A CRITICAL ANALYSIS OF THE SUCCESS RATE OF INNOVATION AND ENTREPRENEURSHIP AND ITS IMPACT ON SOCIETY

नवाचार और उद्यमिता की सफलता दर और समाज पर इसके प्रभाव का एक महत्वपूर्ण विश्लेषण

A

Thesis

Submitted for the Award of the Ph.D. degree of

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By

RAJGURU DIPALI PRABHAKAR

राजगुरू दिपाली प्रभाकर

Under the supervision of

Prof. KRISHNA KANT DAVE
President,
Pacific Academy of Higher
Education & Research University, Udaipur

Prof. SAMEER NANIVADEKAR
Dean Admin,
A. P. Shah Institute of Technology,
Thane

FACULTY OF MANAGEMENT

PACIFIC ACADEMY OF HIGHER EDUCATION AND RESEARCH UNIVERSITY, UDAIPUR

2024

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I, **RAJGURU DIPALI PRABHAKAR D/O SHRI PRABHAKAR** resident of, Flat 107, Parijat Garden, Ghodbunder Road, Kasarvadavali, Thane West. Pin code 400615, hereby declare that the research work incorporated in the present thesis entitled **"A CRITICAL ANALYSIS OF THE SUCCESS RATE OF INNOVATION AND ENTREPRENEURSHIP AND ITS IMPACT ON SOCIETY"** (नवाचार और उद्यमिता की सफलता दर और समाज पर इसके प्रभाव का एक महत्वपूर्ण विश्लेषण) is my original work. This work (in part or in full) has not been submitted to any University for the award or a Degree or a Diploma. I have properly acknowledged the material collected from secondary sources wherever required.

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PACIFIC ACADEMY OF HIGHER EDUCATION AND RESEARCH UNIVERSITY, UDAIPUR

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President,

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Date: **Name and Designation of Supervisor**

Prof. KRISHNA KANT DAVE
President,
Pacific Academy of Higher Education
and Research university

CERTIFICATE

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Date: **Name and Designation of Co-Supervisor**

Prof. SAMEER NANIVADEKAR
Dean Admin,
A. P. Shah Institute of Technology, Thane

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DATE: - **RAJGURU DIPALI PRABHAKAR**

DEDICATED TO
MY FAMILY, FRIENDS
AND WELL-WISHERS

PREFACE

In this thesis, researchers are measuring the success rate concerning innovation and entrepreneurship. This research also studied the effect of innovation-based entrepreneurship the impact on society.

This research has collected data from crowdfunding websites such as Wefunder.com and Kickstarter.com. This study also collected patent-related data from IPO.gov.in. Also, this study collected data from each company website to establish start-up status. IPO listing data for the last 4 years was extracted from NSE and BSE websites. The survey was done at local shops such as Vijay Sales to extract consumer purchase trends. Along with that data was collected from Forms circulated to different entrepreneurs or startup owners.

From crowdfunding data, this study analyzed the amount that the company asked for and the amount actually raised. Based on this information this research decided whether the particular innovation idea was successful or not. This study could establish the fact that 1.63 % of companies could not raise the funding required even after screening to reach the fundraiser website. The most money that was ever raised through crowdsourcing was Rs. 105 crores. Funding for inventors ranged from Rs. 5 crores to Rs. 15 crores for several, and from Rs. 35 crores to Rs. 75 crores for others. With more successful projects, American inventors (74%) got the most amount of crowdfunding, followed by Hong Kong (65%) and China (49%). Our analysis also reveals that the hardware (39), 3D printing (19), and technology (16) sectors received greater support for the following categories of breakthroughs from funders. It implies that the kind of project and the success of crowdfunding campaigns are related, and that the nature and outcomes of crowdsourcing are influenced by geographic factors. The company's receipt of crowd funding may have an impact on society.

This research analysed the recent consumer electronics product purchasing trends in the suburbs of Mumbai, India. Mobile phones make up nearly half of all consumer electronics purchases (42.0%), with televisions coming in second (18.00%). The next most popular choices were laptops and PCs (16% and 10%), which were followed by digital cameras, washing machines, microwaves, and ovens. The least popular options were speakers and tablets (less than 2%). Headphones and earphones were the most

popular mobile accessories (37% and 31%, respectively), followed by SD cards (22% and 4%), chargers, and charging cords. According to a purchasing trend analysis, headphones and mobile cases account for more than half of the accessory market value, making mobile phones and mobile casings the main players. In India, a mobile accessory store that is successful needs to carry at least eight goods, which accounts for 99.9% of sales. Consumer electronics trends shift frequently, and it has been shown that the average device's lifetime is 10 years, while the average accessory's duration is 3 years.

From the information gathered from stock exchanges in India's BSE and NSE, this study found that Startup to Unicorn status is achieved by the company is generally listed on IPO and becomes successful eventually in the market with continued increasing profit. 14% of companies become Unicorn companies from innovation-induced start-ups. Post covid IPO applications from such innovative startups are decreased which leads to the conclusion that creativity is suppressed when people go to offline work. Over the period from July 2022 to May 2023, several companies demonstrated significant variations in their stock prices and trading volumes. Based on the statistics, it is clear that certain initial public offerings (IPOs) have made significant profits since listing, while others have encountered difficulties.

From the patent data, this study could establish how many innovative ideas actually receive Granted patent status and how many receive the Published status. This research found out that only 1 in 4.8 patents are granted and the remaining 3.8 are not novel enough to get granted. This study also find Delhi (28% of the total Indian patents) is the most important state in India to get granted a patent. This research also found Companies file more patents compared to the individual. It was also found during this study that most of the recent innovations are happening in Computers and Mechanical Engineering which leads to a Start-up from innovation.

From the survey data of this study, startup duration, funding sources and use, crowdfunding, patent filing behaviour, public listing goals, and success perceptions are examined. It shows that most businesses are relatively new, having been founded within the last ten years. The main sources of finance are family or personal savings, with certain exceptions such as "Tech Cryptors Private Limited" that draw venture and angel capital. Interestingly, a lot of firms haven't used all of the money they were

able to secure, which calls for more research. While some firms use crowdsourcing well, others run into problems or don't use it at all. The filing behaviour of patents varies, with "Shri IPR consultancy" being one of the most active. Not a single startup surveyed intends to go public. There are differences in founders' definitions of success, which makes standardising evaluation difficult. The study emphasises how different industries are represented in the startup scene and how success views are mostly arbitrary. To get a better understanding of success in startups, future study should examine the standards by which founders evaluate their own performance, the impact of industry-specific factors on success perceptions, and the consistency of self-reported success with objective measurements.

The study explores the impact of innovation-driven entrepreneurship on society, focusing on India. It examines crowdfunding sites and how they help business owners match products with customer demands. Profitable startups are crucial for economic growth and job creation, and their experiences can influence policies and initiatives. The study also examines the patent environment in India, highlighting key areas of technology, local innovation centers, and patent inconsistencies. The study also examines Indian unicorn firms' stock market performance, highlighting how innovation can upend sectors, open new markets, address social issues, and meet changing customer demands. The study aims to empower stakeholders to harness innovation for societal benefit.

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CHAPTER – I

INTRODUCTION

This Ph.D. thesis focuses on studying a critical analysis of the success rate of innovation and entrepreneurship and its impact on society. Innovation is practically implemented novel ideas which are directly applicable to a problem. Entrepreneurship is a way to create value out of innovation. The impact researcher is measuring through the number of patents filed by the innovative ideas. The impact can also be measured using the stock exchange list. The companies must meet certain requirements of the particular exchange before it can be listed for trading its share. The impact on society can get reflected by crowd funding received by the company. Researcher will be presenting the combined impact on society by all means of the above-mentioned proposed impact.

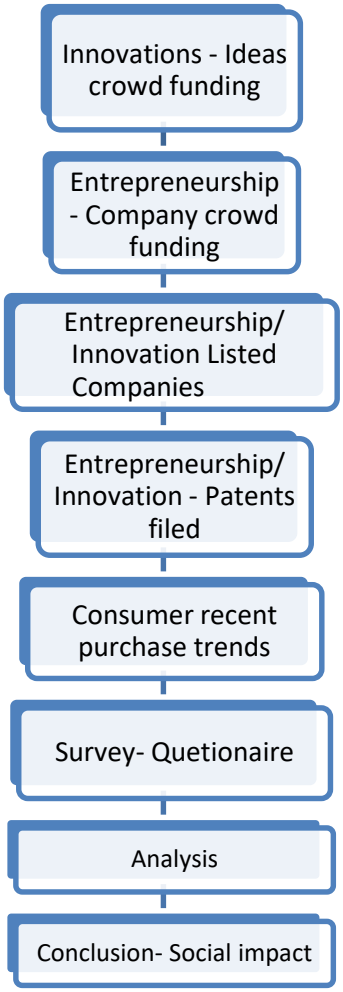

Fig. 1.1 : Introduction

1.1 Background

Innovation and entrepreneurship have been the driving forces behind economic growth and societal development. This study aims to critically analyze the success rate of innovation and entrepreneurship and its impact on society.

