

# SPARK FUNDS INVESTMENT CASE STUDY

## **Group Members:**

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**Objective :** To identify optimal investment strategies by identifying the best sectors, countries and a suitable investment type to make investments.

**Strategy:** To invest where most **other investors are investing**.

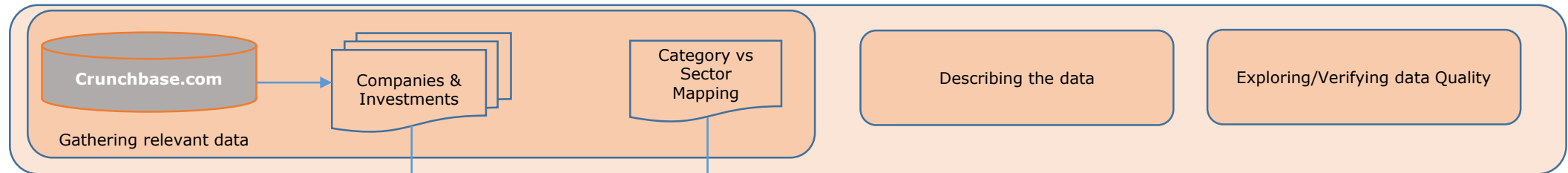
### **Constraints for Investments:**

- Spark funds preferred investment is between **5 to 15 million USD** per round of investment.
- Invest only in **English-speaking countries** because of the ease of communication with the companies.

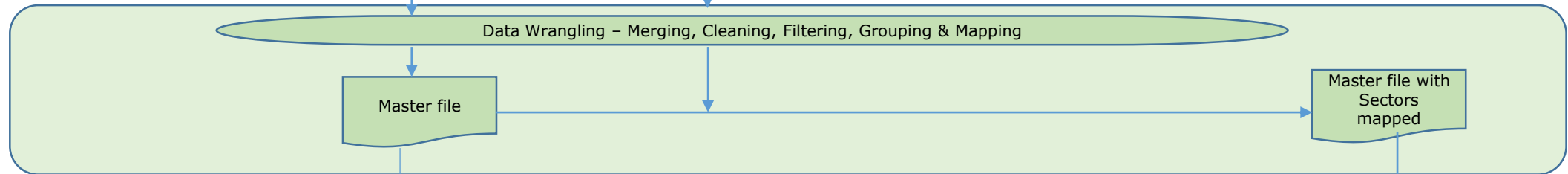
### **Assumptions:**

- A country is considered to be English speaking only if English is one of the official languages in that country. (List of countries where English is an official language can be referenced [Here](#))
- The sector analysis is based on the category which is first in the category list column in investment file, assuming it to be the primary category of the company

