

INVESTMENT CASE STUDY

SUBMISSION

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A Brief Introduction

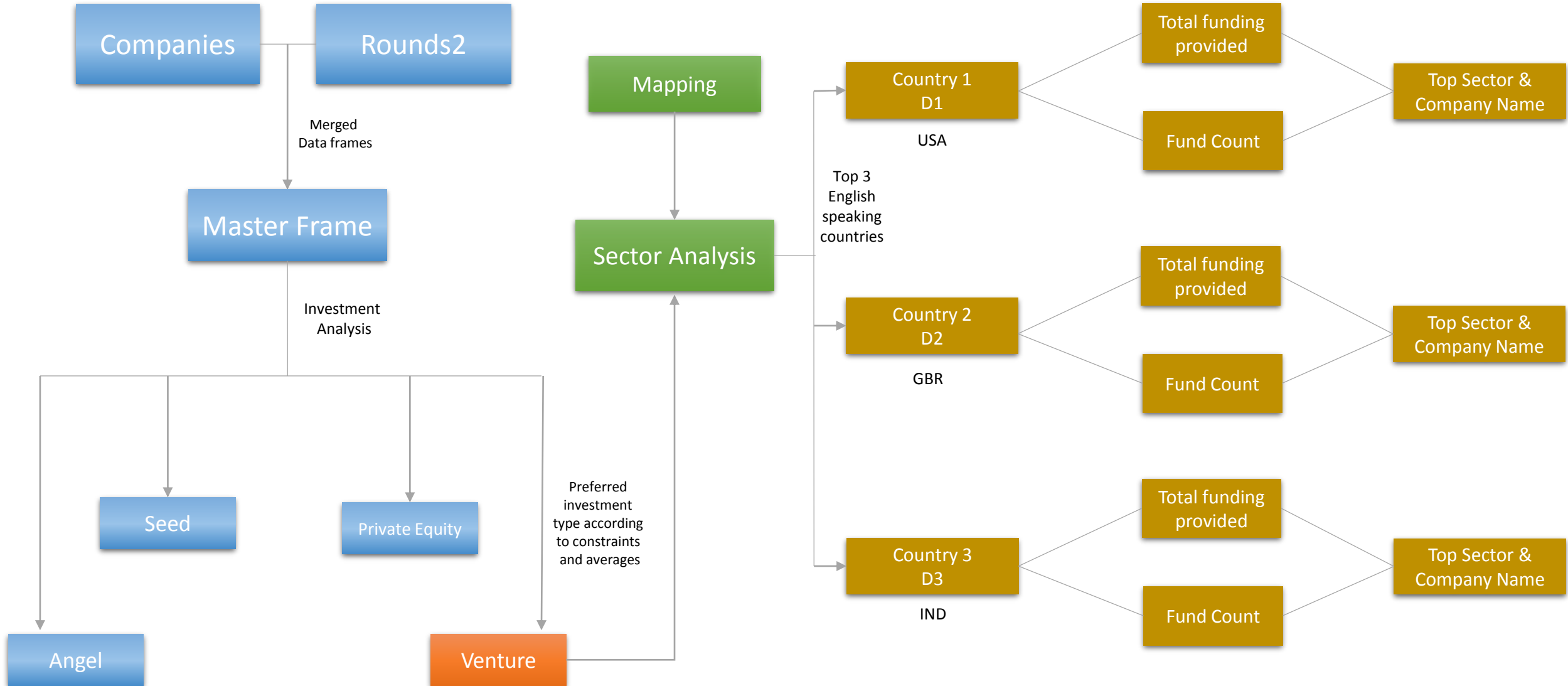
This analysis is aimed at aiding the investment decisions of Spark Funds, within the given constraints of investment amount and demographic preferences. The aim of this investment analysis is to come up with a preferred investment type for Spark Funds and the top primary sectors for investment in the top 3 English speaking countries. The constraint provided in this analysis is that the preferred funding amount lies between 5 million USD – 15 million USD.

