

INVESTMENT CASE STUDY

SUBMISSION

Group Name: *Data Analytics – Chennai Champs*

1. Prabhakar
2. Rohit Sipani
3. Raghu Teja
4. Natarajan Ganapathi

Background

- Spark Funds is planning to invest around 5M to 15M.
- It needs to make decisions on the funding type, country, sector and also probable companies with in the list.

Objective

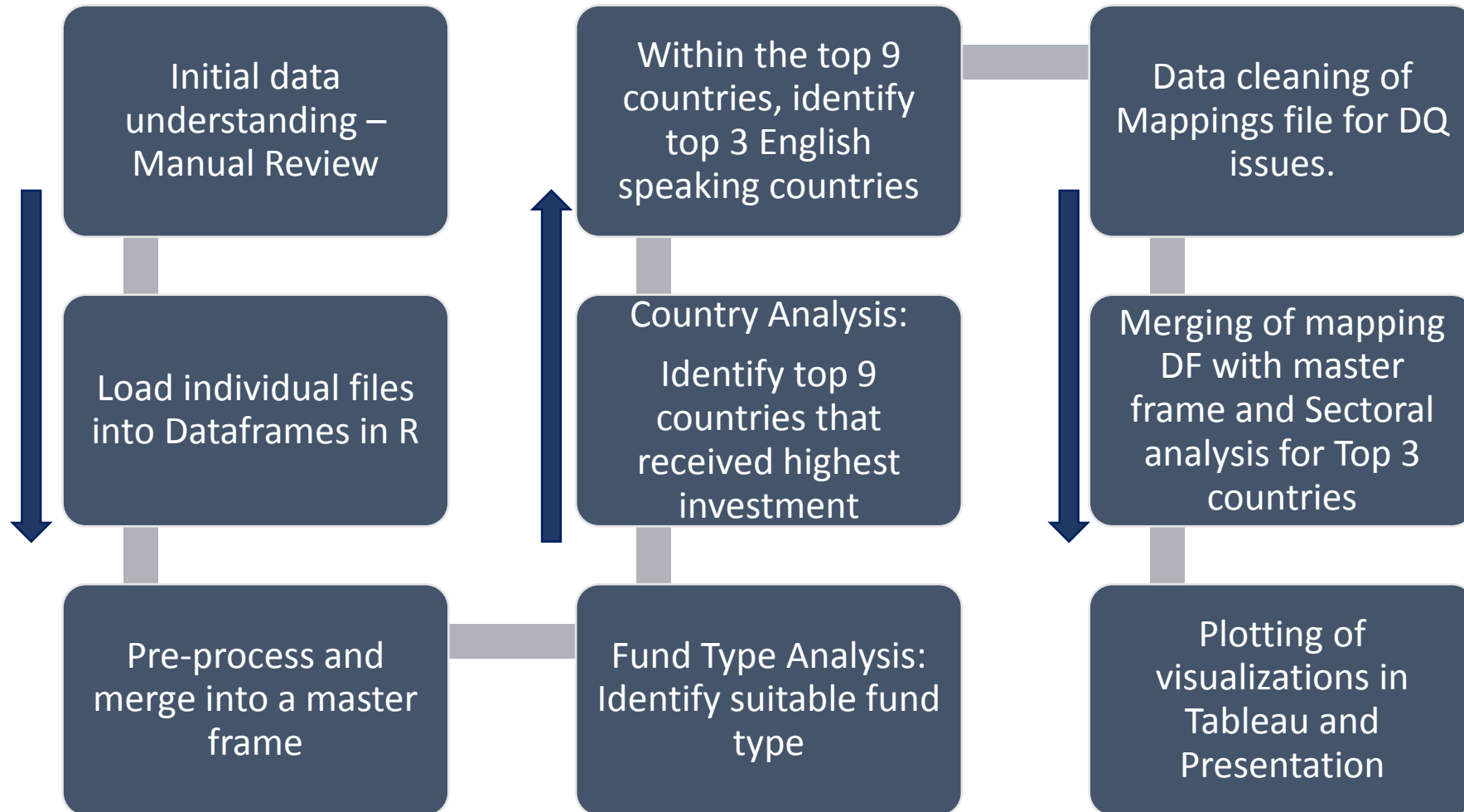
To help Spark Funds to identify right Funding type, country, sector by doing a proper data analysis in R and visualizations in Tableau on the historical investment data provided.

Inputs

Data sources provided in 3 data files, which contained master list of companies, historical investments in these companies, information on industry categories.

Approach

- Data preparation, cleansing and analysis in R
- Data Visualizations in Tableau in order to arrive at the decision of country, sector and fund type for Spark funds to invest.





