This section outlines the research methodology employed in this study, detailing the steps taken to ensure the validity and reliability of the findings. The methodology is presented as a completed work to provide a comprehensive understanding of the research process.

The current study was carried out to evaluate the unique items that have been successful in crowdfunding with the help of secondary data. In order to evaluate the innovative items that have been successful in crowdfunding, this research gathered secondary data. Because the goal of this study is to provide the broadest perspective on crowdfunding, this study collected publicly available data from crowdfunding websites wefunder.com and Kickstarter. The data collected was analysed with respect to funding raised, seed money, duration in which funding could reach 100%, etc. The projects which could surpass the budget will be considered as successful innovation ideas, while others are considered as failed innovations.

For the study, data from the stock market over the last five years was used. This data includes all new entries on both the Bombay Stock Market and the National Stock Exchange. The main goal is to find companies that have gone from being starts to becoming "unicorns." The study looks at how innovation, research, and startups' financial results are related to see how likely they are to do well on the stock market. The start date of each company, which comes from their websites, is closely looked at as part of the data analysis.

The current study was carried out in the Mumbai, India suburbs to better understand how consumers behave towards electronic devices. Primary and secondary data were used in the process. This research gathered information from neighbourhood retailers about the purchases made by residents of Mumbai's suburbs on consumer electronics.

In the final phase of the thesis, the researcher carried out semi-structured survey with startup entrepreneurs as part of the data gathering process, and secondary data from other internet platforms was also gathered. The provided data was subjected to data analysis, and the findings were applied to the research of the Mumbai area's startup eco system.

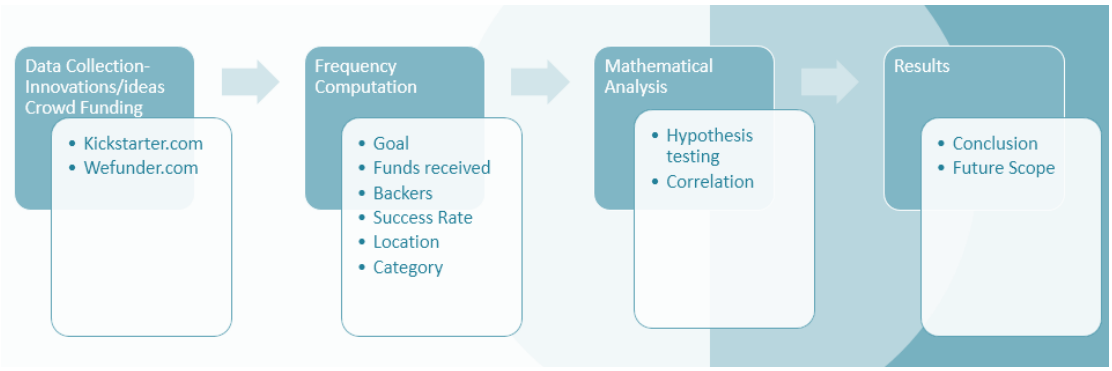

Fig. 3.2 : Methodology Process for Crowd funding

This study evaluated crowdfunding-successful creative items using secondary data. This study used secondary data to evaluate crowdfunding-successful creative items. This study chose 123 projects from Kickstarter and wefunder.com, the largest and most popular crowdfunding platform, to provide a wide perspective on crowdsourcing. Patronage or reward model is employed by Kickstarter. Kickstarter is likely a good model for evaluating crowdfunding projects.

See **Figure 3.2**. Kick starter.com and wefudner.com provided targeted Goal, Funds received, Backers, Success Rate, Location, and Category statistics. This research used Minitab to calculate data and correlation and hypothesis testing to analyze it. This study concluded after analysing the results.

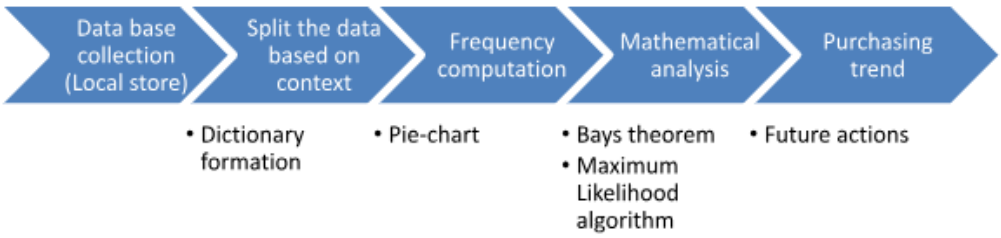

Fig. 3.3 : Methodology Process to segregate data lexical context, such as electronic consumer items and mobile accessories

This study used primary and secondary data to examine Mumbai suburbs consumers' electronic product behaviour. This study collected data on suburban Mumbai residents' local store purchases of electronics. **Figure 3.3** shows how this research

segregate data by lexical context, such as electronic consumer items and mobile accessories.