To begin with, we analyze global trends in investment using data given in the files - companies and rounds2. These data files include investment and funding details with respect to demographics, investment type, industry and sectors. The companies data gives us an overview of all the countries being analyzed as it includes the unique id of the company, country of operations, etc. The rounds2 data file contains investment information about these companies including type of investment, amount of investment, etc.

Finally, we map these global trends against investment preferences of Spark Fund and draw conclusions for optimal investment decisions.

We have concluded that the preferred investment type is **Venture**. The top 3 English speaking countries for investment are **United States of America (USA), Great Britain (GBR) and India (IND)** and the top sectors for investment are **Others, Cleantech/Semiconductors, News, Search and Messaging, and Social, Finance, Analytics, and Advertising**.

The presentation contains subsequent analysis for the above conclusions.



Understand the Data Set

Sl. No	Questions	Answer
1	How many unique companies are present in rounds2?	66368
2	How many unique companies are present in the companies file?	66368
3	In the companies data frame, which column can be used as the unique key for each company? Write the name of the column .	Permalink
4	Are there any companies in the rounds2 file which are not present in companies ? Answer Y/N.	Y
5	Merge the two data frames so that all variables (columns) in the companies frame are added to the rounds2 data frame. Name the merged frame master_frame . How many observations are present in master_frame ?	114949

- In the above table we analyze both Data Frames, Companies and Rounds2 to conclude that both frames have 66368 unique entries corresponding to columns 'company_permalink' and 'permalink'
- Using the suitable python codes we conclude that Rounds2 and Companies have unique entries.
- After merging data frames, the **master frame obtained had the following columns:**

Attributes	Description
Permalink	Unique ID of company
funding_round_permalink	Unique ID of funding round
funding_round_type	Type of funding – venture, angel, private equity etc.
funding_round_code	Round of venture funding (round A, B etc.)
funded_at	Date of funding

Attributes	Description
name	Company name
homepage_url	Website URL
category_list	Category/categories to which a company belongs
status	Operational status
country_code	Country Code
state_code	State

Average Values of Investments for Each of these Funding Types

Sl.No	Questions	Answer
1	Average funding amount of venture type	10.63m
2	Average funding amount of angel type	0.76m
3	Average funding amount of seed type	0.56m
4	Average funding amount of private equity type	62.11m
5	Considering that Spark Funds wants to invest between 5 to 15 million USD per investment round, which investment type is the most suitable for them?	Venture

- The above table contains the average funding amounts for four different investment types, namely venture, seed, angel and private equity.
- According to our given constraint, Spark Funds can invest between 5 million USD to 15 million USD. All investment type averages except private equity fall under this investment amount bracket. However, out of venture, seed and angel types, **Venture** yields the highest average.
- Since the average of venture type falls in our investment amount constraint and yield the highest average in that investment bracket, we conclude that the preferred investment type for Spark Funds is **venture**.

Sl.No	Questions	Answers
1	Top English speaking country	United States of America (USA)
2	Second English speaking country	Great Britain (GBR)
3	Third English speaking country	India (IND)