Analysis Approach

1. Data Cleansing: Case conversion for uniformity and merge.
2. Merging: Companies and Round2 merged to get the master frame.
3. Filtering: Filtered for the 4 different investment types.
4. Calculations/Summarize – Average of Investment amount calculated for each Funding Type.
5. Identified the Fund Type which was receiving the funds at an average that was within the range of investment planned by Spark Fund.
6. Data Treatments:
 - Null handling (NA)
 - Case conversion for key columns

Average Funding – By Fund Type

Funding Type	Avg Investment (USD)
Venture	\$ 11,748,949.00
Angel	\$ 958,694.50
Seed	\$ 719,818.00
Private Equity	\$ 73,308,593.00

Decision point 1: For the investment amount planned by Spark Funds, above table shows Venture funding is the right vehicle.

Analysis Approach

1. Data frame constructed with total funding that was aggregated based on the country code.
2. Top 9 countries identified, based on total funding.
3. Identified English speaking countries from the data frame and PDF document provided and selected the top 3 countries.
4. Data Treatment:
 1. Null handling (NA)
 2. Case conversion

Total Investments in Top 9 Countries

Country	Total Investment (USD)	Language
USA	\$4,22,51,08,42,796	ENG
CHN	\$39,83,54,18,773	Non-ENG
GBR	\$20,24,56,27,416	ENG
IND	\$14,39,18,58,718	ENG
CAN	\$9,58,33,32,317	ENG
FRA	\$7,25,95,36,732	Non-ENG
ISR	\$6,90,75,14,579	Non-ENG
DEU	\$6,34,69,59,822	Non-ENG
JPN	\$3,36,36,76,611	Non-ENG

Decision point 2: As Spark Funds wanted to invest in English Speaking countries that received the highest investments, shortlisted the countries to the top3 that are highlighted above.

Analysis Approach

1. Mapping file loaded and data quality issues identified and addressed.
2. Checking for incorrect data types on key columns revealed data anomalies.
3. Appropriate methods from *stringr* package used to do data cleansing.
4. Data from Mapping file normalized (Long format)
5. Data frames mapping & master frame merged.
6. Three separate data frames D1, D2 and D3 constructed for top 3 countries identified.
7. Total Number & Total amount of investments derived for all 3 countries.
8. Top 3 sectors in each country along with number of investments derived.
9. For the top 2 sectors in each country, company that received the highest investment derived.
10. Data Treatment: Null handling, normalization, case conversion etc.

Assumptions

1. Excluded the blanks and NAs from sectors as they are unknown.
2. Only data mapped to eight main sectors considered for our recommendation. It is possible that the other sectors could have given in different results.

