

INVESTMENT CASE STUDY

SUBMISSION

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ABSTRACT

An investment case study of **Spark Funds** is to understand the investment trends around the world.

This investment case study involves in understanding the nature of investments being carried around the world. This study helps in making the company's decision better, and to decide when and where to invest in maximized their profits. The main objective of the analysis is to find out the investment type, countries and the best sectors. The strategy behind it is to find out where most other investors are investing. This pattern is often observed among early stage start up investors.

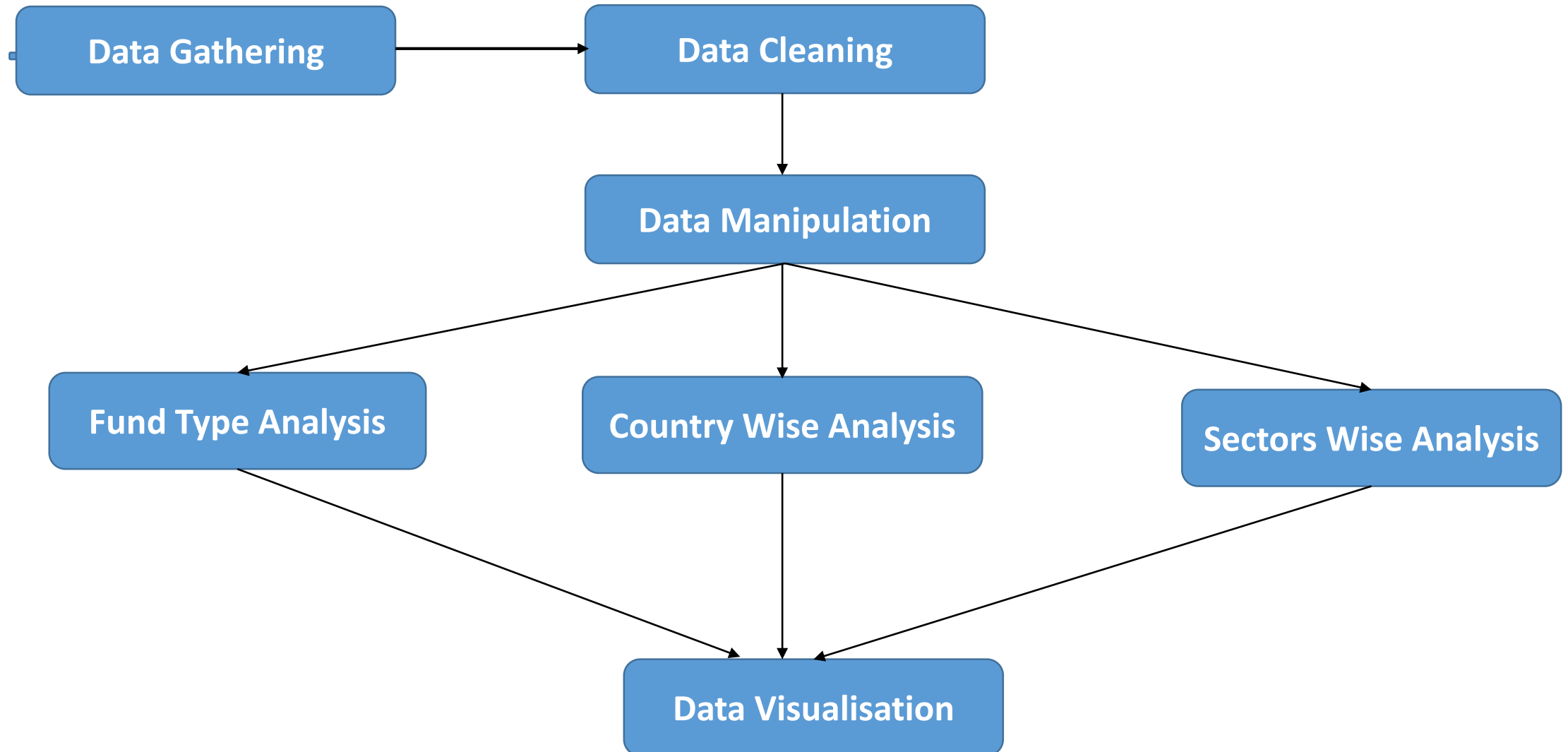
For the analysis, data has been collected from the **crunchbase.com**

Analysis was divided into three sub-analyses as follows:

1. Type of investment suited for Spark Funds allowing them understand what type of investment is needed.
2. Countries with the maximum number of investments.
3. Extracting the main sectors in a particular country which receives maximum number of investments.

Representation of the analysis of the various tasks are in the form of charts and graphs. The results illustrate the best possible inputs for the company to take cues for investing.