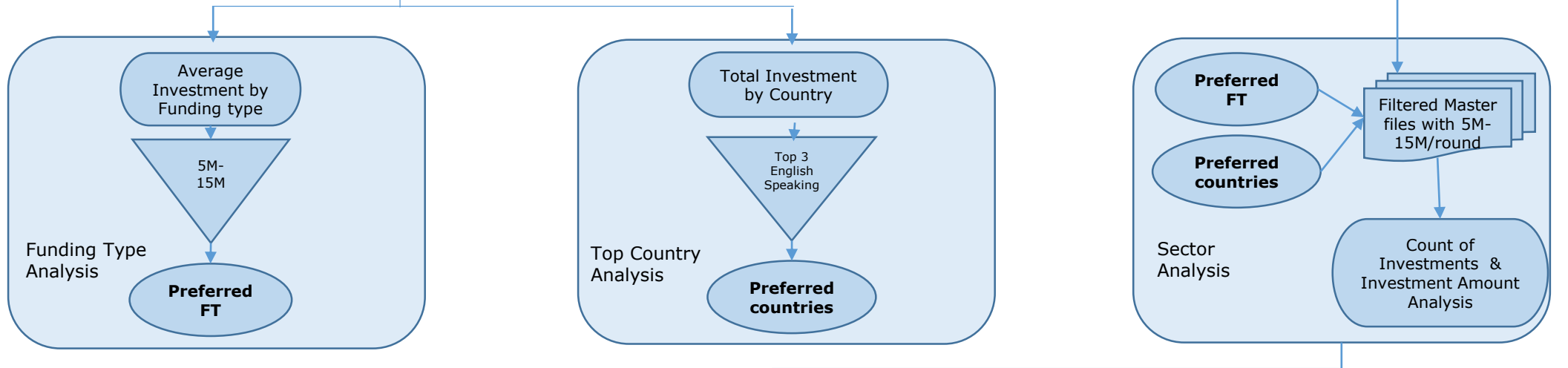
Data Understanding



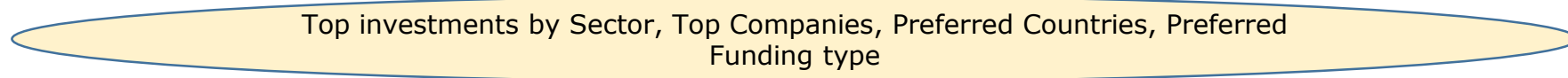
Data Preparation



Data Analysis & Visualizations



Findings



## Gathering relevant data:

- Companies and investment details with structured data from [crunchbase.com](https://www.crunchbase.com) were used as data files for this case study.
- An additional mapping file with company categories mapped to 8 main sectors was used to simplify the analysis into eight sector buckets, rather than trying to analyze hundreds of categories. Note: Sector “Others” is considered as one of the major sector.

## Describing the data

- Some key fields that were considered for the analysis are Unique ID of company, Country Code, Category/Sectors to which a company belongs, Round of funding (round A, B etc.), Money raised in funding (in USD) .

**Companies**

Attribute	Description
<b>Permalink</b>	<b>Unique ID of company</b>
<b>name</b>	<b>Company name</b>
homepage_url	Website URL
<b>category_list</b>	<b>Category/categories to which a company belongs</b>
status	Operational status
<b>country_code</b>	<b>Country Code</b>
state_code	State

**rounds2**

Attributes	Description
<b>company_permalink</b>	<b>Unique ID of company</b>
funding_round_permalink	Unique ID of funding round
funding_round_type	Type of funding – venture, angel, private equity etc.
<b>funding_round_code</b>	<b>Round of venture funding (round A, B etc.)</b>
funded_at	Date of funding
<b>raised_amount_usd</b>	<b>Money raised in funding (USD)</b>

- The total no. of observations in Companies file is **66,368** and rounds2 file is **1,14,949**.

## Exploring/Verifying data Quality and Data preparation steps taken to improve data quality

- Approximately 9% of the total number of companies are in closed status.

**Data Preparation:** Analysis was done and the results were compared including and excluding the closed companies. However Inclusion or exclusion of closed companies did not impact the decisions made regarding the preferred funding type, preferred countries, or the final decisions related to top Sectors or top Companies. Hence these closed companies were used as is for final analysis.

- Approximately 11% of the observations in Companies file had no information on Countries.

**Data Preparation:** These rows were ignored when calculating the final numbers.

- Approximately 17% of the observations in the Investment(rounds2) file had no details on the Money raised in funding.

**Data Preparation:** These records were excluded during the aggregate calculations such as when calculating average/sum.

- The category list in the companies file 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.