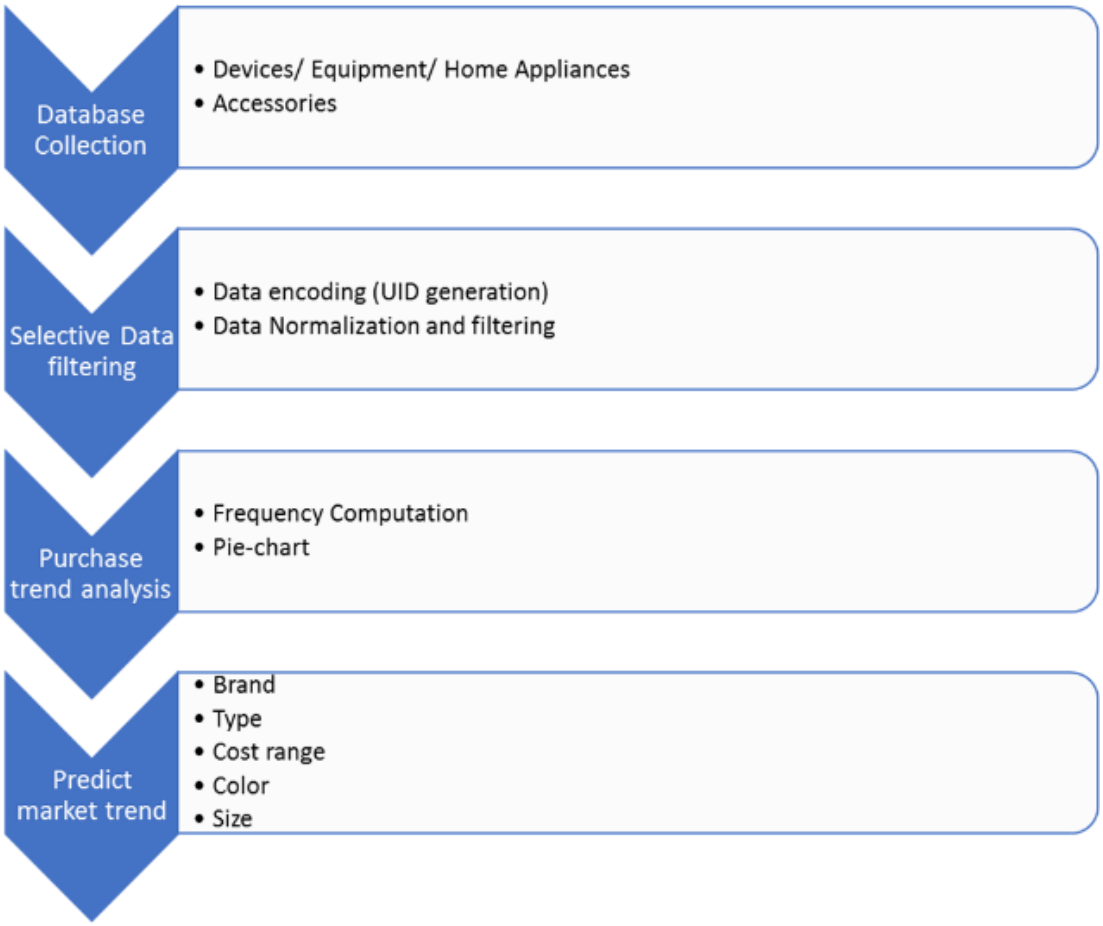

Fig. 3.4 : Sub categorical analysis (Mobile accessories)

Then this study completed mobile accessory sub categorical analysis (**Figure 3.4**). This research collected consumer electronics data. This study executed selective data filtering later. Divide data into devices/equipment/home appliances and accessories. Data was encoded to create Unique IDs. Each appliance is coded Mobile 001 Samsung 00110, then by batch, version, etc. After UID-based data standardization and filtering to determine data use or discard, this study created a purchase trend analysis.

This research predicted brand, type, cost range, color, and size market trends using frequency computation (things purchased in 1 hour (3600 seconds)) and pie chart.

Bayes' theorem updates event probabilities with fresh information. For instance, someone who buys a Samsung S7 phone will likely buy the case. The maximum

likelihood algorithm predicts future purchases based on past patterns. The Bayes theorem and maximum likelihood were used for purchase pattern analysis and future scope.

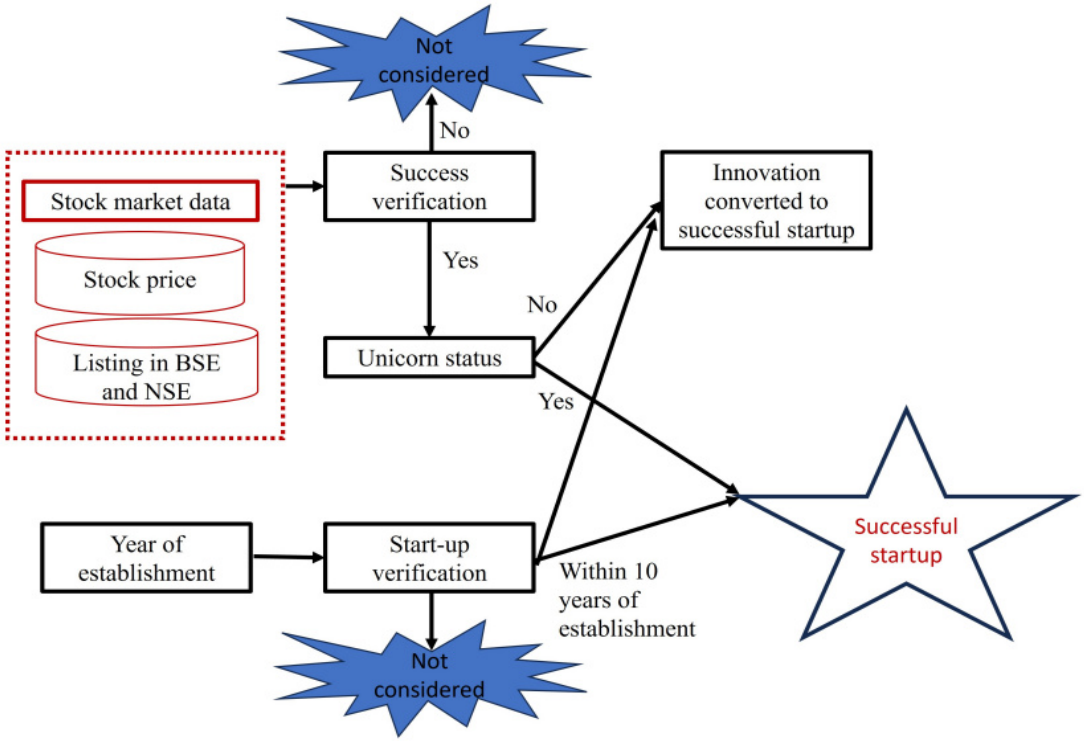

Fig. 3.5 : The overall outline of the proposed work to link innovation and success

This study analyses five years of stock market data. As per the **Figure 3.5** the dataset includes all new Bombay Stock Market and National Stock Exchange listings of companies that meet listing criteria. This research seeks to determine how creativity, research, and startup success are linked, concentrating on companies that have grown rapidly and became unicorns.

The researchers started by gathering stock market data on the listed companies, including financial performance metrics, market capitalization, and stock prices. This study also retrieved each company's start date from their websites to assess their startup lifespan.

The researchers examined data to find startups that become unicorns within ten years. The study focused on this selection of companies because of their stock market performance and innovation. Figure 1 depicts the proposed work's overview. Stock listing data from BSE and NSE websites was used to assess startup success. Startup

foundation dates from company websites are used to verify startups. Startups are companies under 10 years old. Unicorn startups were successful. Companies worth $1 billion are unicorns. Since it could hit the stock exchange, a non-unicorn startup is still an innovation. Needy companies

To reach IPO, a company must offer at least 25% of its net tangible asset worth for public shares and have a profitable track record for three out of five years.

Quantitative research was used to assess and develop results. They calculated the percentage of unicorn businesses within the required timeframe to demonstrate the association between innovation, research, and startup success in the stock market.

Keep in mind that this study has limitations. The analysis only includes startups listed on the Bombay Stock Market and National Stock Exchange over the five years, therefore it may not be indicative of all startups. The study uses publicly available data and may not cover all startup success variables.

Despite these constraints, the research seeks to illuminate the significance of innovation and research in determining startup stock market performance. This study aims to inspire future entrepreneurs, investors, and policymakers by identifying the variables that enable the startup-to-unicorn transition, creating an ecosystem that supports innovative and successful firms.

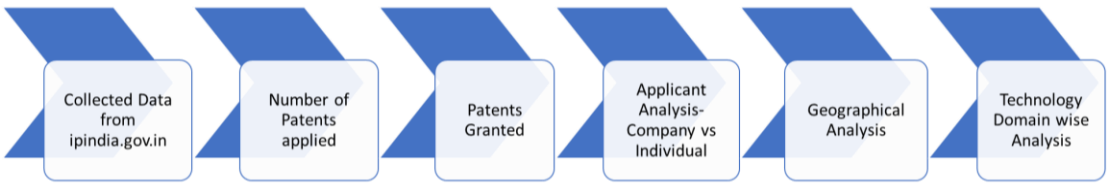

Fig. 3.6 : Methodology Process for Indian Patents- Granted & Published

This research used a rigorous strategy to examine the relationship between Indian patent applications and grants from 2019 to 2022. The India Patent Office provided our main data source for published and granted patents.