Top Sectors

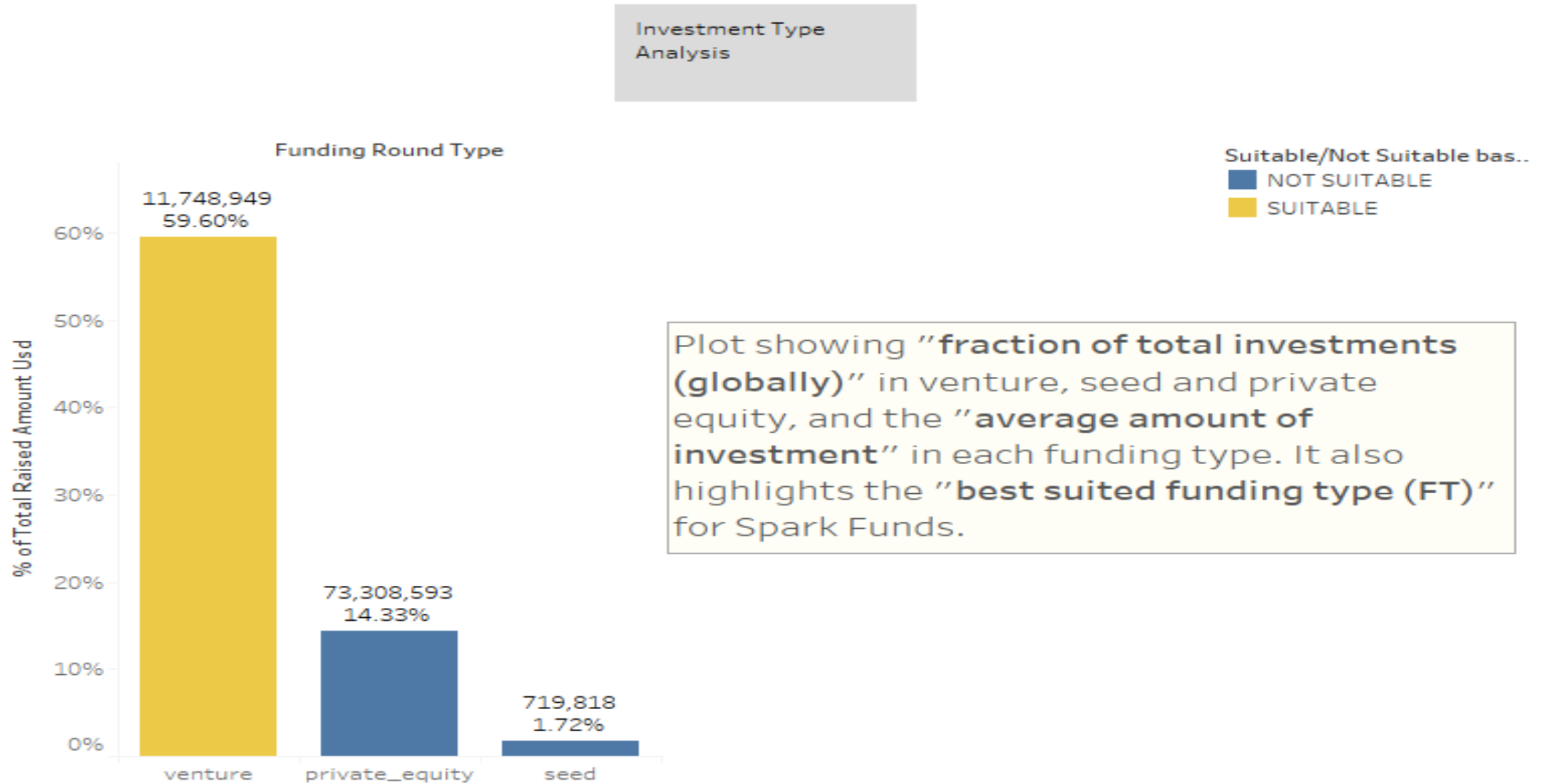
	USA	GBR	IND
Top 1	Others	Others	Others
Top 2	Social, Finance, Analytics, Advertising	Social, Finance, Analytics, Advertising	Social, Finance, Analytics, Advertising
Top 3	Cleantech / Semiconductors	Cleantech / Semiconductors	News, Search and Messaging

Top Companies

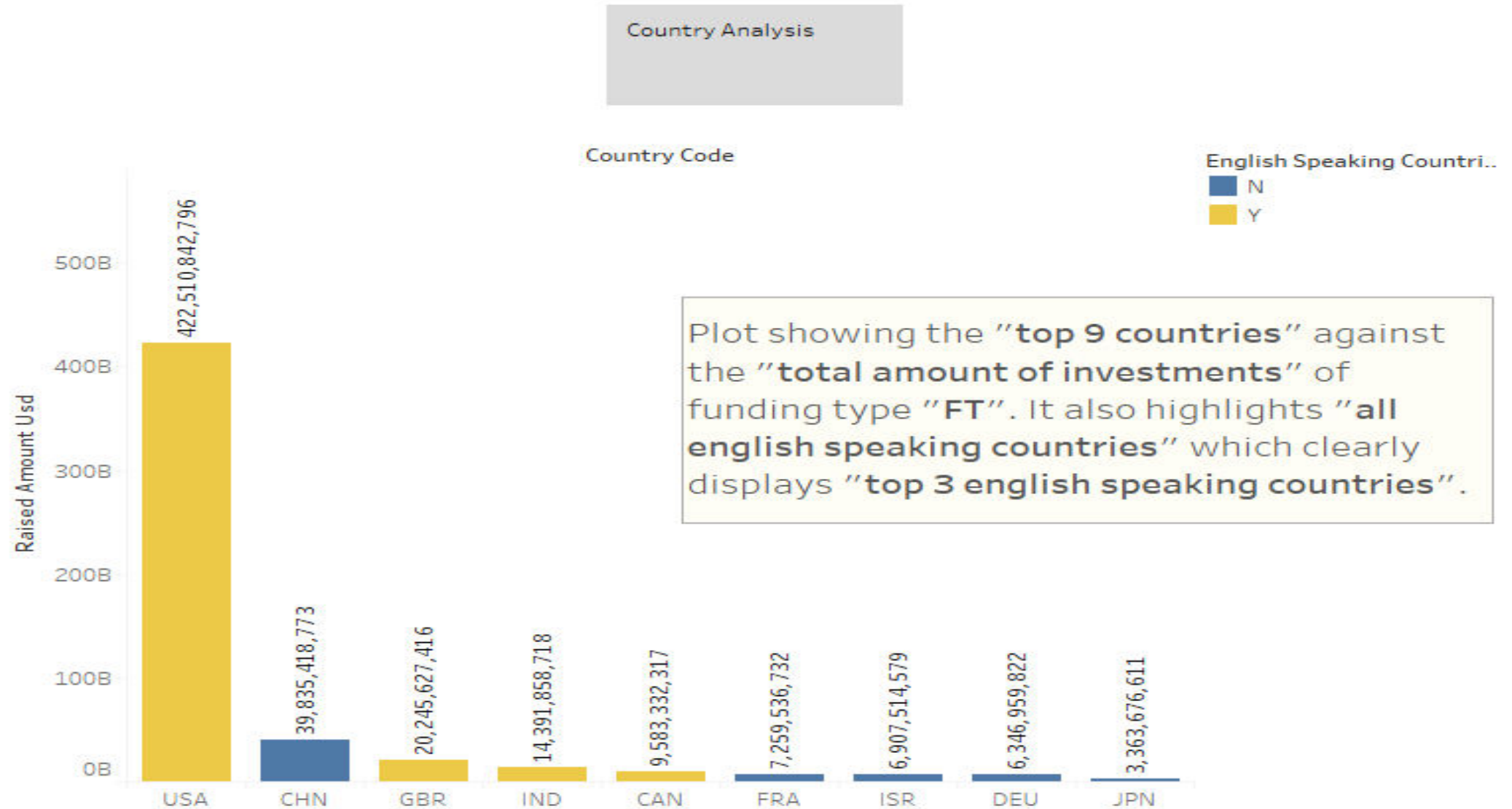
	USA	GBR	IND
Top Company by Investment Amount in Top Sector	Virtustream	Electric Cloud	FirstCry.com
Top Company by Investment Amount in 2 nd Top Sector	SST Inc. (Formerly ShotSpotter)	Celltick Technologies	Manthan Systems