Problem solving methodology



Analysis

To provide the best and profitable outcome, analysis is divided in further steps:

- **Data Gathering:** Data is categorized in three files: Company details : Companies , Funding round details: rounds2 and Sector Classification: mapping.
- **Data Cleaning:**
 - Encoding and Decoding methods have been applied to remove the presence of special character while creating the data frame of all these files.
 - Null and Duplicate values have been removed from all the three data frames to reduce redundancy in the data.
 - Columns which contains the max NULL counts as well as not primarily important in this analysis have been removed.
 - After data cleaning found that 66368 unique companies are present in rounds2 and companies where permalink is the unique column present and after merging both the data frames (master_frame) 114946*16 is the rows and columns count.
- **Data Manipulation:**
 1. **Funding Type Analysis:** The funding types such as seed, venture, angel etc. depend on the type of the company (start up, corporate, etc.), its stage (early stage start up, funded start up, etc.), the amount of funding (a few million USD to a billion USD), and so.
 - The average investment amount for each of the four funding types (venture, angel, seed, and private equity) has been calculated.
 - As the Spark Funds wants to invest between 5 to 15 million USD per investment round so **VENTURE** is the most suitable investment type for it with the average investment amount “11.735780”.

Analysis

2. **Country Analysis:** Spark Funds wants to invest in countries with the highest amount of funding for the chosen investment type. This is a part of its broader strategy to invest where most investments are occurring.
 - For this, top 9 countries based on the total funding received for venture investment has been calculated.
 - Data Frame **top9** has been created by countries with the highest investment for the Venture funding type . We can see that USA is at the top of a list followed by China, Britain, and India.
 - As the Spark Funds wants to spend only on the English speaking Companies so after comparing it with the found that top3 English speaking Countries are: USA > GBR > IND

3. **Sector Analysis1:** When we say sector analysis, we refer to one of the eight main sectors (named main_sector) listed in the mapping file (note that 'Other' is one of the eight main sectors).
 - To simplify the analysis we group the numerous category lists (named 'category_list') in the mapping file. For example, in the mapping file, category_lists such as '3D', '3D Printing', '3D Technology', etc. are mapped to the main sector 'Manufacturing'.
 - Also, for some companies in master_frame, the category list is a list of multiple sub-sectors separated by a pipe (vertical bar |). **For example**, one of the companies' category_list is *Application Platforms/Real Time/Social Network Media*. So the first string before the vertical bar will be considered the primary sector by splitting . In the example above, 'Application Platforms' will be considered the primary sector.
 - Both the data frames(master_frame and mapping) merged with each primary sector mapped to its main sector
 - At each step data cleaning is done to remove the NULL values, wherever required.

Analysis

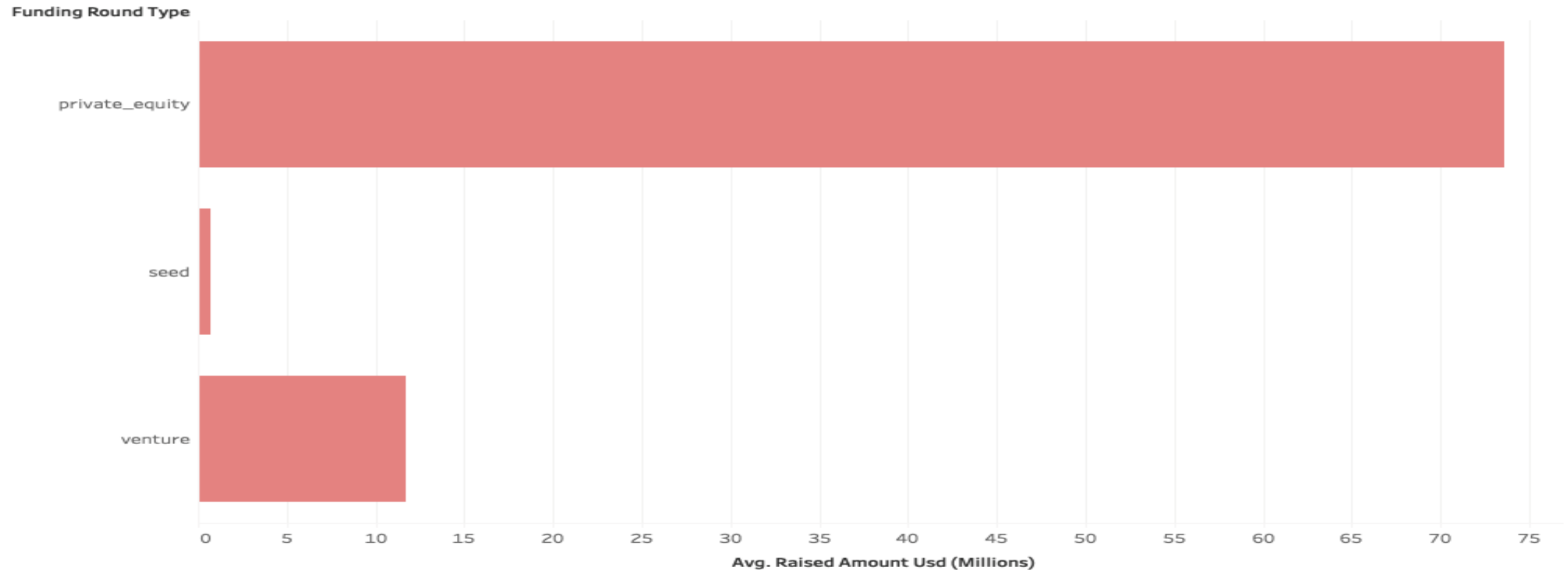
4. **Sector Analysis2:** As the aim is to find out the most heavily invested main sectors in each of the three countries (for funding type FT and investments range of 5-15 M USD). So following steps are taken care of:

- Three separate data frames D1, D2 and D3 for each of the three countries containing the observations of funding type FT falling within the 5-15 million USD range, all the columns of the master_frame along with the main sector and the primary sector, the total number (or count) of investments for each main sector in separate column, and the total amount invested in each main sector in a separate column.

- So as per the analysis, below is the outcome:

	USA	GBR	IND
Top Sector name (no. of investment-wise)	others	others	others
Second Sector name (no. of investment-wise)	Social, Finance, Analytics, Advertising	Social, Finance, Analytics, Advertising	Social, Finance, Analytics, Advertising
Third Sector name (no. of investment-wise)	Cleantech / Semiconductors	Cleantech / Semiconductors	News, Search and Messaging
top sector count-wise, which company received the highest investment?	Virtustream	Electric Cloud	FirstCry.com
second best sector count-wise, which company received the highest investment?	SST Inc	Celltick Technologies	Manthan Systems

PLOT 1



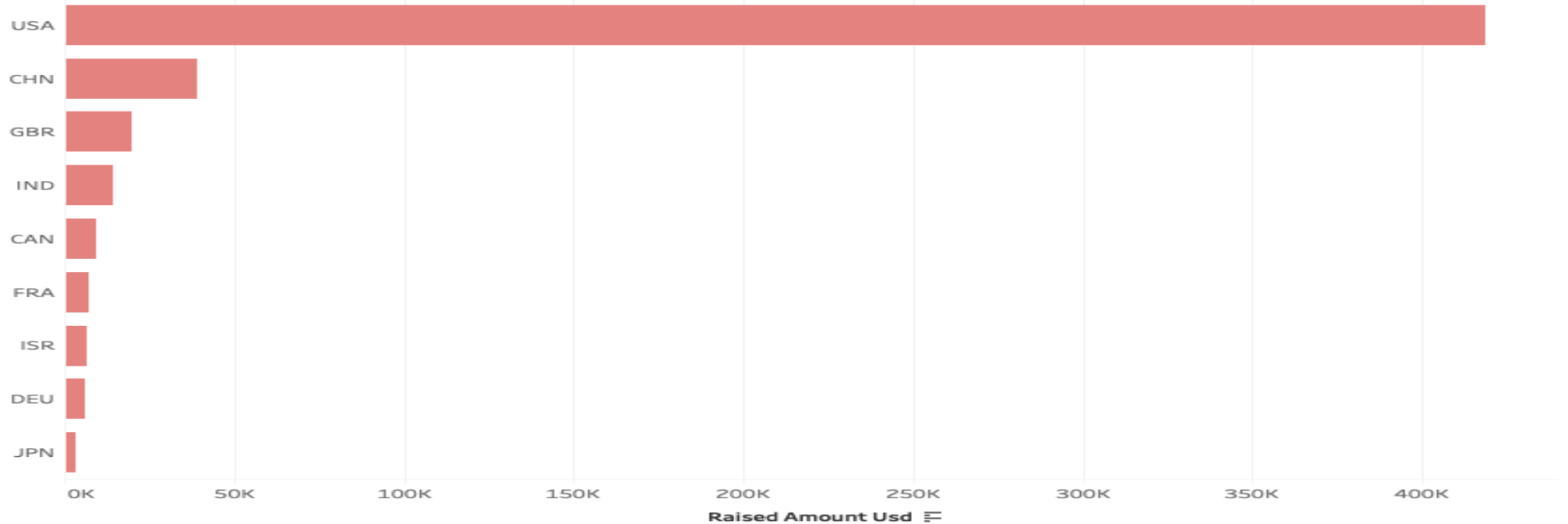
The plot 1 shows the average amount of investment (in millions USD) for three different funding type i.e., private equity, seed and ventures.