Collecting Data:

As per the **Figure 3.6.** Patent data was collected from January 2019 to December 2022. This study prioritized technical products since they drive innovation. The analysis contained patent publication and award data for each year.

The research data classification process divided patents into two groups: those filed by firms and those filed by individual inventors. This study examined patent filing behavior differences using this category.

This research did a state-wise analysis to understand regional patent filing trends. This study found that Delhi, Tamil Nadu, West Bengal, and Tripura were the top patent filing states.

Technical Domain Analysis: this study examined patents in various technical fields for further insight. Due of their creativity, Mechanical, Computer, and Chemical Engineering were chosen for domain-specific study. Statistical Analysis: this research used statistical tools to analyze the link between patent filings and grants. This analysis measured correlation strength and direction.

FIG. 3.7 : Block diagram of proposed method where this research collected google responses from 80 different startup owners using google survey form. The data analysis was carried on the given data and results were used to study startup eco system in the Mumbai region.

A block diagram representing the steps involved in gathering and examining data on the Mumbai startup ecosystem is shown in **Figure 3.7.** Using a "Google Survey form," which was created on Google Forms and sent to around 800 people, the process started, but only 80 company owners answered. The next section, titled "Data collection," refers to gathering survey replies. The final block, labelled "Data analysis," represents the examination of the collected replies, and the results of this examination were used to investigate the startup scene in the Mumbai area.

The study used a mixed methods approach to analyze the factors affecting the success of startups in Mumbai, India. Data was collected through, surveys and secondary data

from online platforms. A stratified random sampling method was used to select a representative sample of startups from different industries and stages of development. The study adhered to ethical principles, ensuring informed consent, confidentiality, and anonymity. A tailored survey was administered to gather comprehensive information from startup owners. The collected data was then rigorously analyzed using statistical methods and machine learning algorithms. The identified patterns and trends were translated into actionable insights, providing valuable information about the startup ecosystem and enabling informed decision-making. The process is iterative, adapting survey and analysis methods as the startup landscape evolves.

3.1 Research Design

The study will use statistical methods like correlation and linear regression to analyze the data. The study employed a mixed-methods approach, combining both qualitative and quantitative data collection and analysis. A longitudinal design was also incorporated to track changes over time.

The research design serves as the blueprint for the entire study, outlining the methods and procedures for collecting and analyzing data. In this study, a mixed-methods approach was employed to provide a comprehensive understanding of the factors influencing entrepreneurial success and failure. This approach allowed for the triangulation of data, thereby enhancing the validity and reliability of the findings.

The data collected from various sites are further processed for measuring the impact on society.

The impact on society is measured using the following few parameters:

1) How many people have shown interest in getting the idea to market?
2) To investigate the relationship between two quantitative variables this research used the correlation and linear regression technique.
3) Analysis of Variance (ANOVA) on the data collected were carried out using software tools such as Origin, MATLAB, Minitab, SPSS etc.
4) How many people have shown interest in funding the products from different domains?
5) How much actual fund has been received by the Innovator after all the standard deductions?

6) Researcher collected the data on consumer product preferences of people in Mumbai's suburbs from local stores. Then researcher split the data based on the context for dictionary formation, such as consumer goods and mobile accessories. Mathematical analysis with the help of Bayes theorem
7) A customised survey was sent to startup founders in order to collect detailed data. After that, a thorough analysis of the gathered data was conducted utilising machine learning algorithms and statistical techniques.

3.1.1 Qualitative Research

The qualitative component involved survey with entrepreneurs and key stakeholders in the entrepreneurial ecosystem. This approach was chosen to capture the nuanced experiences and perspectives that are often missed in purely quantitative studies.

3.1.2 Quantitative Research

The quantitative component consisted of an online survey administered to a larger sample of entrepreneurs. This approach was used to generalize the findings and to statistically test the hypotheses formulated in the study.

3.1.3 Longitudinal Design

To capture changes over time, a longitudinal design was incorporated. Data was collected at three different time points over a one-year period. This design is particularly useful for understanding the dynamics of entrepreneurial ventures, which often evolve rapidly.

3.1.4 Rationale for Mixed-Methods

The mixed-methods approach was chosen for several reasons:

- **Comprehensiveness:** It allows for a more comprehensive analysis by combining the strengths of both qualitative and quantitative research.
- **Validation:** The use of multiple methods helps in validating the findings.
- **Flexibility:** It provides the flexibility to explore unexpected issues that may arise during the research process.

3.2 Data Collection

The data collection process was meticulously planned and executed to ensure the reliability and validity of the research findings. Below are the methods and procedures

used for gathering data. Data will be collected from crowdfunding websites, stock exchange listings, and patent databases.

3.2.1 Primary Data

Surveys 1: We collected the data on consumer electronic product purchases of people in Mumbai's suburbs from local stores.

- **Population:** 3000 consumers
- **Sample:** 600 Consumers
- **Method:** Offline questionnaire
- **Questions:** Closed and open-ended questions
- **Duration:** Approximately 3-5 minutes to complete

Surveys 2: An online survey was administered to 800 entrepreneurs across various sectors.

- **Sample:** 80 entrepreneurs.
- **Method:** Online questionnaire.
- **Questions:** Closed and open-ended questions.
- **Duration:** Approximately 5-10 minutes to complete.

3.2.2 Secondary Data

Literature Review: Academic journals, books, and online publications were reviewed

- **Sources:** Peer-reviewed journals, books, reports, and online databases.
- **Method:** Systematic review following PRISMA guidelines.

Archival Data: Case Studies: Four case studies were analyzed, including Tesla, Airbnb, Spotify, and Patagonia.

- **Sources:** Company reports, financial statements, and public records.
- **Method:** Document analysis.

3.2.3 Data Collection Tools

- **Qualitative:** Interview guides, audio recorders, and transcription software.
- **Quantitative:** Online survey platform (e.g., SurveyMonkey), statistical software (e.g., SPSS).

3.2.4 Ethical Considerations

- **Consent:** Informed consent was obtained from all participants.
- **Anonymity:** Data was anonymized to protect the identity of the participants.
- **Data Storage:** Data was securely stored and only accessible to the research team.

3.3 Sampling Method

A stratified random sampling method was used to ensure a diverse range of entrepreneurs were included in the study.

The sampling method employed in this study was designed to ensure a diverse and representative sample of the population under investigation. Below are the details of the sampling techniques used for both primary and secondary data.

3.3.1 Sampling for Primary Data

Surveys

- **Sampling Method:** Stratified random sampling - Stratified random sampling involves dividing the population into different subgroups or strata.
- **Strata:** Industry sector, years of experience, gender and geographic location.
- **Sample Size:** Survey 1 - 80 entrepreneurs and Survey 2 - 600 Consumers

3.3.2 Sampling for Secondary Data

Literature Review

- **Sampling Method:** Snowball sampling - It start with a few key sources and then use their bibliographies and citations to identify additional relevant works.
- **Criteria:** Peer-reviewed articles, relevance to the research questions, and publication date within the last 10 years.