Innovation and entrepreneurship have long been recognized as critical drivers of economic growth and societal development (Schumpeter, 1934; Drucker, 1985). These two elements are often intertwined, with entrepreneurship serving as a platform for innovation and vice versa. Over the years, the global landscape has seen a surge in start-ups and innovative businesses, contributing significantly to job creation and economic diversification (Acs, Audretsch, & Lehmann, 2013).

However, despite the apparent benefits, the success rate of innovation and entrepreneurship remains a subject of debate. While some studies suggest a high failure rate among start-ups (Stangler & Arbesman, 2012), others argue that the impact of successful innovations can be transformative for society (Christensen, 1997). This study aims to critically analyze the success rate of innovation and entrepreneurship and its subsequent impact on society.

1.1.1 The Importance of Innovation and Entrepreneurship

Innovation and entrepreneurship are cornerstones of modern economies, driving technological advancements, economic growth, and societal well-being (Schumpeter, 1934; Drucker, 1985). They serve as catalysts for job creation, market competition, and economic diversification (Acs, Audretsch, & Lehmann, 2013). In the era of globalization and rapid technological change, the role of innovation and entrepreneurship has become increasingly vital for both developed and developing countries (Porter, 1990).

Innovation and entrepreneurship serve as the backbone of modern economies, driving job creation, economic growth, and technological advancement (Smith, 2019). The symbiotic relationship between the two has been well-documented, with innovation often serving as the catalyst for entrepreneurial ventures, and entrepreneurship providing the necessary environment for innovation to thrive (Johnson & Clark, 2020).

In the contemporary world, two of the key forces influencing economic development and social well-being are innovation and entrepreneurship. They have a substantial influence on multiple dimensions, including economic growth, technological advancements, social impact, global competitiveness, and policy implications.

a. **Economic Growth**: The creation of new markets and industries is largely dependent on innovation and entrepreneurship, which in turn leads to job creation and increased standard of living. According to Schumpeter (1934) and Audretsch et al. (2006), innovation and entrepreneurship contribute significantly to economic growth by reducing unemployment.
b. **Technological Advancements**: Innovative entrepreneurs often introduce groundbreaking technologies that revolutionize existing industries or create entirely new ones. These improvements in technology can make things more efficient, lower prices, and make goods and services better. Rogers (2003) states that innovation is the key driver of technological progress.
c. **Social Impact**: Innovation and entrepreneurship have a profound social impact beyond economic metrics. They can address crit ical societal challenges such as healthcare, education, and environmental sustainability, thereby improving the quality of life. Mair & Marti (2006) argue that social innovation is an essential component of entrepreneurship.
d. **Global Competitiveness**: In the era of globalization, innovation and entrepreneurship are crucial for maintaining and enhancing a country's competitiveness on the global stage. They enable firms to adapt rapidly to market changes and to differentiate themselves from competitors. Porter (1990) suggests that innovation is the key driver of global competitiveness.
e. **Policy Implications**: The significance of innovation and entrepreneurship has led to increased attention from policymakers worldwide. Governments are investing in innovation ecosystems, providing tax incentives, and facilitating access to capital to stimulate entrepreneurial activities. Lerner (2010) argues that the primary goal of policymakers should be to establish an atmosphere that encourages entrepreneurship and innovation.

In summary, innovation and entrepreneurship are pivotal rudiments in the modern financial landscape that drive technological progress, economic growth, and societal well-being through multiple dimensions.

1.1.2 The Success and Failure Paradox

While the potential benefits of innovation and entrepreneurship are well-documented, there exists a paradox concerning their success rates. Many creative initiatives and start-ups collapse in their first year or two of existence (Stangler & Arbesman, 2012). However, those that do succeed often have a transformative impact on society, revolutionizing industries and improving quality of life (Christensen, 1997).

The journey of innovation and entrepreneurship is fraught with both opportunities and challenges, often referred to as the "Success and Failure Paradox." This paradox encapsulates the dual nature of entrepreneurial endeavors, which can lead to either groundbreaking success or devastating failure.

While entrepreneurship is often associated with success and innovation, it is essential to recognize the high rate of failure in entrepreneurial ventures. According to recent statistics, approximately 20% of new businesses fail within their first year, and nearly 50% fail within five years (Brown, 2021). This paradox of success and failure presents a compelling area for academic inquiry.

a. The Allure of Success

Success stories of startups turning into unicorns or inventors creating disruptive technologies capture the public imagination and serve as inspiration for aspiring entrepreneurs (Blank, 2013). These successes often result in significant financial gains, social recognition, and positive societal impact (Shane, 2008).

b. The Reality of Failure

Contrary to the glamorous success stories, the harsh reality is that a majority of startups fail within the first five years of operation (Stangler & Kedrosky, 2010). Failure can result from various factors such as poor market fit, inadequate capital, or flawed business models (Christensen, 1997).

c. Psychological Toll

The paradox also extends to the psychological realm. While success brings about confidence and satisfaction, failure often leads to stress, self-doubt, and even depression (Shepherd, 2003).

d. Learning from Failure

Despite the negative connotations, failure is often considered an invaluable learning experience. It provides entrepreneurs with insights into what doesn't work, thereby refining their approach for future endeavors (McGrath, 2011).

e. Policy Implications

Understanding the Success and Failure Paradox is crucial for policymakers. Support systems, such as safety nets and educational programs, can be designed to help entrepreneurs navigate the complexities of this paradox (Acs & Audretsch, 2003).

1.1.3 Gaps in Existing Literature

The existing literature offers a wealth of information on the factors that contribute to the success or failure of entrepreneurial ventures and innovations. However, there is a noticeable gap in studies that comprehensively analyze the societal impact of these endeavors (Zahra & Wright, 2016). Most research focuses on economic metrics, overlooking broader societal implications such as environmental sustainability, social equity, and community development.

The existing body of literature on innovation and entrepreneurship is extensive, yet there are several gaps that warrant further investigation. These gaps can be categorized into thematic, methodological, and contextual dimensions.

Despite the extensive research on entrepreneurship and innovation, there remains a gap in understanding the nuanced factors that contribute to the success or failure of entrepreneurial ventures in different sectors and geographical locations (Williams, 2018).

a. Thematic Gaps

This section outlines three important areas where there is need for further study and growth in the field of entrepreneurship:

1. Multidisciplinary Methods:

The majority of current study on entrepreneurship focuses on the commercial and economic aspects, often ignoring insightful findings from related fields like psychology, sociology, and environmental sciences. (George, 2015).

The Significance of Multidisciplinary Research:

Including a range of academic viewpoints might provide a more comprehensive understanding of the many aspects influencing entrepreneurial behavior, decision-making processes, and ultimate success paths. For example, sociology can explore the social and cultural contexts that support entrepreneurial endeavors, psychology can shed light on people's motivations and risk-taking tendencies, and environmental science can examine the roles that entrepreneurs play in developing long-term solutions to today's problems.

2. Entrepreneurship and Sustainability:

Despite the urgent worldwide need for ecologically and socially responsible business practices, there is still a dearth of research on the relationship between entrepreneurship and sustainable development. (Cohen & Winn, 2007).

Why Is This Distance Significant?

Businesses have a big say in how social and environmental sustainability plays out. Initiatives pertaining to social impact, resource conservation, and renewable energy are among the crucial domains where innovation may be stimulated by entrepreneurial endeavors. As such, there is an immediate need for thorough research to clarify how entrepreneurs might be helped to successfully conceptualize, operationalize, and scale businesses that are in line with sustainable development objectives.

3. The Art of Social Entrepreneurship:

In the body of current research, empirical studies that thoroughly assess the effectiveness and scalability of social businesses are noticeably lacking. (Mair & Marti, 2006).

Importance of Social Entrepreneurship Education:

Maximizing the potential of social businesses to bring about meaningful societal change requires figuring out how effective and scalable they are. By means of

rigorous research initiatives, it is possible to identify viable models for social entrepreneurship, enhance financing mechanisms, and establish regulations that facilitate the growth and spread of these businesses.

Through the resolution of these topic gaps, entrepreneurship research is well-positioned to go beyond its present confines and bring about a more sophisticated comprehension of the complex mechanisms that underlie the founding and growth of new businesses. Enhancing the academic discourse and advancing the field toward more transformational potential may be achieved by the integration of multiple disciplinary viewpoints, investigating the role of entrepreneurship in promoting sustainability, and conducting rigorous evaluations of social businesses.

b. Methodological Gaps

Here, we identify two crucial domains where current research on entrepreneurship offers room for methodological improvement and advancement:

1. The need of longitudinal research

Most of the research that is conducted today on entrepreneurship uses a cross-sectional approach, which collects data at a particular moment in time. This analytical approach often fails to capture the complex growth of entrepreneurial enterprises, as Davidsson and Wiklund (2001) point out.

The Significance of Extended-Term Research:

Studies that follow projects over an extended period of time are known as longitudinal studies, and they provide unique insights into the dynamic processes that underlie the creation, expansion, and eventual failure of enterprises. Researchers may identify patterns of adaptability, strategic decision-making, and resilience in the face of changing market circumstances by tracking enterprises throughout a variety of temporal junctures.