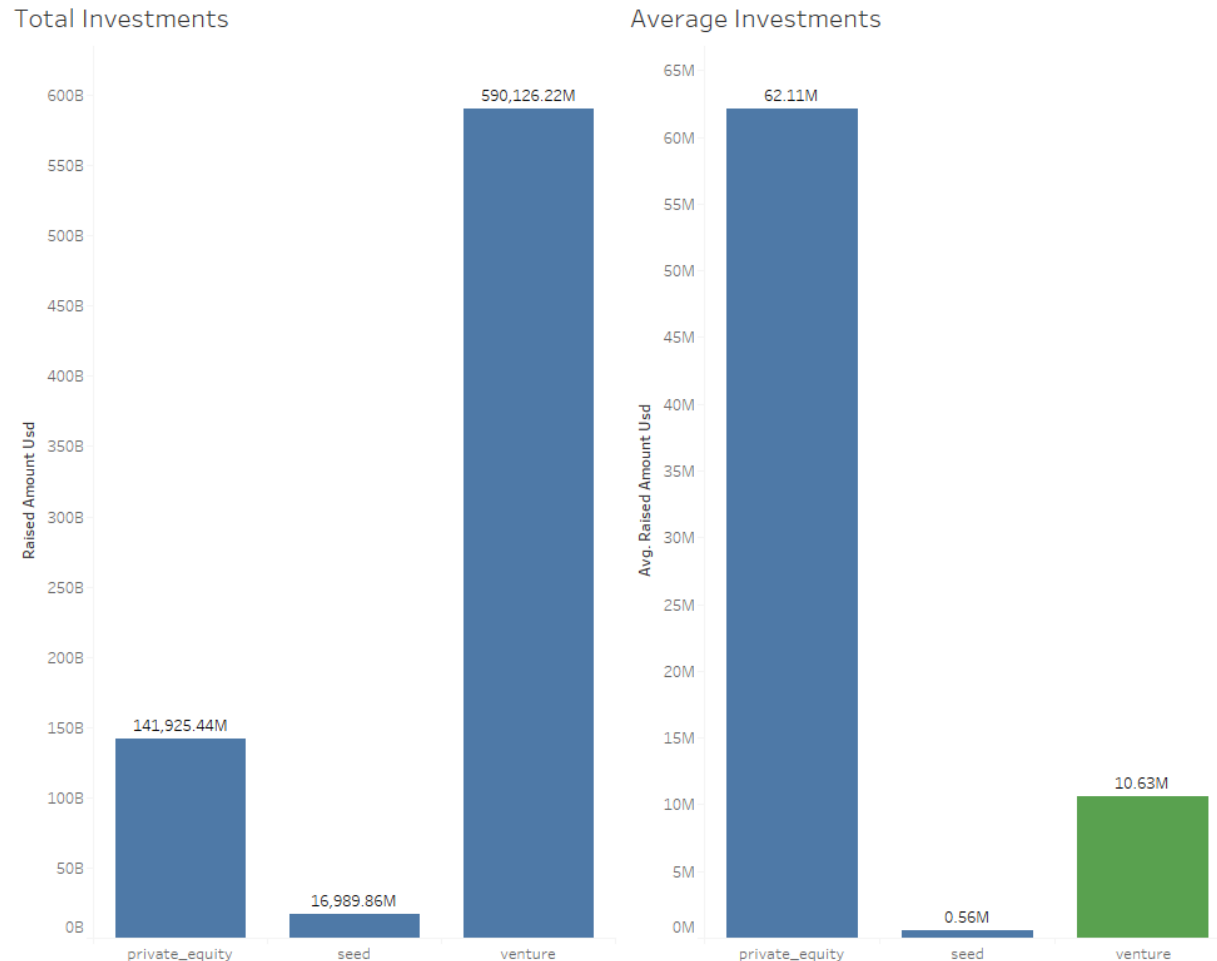
- After filtering out all investments corresponding to venture investment type, we moved onto analyzing the geographical feasibility of investments.
- All companies corresponding to venture type were then ranked according to their investment amounts. The top 9 countries having the highest venture investment amount were filtered out. The top 4 countries were USA, China, Great Britain and India.
- Since the scope of our analysis is limited to English Speaking countries, the top 3 countries filtered out from this list were **USA, Great Britain (GBR) and India (IND)**.

Sector-wise Investment Analysis

Sl.no	Questions	C1	C2	C3
1	Total number of Investments (count)	5149	323	141
2	Total amount of investment (USD)	46155880000	2837928000	1274864000
3	Top Sector name (no. of investment-wise)	Others	Cleantech/SC	Others
4	Second Sector name (no. of investment-wise)	Cleantech/SC	Others	News, Search & Messaging
5	Third Sector name (no. of investment-wise)	Health	News, Search & Messaging	Social, Finance, Analytics, Advertising
6	Number of investments in top sector (3)	1729	104	57
7	Number of investments in second sector (4)	1494	95	24
8	Number of investments in third sector (5)	498	30	18
9	For point 3 (top sector count-wise), which company received the highest investment?	Bit9	EUSA Pharma	Myntra
10	For point 4 (second best sector count-wise), which company received the highest investment?	Tigo Energy	Electric Cloud	GupShup

