuracy and completeness, for example, are evaluated, as is timeliness because even if data is relevant to a business process, if it's not timely, how valuable is it really?
  - The model can be tailored to fit the organization's needs and even applied to specific data types such as unstructured data or third-party data.

$$BVI = \frac{(Accuracy * Completeness * Relevance)}{Latency}$$

# Non-financial methods

- **Performance value of information.** This model is much more empirical in nature because it measures the data's impact on one or more key performance indicators (KPIs) over time.
  - Take the sales department, for example. "If your salespeople had access to competitor pricing data, how much quicker could they close sales?"
  - Businesses can run an experiment by comparing how a control group with no access to competitor pricing data performs against an experimental group. Or, if businesses have neither the time nor the ability to run an experiment, they can substitute proxy data for control group data.

$$PVI = \sum(\delta KPI(i)n - \delta KPI(c)n)$$

Where:
i = influenced
c = control

# Financial methods

- **Cost value of information.** This model measures the cost of acquiring or replacing lost information.
  - Is a method to quantify information's value based on what accountants refer to as 'replacement costs’.
  - A value is assigned to the data by measuring lost revenue and how much it would cost to acquire the data. This is the way valuation experts value most intangible assets that don't have a discernible market value or are generating a market stream.

$$LVI = AcquisitionCost + \sum LostRevenue$$

# Financial methods

- **Economic value of information.** This model measures how an information asset contributes to the revenue of an organization. This is our KPI model again, but instead of any given KPI, we're looking at revenue.
  - An experimental group is given access to competitor pricing data and a control group isn't. Instead of looking at time-to-sale, we're looking at revenue generated by any given salesperson over a given period of time.
  - That will give us a good sense of the value of that data. CIOs should factor in the cost it takes to acquire, administer and bake that data into the system the salespeople are using.
  - They should also consider the data's life span. Competitor pricing data, for example, has a shelf life, which should be factored into its value.

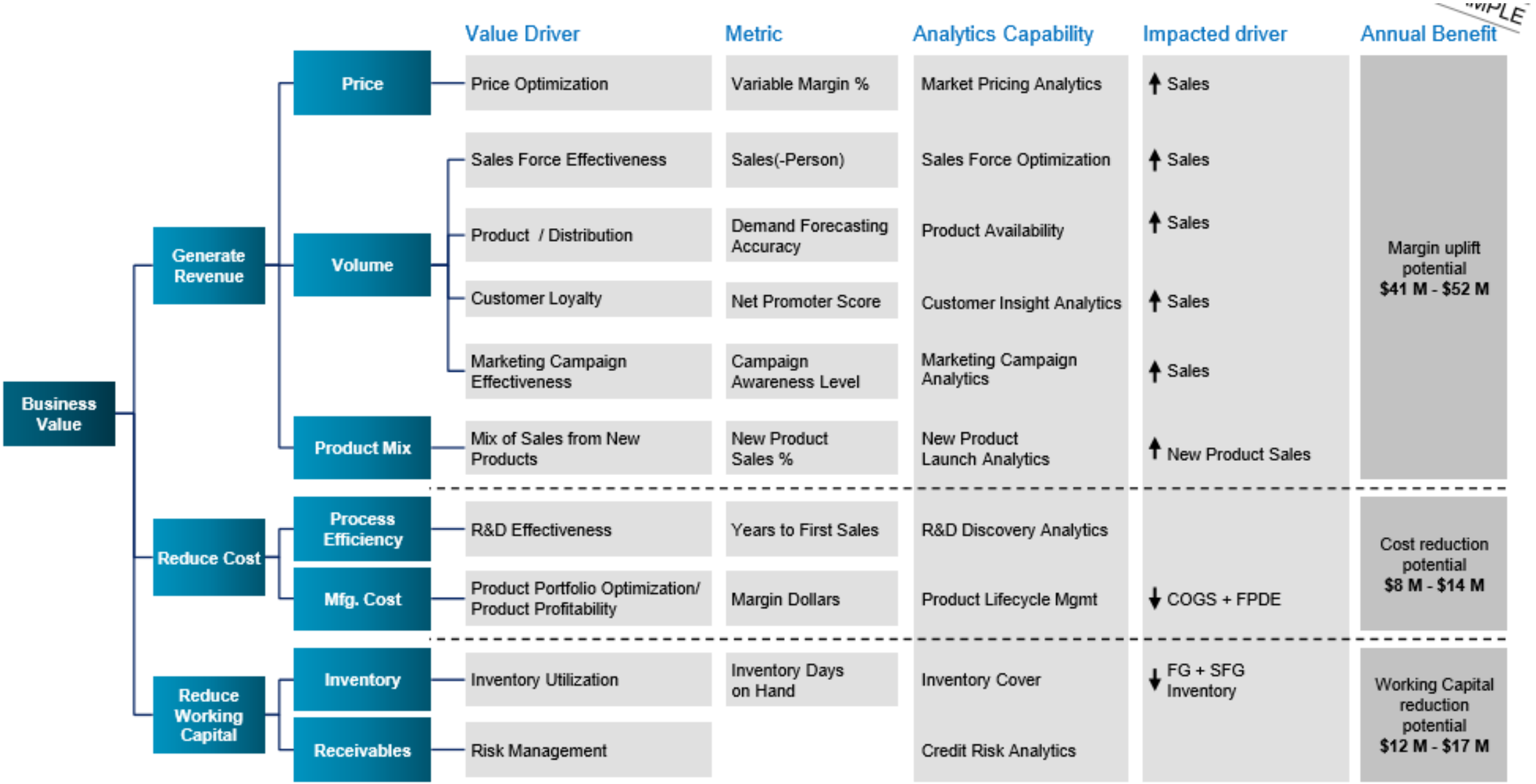
$$EVI = PVI(r) - (AcquisitionCost + AdministrationCost + Application\ Cost)$$