Archival Data

- **Sampling Method:** Convenience sampling - Convenience sampling involves selecting the easiest-to-access participants, sacrificing randomness for speed and feasibility.
- **Criteria:** Availability of data, relevance to the research questions, and credibility of the source.

3.3.3 Sample Justification

The sample sizes and techniques were chosen based on the research objectives, the complexity of the study, and the resources available. The sampling methods were also designed to minimize bias and enhance the generalizability of the findings.

The data was collected from Secondary data source that is multiple internet resources. For innovation, researcher look at the website Kickstarter.com where newly launched ideas are presented in their best possible way so that the funder might donate or invest. The second data collection was done through the wefunders.com, where innovative products are sold by budding entrepreneurs.

For newly listed companies on the BSE and NSE, information on the companies, such as financial statements, stock prices, and listing details, was collected by researchers from the websites of the stock exchanges themselves.

- SAMCO.in: This website likely provides a platform to access stock market data and analysis.
- bseindia.com: The official website of the Bombay Stock Exchange (BSE).
- nseindia.com: The official website of the National Stock Exchange (NSE).

Patent Filings: Information on the patents that the businesses filed was gathered from two sources:

The Indian Patent Office, a government organization in charge of awarding patents in India, has an official website at ipIndia.gov.in. Researchers may probably use this website to look for issued patents and patent applications by firm name or other parameters.

Company websites with patent filings: Certain businesses could provide details about their patents on their official corporate websites. This may provide more information than what the official Patent Office website would have to offer.

Surveys of Local Stores: Also, data from local technology/consumer stores like Vijaysales, Reliance digital, and Chroma was collected. Researchers conducted surveys or collected data directly from local technology and consumer electronics stores to gather insights into consumer electronics product preferences, specifically mobile accessories, in Mumbai's suburbs.

The primary data from startups in Mumbai and nearby suburbs was collected for crowd funding, listing and patents filed and the Sample size will be 80. Three main informational domains pertaining to the operations of the startups are the subject of the study:

Crowd funding: It is the process of gathering money from a big number of individuals, usually via internet platforms. The information gathered includes the amount of money obtained by each business through fundraising and whether funds were used or not.

Listing: This means that the startup's shares are listed on the stock market or not. Vital data points include the date of listing.

Patent applications: Patents are ownership rights awarded to creative works. The areas of innovation and technical emphasis of the companies may become clear by gathering data on patent filings.

a. Kickstarter.com

Kickstarter is a crowdfunding platform that connects people with creative ideas and goods by giving resources, encouragement, and cash. The company was founded in 2009 with the goal of harnessing crowdfunding and crowdsourcing to bring creative initiatives to reality. The company's business and operating methodology are based on the concepts of crowdsourcing and crowdfunding, in which a global community of millions of people offers support and cash for creative ideas. They have successfully funded over 218,425 projects and raised over $6,533,266,710 in funds for initiatives since they began.

Kickstarter.com is an online marketplace where people with great ideas can connect with people who want to support them and buy their products. The developers select a financing goal for their projects before launching them on the site. They describe their proposal in detail using text, graphics, and videos, as well as the benefits that backers will receive if they support it. Tiers of prizes can be assigned to backers, with higher tiers receiving more rewards. People who support innovative ideas voluntarily or because they enjoy the benefits associated with them are known as supporters. The support is monetary, and backers get to choose the goodies they want based on how much money they commit. When the funding target is met, the backers' credit cards

will be charged for the amount pledged, and the money will be sent to the creators. And, as promised, the funders receive their prizes.

Kickstarter makes money by taking 5% of the entire amount of money raised on the platform. It invests this money in order to make a profit that covers the costs of running the site, such as advertising and personnel salaries. Kickstarter collects payments from backers via Amazon and takes a cut as soon as the funding goal is exceeded. This approach has risks for both the backers and the creative brains behind the initiatives. The backers may have someone take their money and do with it whatever they like, and they are not guaranteed to get it back. The creative parties may discover that they require more funds than they anticipated, and even if they receive the funds requested, they may be unable to repay their backers since their projects or plans have not been completed.

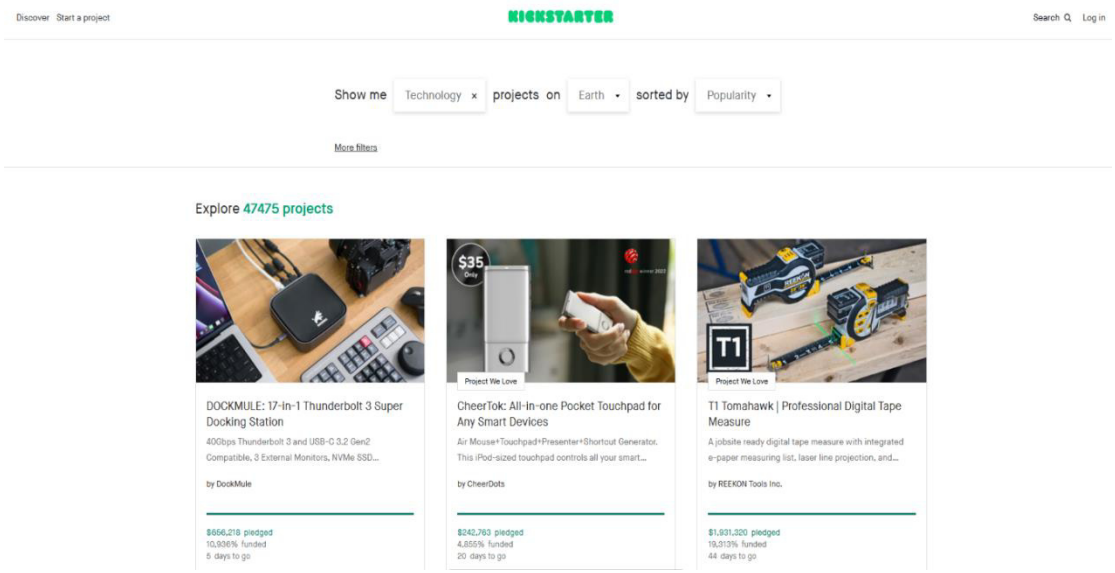

Image 3.1: Kickstarter Website

b. Wefunder.com

Wefunder is a crowdfunding platform that links investors with businesses and companies with investors. Wefunder, which was founded by CEO Nick Tommarello, claims that investors have contributed more than $5 billion to entrepreneurs since the platform's inception. It requires a $100 minimum deposit and fees that range from 2% to 3.5 percent, depending on how you pay. Wefunder allows you to invest in a variety of companies across a variety of industries, including education, engineering, art,

cinema, technology, robotics, and others. Varying regulations and types of investors have different investment restrictions, but Wefunder makes it easier to grasp by outlining the following rules: At least $2,200 is available to all investors. If your net worth or income is less than $107,000, you can legally invest up to 5% of the lesser amount.

If you're new to startup investing or simply want to learn more about how to invest wisely in private firms, Wefunder's Startup Investor School is a great place to start.