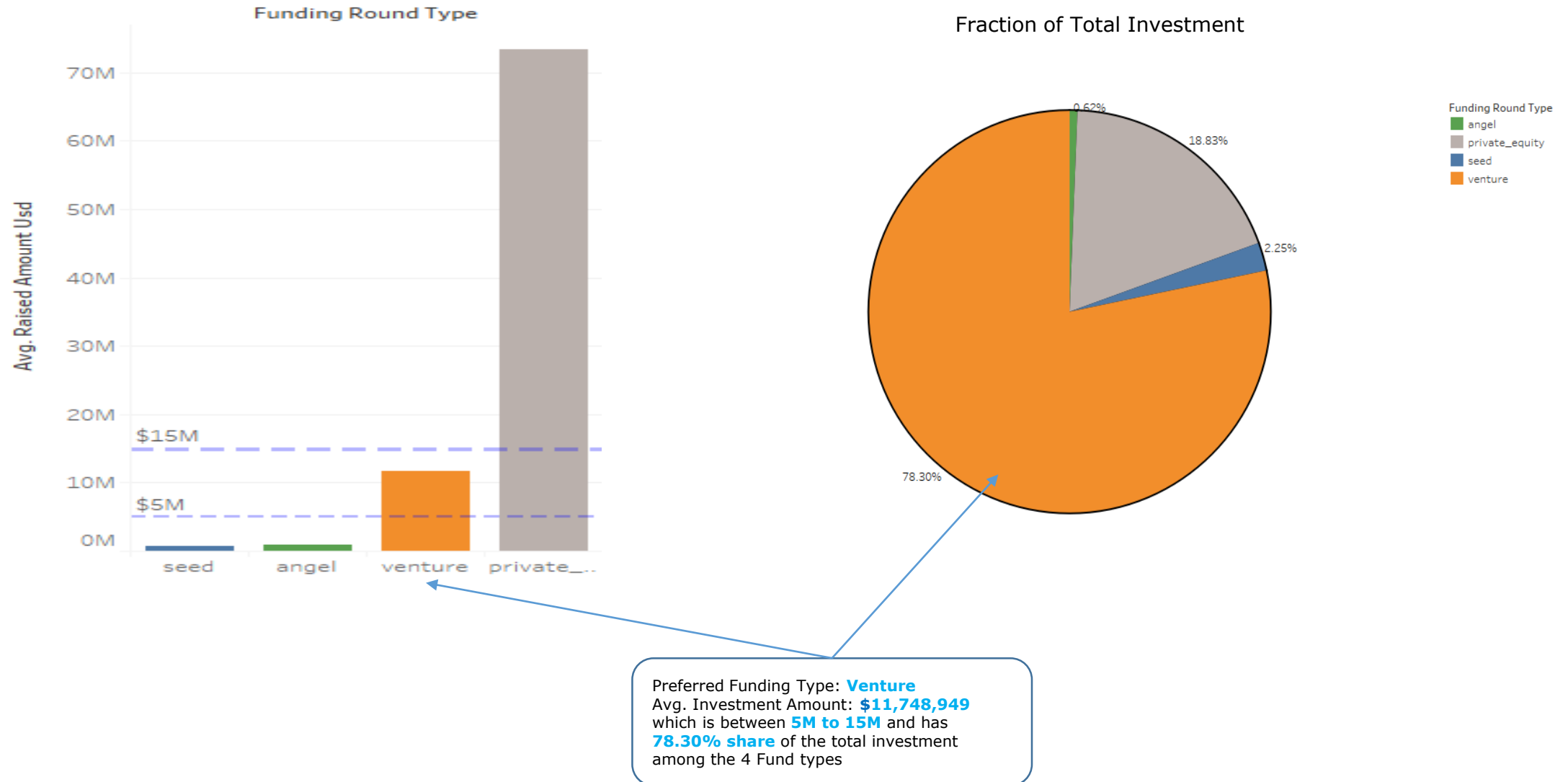
**Data Preparation:** As agreed, a business rule was used so that the first string before the vertical bar will be considered as the primary category. In the example above, 'Application Platforms' will be considered the primary category. This primary category was then mapped to one of the 8 main sectors available in the mapping file.

- A very few records could not find a match on sector based on the primary category but they are very negligible when compared to the total volume of records.

**Data Preparation :** No match observations on Sector were ignored during the final analysis.

# Preferred Funding Type

(Based on Average Investment amount and Fraction of Total Investment)