# Financial methods

- **Market value of information.** This model measures revenue generated by selling, renting or bartering corporate data, which can be considered to be one of the best ways to value an information asset.
  - The problem is, most information assets don't have what accountants call an "open arms-length market," or what the price of the data would be on the open market.
  - A way around this is to figure out what similar data from syndicated data providers or competitors is going for. After determining the data's premium price you should figure out a discount value. The discount rate will vary based on the number of times a company sells the information and other factors.

$$MVI = \sum ExclusivePrice \ * DiscountRate$$

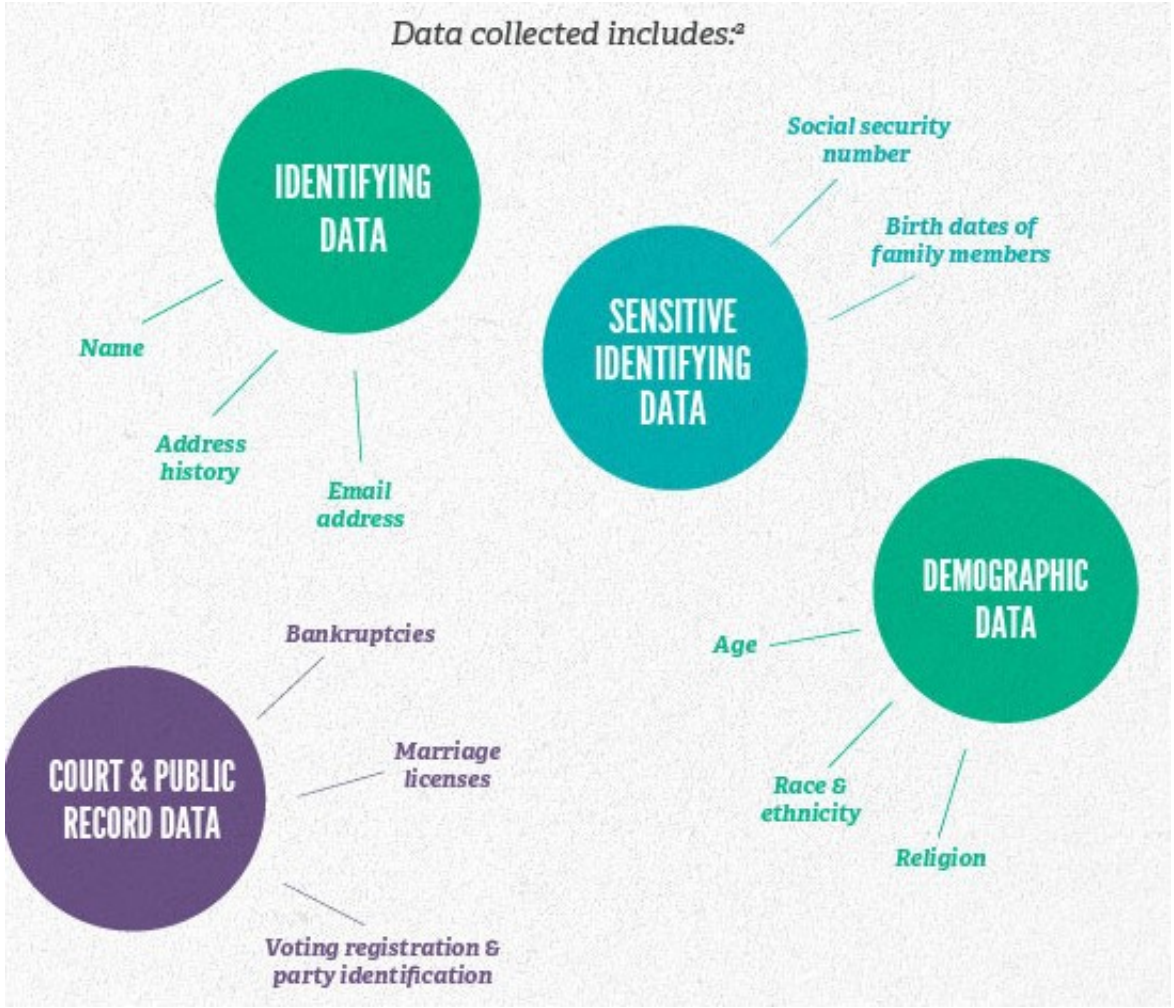
# Financial Methods.