2. Improving Qualitative Investigations:

According to Gartner (2007), there is a tendency in contemporary entrepreneurship research to favor quantitative approaches that place an emphasis on numerical data and statistical analysis. But this quantitative tyranny runs the danger of obscuring the inherent diversity and depth of business experiences.

The importance of qualitative research

In-depth interviews and thorough case studies are two examples of qualitative approaches that are invaluable in revealing the underlying "whys" behind business choices and actions. These approaches provide researchers with the chance to explore the complexities of emotional landscapes, navigational problems, and entrepreneurial incentives, which enhances our comprehension of the human element present in entrepreneurial pursuits.

3. Combination Techniques:

Mixed methods research is a synergistic strategy that combines quantitative and qualitative approaches and has the potential to provide a more comprehensive and nuanced knowledge of entrepreneurship. Qualitative data shed light on the unique experiences and stories of individual entrepreneurs, enabling a more thorough understanding of the entrepreneurial environment than quantitative data, which provides insights into broad trends and patterns.

Entrepreneurship research has the potential to break free from the methodological limitations it now faces by embracing longitudinal studies and giving qualitative approaches more attention. This would enable a more dynamic and nuanced understanding of the entrepreneurial experience. These methodological improvements might expand our understanding of the complex factors behind entrepreneurial success and help shape the creation of more effective support systems for business owners.

c. Contextual Gaps

Two important areas where entrepreneurship study may benefit from a more comprehensive contextual perspective are highlighted in this section:

1. The Global South:

A large portion of current study is concerned with entrepreneurship in Western environments. As a result, Bruton, Ahlstrom, and Li (2010) contend that there is a serious knowledge vacuum about the dynamics of entrepreneurship in developing nations, also known as the Global South.

Why Researching the Global South Is Important

Compared to their Western counterparts, entrepreneurs in developing countries confront distinct possibilities and problems. These might include varied cultural influences, various institutional contexts, and restricted access to resources. Researchers may get a more comprehensive understanding of the global entrepreneurial scene by looking at entrepreneurship in the Global South. Policies and support systems designed to meet the unique requirements of these areas may be informed by this information.

2. Culture's Function:

Hayton, George, and Zahra (2002) point out that existing research does not thoroughly address the role of culture on entrepreneurial behavior and results.

Reasons Culture Counts:

Cultural conventions, values, and beliefs may have a big impact on how people see entrepreneurship. * Societies that value individuality and taking risks, for instance, could be more supportive of entrepreneurship. Researchers may create more complex models of successful entrepreneurship and entrepreneurial behavior with a better grasp of the cultural background.

Going Ahead:

Research on entrepreneurship may become more internationally relevant and comprehensive by including studies from and about the Global South and incorporating cultural variables into pre-existing frameworks. This deeper understanding may result in the creation of more inclusive and successful global entrepreneurship development initiatives.

1.1.4 Purpose of the Study

Given the mixed findings in the existing literature and the critical role that innovation and entrepreneurship play in societal development, this study aims to fill the gap. It will employ a multi-dimensional approach to assess not only the success rate but also the societal impact of innovation and entrepreneurship.

The purpose of this study is to address these gaps by examining the various factors that contribute to the success and failure of entrepreneurial ventures, with a focus on Innovation, Entrepreneurship and startups in Mumbai and suburbs.

The primary aim of this study is to address the identified gaps in the existing literature on innovation and entrepreneurship. Specifically, the study seeks to achieve the following objectives:

Objectives

1. **Interdisciplinary Understanding**: To integrate insights from psychology, sociology, and environmental sciences to provide a holistic view of entrepreneurial behavior (George, 2015).
2. **Sustainability**: To investigate the role of entrepreneurship in promoting sustainable development and environmental conservation (Cohen & Winn, 2007).
3. **Social Entrepreneurship**: To empirically assess the impact and scalability of social entrepreneurial ventures in various contexts (Mair & Marti, 2006).
4. **Methodological Advancements**: To employ both longitudinal and qualitative research methods to capture the nuanced experiences and evolution of entrepreneurial ventures (Davidsson & Wiklund, 2001; Gartner, 2007).
5. **Global Context**: To explore entrepreneurship in the Global South, thereby contributing to a more inclusive understanding of entrepreneurship across different cultural and economic settings (Bruton, Ahlstrom, & Li, 2010).

Exposing Research Gaps in Entrepreneurship: A Comprehensive Method

In order to provide a more thorough knowledge of this dynamic topic, this report explores the significant gaps in entrepreneurship research, identifying areas that need for more investigation. Here, we examine five crucial areas that need focus:

1. Multidisciplinary Understanding:

The majority of research being done today ignores important ideas from other disciplines in favor of business and economics. It is essential to include information from the environmental sciences, sociology, and psychology. Sociology may study the social and cultural settings that support entrepreneurship, psychology can provide insight into personal motivations and risk tolerance, and environmental science can look at how entrepreneurs contribute to the creation of sustainable solutions. George (2015).

2. Sustainability:

According to Cohen and Winn (2007), **t**here is still a lack of research on the connection between sustainable development and entrepreneurship. Innovation in fields like resource efficiency and renewable energy may be stimulated by entrepreneurship. To create a business climate that is more environmentally conscious, research is required to understand how entrepreneurs might be assisted in creating and growing sustainable businesses.

3. Social Entrepreneurship:

According to Marti & Mair (2006) Rigid empirical research is needed to evaluate the effectiveness and scalability of social enterprises—businesses that seek to solve environmental or social issues while still making money. To optimize their beneficial effects, it is essential to comprehend their efficacy. Research can point to effective models, provide guidance for financing plans, and direct laws that assist these endeavors.

4. Improvements in Methodology:

a) Longitudinal Studies:

Davidsson & Wiklund (2001) mentions that the majority of research is cross-sectional, providing a static image as opposed to a dynamic one. Our knowledge of the entrepreneurial process may be enhanced by longitudinal studies, which track enterprises over time and show how entrepreneurs adjust to changing conditions and make strategic choices.

b) Qualitative research:

According to Gartner (2007), an excessive dependence on quantitative techniques restricts our ability to comprehend the complex realities of entrepreneurship. Qualitative approaches, such case studies and interviews, may explore the emotions, motives, and difficulties experienced by entrepreneurs to uncover the "why" behind actions.

5. Global Context:

Brutton, Ahlstrom, & Li (2010) metion in their research that an knowledge of entrepreneurship in the Global South (emerging economies) is lacking due to the emphasis on Western settings. These areas provide particular difficulties, chances,

and tactics. Examining entrepreneurship in a variety of cultural and economic situations can help us develop a more comprehensive and nuanced understanding of the phenomenon globally.

Through addressing these gaps and promoting a more globally conscious, interdisciplinary, and sustainability-focused research strategy, we may develop a more dynamic and comprehensive knowledge of the entrepreneurial environment. Consequently, there may be a greater understanding of the global elements that contribute to entrepreneurial success and the creation of more efficient support networks for business owners.

1.2 Scope

The study will focus on various metrics such as the number of patents filed, stock exchange listings, and crowdfunding received by companies to measure their impact on society.

The scope of this study is multifaceted, encompassing various sectors and geographical locations. It will focus on key performance indicators such as the number of patents filed, stock exchange listings, and crowdfunding received by companies. These metrics will serve as a basis for measuring the societal impact of innovation and entrepreneurship (Kaplan & Warren, 2007).

The scope of this study is multi-faceted and encompasses various dimensions of entrepreneurship and innovation. Below are the key areas that the study will focus on:

1.2.1 Geographical Scope

The study will focus on entrepreneurial ventures in Mumbai and Mumbai suburbs providing a localized understanding of the challenges and opportunities in this region.

The study will be conducted in both developed and developing economies to provide a comprehensive global perspective. This will include case studies from North America, Europe, and the Global South (Wright & Marlow, 2012).

Global Perspective

The study aims to provide a comprehensive global perspective on entrepreneurship and innovation. To achieve this, the research will be conducted across multiple

geographical regions, each offering unique insights into the entrepreneurial landscape (Zahra, Wright, & Abdelgawad, 2014).

Developed Economies

1. **North America**: The United States and Canada serve as significant hubs for technological innovation and startup culture (Florida, 2002).
2. **Europe**: Countries like Germany, the United Kingdom, and France offer a rich history of industrial innovation and a growing focus on sustainable entrepreneurship (Audretsch & Lehmann, 2005).

Developing Economies

1. **Asia**: Emerging markets like India and China are becoming increasingly important in the global entrepreneurial ecosystem (Bruton, Ahlstrom, & Obloj, 2008).
2. **Africa**: Countries such as Nigeria and South Africa are witnessing a surge in social entrepreneurship aimed at solving local issues (George, Corbishley, Khayesi, Haas, & Tihanyi, 2016).

Comparative Analysis

The study will also engage in a comparative analysis between developed and developing economies to understand the varying factors that influence entrepreneurship, such as governmental policies, access to capital, and cultural attitudes (Wennekers, van Stel, Carree, & Thurik, 2010).

It's important to note that the geographical scope may be limited by data availability and logistical constraints, particularly in less developed or politically unstable regions (Kiss, Danis, & Cavusgil, 2012).