- Here, C1 is USA, C2 is Great Britain (GBR) and C3 is India (IND).
- The above table contains thorough analysis of the various investments and investment amounts for venture type in these three countries.
- We observe that **Others, Cleantech/Semiconductors, News, Search and Messaging** are the highest invested in primary sectors in all three countries, since these three sectors occur most frequently in this analysis.
- Highest number of investments are made in **USA** making it the most attractive English speaking country for investments.
- The top companies investment in Others is Bit9 and Myntra, for Cleantech/Semiconductors is EUSA Pharma and Tigo Energy and for News, Search and Messaging is GupShup.

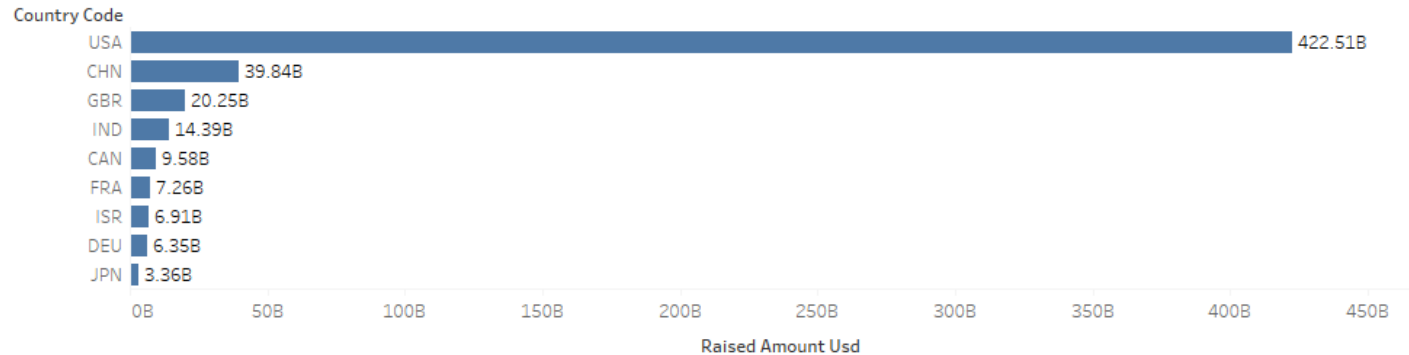
Fraction of Total Investments for all Funding Types and average amount of investment in each funding type



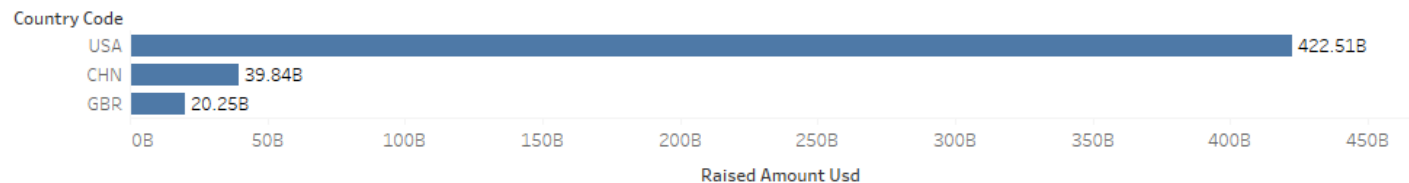
Description: The current plot shows the total investments and average investments of the three investment types and it can be seen that while Venture has the highest *total investments* they also have the most count and their *average investments* fulfills the criteria which makes it the desirable investment type.