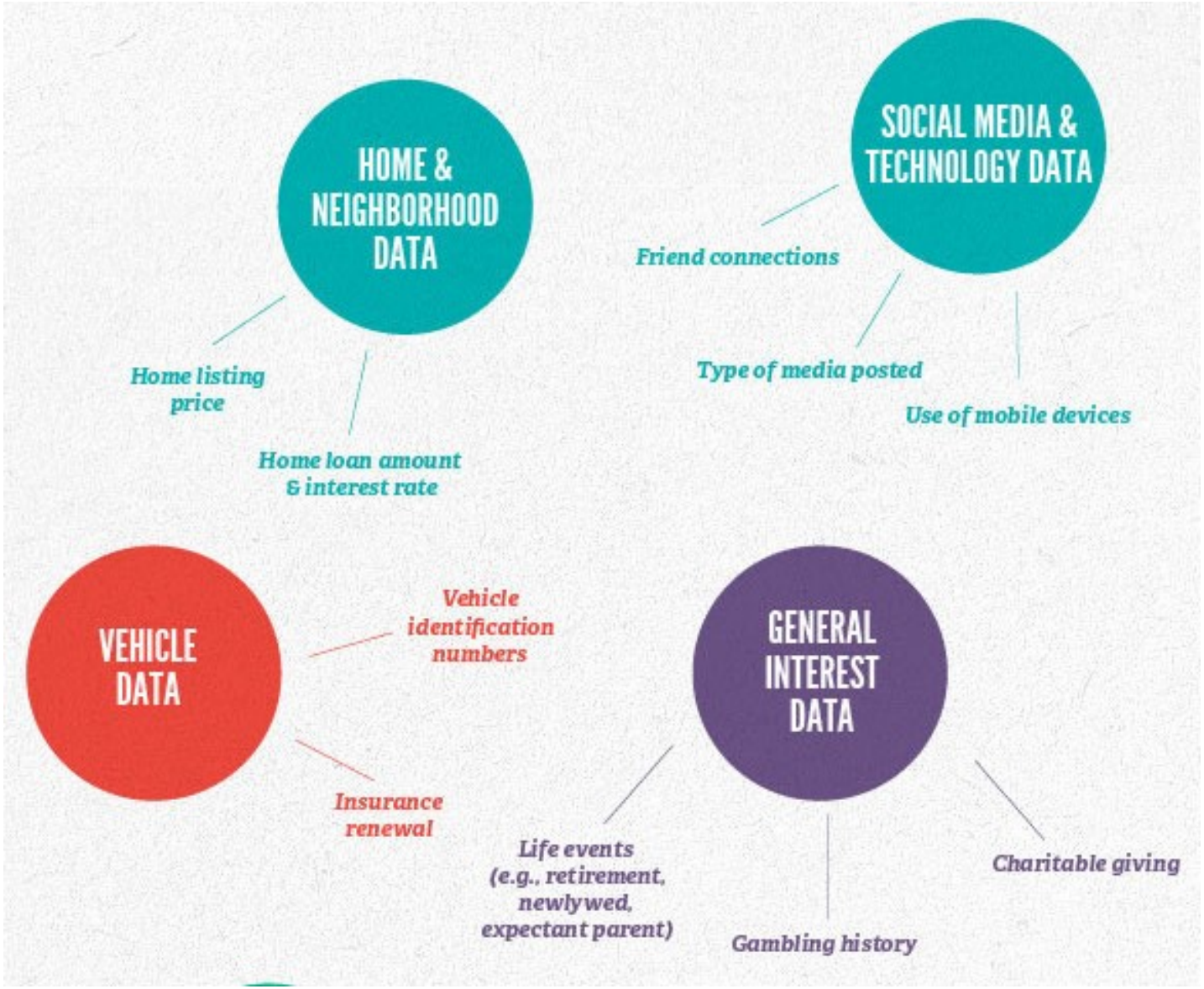
# Sources of data and its value.
# The brokerage.

# What is a Data Broker.

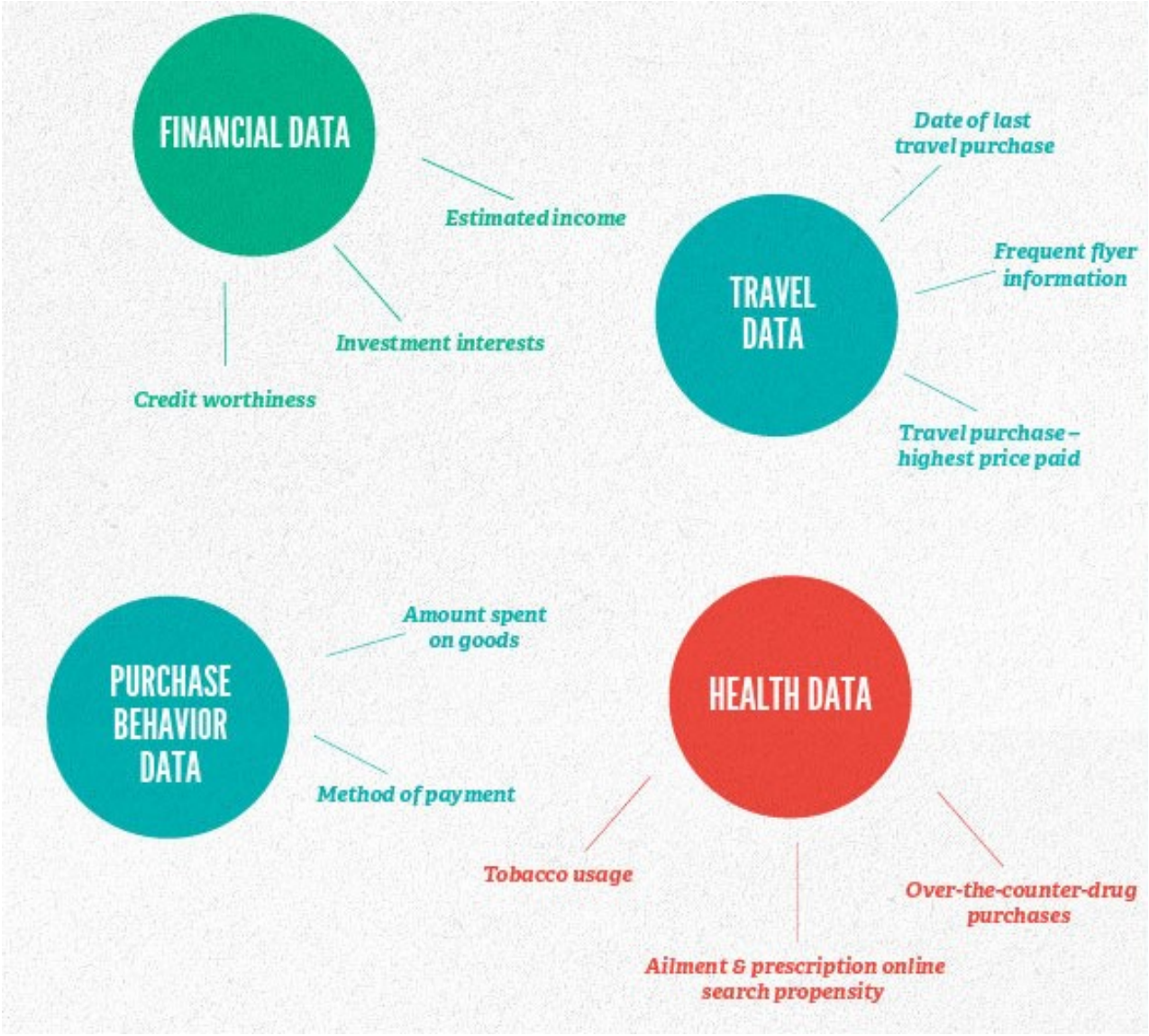
Data Brokers are companies that collect personal information about consumers from a variety of public and non-public sources and resell the information to other companies.