# Top 9 countries

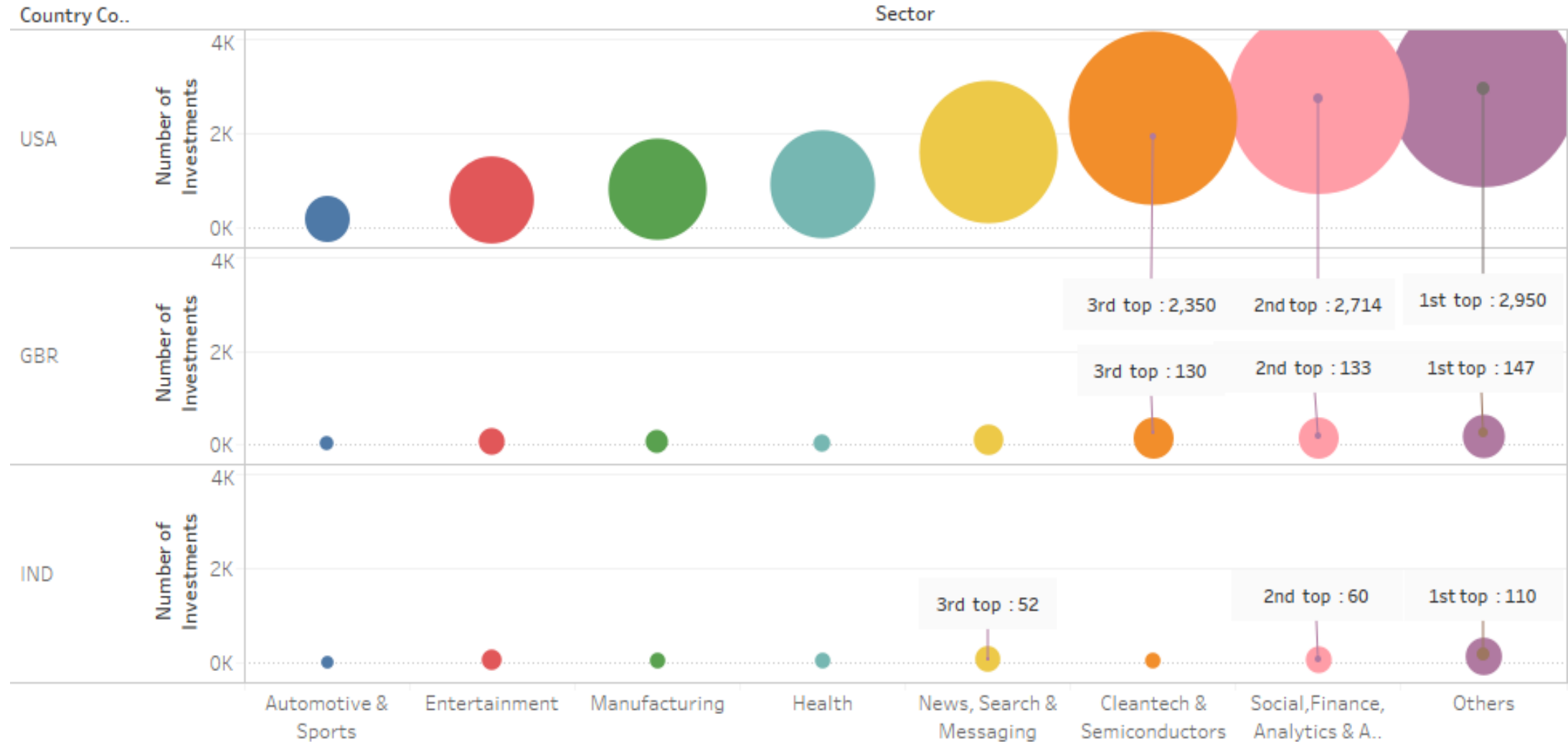
(Based on Total Investment amount  
For 'Venture' Funding type)



Top 3 English Speaking Countries: **United States of America, United Kingdom, India**

# Country - Sector Analysis

(Based on number of investments for 'Venture' Funding type)





## United States of America(USA)

## United Kingdom(GBR)

## India(IND)

Others

BTI Systems Taulia  
Arena Solutions Blazent Colubris Networks  
Aryaka Networks AirTight Networks Bit9  
Vormetric Elemental Technologies Redfin Five9  
Change Healthcare Approva Black Duck Software  
deCarta Virtustream Convio Capella Photonics  
Zilliant 3VR

Tribold  
EnvironmentIQ Azure Solutions  
Enigmatec Cambridge Broadband Networks  
MyOptique Group Eglue Business Technologies  
ip.access SilverRail Technologies ACS Clothing  
Electric Cloud Notonthehighstreet Lyst  
SenSage OpenCloud Aepona  
Alfresco Njini

CaratLane  
Comat Technologies CommonFloor  
NxtGen Data Center & Cloud Services  
Maharana Infrastructure and Professional  
Services Private Limited (MIPS)  
ItzCash Card Ltd. FirstCry.com  
Pepperfry.com Myntra  
Roposo LimeRoad

Social Finance & Analysis

YuMe INRIX Vuclip Turn  
Jaspersoft Damballa Hightail InstaMed Xactly Corp  
Demandbase edo Interactive NetBase Solutions  
SST Inc. (Formerly ShotSpotter) Zoove  
Inklings Systems Visible Measures  
FirstRain Lotame OpTier ChoiceStream  
Intacct ChaCha Univa

Crowdcube Garlik  
OpenGamma SumUp Troux Technologies  
myThings Livebookings Holdings Ltd.  
Celltick Technologies Neul  
Coco Communications MarketInvoice  
VisualDNA Zopa Kantox Sport Pursuit  
Amplience Victor  
SimilarWeb

TravelGuru BankBazaar.com  
ShopClues.com Eka Software Solutions  
Qyuki Financial Information Network & Operations Pvt  
inTarvo Manthan Systems  
Microland Grameen Financial Services  
Komli Media Apna Paisa Shriram Credit

Cleantech / Semiconductors

Stretch Xceive Athenix  
Aviir Tigo Energy DNAexus Tocagen  
Biodesix Vitae Pharmaceuticals Catabasis Pharmaceuticals  
ClariPhy Communications Novomer Danotek Motion Technologies  
SCLenergy Cambrios Technologies Ocular Therapeutix  
ALung Technologies iRhythm Technologies SoloPower  
ForSight Labs Metabolon Splashtop Zenverge eASIC  
Gridco Akros Silicon Stemgent  
Rheonix