1.2.2 Sectoral Scope

The research will concentrate on the Technology sector, given its significant impact on the economy and potential for innovation.

The research will cover multiple sectors, including but not limited to:

1. **Technology Startups**: The ever-evolving world of technology companies depends heavily on ongoing innovation. Shane (2003) asserts that innovation is essential to the development and success of these endeavors. Through his

analysis of the intricate relationships among technical innovations, market forces, and business tactics, Shane provides insightful perspectives on the particular difficulties and prospects encountered by technology-driven enterprises. Further research in this field may focus on:

- How can innovative technology startups get a competitive edge?
- What particular difficulties are involved in introducing new technology to the market?
- What adjustments may be made to entrepreneurial methods for the rapidly changing IT industry?

2. **Green Entrepreneurship**: Green entrepreneurship is centered on businesses that are dedicated to eco-friendly methods and environmental sustainability. **Dean and McMullen (2007)** advocate for studies looking at companies committed to reducing their environmental impact and encouraging environmental stewardship. Researchers may further our knowledge of the beneficial relationship between entrepreneurship and environmental conservation by closely examining the tactics, driving forces, and results of green entrepreneurs. This field of study may investigate:
    - What are the main driving forces for green business model pursuits among entrepreneurs?
    - How can eco-friendly business owners get beyond obstacles pertaining to sustainability and resource efficiency?
    - What effect do green business initiatives have on encouraging eco-friendly behavior?
3. **Social Enterprises**: The sector of social enterprises is expanding, with companies that have two goals in mind: making money and solving social problems. Mair and Marti (2006) elucidate the attributes and consequences of social companies, stressing their capacity to generate constructive social transformation. Their work provides important insights into the operational models, organizational structures, and societal contributions of social companies via empirical research. Additional studies in this field may look into:

- What kinds of social business models exist, and what are the advantages and disadvantages of each?
- How can social entrepreneurs balance the need to be financially sustainable with maximizing their social impact?
- What role can governments and other interested parties play in helping social companies develop and succeed?

Entrepreneurship study may better understand the elements that lead to success in technological companies, green businesses, and social enterprises by concentrating on these particular areas. This information may help shape plans for assisting creative companies that advance social and economic well-being.

Technology and Software

The study will explore the technology and software sectors, which are often considered the epicenters of innovation and entrepreneurship (Shane, 2003). These sectors are characterized by rapid growth, high investment, and a focus on scalability (Acs, Audretsch, & Lehmann, 2013).

Healthcare and Biotechnology

Healthcare and biotechnology are sectors that have seen significant entrepreneurial activity, especially in the development of new medical technologies and pharmaceuticals (DePamphilis, 2019).

Manufacturing and Industrial

The manufacturing and industrial sectors, while traditional, are undergoing a transformation due to technological advancements like Industry 4.0 (Schwab, 2017).

Retail and Consumer Goods

The retail and consumer goods sectors are experiencing a shift towards e-commerce and direct-to-consumer models, driven by entrepreneurial ventures (Burt & Sparks, 2003).

Green and Sustainable Businesses

The study will also cover the emerging sector of green and sustainable businesses, which focus on environmental responsibility and sustainable development (Cohen & Winn, 2007).

Comparative Analysis

A comparative analysis will be conducted to understand the unique challenges and opportunities each sector presents for entrepreneurship and innovation (Porter, 1998).

Limitations

The sectoral scope is subject to change based on emerging trends and the availability of data (Eisenhardt, 1989).

1.2.3 Temporal Scope

Examining Entrepreneurship with a Time-Based Perspective

This research explores the field of entrepreneurship using a time-based methodology to get a thorough grasp of trends and patterns. The study will concentrate on recent advancements since it will span the years 2019 through 2022. However, the research recognizes the need of looking over a longer period in order to properly contextualize these results.

Knowing the Background History:

Although the study will mostly concentrate on 2019–2022, data from the previous ten years will also be included. As supported by Aldrich & Yang (2014), this historical viewpoint enables a clearer comprehension of how entrepreneurship has changed over time and the underlying tendencies that still influence the industry now.

Dissection of Timeframe: The research will use a multi-layered methodology, exploring entrepreneurship across many temporal dimensions:

Analysis for the Short Term (1-3 Years): First, we'll concentrate on the most current time frame (2019–2022). This study will evaluate the effects of innovation and entrepreneurship over a one to three-year period, building on the work of Ries (2011). The viability of startups, market entrance tactics, and early-stage growth trends will be important research subjects.

Intermediate-Term Evaluation (4–10 Years): The study will switch to a medium-term view (4–10 years) after the short-term examination. This stage, which draws inspiration from Christensen (1997), will assess an endeavor's capacity for sustainability and growth. This timeline is essential to comprehending the evolution of startups into more mature businesses.

Over a Ten-Year Period of Analysis: A long-term analysis spanning more than ten years will be conducted after the study's conclusion to examine the larger consequences of innovation and entrepreneurship. This stage will investigate market disruption, industry change, and the idea of legacy building connected to successful entrepreneurial endeavors, based on the work of Collins & Porras (1994).

Cyclical Trends: The research acknowledges that cyclical phenomena, such economic booms and busts, have an impact on entrepreneurship. The study will take into consideration these cyclical trends in order to provide a more thorough knowledge of the entrepreneurial environment by applying the ideas of Schumpeter (1934).

Restrictions: Sarasvathy (2001) points out that the dynamic nature of entrepreneurial ecosystems and data availability may restrict the study's temporal span. The study will recognize and solve significant problems, such as the fast change of entrepreneurial ecosystems and the availability of relevant data over longer durations.

The research attempts to provide a comprehensive and nuanced picture of entrepreneurship by using this time-based methodology. Analyzing current trends in conjunction with historical background and investigating the effects of innovation throughout various time periods will provide insightful knowledge about the dynamic realm of entrepreneurial endeavors.

1.2.4 Methodological Scope

Revealing Innovation and Entrepreneurship: A Comprehensive Study Method

This study explores the dynamic realm of innovation and entrepreneurship, using a multimodal research methodology to get a thorough grasp of the discipline. The study will use a mixed-methods approach, judiciously mixing both qualitative and quantitative data gathering and analysis methodologies, in recognition of the limitations associated with depending only on one methodology.

The research will employ a mixed-methods approach, utilizing both qualitative and quantitative data to provide a holistic view of the subject matter. Both qualitative and quantitative research methods will be employed, surveys, and data analytics (Eisenhardt, 1989; Yin, 2014).

Qualitative Methods: The study will employ qualitative methods such as surveys, case studies, and participant observations to gain in-depth insights into the experiences and perspectives of entrepreneurs and innovators (Creswell & Creswell, 2017).

Surveys: An expanded sample of entrepreneurs and innovators will be surveyed using structured questionnaires, which will facilitate the effective gathering of standardized data.

Case Studies: Detailed examinations of particular businesses or people will provide insightful background information and rich contextual details about the real-world experiences that are part of the entrepreneurial ecosystem.

Participant Observation: The researcher may learn a great deal about the behaviors, decision-making processes, and difficulties faced by entrepreneurs by watching them in their natural habitat.

Quantitative Methods: Quantitative methods will also be utilized, including surveys and statistical analyses, to measure variables like startup success rates, innovation indices, and economic impact (Field, 2013).

Surveys: While quantitative surveys will still be utilized to gather data from a broader sample, they will be more focused on measuring certain variables via the use of standardized questions than qualitative surveys.

Data Analytics: Broader trends and patterns may be understood by statistically analyzing current data sets on variables like economic impact, innovation indices, and startup success rates.

Mixed-Methods Approach: The study by (Tashakkori & Teddlie, 1998) attempts to provide a more comprehensive knowledge than either qualitative or quantitative approaches alone might give by using a mixed-methods approach. While quantitative data may provide wider generalizability to the qualitative conclusions, qualitative data can provide light on the "why" behind the patterns identified by quantitative research.

Comparative Analysis: In the research by Yin, 2013 a comparative analysis will be included into the research to look at innovation and entrepreneurship in various

industries, places, and eras. By using a comparative approach, patterns and trends that may not be visible when examining a specific context might be found.

Ethical Considerations: Strict adherence to ethical principles will be maintained throughout the study project, guaranteeing participant data confidentiality, informed permission, and anonymity when presenting results (American Psychological Association, 2017).

Acknowledging Limitations: There are restrictions on the selected methods. The extent of data collection may be impacted by resource limitations, and the generalizability of results may be impacted by data availability. Furthermore, biases are a fundamental part of all research methodologies, as Maxwell (2012) pointed out. These constraints will be acknowledged in the study design, and efforts will be made to reduce them by triangulating data, carefully choosing techniques, and providing clear reporting.

Result: With an emphasis on ethical issues and an awareness of possible limits, this study uses a mixed-methods approach to provide a deep and complex knowledge of innovation and entrepreneurship. Along with a comparison study, the mix of qualitative and quantitative data will provide insightful information about the variables influencing performance in this fast-paced industry.