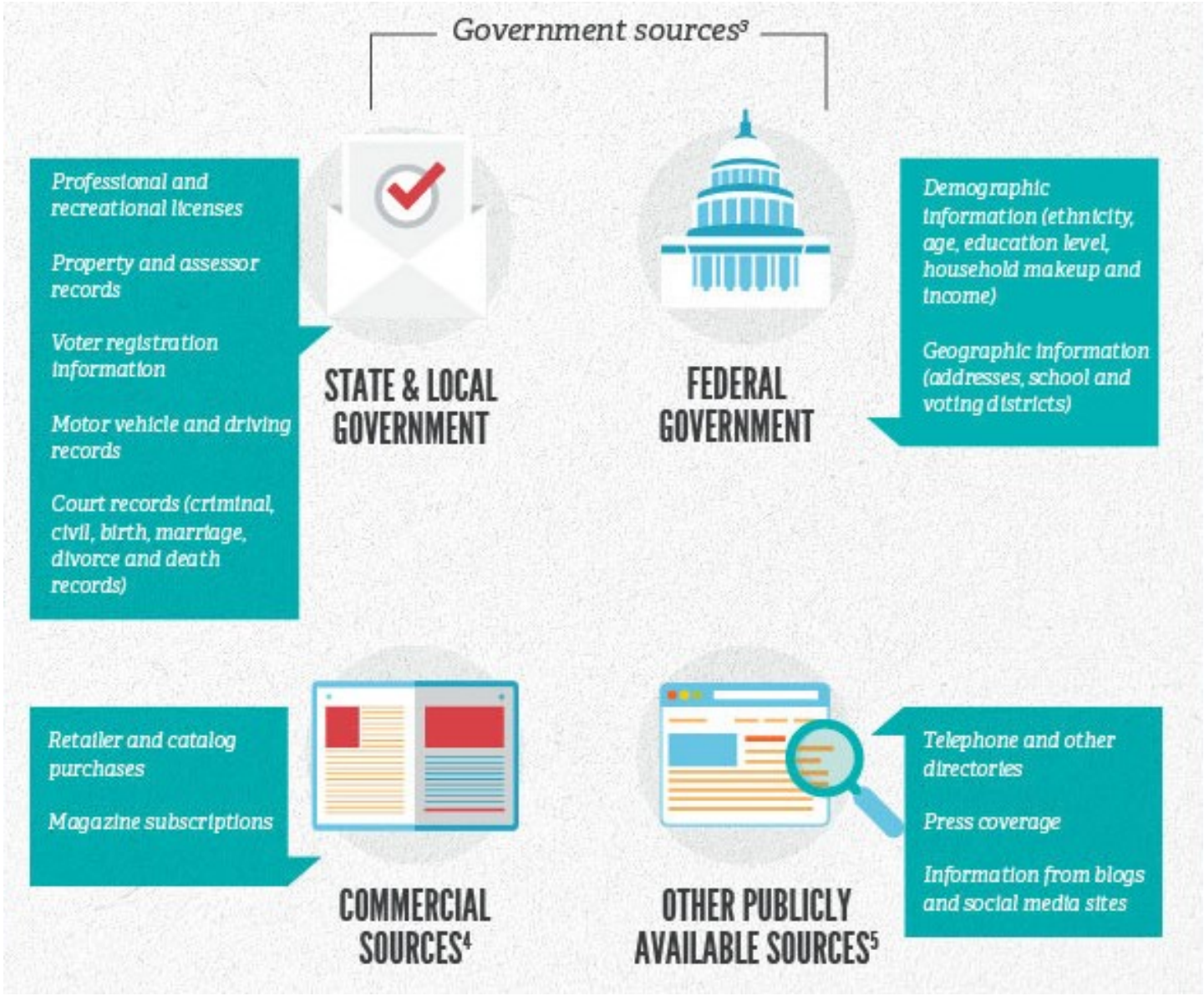
# What is a Data Broker.



# What is a Data Broker.



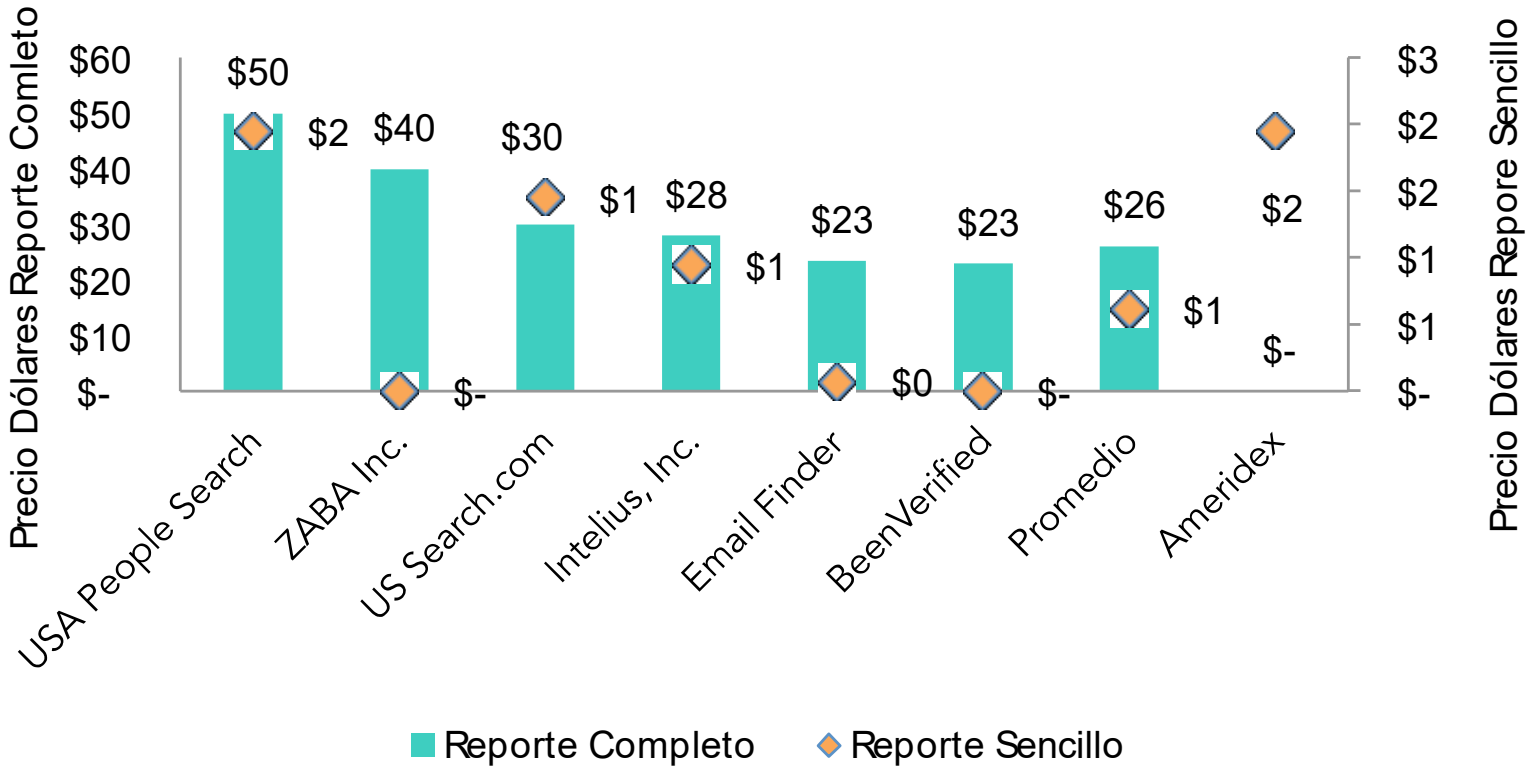
# What is a Data Broker. Where do they get your information.