So, as per Spark Funds needs who wants to invest between 5-15 millions USD, it is clearly shown that venture is the best funding type for them.

PLOT 2

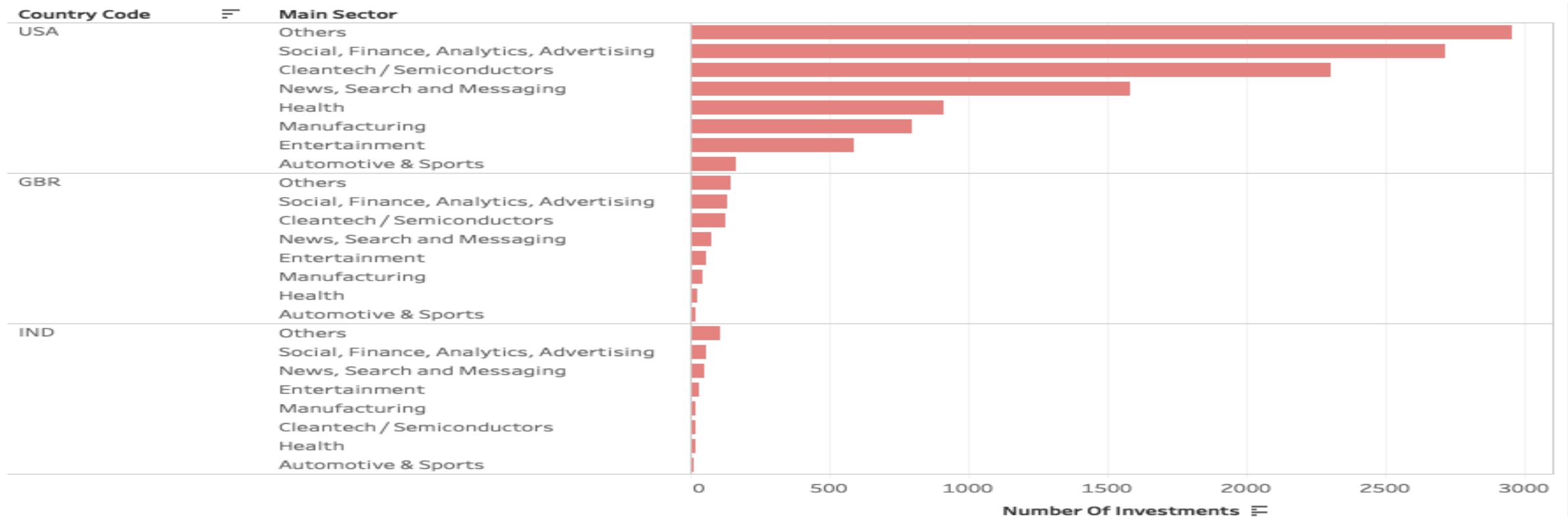
Top9

Country Code



The Plot 2 shows the Top 9 countries with highest amount of investment in millions USD. But as per Spark Funds, it only wants to invest in the English Speaking country for ease of doing business. So, as per their needs **USA, GBR and IND** top the charts as these are English speaking country.

PLOT 3



The Plot 3 shows the main sectors of top 3 countries where the investment is more as per Spark Funds criteria. We can clearly see from the above that:

- Top 3 sectors of USA:** 'Others', 'Social, Finance, Analytics, Advertising' and 'Cleantech/Semiconductors'
- Top 3 sectors of GBR:** 'Others', 'Social, Finance, Analytics, Advertising' and 'Cleantech/Semiconductors'
- Top 3 sectors of IND:** 'Others', 'Social, Finance, Analytics, Advertising' and 'News, Search and Messaging'

Conclusions

So, as per our analysis performed we came to know that Spark funds is looking to invest in Venture funding type within a range amount of 5 to 15 millions USD and want to invest in English-Speaking countries because of the ease of communication with the companies it would invest in.

With respect to the above criteria, the top 3 countries the Spark funds should invest is United States of America, Great Britain and India.

Now, within the countries sparks funds should invest in following sectors.

For investing in USA, the top 3 sectors should be ‘Others’, ‘Social, Finance, Analytics, Advertising’ and ‘Cleantech/Semiconductors’.

For investing in GBR, the top 3 sectors should be ‘Others’, ‘Social, Finance, Analytics, Advertising’ and ‘Cleantech/Semiconductors’.

For investing in IND, the top 3 sectors should be ‘Others’, ‘Social, Finance, Analytics, Advertising’ and ‘News, Search and Messaging’.

So, as per our analysis we can conclude that if the Spark funds company follow the above approach then their profits will be maximum.