Limitations : Although this study aims to be thorough, it recognizes a number of intrinsic constraints and factors that will be taken into account throughout the design and analysis of the research:

1. **Data Availability**: Especially in developing economies (Bruton, Ahlstrom, & Li, 2010). It may be difficult to get accurate and thorough statistics, especially from emerging economies. Due to this constraint, it could be necessary to use other techniques for gathering data or concentrate on areas where data is more easily accessible.
2. **Resource Constraints**: Including time and funding (Baker & Nelson, 2005). Two frequent obstacles in research are financing and time. Within these limitations, the research design will be tailored to maximize data gathering and analysis.

3. **Sample Size**: The study's findings may be limited by the sample size, which may not be representative of the broader population of entrepreneurs and innovators (Cohen, Manion, & Morrison, 2013). To improve the representativeness of the sample within the selected scope, techniques such as stratification or snowball sampling might be used.
4. **Data Availability:** The availability and quality of secondary data, such as government statistics and industry reports, could also limit the scope and validity of the research (Bryman, 2016). Thorough assessment and cross-referencing with other sources of information will be used to guarantee the authenticity of the study.
5. **Researcher Bias:** Despite efforts to maintain objectivity, researcher bias could potentially influence the interpretation of qualitative data (Maxwell, 2012). This prejudice may be lessened by using techniques like peer debriefing and member verification.
6. **Time Constraints:** The study is also constrained by time, which may limit the depth of analysis and the ability to conduct longitudinal research (Creswell & Creswell, 2017). Within the constraints of time, the study design will give priority to the most important techniques for gathering and analyzing data.
7. **Ethical Constraints:** Ethical considerations, such as obtaining informed consent and ensuring participant confidentiality, may limit the types of data that can be collected (American Psychological Association, 2017). This might have an impact on the kinds of data that are gathered and how they are displayed.
8. **Generalizability:** The study's focus on specific sectors, geographical locations, or time periods may limit its generalizability to other contexts (Yin, 2013). The study will address how the results might be applied to wider situations while acknowledging these limitations.

The study design may be enhanced to guarantee the most rigorous and moral data collecting and analysis by addressing these limits and issues up front. Furthermore, open disclosure of these restrictions will enable readers to assess the results' generalizability critically.

1.3 Rationale

Given the mixed findings in existing literature and the critical role of innovation and entrepreneurship in societal development, there is a pressing need for a comprehensive study. This research aims to fill the existing gaps by employing a multi-dimensional approach to assess the success and societal impact of innovation and entrepreneurship (Zahra & Wright, 2016).

Addressing the Gap

This study aims to fill the existing gaps in literature by providing a comprehensive analysis of the factors contributing to entrepreneurial success and failure in technology and other sectors in Mumbai and Mumbai suburbs.

The existing literature on innovation and entrepreneurship has primarily focused on success stories and best practices, often overlooking the complexities and nuances that lead to failure (Shane, 2003; Sarasvathy, 2001). This study aims to fill that gap by exploring both the factors that contribute to success and those that lead to failure.

The existing body of research on innovation and entrepreneurship has made significant strides in understanding the factors that contribute to entrepreneurial success. Studies have delved into the role of market conditions (Porter, 1980), entrepreneurial traits (McClelland, 1961), and business strategies (Mintzberg, 1978) in shaping successful ventures. However, there is a noticeable gap in the literature when it comes to understanding why some entrepreneurial ventures fail despite favorable conditions and competent management (Stam, 2015; Ucbasaran et al., 2013).

This gap is not merely academic but has real-world implications. A comprehensive understanding of entrepreneurial success and failure is essential for stakeholders ranging from investors to policymakers. Without this understanding, resources may be misallocated, and opportunities for innovation and economic growth may be missed (Audretsch, 2007).

This study aims to fill this gap by adopting a holistic approach to entrepreneurship. It will explore not just the factors that contribute to success but also those that lead to failure. By doing so, the study hopes to offer a more nuanced understanding of entrepreneurship, one that can guide both academic inquiry and practical application.

Practical Implications

The findings of this study will offer valuable insights for policymakers, entrepreneurs, and academics, aiding in the development of strategies to foster innovation and entrepreneurship.

Understanding the dynamics of both success and failure can offer invaluable insights for policymakers, educators, and entrepreneurs themselves. It can inform the design of more effective support systems and educational programs (Drucker, 1985; Timmons & Spinelli, 2009).

The findings of this study have several practical implications that extend beyond the academic sphere. Understanding the nuanced factors that contribute to both entrepreneurial success and failure can inform a range of stakeholders, including entrepreneurs, investors, and policymakers.

For Entrepreneurs

Entrepreneurs can benefit from this research by gaining insights into the common pitfalls that lead to business failure. By being aware of these factors, they can take proactive measures to mitigate risks (Cope, 2011). For instance, understanding the role of market dynamics in entrepreneurial failure can help new ventures in market positioning and competitive analysis (Porter, 1980).

For Investors

Investors can use the findings to make more informed decisions about which ventures to support. By understanding the factors that contribute to failure, investors can better assess the risks associated with new ventures (Mason & Harrison, 2004).

For Policymakers

Policymakers can use this research to design more effective support mechanisms for entrepreneurs. For example, if the study finds that lack of access to capital is a significant factor in entrepreneurial failure, policymakers could develop financial instruments or grants aimed at addressing this issue (Audretsch, 2007).

For Educators

Business educators and mentors can incorporate the findings into their curricula or training programs to better prepare the next generation of entrepreneurs (Kuratko, 2005).

Theoretical Contributions

The research will contribute to existing theories of entrepreneurship, by providing empirical evidence from a unique context. This study also seeks to contribute to the theoretical framework of entrepreneurship by incorporating variables often ignored in traditional models, such as emotional intelligence and cultural factors (Baron, 2008; Hofstede, 1980).

The study aims to make several significant theoretical contributions to the existing body of literature on entrepreneurship and innovation. These contributions can be categorized into the following areas:

Refinement of Existing Theories

This research aims to refine existing theories of entrepreneurial success and failure by incorporating variables that have been overlooked in prior studies, such as emotional intelligence and cultural factors (Shane, 2003; Baron, 2008).

Interdisciplinary Approach

By integrating theories from psychology, economics, and management, this study offers an interdisciplinary framework for understanding the complex nature of entrepreneurial ventures (Aldrich & Martinez, 2001).

Methodological Advancements

The use of mixed-methods research, combining both qualitative and quantitative data, provides a more comprehensive understanding of the factors affecting entrepreneurial success and failure (Eisenhardt, 1989).

Conceptual Clarifications

The study aims to clarify ambiguous or contested terms in the entrepreneurship literature, such as 'innovation,' 'risk,' and 'opportunity,' thereby making future research in the field more cohesive (Sarasvathy, 2001).

Policy Implications

While not a primary focus, the theoretical contributions of this study could inform future policy decisions, as theories often serve as the basis for practical interventions (Zahra, 2007).

Social Relevance

In an era where innovation drives economic growth and social progress, understanding the mechanisms that foster or inhibit entrepreneurial activity is crucial for societal well-being (Schumpeter, 1942; Florida, 2002).

The social relevance of this study is multi-faceted and extends beyond the academic realm. Given the role of entrepreneurship in job creation and economic development, the study holds significant social relevance. The following points elucidate the social implications of the research:

Economic Development

Entrepreneurship and innovation are key drivers of economic development and job creation (Audretsch, 2007). By understanding the factors that contribute to entrepreneurial success and failure, this study can indirectly contribute to economic policies that foster a more conducive environment for startups.

Social Mobility

Entrepreneurship often serves as a pathway for social mobility, enabling individuals from disadvantaged backgrounds to improve their socio-economic status (Light & Dana, 2013). This study aims to identify the barriers and facilitators to entrepreneurship, thereby informing initiatives that can make entrepreneurship more accessible to marginalized communities.

Sustainability

The research also explores the role of sustainable practices in entrepreneurial ventures. Understanding how sustainability can be integrated into business models has broader social implications for environmental conservation and social responsibility (Cohen & Winn, 2007).

Educational Implications

The findings of this study could be incorporated into educational curricula aimed at aspiring entrepreneurs, thereby equipping them with the knowledge and skills needed to navigate the complex entrepreneurial landscape (Kuratko, 2005).

Cultural Impact

By examining the role of cultural factors in entrepreneurial success and failure, this study can offer insights into how entrepreneurship is shaped by social and cultural

contexts, which is crucial for fostering a more inclusive entrepreneurial ecosystem (Morris et al., 1993).

1.4 Research Questions

The overarching aim of this study is to explore the dynamics of innovation and entrepreneurship, with a focus on understanding the factors that contribute to both success and failure. To achieve this aim, the research is guided by the following questions:

1. What is the success rate of innovation and entrepreneurship in various sectors?
2. How do successful innovations impact society?
3. Is there a correlation between the success rate of innovation and entrepreneurship and their societal impact?
4. What factors contribute to the success and failure of entrepreneurial ventures mainly in Technology sector in Mumbai and Mumbai suburbs?
5. How do these factors interact with each other?
6. What are the implications for policy and practice?

1.5 Aim

The aim of this study is to assess innovation-driven entrepreneurship's success and social impact using crowdfunding, patents, stock market data, and consumer trends.