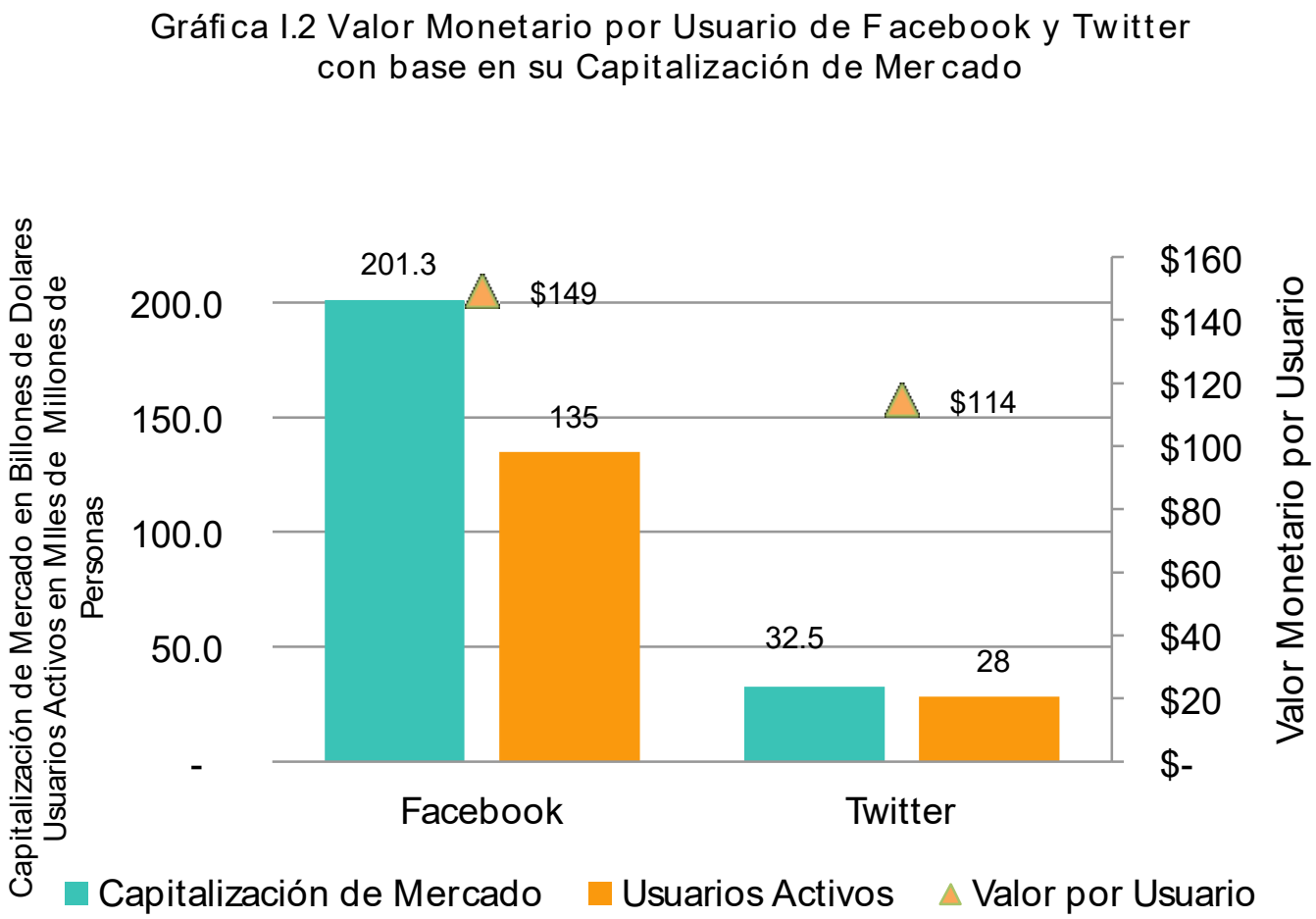
# What is a Data Broker. What is your data worth.