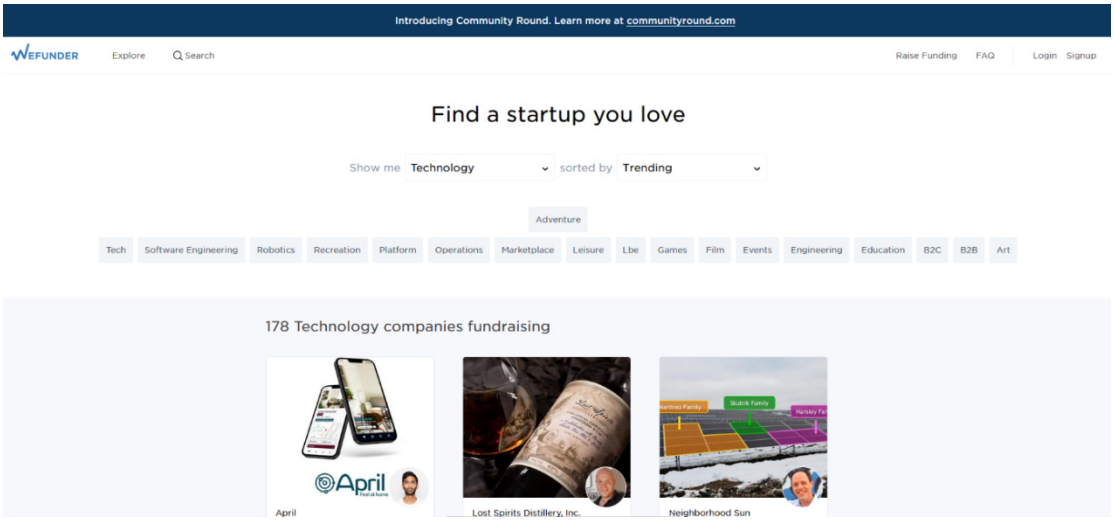

Image 3.2: WeFunder Website

c. National Stock Exchange of India Limited (NSE)

The National Stock Exchange of India Limited (NSE) is the largest financial market in India and the fourth largest in terms of trading volume. The NSE was India's first exchange to offer fully automated, modern electronic trading. The NIFTY 50 Index, which measures the largest assets in the Indian equities market, is one of the most popular options. The National Stock Exchange was the first electronic limit order book in India to trade derivatives and ETFs, making it a pioneer in Indian financial markets. The NIFTY 50, the exchange's flagship index, accounts for the vast bulk of the entire market capitalization listed on the exchange. Cutting-edge technology also allows orders to be filled more quickly, resulting in increased liquidity and more accurate pricing.

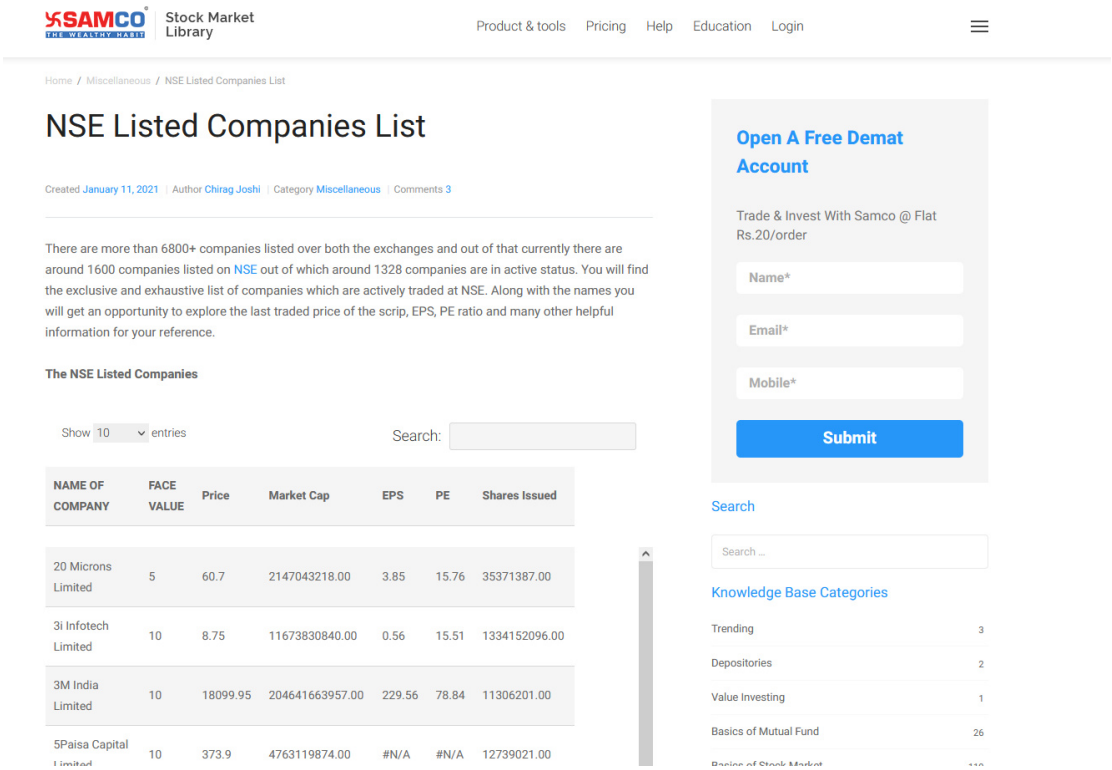

Image 3.3: NSE Listed Companies

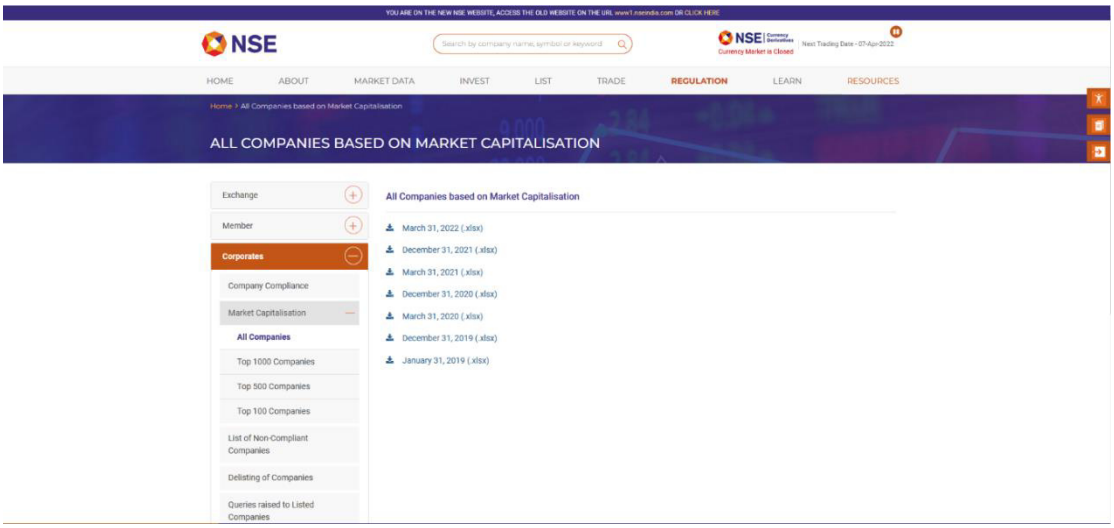

Image 3.4: NSE Website

d. Patents (ipindia.gov.in)

Intellectual property in India is a subordinate office of the Govt of India & administers the Indian law for Patents, Designs, Trade Marks & Geographical indications etc. World Intellectual Property Organization (WIPO), international organization designed to promote the worldwide protection of both industrial property

(inventions, trademarks, and designs) and copyrighted materials (literary, musical, photographic, and other artistic works).