1.6 Objectives of the Study

1. To measure the impact of innovation through various crowdfunding received.
2. To assess the market share (consumer purchasing trends) of the successful/developed innovative products / brands
3. To analyse the last five years stock exchange listing of all entrepreneurs of start-up-based companies.
4. To study the correlation between the number of patents filed and innovations done.

CHAPTER – II

LITERATURE REVIEW

The literature review aims to provide a comprehensive understanding of the existing body of knowledge related to innovation and entrepreneurship. This section is divided into several sub-sections to discuss various themes and gaps in the literature.

Entrepreneurship and innovation are essential to both social advancement and economic success. By identifying important themes, supporting data from empirical studies, and areas of unmet research, this literature review seeks to provide a thorough grasp of the corpus of information currently available on innovation and entrepreneurship. The review is divided into a number of subsections, each of which focuses on a distinct facet of innovation and entrepreneurship, such as theoretical underpinnings, real-world applications, or policy ramifications.

Roland Helm and Daniel Conrad in this paper give a new way to think about the things that can help people make decisions. Based on the optimum stimulation theory, a model of customer behaviour is shown that is very detailed. Empirical evidence shows that factors outside of the customer's control have a big impact on how likely they are to buy new products with a lot of innovation.

Suzanne Van den Bosch and MattijsTaanman in this paper states that a well-thought-out innovation strategy and portfolio are important parts of transition management. Innovation projects play an important role in this process. Transitions have a focus on learning, a lot of risk and uncertainty, and a lot of people and networks involved. Deepening, broadening, and scaling up are three mechanisms that explain how small-scale innovations can lead to big changes in society.

Hostettler, S in this study informs that Innovation by itself is insufficient. Social impact—meaning positive change for society and, in this context, low-income communities in the Global South—requires large-scale technology adoption and utilisation. There are various hazards between the initial notion and large-scale implementation, thus many issues remain to be addressed. Low-cost, scalable, robust, and socio culturally acceptable innovation is required in the Global South. Engineers must be aware of and capable of addressing the multiple potential for failure.

Based on academic literature, this working paper by Goos, Maarten; Arntz, Melanie; Zierahn, Ulrich; Gregory, Terry; Gomez, Stephanie Carretero; Vazquez, Ignacio Gonzalez and Jonkers, Koen gives up-to-date evidence on the effects of technological

innovations on labour markets and explores the ensuing policy issues, as well as examples of policy responses. New digital technologies are penetrating the economy at an increasing rate. This entails three major issues for European labour markets. These issues necessitate appropriate policy responses at the European, national, and regional levels. Education and training policies, active labour market policies, income policies, tax systems, and technology policies are among them.

David Ahlstrom says that, good businesses introduce new ideas to the market, which helps them grow. People's lives get better when businesses that are new and growing have a positive effect on the economy and jobs. In addition to providing growth, new businesses can offer important goods and services to people. Steady economic growth that comes from new ideas is a big factor in people making more money per person. Small changes in economic growth can make a big difference in income over time, which makes firm growth very important to people in the world.

Robert J. Shiller says that capitalism must be kept up to date through new ideas in order to be successful. Three recent innovations show how finance and financiers can help us reach these goals. Crowd funding lets small investors become venture capitalists, and it makes money more accessible to everyone.

The literature on corporate social responsibility (CSR) says that CSR initiatives can help businesses do better. Social entrepreneurship and social innovation are becoming more popular because more people aren't happy with for-profit business models. They can help solve problems in the world. The article by Phillips, W., Lee, H., James, P., Ghobadian, A., &O'Regan, N. (2015) does a systematic review of relevant research to show that there is a lot of interest in this topic. It shows that there is a lot of interest in this topic.

Geoffrey Elliott in this paper (2013) proposes a multi-layered strategic approach for evaluating the nature and impact of social innovation in higher education, which connects social and economic benefits. Governments have long recognised that universities benefit their communities in economic, environmental, and cultural ways, and that they should play a key role in rebalancing the economy of distressed communities and stimulating growth in affluent ones. In the absence of well-documented, compelling examples of such rebalancing, this article presents a case

study of The Hive, Europe's first combined university and public library, as an example of a strategic approach to social innovation in higher education that is providing current and potential social and economic benefits to the community in which it is located. A university should play a key role in rebalancing the economy of a struggling town and stimulating growth in a thriving one.

Smart cities are an important way to solve some of the biggest problems facing society today. They help with overpopulation and transportation, but also with pollution and security. Smart cities also help people start new businesses. There is a lot of data that can be used by private and public organisations to develop new services in smart cities. These portals have a lot of data. As a source for businesses that use a lot of information, these things are also very important. In this article by Alberto Abella; Marta Ortiz-de-Urbina-Criado; and Carmen De-Pablos-Heredero, a model is presented that shows how the data released by smart cities is good for the people who live there and for society as a whole.

The social value added of entrepreneurial operations to society must be rethought and redefined. Shaker A. Zahra and Mike Wright propose five pillars on which the expanding social role of entrepreneurship can rest and have an impact in this study. Connecting entrepreneurial operations with other societal endeavours aiming at increasing quality of life, progress, and enriching human existence are the cornerstones.

Mollick, Edward. (2014). For-profit, artistic, and cultural initiatives may earn money using crowdsourcing, which involves recruiting many of individuals to contribute tiny amounts of money. Crowdfunding ventures that succeed are associated with both personal networks and basic project quality. Every investor has the difficulty of selecting which crowdfund project to participate in, and the VASMA weighting system covers both the subjective and objective aspects of criterion weighing.

Bakker-(2014) Rakowska. When it comes to co-development, effective funder participation requires e-notifications, email gatekeeping, and face-to-face interactions. This thesis sheds fresh light on the actual nature of crowdsourcing by offering a quantitative, in-depth investigation of seven successfully funded technologically advanced initiatives.

In 2020, Borrero-Domínguez, C., Hernández-Garrido, R., and Cordón-Lagares, E. If the individuals working on a crowdfunding initiative have experience with comparable projects, they have a higher chance of success. Crowdfunding, however, is not a successful strategy for social impact initiatives that use the ecological typology. Although the topic of sustainability and crowdfunding is still relatively new, there are indications that it is developing. The use of crowdfunding to legitimize sustainable firms is a possibility; however, more studies should examine the impact of crowdfunding initiatives on environmental sustainability.

Rajabzadeh Ghatari, Mashayekhi, and Haji Gholam Saryazdi (2019) evaluate the literature on crowdfunding that was published up to 2017. Many individuals may contribute to a project more easily via crowdfunding, and the success of a project depends on its quality, the reputation of its owners, and their capacity as businesspeople.

According to Hervé, F., & Schwienbacher (2018), crowdsourcing may provide entrepreneurs with input, such as methods to enhance the product both before and after the campaign, which can help them come up with new ideas. According to research by Agrawal, A., Catalini, C., and Goldfarb (2013), "crowdfunding" links musicians who are also business owners with investors in their musical endeavors.

Mollick (2014) and Jenik, I., Lyman, T., and Nava (2017) talk about the fundamental causes of the success and failure of crowdsourced initiatives.

While Saraswat (2014) examined patenting patterns in bioremediation technology for environmental contaminants from 43 PFROs in India from 2005 to 2010, Trappey et al. (2012) enhanced the analysis and rating of patent quality. Burhan et al. (2017) investigated the reasons behind PFROs' patent filing behavior. Indian businesses prioritize cutting costs, especially via creative economical thinking, in order to meet the restricted financial resources of their local customers. In their investigation of the viability of Indian patents, Singh et al. (2019) discovered that all seven of the patents awarded to Indofil—an Indian manufacturer of performance, specialty, and agricultural chemicals—had been issued under working circumstances, demonstrating successful innovation transfer. According to Srivastava and Adholeya (2019), the next wave of the biofertilizer business will concentrate on developing dependable

technologies and efficient products to lessen the impacts of climate change and support sustainable agricultural practices. Haley and Haley (2012) emphasized how innovation and social welfare in low-income markets are affected by the Indian pharmaceutical industry's transition from process to product research. Since 1991, study focus has shifted to multinational enterprises and businesses, especially those that serve underprivileged communities, as a result of India's fast economic expansion sparking interest in Indian organizations and management practices. Garg et al., Kademani et al., and Chatterjee et al. are among the other notable works.

The body of research on the interaction between innovation and stock market dynamics sheds light on a number of important variables that affect startup success. In his investigation of the relationship between innovation and stock markets, Wojcik (2008) focuses on the ways in which novel approaches and techniques may affect a company's choice to go public and pursue recognition in the stock market. Zhang et al. (2010) look at how market orientation influences innovativeness and product innovation performance in Chinese manufacturing companies. They focus on the effects of proactive and responsive market orientations. The "Cherimoya graph" concept for startup dynamics is presented by Carmel et al. (2013), who highlight the complex interrelationships between creativity, research, and company development. Wolf (2017) emphasizes the reciprocal advantages of encouraging scientific and business students to work together to learn about startups and support their expansion. Critical success elements for Java Preanger Coffee are identified and analyzed by Putra et al. (2018), who stress the significance of comprehending industry-specific aspects that affect startup growth and performance. Bae et al. (2020) provide a unique method for creating a financial distress prediction model for dot-com businesses, providing insightful information for reducing risks and improving the chances of startup endeavors. The influence of firm investments in innovation on revenue is examined by Zakic et al. (2020), highlighting the critical role that innovation plays in influencing financial performance and stock market results. In their acknowledgement of the shortcomings of their study and recommendations, Vijayakumar et al. (2021) emphasize the need of using context-specific methods to comprehend startup success. For stock market long-short prediction, Leleo et al. (2021) use an exit-entry model based on mean-changing stochastic processes. This model offers important insights

into stock market dynamics and investing approaches. In-depth interviews with "Wear It" startup stakeholders are used by Sabatinus et al. (2021) to get a qualitative knowledge of the variables impacting company success.