# What is a Data Broker. What is your data worth.

Gráfica I.14 Precios de Venta de Registros de Data Brokers de Estados Unidos

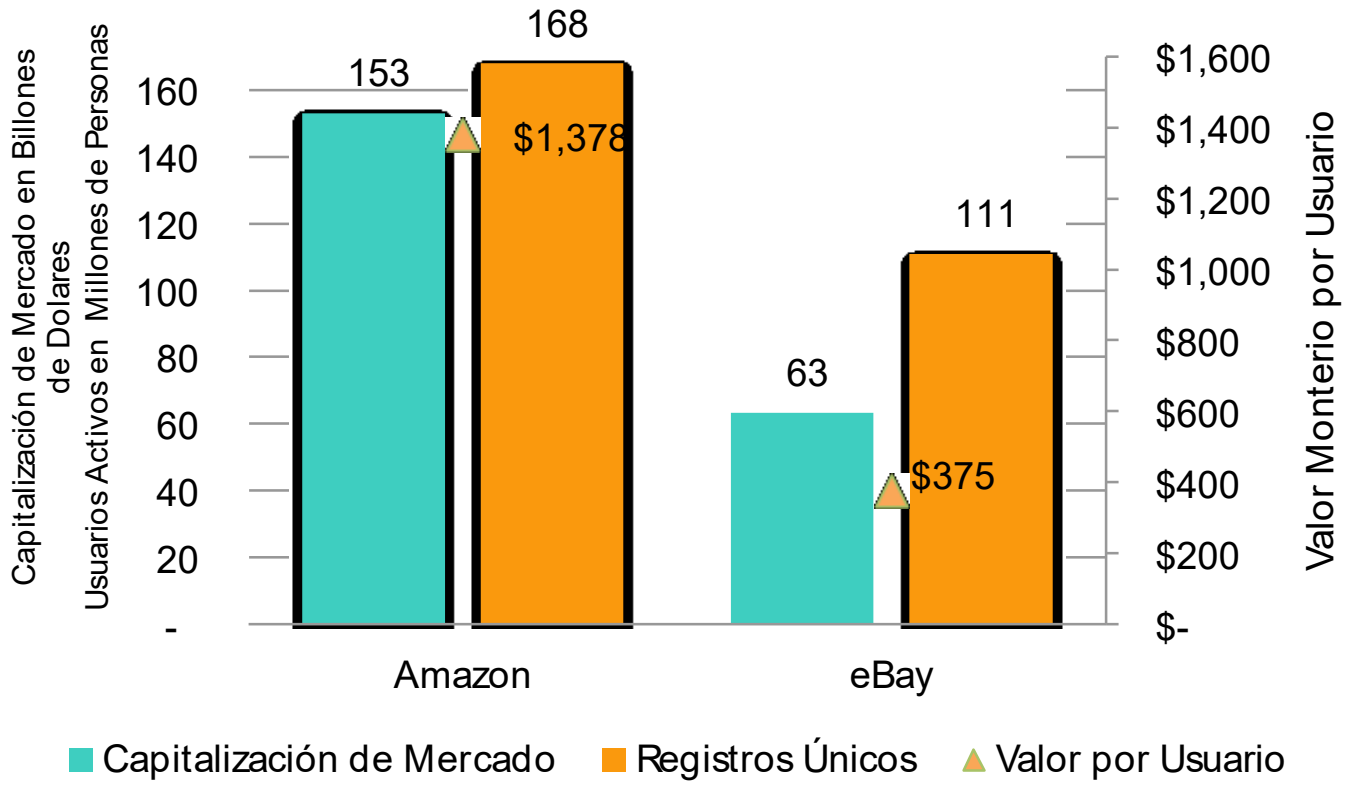


# What is a Data Broker. What is your data worth to the Market.

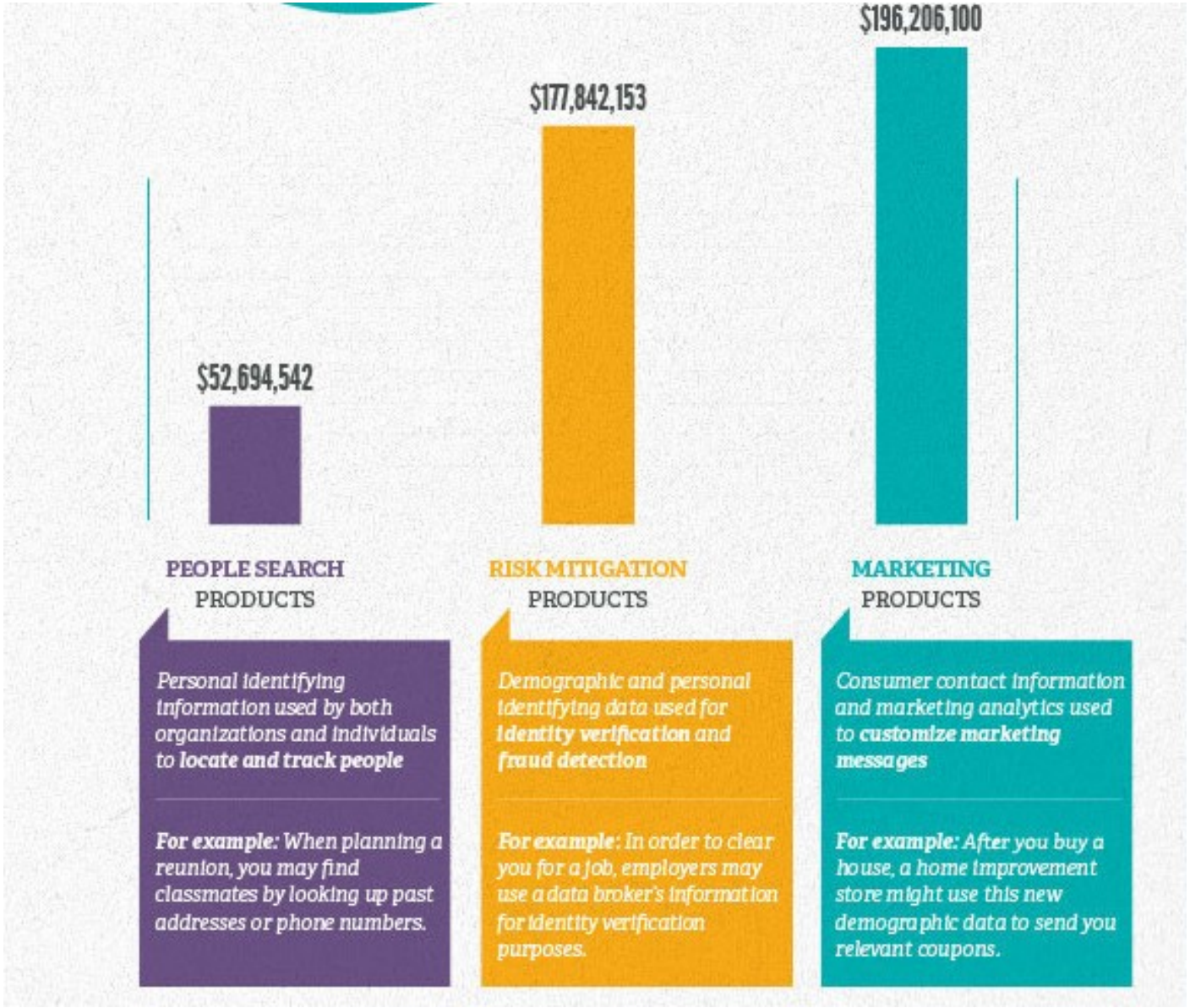


# What is a Data Broker. And what about other Businesses.

Gráfica I.4 Valor Monetario por Usuario de Amazon y eBay con base en la Capitalización de Mercado



# What is a Data Broker. How do brokers make money.

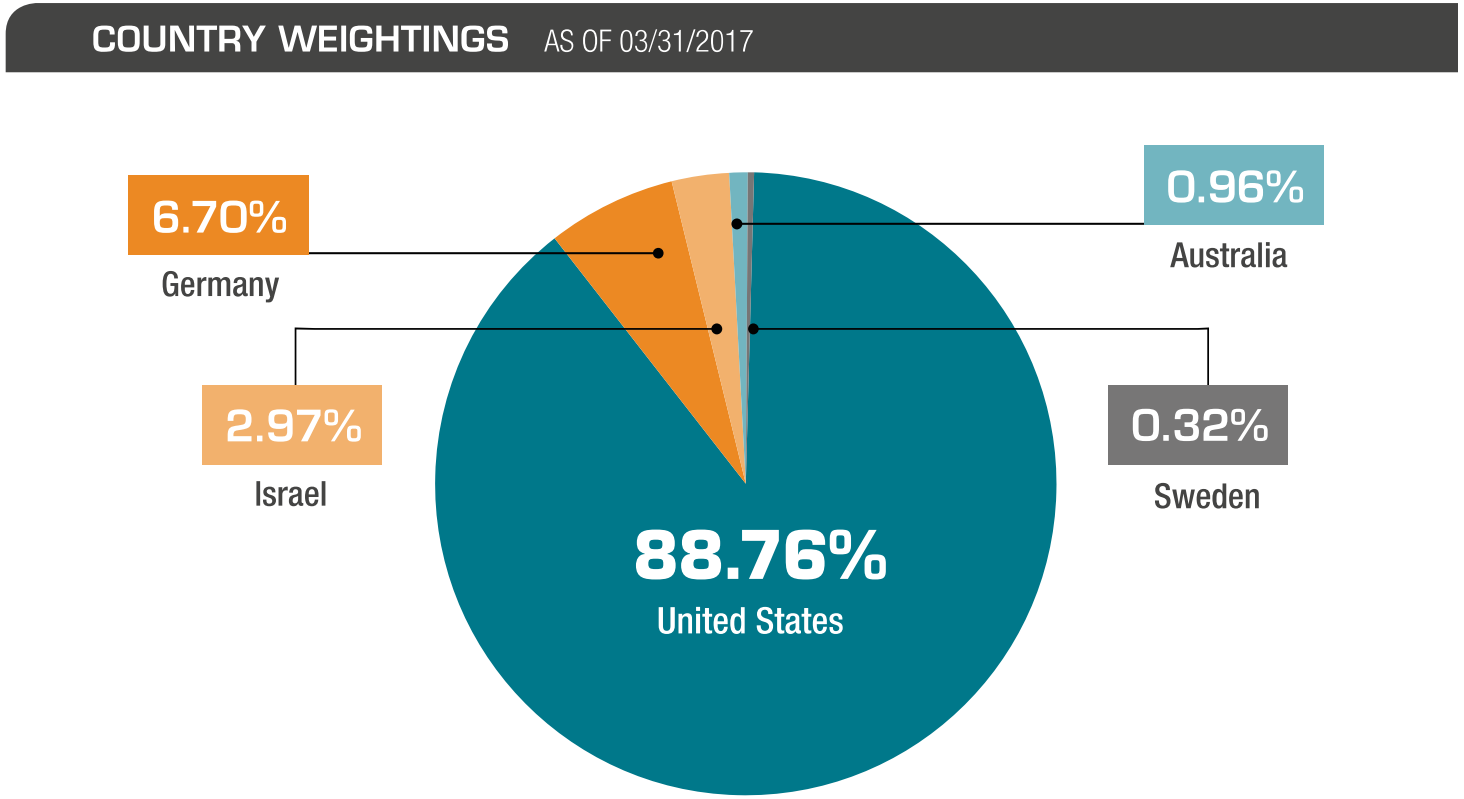


# The Market.

# The Market.

## PUREFUNDS® ISE BIG DATA™ ETF
## NYSE ARCA: BIGD

The **PureFunds® ISE Big Data™ ETF** seeks to replicate as closely as possible, before fees and expenses, the price and yield performance of the ISE Big Data Index. Big Data consists of the value generated by mining and computationally analyzing data sets that have different degrees of volume, velocity, and variety to reveal key insights, patterns, and trends. The index provides a benchmark for investors interested in tracking companies that provide software and services for data analytics.