Top 9 Countries Against the Total Amount of Investments of Funding Type

Top 9 Countries(Venture)



Top 3 Countries(Venture) (Total)



Top 3 Countries(Venture) (English)

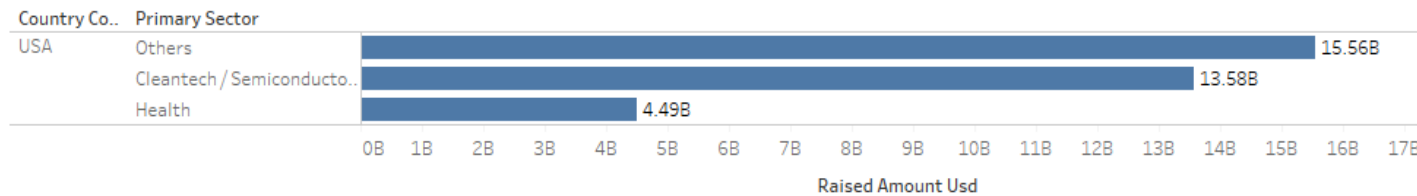


Description: The following plots from top to bottom shows the graphs of the top 9 countries investment wise for venture, top 3 countries and top 3 English speaking countries.

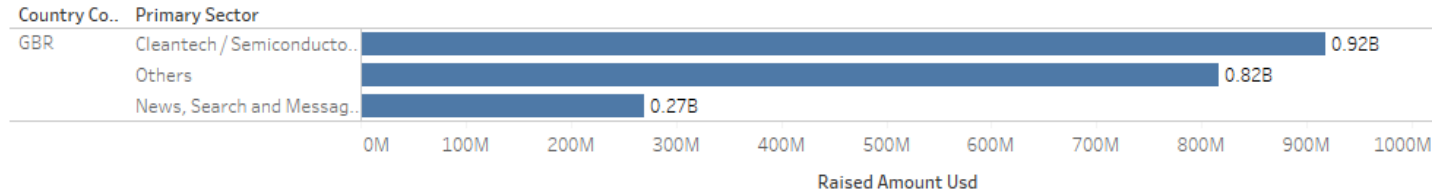
It can be concluded that United States of America, Great Britain and India are the top 3 English speaking countries for venture type investment.

Top 3 Sectors of the Top 3 Countries

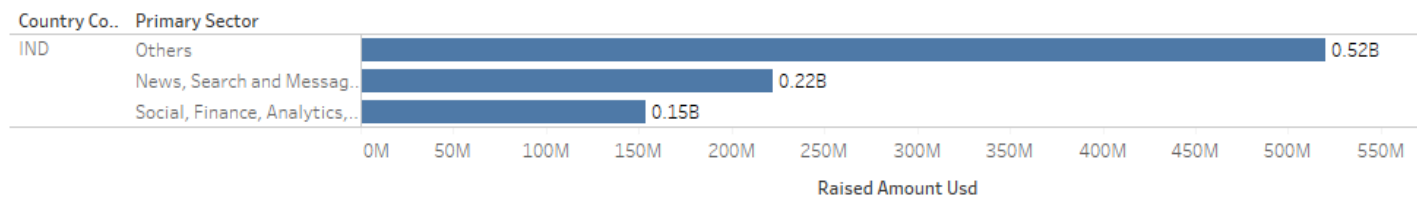
Top Three Sectors (C1)



Top Three Sectors (C2)



Top Three Sectors (C3)



Description: The plots from top to bottom show the top 3 sectors for the top three countries.

Conclusions

The analysis started with identifying the common column between companies and rounds2 data files to merge the two files together in one data frame. This data frame contains information about the companies, their demographics and the investment type and investment amount for all these companies. After this, the analysis moved onto calculating the various averages corresponding to different investment types, and hence identifying the most feasible investment type in the given investment constraint which was between 5 million USD and 15 million USD.

Corresponding to our preferred investment type we filtered out the top 9 countries and the top 3 English speaking countries. Post this, we identified the top 3 primary sectors and their fund count and total funding as well. This helped us analyze which sector is most feasible for investment and in which country.

We have concluded that the preferred investment type is **Venture**. The top 3 English speaking countries for investment are **United States of America (USA)**, **Great Britain (GBR)** and **India (IND)** and the top sectors for investment are **Others, Cleantech/Semiconductors, News, Search and Messaging, and Social, Finance, Analytics, and Advertising**.

Post meticulous analysis we conclude that Spark Funds should invest in **USA** and the investment type should be **Venture type** and the primary sectors for investment are **Others, Cleantech/Semiconductors and News, Search and Messaging**.