According to research by Sangika et al., consumers who shop at retail consumer electronics shops favor these establishments because of the wide selection, affordable prices, and ease of use. They also discovered that people favor department shops and that the size of purchases decreases with product quality.

Sasikumar and Vijayakumar emphasized the rapid growth of e-commerce in India, categorizing customers into three groups according to their economic standing: higher class, middle class, and lower class. They investigated the attitudes of consumers with respect to needs, information seeking, alternative evolution, purchasing choices, and purchase behavior.

The top 10 trends in Indian consumer behavior, according to a Boston Consulting Group Center for Customer Insight report, include spending more money on customized goods, one-of-a-kind experiences, and time-saving services. These results have consequences for B2C businesses hoping to grow in India.

In order to better understand how commercials affect consumers' purchase decisions, Deshpande, Rokade, and Darda surveyed 150 individuals in Pune and Mumbai. They discovered that the electronic industry's customer purchasing patterns and purchase behavior are greatly influenced by imaginative and well performed advertising.

According to Tom Pages' study, customers see improvements in size, weight, and adaptability as well as practical aspects in microelectronics as advantages, but they also view greater complexity and lower dependability as drawbacks. It was discovered that non-electronic items were easier to use, more logical, and simpler.

Tiwari, P. (2021) discusses the crucial role of funding for startups, highlighting its significance in driving innovation and expansion while also posing challenges due to limited resources. Garg and Kumar (2021) reveal shifting investment patterns of venture capitalists in Mumbai towards later-stage funding, particularly in technology and healthcare sectors. Sharma and Kapoor (2022) address challenges faced by startups in securing VC funding, emphasizing issues of capital availability and stringent criteria. Gupta and Rao (2023) investigate angel investors' motivations and

preferences, stressing the importance of personal connections. Bhalla and Patel (2022) analyze the impact of angel investor networks on startup growth, emphasizing supportive ecosystems. Patel and Mehta (2021) examine crowdfunding as an alternative funding source, highlighting its potential for innovation promotion despite regulatory hurdles and limited awareness.

Mukherjee and Das (2022) explore the growth of patent filings by Mumbai startups, noting a focus on technological innovation. Jain and Singh (2023) analyze sectoral distribution of patent filings, finding concentrations in biotechnology and IT. Patel and Sharma (2021) investigate patent strategies of successful startups, noting a balance between offensive and defensive patenting based on innovation nature and competitive landscape.

Gupta and Mehta (2023) discuss the impact of mentorship programs on startup success, emphasizing guidance and access to networks and resources. Bhalla and Jain (2021) explore networking avenues like industry events and online platforms crucial for startup connections. Mukherjee and Das (2022) analyze Mumbai's talent landscape, emphasizing the role of educational institutions and government initiatives.

This review of the literature examines the relationship between innovation and entrepreneurship, emphasizing the complexity of social innovation and its potential to have a good social effect. It also emphasizes how innovation influences financial success by highlighting the relationship between it and stock market dynamics. Trends in customer behavior are also examined, along with how they affect enterprises. It offers a thorough examination of the Mumbai startup scene, highlighting success criteria, patent strategy, and finance dynamics. The review establishes the foundation for further study and debate by highlighting important topics and knowledge gaps. It inspires scholars, decision-makers, and businesspeople to investigate novel approaches to current problems and promote sustainable development. The study highlights how dynamic entrepreneurship is, with ever-changing customer behavior, market dynamics, and finance methods. It emphasizes how, in a world becoming more linked by the day, innovation-driven development and social advancement need comprehensive strategies and cooperative efforts.

2.1 Theoretical Frameworks in Entrepreneurship

Several theories have been proposed to explain the phenomena of entrepreneurship and innovation. Prominent among these are the Opportunity Theory (Shane & Venkataraman, 2000), Resource-Based View (Barney, 1991), and Social Network Theory (Granovetter, 1973).

Understanding entrepreneurship requires a multi-disciplinary approach, drawing from economics, psychology, sociology, and management. Several theoretical frameworks have been developed to explain the complex phenomena associated with entrepreneurship. This section discusses some of the most influential theories.

2.1.1 Opportunity Theory

Opportunity Theory posits that entrepreneurship arises from the identification and exploitation of opportunities in the market (Shane & Venkataraman, 2000). This theory focuses on the individual entrepreneur's ability to recognize and seize opportunities that others may overlook.

Opportunity Theory is one of the cornerstone frameworks in the field of entrepreneurship. It posits that the essence of entrepreneurship lies in the identification and exploitation of opportunities that exist in the market. This theory was notably articulated by Shane and Venkataraman in their seminal work, "The Promise of Entrepreneurship as a Field of Research" (2000).

Opportunity theory posits that entrepreneurial success is largely dependent on the identification and exploitation of market opportunities (Shane, 2003).

Key Concepts

1. **Opportunity Recognition**: The first step in the entrepreneurial process according to this theory is the recognition of an opportunity. Entrepreneurs have a knack for seeing gaps in the market, unmet needs, or new ways to apply existing technologies.
2. **Evaluation**: Once an opportunity is recognized, it needs to be evaluated for its feasibility and potential profitability. This often involves market research, financial analysis, and risk assessment.

3. **Exploitation**: After evaluation, the entrepreneur moves to exploit the opportunity by mobilizing resources, developing a business model, and launching the venture.
4. **Innovation**: Opportunity Theory places a strong emphasis on innovation, whether it's in the form of a new product, service, or business model. Innovation is seen as a key driver for exploiting opportunities effectively.

Criticisms

While the theory has been widely accepted, it also faces some criticisms:

1. **Overemphasis on Individual Traits**: The theory is often criticized for focusing too much on the individual entrepreneur's ability to recognize and exploit opportunities, thereby neglecting the role of external factors like social networks and institutional settings.
2. **Lack of Context**: The theory doesn't fully account for the influence of cultural, social, and economic contexts in which opportunities are identified and exploited.

Applications

Opportunity Theory has been applied in various domains, including technology startups, social entrepreneurship, and corporate entrepreneurship. It serves as a useful framework for both academics and practitioners to understand the dynamics of venture creation and growth.

2.1.2 Resource-Based View (RBV)

RBV argues that firms gain and sustain competitive advantage through the deployment of valuable, rare, and non-substitutable resources (Barney, 1991). In the context of entrepreneurship, this theory emphasizes the importance of resource allocation and management.

The Resource-Based View (RBV) is another influential theoretical framework in entrepreneurship studies. Originating from strategic management literature, this theory focuses on the internal resources of a firm as the primary determinants of its competitive advantage and performance. The seminal work in this area is often attributed to Jay Barney's 1991 paper, "Firm Resources and Sustained Competitive Advantage."

RBV suggests that firms gain and sustain competitive advantage through the deployment of valuable, rare, and non-substitutable resources (Barney, 1991).

Key Concepts

1. **Valuable Resources**: According to RBV, not all resources are of equal importance. Resources that are valuable, rare, and difficult to imitate or substitute are the ones that give a firm a competitive edge.
2. **Resource Heterogeneity**: RBV assumes that firms within an industry are heterogeneous in terms of the resources they control, which leads to differences in performance.
3. **Resource Immobility**: The theory also posits that these resources are not perfectly mobile, meaning they are not easily transferable from one firm to another.
4. **Strategic Resource Allocation**: Entrepreneurs must strategically allocate and manage resources to build and sustain a competitive advantage.

Criticisms

1. **Static Nature**: One of the main criticisms of RBV is that it is often seen as static and doesn't fully capture the dynamic aspects of entrepreneurial activity.
2. **Neglect of External Environment**: RBV is often criticized for its inward focus, neglecting the influence of market conditions, competition, and other external factors.

Applications

The Resource-Based View has been applied in various contexts, including small business management, innovation, and international entrepreneurship. It provides a lens through which to examine how firms can leverage their internal resources for long-term success.

2.1.3 Social Network Theory

Social Network Theory suggests that social networks play a crucial role in the entrepreneurial process (Granovetter, 1973). Entrepreneurs leverage their social capital to gain resources, information, and support, which are essential for venture success.

Social network theory focuses on the role of social networks in providing entrepreneurs with the resources and support needed for success (Granovetter, 1973).

2.1.4 Psychological Traits Theory

This theory focuses on the psychological characteristics of entrepreneurs, such as risk-taking propensity, need for achievement, and self-efficacy (McClelland, 1961; Bandura, 1977). These traits are believed to influence entrepreneurial behavior and outcomes.