Xention  
i2O Water Anadigm Oxitec  
Oxford Photovoltaics MicroEmissive Displays Group  
Takeda Cambridge Immune Targeting Systems  
Elixent F-star Biotechnology Limited  
EUSA Pharma Horizon Discovery  
Imagination Technologies Autifony Therapeutics  
Plaxica CamSemi




News Search & Messaging

Four Interactive Webshastra  
PepperTap Bharat Matrimony hike Bluestone.com  
One97 Communications Just Dial Mobile2Win India  
Roadrunnr Matrimony.com SMS GupShup  
IMImobile UrbanClap GupShup Babajob  
Money On Mobile TeleDNA Quikr  
Guruji

- **Preferred Investment type** : Venture funding type
- **Preferred top 3 English Speaking countries** : United States of America, United Kingdom, India
- The top 2 sectors ('**Others**' & '**Social Finance & Analysis**') remains the same for all the 3 countries.
- The 3<sup>rd</sup> top sector ('Cleantech & Semiconductors') is the same for USA and UK whereas in India the sector that ranks 3<sup>rd</sup> is 'News, Search & Messaging'.

## Preferred top 3 Sectors and Companies in the top 3 Countries

Sectors	Top Company		Sectors	Top Company
	USA(1 <sup>st</sup> )	UK(2 <sup>nd</sup> )		India(3 <sup>rd</sup> )
Others (1 <sup>st</sup> )	Virtustream	Electric Cloud	Others (1 <sup>st</sup> )	FirstCry.com
Social, Finance, Analytics, Advertising (2 <sup>nd</sup> )	SST Inc. (Formerly ShotSpotter)	Celltick Technologies	Social, Finance, Analytics, Advertising (2 <sup>nd</sup> )	Manthan Systems
Cleantech / Semiconductors (3 <sup>rd</sup> )	Biodesix	EUSA Pharma	News, Search and Messaging (3 <sup>rd</sup> )	GupShup

<b>United States of America</b> 	<b>Great Britain</b> 	<b>India</b> 
<p><b>Virtustream</b> provides cloud computing management software and infrastructure as a service to enterprises, governments and service providers.</p> <p>Number of Funding Rounds <a href="#">6</a> Total Funding Amount <a href="#">\$64.3M</a></p>	<p><b>Electric Cloud, Inc.</b> is a DevOps optimization software company based in San Jose helping organizations deliver better software faster by automating &amp; accelerating build, deployment and release processes.</p> <p>Number of Funding Rounds <a href="#">4</a> Total Funding Amount <a href="#">\$37M</a></p>	<p><b>FirstCry.com</b> is Asia's Largest Online Portal for Baby Products and Toys. They have over 20000+ items from 250+ top International and Indian brands</p> <p>Number of Funding Rounds <a href="#">3</a> Total Funding Amount <a href="#">\$39M</a></p>
<p><b>ShotSpotter</b> is the leader in gunshot detection solutions that helps law enforcement officials and security personnel identify, locate and deter gun violence</p> <p>Number of Funding Rounds <a href="#">7</a> Total Funding Amount <a href="#">\$67.9M</a></p>	<p><b>Celltick Technologies</b> creates and manages mass OTT market mobile solutions that close the loop between mobile marketing and mobile commerce.</p> <p>Number of Funding Rounds <a href="#">4</a> Total Funding Amount <a href="#">\$37.5M</a></p>	<p><b>Manthan Software Services</b> is a leader in advanced analytics and big data for consumer industries.</p> <p>Number of Funding Rounds <a href="#">4</a> Total Funding Amount <a href="#">\$50.7 M</a></p>
<p><b>Biodesix</b> is a molecular diagnostics company engaged in the development of innovative products for personalizing medicine</p> <p>Number of Funding Rounds <a href="#">8</a> Total Funding Amount <a href="#">\$75.3M</a></p>	<p><b>EUSA Pharma</b> is a pharmaceutical company developing and licensing late-stage oncology, pain control, and critical care products</p> <p>Number of Funding Rounds <a href="#">4</a> Total Funding Amount <a href="#">\$54.2M</a></p>	<p><b>Gupshup</b> is one of the world's largest Enterprise messaging platforms being used by over 30,000 businesses including leading companies such as FlipKart, OLA, Facebook, Twitter, ICICI, HDFC and ZeeTV to engage and retain consumers</p> <p>Number of Funding Rounds <a href="#">2</a> Total Funding Amount <a href="#">\$33M</a></p>