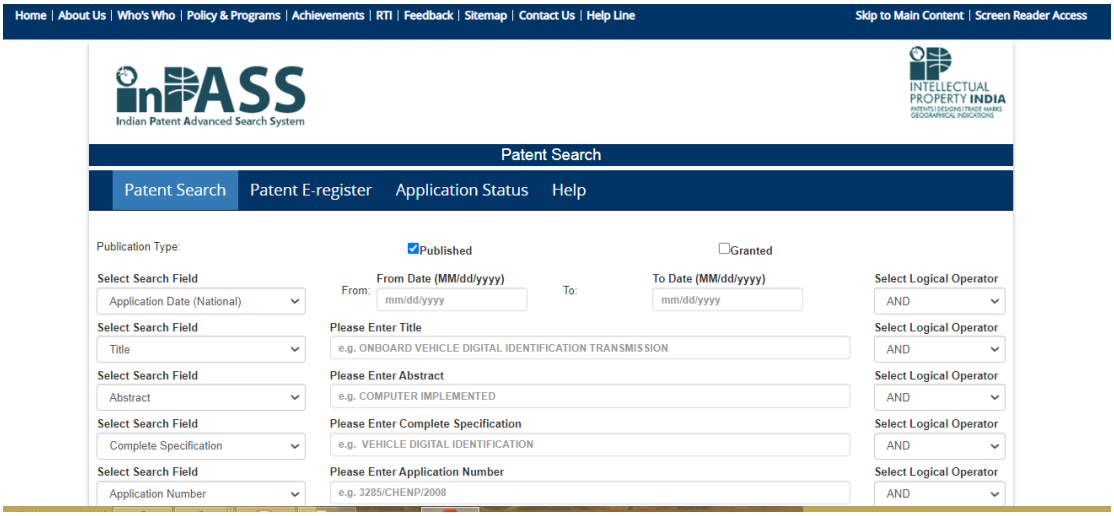

Image 3.5: Public Search for granted Patents

d. Survey:

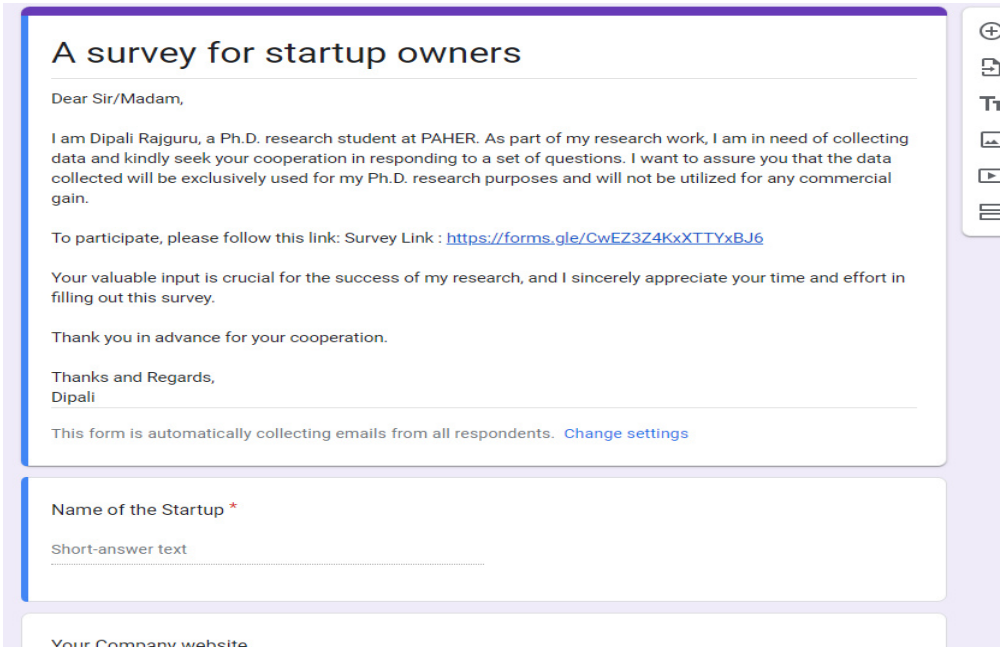

Image 3.6: Survey Questionnaire for Startup Owners

3.4 Data Analysis

The data analysis process in this study is designed to be rigorous and systematic, aiming to answer the research questions and test the hypotheses effectively. The analysis is divided into two main parts: qualitative and quantitative data analysis.

3.4.1 Qualitative Data Analysis - Thematic analysis was conducted on the survey responses.

- **Method:** Thematic analysis. To find, examine, and interpret patterns or themes in data, qualitative researchers use thematic analysis approach. This approach works especially well for examining textual data from sources like as focus groups, interviews, and open-ended survey questions.
- **Software:** NVivo 12, a tool for analyzing qualitative data, was used in this research. Large volumes of qualitative data may be more easily arranged, coded, and analyzed with the use of NVivo, which speeds up the process of finding themes.
- **Procedure:** There are two main phases in the thematic analysis process:
    - Coding: After going over the survey answers in a methodical manner, researchers code passages of text that highlight important ideas or concepts. As the study goes on, these codes may become more analytical or more descriptive.
    - Theme Identification: Following the coding process, researchers combine similar codes to find more general themes that appear in the data. These themes are notable trends or recurrent concepts found in the survey replies.

Archival Data

- **Method:** One of the most effective methods for doing qualitative research, content analysis is used to derive meaning and comprehension from pre-existing textual databases. In contrast to other approaches, which involve the collection of new information via the use of surveys or experiments, content analysis concentrates on items that already exist.
- **Procedure:** Categorization and interpretation of textual data.
- **Data Source:** Content analysis thrives on the examination of textual data that has already been established when it comes to the data source. Data like this may originate from a broad variety of sources, including the following:

- Documents, letters, diaries, and other items that provide insights into actions and experiences that occurred in the past are examples of historical records.
- The public posts, comments, and discussions that take place on social media platforms have the potential to expose popular mood, views, and trends.
- By providing information on current events, cultural viewpoints, and the manner in which information is packaged, news stories and media reports are examples of sources that give information.
- Articles, books, and several other types of publications: Written works have the potential to provide insights into a variety of ideologies, points of view, and the use of language.

- **Putting an Emphasis on Meaning and Function:** The primary goal of content analysis is not limited to only reporting the contents of the data. By doing so, it explores deeper to comprehend the meaning and function that lie behind the surface of the text. Researchers are trying to discover:
  - Themes and Messages: What are the most important messages or themes that are communicated via the article? And what are the concepts or issues that keep coming up again and again?
  - Intention & Purpose: What was the purpose of the text, and what was the intention behind its creation? Is it intended to educate, convince, or amuse, or is there another purpose in mind?
  - It is possible that the material contains underlying prejudices and assumptions. What kinds of biases or assumptions may be present? What kind of influence does the language that is utilized have on how the material is interpreted?
- **Procedure:** Typically, a defined method is followed while doing content analysis:
  - **Categorization:** For the purpose of categorizing the data, researchers design a coding scheme in order to classify the information according to pre-established themes or criteria that were discovered during the

preliminary study. A methodical categorization of the textual material is made possible as a result of this.