# The Market.

## FUND DETAILS

**FUND INCEPTION:** 7/16/2015

**TICKER:** BIGD

**CUSIP:** 26924G300

**ISIN:** US26924G3002

**STOCK EXCHANGE:** NYSE ARCA

**EXPENSE RATIO:** 0.75%

**IOPV TICKER:** BIGD.IV

**NAV TICKER:** BIGD.NV

## INDEX DETAILS AS OF 03/31/2017

**INDEX PROVIDER:** ISE

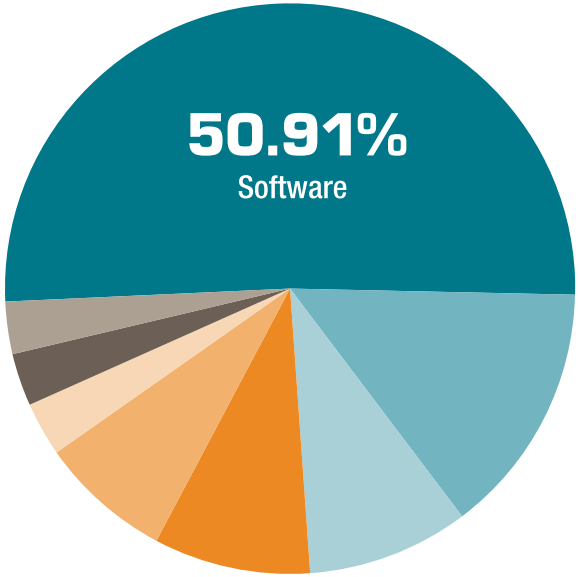
**NO. OF HOLDINGS:** 35

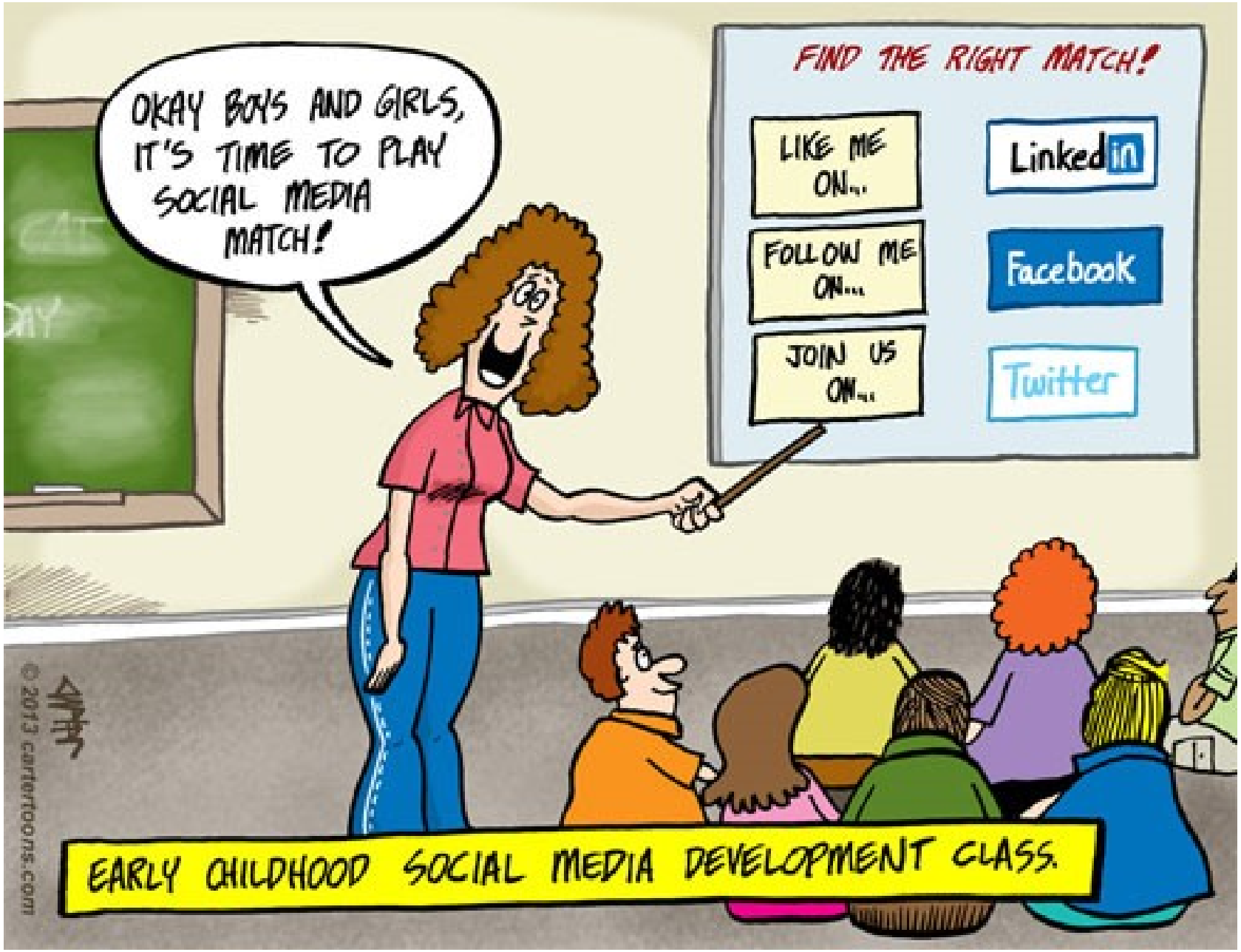
**INDEX TICKER:** BGD

## SUB INDUSTRY EXPOSURE AS OF 03/31/2017

*Fund holdings and allocations are subject to change at any time and should not be interpreted as an offer of these securites.*

| | |
|---|---|
| 14.31% | Computer Services |
| 9.15% | Business Support Services |
| 8.87% | Publishing |
| 7.48% | Media Agencies |
| 3.05% | Financial Administration |
| 2.97% | Real Estate Services |
| 2.97% | Telecommunications Equipment |




OKAY BOYS AND GIRLS, IT'S TIME TO PLAY SOCIAL MEDIA MATCH!
FIND THE RIGHT MATCH!
LIKE ME ON...
FOLLOW ME ON...
JOIN US ON...
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EARLY CHILDHOOD SOCIAL MEDIA DEVELOPMENT CLASS.
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# Thank You

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