Decision point 3: From the above analysis, we shortlisted the Top 3 sectors and top companies which attracted maximum investments that could be used by Spark Funds for executive decision on investments.

Plot 1 - Investment Type Analysis

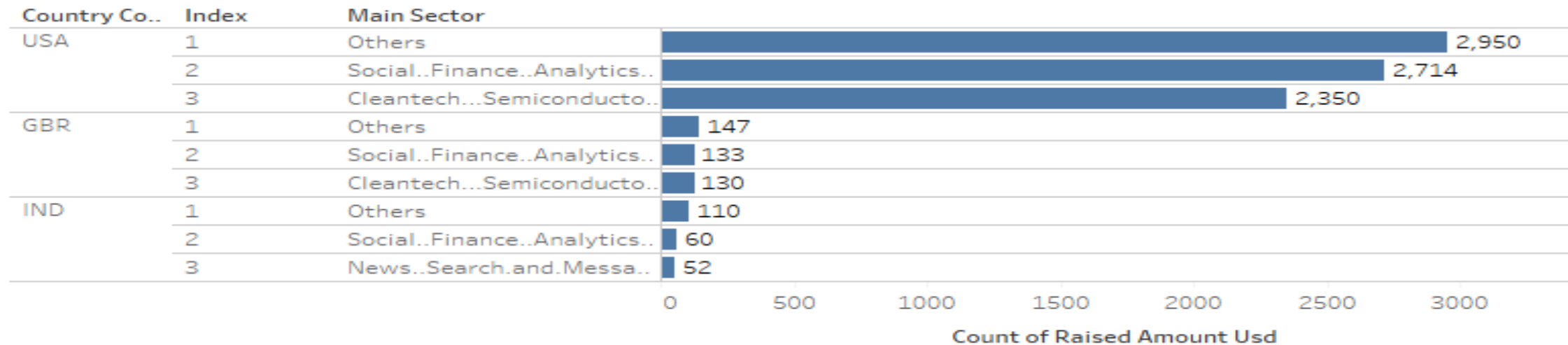


Plot 2 - Country Analysis



Plot 3 - Sector Analysis

Sector Analysis



Plot showing the "number of investments" in the "top 3 sectors" of "top 3 countries" (for the chosen investment type FT)

- ❖ Spark Funds Should choose Venture Funding as the Funding Type.
- ❖ Among the English speaking countries, USA, GBR & IND are the countries receiving maximum investments, showing overall investor confidence in these markets.
- ❖ Among the sectors, Spark Funds should choose the Top 3 sectors and companies identified in each country as shown in analysis results.