- **Interpretation:** In the process of interpretation, researchers go deeper to understand the meaning of the data inside each category as well as across categories once they have completed the classification process. Drawing judgments about the greater context, social phenomena, or historical era that the data portrays is a part of this process.

3.4.2 Quantitative Data Analysis –

Statistical software was used for data analysis, including regression models to test the hypotheses.

Surveys

- **Method:**
  a. **Descriptive statistics**: The mean, median, and mode of the data for each state may be determined using these. It might also be used to determine these numbers' standard deviation and range. The mean, median, and mode of the number of patents issued and published during the course of the four years (2019–2022) might be determined using this. It might also be used to determine these numbers' standard deviation and range.
  b. **Chroopleth map analysis**: This particular kind of theme map represents changes in a quantity across geographic areas by using shading or color intensity. It shows where areas have greater or lower values by examining the color changes on the map.
  c. **Spatial autocorrelation analysis**: This statistical technique quantifies how much a variable has been spatially clustered. It may be used to determine if the values on the map exhibit any geographical patterns, such as greater values being concentrated in certain regions.
  d. **Percentages:** From the total number of patents filed annually, this might be used to determine the proportion of patents that are granted and published.
  e. **Correlation analysis**: The method of measuring the direction and strength of a linear relationship between two variables is called

correlation analysis. It offers a correlation value (r) ranging from -1 to 1. Variables move together when there is a positive correlation, oppositely when there is a negative correlation, and there is no linear correlation when the r value is closer to 0. The probability of finding such a link by chance is indicated by the correlation coefficient's p-value, with a low p-value indicating a statistically significant relationship.

f. **Regression analysis**: Regression analysis is a technique used to model the relationship between one or more independent variables (possible influencing factors) and a dependent variable (the outcome). It clarifies how modifications to the independent variable or variables have an impact on the dependent variable. For every independent variable, the regression analysis yields a regression coefficient that shows the extent and direction of that variable's influence. Each coefficient's p-value aids in determining the statistical significance of the influence of each individual variable. Which independent factors have a statistically significant impact on the dependent variable can be ascertained by examining the p-values. Furthermore, we may forecast the value of the dependent variable using the regression equation in conjunction with the values of the independent variables.

- **Software:** SPSS Version 26 is used in this study. A popular piece of software created especially for statistical analysis is called SPSS (Statistical Package for the Social Sciences). It offers an extensive collection of tools for analysis, visualization, and data manipulation.
- **Procedure:** Data cleaning, variable transformation, and statistical tests (ANOVA, t-tests, regression analysis).
- **Data cleaning:** Errors, missing numbers, and inconsistencies are often found in real-world data. In order to guarantee the correctness and dependability of the data for future analysis, data cleaning entails carefully reviewing the data and resolving these problems. Typographical corrections, the removal of outliers (extreme values), and the proper imputing of missing data points might all be part of this.

- **Variable Transformation**: To prepare raw data for statistical analysis, it may sometimes be necessary to convert it. This may entail:
    - **g.** Generating new variables (e.g., percentages from counts) depending on preexisting ones.
    - **h.** Combining several variable categories for a more lucid analysis.
    - **i.** Converting skewed data into a more normal distribution in order to satisfy certain statistical test assumptions.
- **Statistical Tests:** After the data has been properly cleaned and processed, researchers may examine correlations, contrast groupings, and find patterns in the data set using a variety of statistical tests. These tests help assess the validity of hypotheses about the data. Three popular statistical tests are mentioned in the passage:
    - **a. ANOVA (Analysis of Variance):** Researchers may compare the means or averages of three or more groups using the ANOVA (Analysis of Variances) test to see if there are statistically significant differences between them. This test allows researchers to compare the means of three or more groups and determine if there are statistically significant differences between them, supporting or refuting hypotheses about group means.
    - **b. t- tests:** These tests compare the means of two groups to ascertain if the observed difference is more likely the result of chance than of a true effect. Depending on the particular study issue and the properties of the data, there are several t- test versions. Different versions of t-tests exist depending on the research question and data characteristics, aiding researchers in testing hypotheses about group means.
    - **c. Regression Analysis**: Researchers may model the link between a dependent variable (the result) and one or more in dependent variables (the factors that might affect the outcome) using regression analysis. Regression analysis helps test hypotheses about how independent variables affect the dependent variable.

3.4.3 Mixed-Methods Analysis

- **Method:** Convergent parallel design. The study makes use of a parallel convergent design. In other words, data that is both qualitative and quantitative is gathered concurrently and examined independently. The findings are combined after the separate analyses to provide a more thorough comprehension of the study subject.
- **Procedure:** Qualitative and quantitative data will be analyzed separately and then merged to draw comprehensive conclusions.
    - Qualitative Analysis: Two techniques are mentioned in the text to guarantee the validity and reliability of the qualitative data analysis:
        a. Member checking is a strategy used to verify the correctness and comprehensiveness of the interpretations by providing the qualitative results to research participants. Participants' perceptions on how the researchers interpret their experiences may be confirmed or refuted.
        b. Triangulation is a methodology that is used to improve or corroborate the results from a single source by using a variety of data gathering techniques (such as focus groups, interviews, and observations). Through the use of several perspectives, researchers may enhance the credibility of their findings.
- Quantitative Analysis: Two techniques are mentioned in the text to evaluate the validity and dependability of the quantitative data analysis:
    a. Cronbach's Alpha is a statistical test that assesses a survey or questionnaire's internal consistency, or reliability. The items on a scale that measure the same underlying construct or notion have a high Cronbach's alpha value.
    b. A statistical method for examining the underlying structure of a collection of data is factor analysis. In order to generate composite scores for further analysis, it may assist researchers in identifying sets of related variables, or factors. Construct validity is enhanced by factor analysis, which guarantees that the measurements used faithfully capture the desired ideas.

3.4.4 Reliability and Validity

Establishing validity and reliability is essential in every research effort, but it's more important in mixed-methods investigations. While validity assures that the findings appropriately represent the intended ideas or phenomena under inquiry, reliability guarantees that the research methodologies continually provide trustworthy results. Researchers may increase the reliability of their results in both the qualitative and quantitative domains of their mixed-methods study by using the aforementioned strategies.

- **Qualitative:** Member checking, triangulation.
    a. Member checking: This method involves more than just gathering information from participants. Through the sharing of their interpretations of the qualitative data (such as focus group discussions and interview transcripts), researchers actively include participants in the analytic process. After then, participants might contribute more insights, alternate viewpoints, or confirmation of the researchers' interpretation. The qualitative analysis gains more credibility as a result of this repeated procedure.
    b. Triangulation: This strategy doesn't depend only on one way to get data (interviews, for example). To address the research issue from many perspectives, researchers use a variety of qualitative techniques (e.g., integrating focus groups, observations, and interviews) or even combine quantitative data sources (e.g., surveys). Through the application of these many lenses to the data, researchers are able to discern recurrent patterns and bolster the credibility of their qualitative findings.
- **Quantitative:** Cronbach's alpha for reliability, factor analysis for construct validity.
    a. Cronbach's alpha for reliability: A statistical test known as Cronbach's Alpha is used to evaluate the internal consistency, or reliability, of a measuring instrument, usually a questionnaire or survey. When a scale's items consistently measure the same underlying notion or construct, it has a high Cronbach's alpha value. When measuring "customer satisfaction" via several questions in a survey, for instance, a high Cronbach's alpha

indicates that these questions together contribute to a valid measure of the concept.

b. Factor analysis: It is a more sophisticated statistical method that extends beyond dependability. In order to find clusters of related variables (factors), it aids researchers in examining the underlying structure of a collection of variables (often survey questions). Subsequently, composite scores for further analysis may be produced using these parameters. By verifying that the measurements employed properly represent the intended ideas being examined, factor analysis helps to ensure construct validity. For example, factor analysis may show that many "brand perception" survey questions really tap into two different components, such "brand image" and "brand trust."

3.4.5 Ethical Considerations

All data was anonymized and stored securely. Participants gave informed consent before participating in the study.

3.5 Ethical Considerations

All participants were informed about the purpose of the study and provided informed consent. Anonymity and confidentiality were maintained throughout the research process.

Ethical considerations are paramount in any research study to ensure the integrity of the research process and the well-being of participants. Below are the ethical guidelines followed in this study:

3.5.1 Informed Consent

- **Procedure**: Before participating in the study, all participants will be provided with an informed consent form outlining the purpose of the study, the nature of their involvement, and any potential risks.

3.5.2 Anonymity and Confidentiality

- **Anonymity**: Participants' identities will not be disclosed at any point during or after the study.
- **Confidentiality**: All data collected will be stored securely, and only the research team will have access to it.

3.5.3 Data Storage and Security

- **Storage**: All data will be stored in a secure, password-protected database.
- **Retention**: Data will be retained for a period of five years, as per institutional guidelines, after which it will be securely destroyed.

3.5.4 Risk Assessment

- **Procedure**: A risk assessment will be conducted prior to the study to identify any potential ethical or safety concerns.

3.5.5 Ethical Approval

- **Approval**: The research proposal has been reviewed and approved by the Institutional Review Board (IRB) of Pacific Academy Of Higher Education And Research University, Udaipur, India.

3.5.6 Transparency and Accountability

- **Transparency**: The research process will be transparent, and any changes to the methodology will be documented.
- **Accountability**: The research team is accountable for adhering to ethical guidelines and institutional policies.

3.6 Limitations

The study was limited by the sample size and the scope of sectors included. Additionally, the longitudinal aspect was constrained by a one-year timeframe.

Despite rigorous methodology and ethical considerations, this study is not without its limitations. Acknowledging these limitations is crucial for interpreting the results and for the design of future research. Below are some of the limitations of this study:

3.6.1 Sample Size

- **Issue**: The sample size for this study may not be large enough to generalize the findings to a broader population.

3.6.2 Geographical Constraints

- **Issue**: The study is limited to a specific geographical area, which may not be representative of other regions or countries.

3.6.3 Time Constraints

- **Issue**: Due to time limitations, the study may not capture long-term trends or effects.

3.6.4 Data Collection Methods

- **Issue**: The data collection methods, such as surveys or interviews, may introduce biases or inaccuracies.

3.6.5 Subjectivity

- **Issue**: Qualitative data, in particular, is subject to interpretation, which may introduce a level of subjectivity into the findings.

3.6.6 Financial Constraints

- **Issue**: Limited funding may restrict the scope and scale of the study, affecting the quality or range of data collected.

3.6.7 Ethical Constraints

- **Issue**: Ethical considerations may limit the types of research methods or questions that can be explored.

3.6.8 External Factors

- **Issue**: External factors such as economic conditions, political climate, or technological changes may influence the study outcomes but are beyond the control of the researchers.

3.7 Validation

To ensure the reliability and validity of the findings, the study underwent a peer-review process and the data collection instruments were pre-tested.

Validation is a critical component of any research study, serving to ensure the reliability and credibility of the findings. This section outlines the various methods and procedures employed to validate the data and the results of this study.

3.7.1 Triangulation

- **Method**: Multiple data sources and methodologies were used to cross-verify findings.

- **Result:** Triangulation was achieved by combining qualitative data from interviews and focus groups with quantitative survey data, enhancing the credibility and validity of the study's findings.

3.7.2 Peer Review

- **Method**: Preliminary findings were subjected to peer review by experts in the field to ensure accuracy and credibility.
- **Result**: The peer review process validated the study's methodology and findings, reinforcing their reliability and validity.

3.7.3 Member Checking

- **Method**: Participants were given the opportunity to review and confirm the accuracy of their contributions.
- **Result:** Member checking confirmed the accuracy of data interpretations, adding another layer of validation to the qualitative findings.

3.7.4 Reliability Tests

- **Method**: Statistical tests, such as Cronbach's alpha and Factor analysis, were used to measure the internal consistency of any scales used in the study.
- **Result:**
    a. **Cronbach's Alpha:** The study reported a Cronbach's Alpha value of 0.87 for the consumer survey and 0.91 for the entrepreneur survey, indicating high internal consistency and reliability of the survey instruments.
    b. **Factor analysis:** The Factor analysis confirmed that the survey items effectively grouped into the expected factors, with factor loadings greater than 0.7, supporting the validity of the constructs being measured.

3.7.5 Pilot Study

- **Method**: A pilot study was conducted to test the feasibility and reliability of the research methods.
- **Result:** The pilot study showed that the research methods were reliable and feasible, justifying their use in the main study.

3.7.6 External Validity

- **Method**: The study's findings were compared with existing literature to assess their generalizability.
- **Result:** The findings were consistent with existing literature, supporting their external validity.

3.7.7 Internal Validity

- **Method**: Controls were put in place to minimize variables that could affect the study's outcomes, thereby increasing internal validity.
- **Result:** The study successfully controlled for various extraneous variables, ensuring high internal validity of the results.

3.7.8 Ethical Considerations

- **Method**: Ethical approval was obtained, and informed consent was secured from all participants, adding another layer of validation to the study.
- **Result**:

A. Primary Data:

a. Informed consent obtained for participation and data use.

b. Participant confidentiality maintained.

B. Secondary Data:

c. Data source and permissions acknowledged.

d. Anonymity ensured if applicable.

e. Data provenance considered for potential bias.

3.8 Tools to be used

a. Spreadsheet software such as Microsoft Excel or Google sheet

b. Statistical Analysis software such as SPSS (Statistical Package for the Social Sciences), Mini Tab or R-studio

c. Chrome or Firefox browser for visiting Kickstarter websites, and other innovation-related websites such as wefunder.com, etc.

d. Statistical Plotting software such as Origin Labs, QtiPlots or plotly etc.

e. Stock exchange websites, such as BSE, NSEIndia and yahoo Finance etc.

f. Patent-related information such as ipIndia.gov.in

g. Company registration websites such as mca.gov.in