This theory argues that certain psychological traits, such as risk-taking and resilience, are significant predictors of entrepreneurial success (McClelland, 1961).

2.1.5 Institutional Theory

Institutional Theory examines how institutional environments, including regulatory structures, cultural norms, and societal beliefs, influence entrepreneurial activities (DiMaggio & Powell, 1983). This theory helps to understand entrepreneurship in different cultural and regulatory contexts.

Institutional theory examines how institutional environments impact the opportunities and challenges for entrepreneurial ventures (Scott, 2001).

2.2 Innovation in Entrepreneurship

Innovation is often considered the lifeblood of entrepreneurship (Drucker, 1985). Studies have shown that innovation positively impacts firm performance and competitive advantage (Tidd & Bessant, 2018).

Innovation is often considered the lifeblood of entrepreneurship, serving as both a driver and an outcome of entrepreneurial activities (Drucker, 1985). It encompasses not just technological advancements but also includes new business models, organizational structures, and market strategies (Tidd & Bessant, 2018).

2.2.1 Types of Innovation

Innovation is a multifaceted concept that can manifest in various forms within the entrepreneurial landscape. Understanding the types of innovation is crucial for entrepreneurs as it helps them identify where they can introduce novelty in their ventures. Below are some of the most commonly recognized types of innovation:

Innovation in entrepreneurship can be categorized into several types:

2.2.1.1 Product Innovation

Introduction of a new good or a qualitative change in an existing good (Schumpeter, 1934). Product innovation involves the development of new products or significant improvements to existing products. This type of innovation is often the most visible and directly impacts the consumer experience. For example, the introduction of smartphones revolutionized the way people communicate and access information (Chesbrough, 2003).

2.2.1.2 Process Innovation

Implementation of a new or significantly improved production or delivery method (Porter, 1985). Process innovation refers to the implementation of a new or significantly improved production or delivery method. This can include changes in techniques, equipment, and software that enhance efficiency and effectiveness. Toyota's implementation of the "Just-In-Time" manufacturing system is a classic example of process innovation (Womack, Jones, & Roos, 1990).

2.2.1.3 Business Model Innovation

Changes to the way a company creates, delivers, and captures value (Osterwalder & Pigneur, 2010). Business model innovation involves changes in the way a company creates, delivers, and captures value. This type of innovation can be transformative and disrupt entire industries. The rise of subscription-based models in software services like Adobe Creative Cloud is an example (Osterwalder & Pigneur, 2010).

2.2.1.4 Organizational Innovation

Introduction of a new organizational method in the business practices, workplace organization, or external relations (Teece, 2007). Organizational innovation is the introduction of new organizational methods in business practices, workplace organization, or external relations. This can include changes in management practices, company culture, or external collaborations. Google's 20% time policy, which allows employees to spend 20% of their time on personal projects, is an example of organizational innovation (Hamel, 2007).

2.2.1.5 Service Innovation

Service innovation is often an overlooked but crucial type of innovation that involves creating new services or improving existing ones. This can be particularly relevant in

sectors like healthcare, education, and hospitality. Telemedicine, which allows for remote medical consultations, is a recent example (Berry & Shankar, 2008).

2.2.1.6 Open Innovation

Open innovation is a more recent concept that involves organizations collaborating with external partners to accelerate the innovation process. This can include crowdsourcing, partnerships, and collaborative research (Chesbrough, 2006).

2.2.1.7 Radical vs Incremental Innovation

Innovations can also be categorized based on their impact. Radical innovations bring about significant changes and often create new industries, while incremental innovations involve smaller improvements that enhance existing products, services, or processes (Tushman & O'Reilly, 1996).

By understanding these types of innovation, entrepreneurs can better strategize on how to introduce novelty into their ventures, thereby gaining a competitive edge in the market.

2.2.2 The Role of Innovation in Entrepreneurial Success

Innovation plays a critical role in the competitive advantage and long-term success of entrepreneurial ventures. Firms that continuously innovate are more likely to sustain their market position, adapt to changing market conditions, and respond effectively to competition (Christensen, 1997).

Innovation is often considered the lifeblood of entrepreneurship. It serves as a catalyst for growth, competitive advantage, and long-term sustainability. This section delves into the various ways innovation contributes to entrepreneurial success.

2.2.2.1 Competitive Advantage

Innovation provides entrepreneurs with a competitive edge in the marketplace. By offering something new or improved—be it a product, service, or process—entrepreneurs can differentiate themselves from competitors and attract a larger customer base (Porter, 1985).

2.2.2.2 Market Leadership

Innovative companies often become market leaders. By being the first to introduce a new product or service, they can establish a strong brand and set the standard that

competitors must follow. Apple's introduction of the iPhone is a classic example of how innovation can lead to market leadership (Schilling, 2015).

2.2.2.3 Revenue Growth

Innovation often leads to new revenue streams. By continually innovating, entrepreneurs can diversify their product or service offerings, thereby reducing dependence on a single revenue source and increasing financial stability (Teece, 1986).

2.2.2.4 Customer Retention

Innovation is not just about attracting new customers; it's also about retaining existing ones. By continually updating products or services, entrepreneurs can keep their customer base engaged and loyal (Reichheld, 1996).

2.2.2.5 Adaptability

In a rapidly changing business environment, the ability to innovate is crucial for survival. Companies that can adapt and innovate are better positioned to respond to market changes and disruptions (Christensen, 1997).

2.2.2.6 Global Expansion

Innovation can also pave the way for global expansion. Products or services that are innovative and meet a universal need have the potential to be scaled globally, providing additional growth opportunities (Prahalad & Hamel, 1990).

2.2.2.7 Social Impact

Innovation in entrepreneurship is not just about economic gains; it can also have a significant social impact. Social entrepreneurs often use innovation to address pressing societal issues, such as healthcare, education, and sustainability (Mair & Marti, 2006).

2.2.2.8 Risk Mitigation

Innovation can also serve as a risk mitigation strategy. By diversifying products or services and entering new markets, entrepreneurs can spread risk and increase the likelihood of business sustainability (Markowitz, 1952).

In summary, innovation plays a pivotal role in the success of entrepreneurial ventures. It offers multiple avenues for growth, differentiation, and value creation, making it an indispensable component of a successful entrepreneurial strategy.

2.2.3 Barriers to Innovation

Despite its importance, innovation is not without its challenges. Barriers can include financial constraints, lack of skilled labor, and regulatory hurdles, among others (Baldwin & Gellatly, 2003).

While innovation is a critical component of entrepreneurial success, it is not without its challenges. This section explores the various barriers that entrepreneurs may encounter in their quest for innovation.

2.2.3.1 Financial Constraints

One of the most significant barriers to innovation is the lack of financial resources. Developing a new product or service often requires substantial investment, and not all entrepreneurs have access to the necessary capital (Gans & Stern, 2003).

2.2.3.2 Regulatory Hurdles

Entrepreneurs often face regulatory challenges that can stifle innovation. These can range from patent laws to industry-specific regulations that limit the scope or scale of innovative activities (Lerner, 2009).

2.2.3.3 Market Uncertainty

The market's unpredictable nature can also be a barrier to innovation. Entrepreneurs may be hesitant to invest in innovation due to uncertainties about consumer demand or competitive landscape (Knight, 1921).

2.2.3.4 Talent Gap

Innovation often requires specialized skills and expertise. The lack of qualified personnel can be a significant hindrance to innovation efforts (Rothwell, 1994).

2.2.3.5 Organizational Culture

The culture within an organization can either foster or inhibit innovation. A culture that does not value creativity and risk-taking can be a significant barrier to innovation (Schein, 1985).

2.2.3.6 Technological Limitations

Sometimes, the existing technology may not be advanced enough to realize an innovative idea fully. Technological constraints can limit the scope and effectiveness of innovation efforts (Tushman & Anderson, 1986).

2.2.3.7 Intellectual Property Concerns

The fear of idea theft or patent infringement can also deter entrepreneurs from pursuing innovative activities. Protecting intellectual property is often a complex and costly process (Teece, 1986).

2.2.3.8 Time Constraints

Innovation is often a time-consuming process. Entrepreneurs juggling multiple responsibilities may find it challenging to dedicate the time required for innovative activities (Cooper, 1990).

In summary, while innovation offers numerous advantages, entrepreneurs must navigate a complex landscape of barriers to fully realize its benefits. Understanding these challenges is the first step in devising strategies to overcome them.

2.2.4 Innovation Ecosystems

The concept of innovation ecosystems refers to the interconnected network of actors—such as firms, universities, and government agencies—that contribute to the innovation process (Adner, 2017). A healthy innovation ecosystem can significantly enhance the rate and quality of innovation in entrepreneurial ventures.

Innovation does not occur in a vacuum; it is often the result of a complex interplay between various actors within an ecosystem. This section delves into the concept of innovation ecosystems and how they influence entrepreneurial activities.

2.2.4.1 Definition of Innovation Ecosystem

An innovation ecosystem refers to the interconnected network of organizations, institutions, and individuals that contribute to the process of innovation. This includes universities, research institutions, government agencies, venture capitalists, and, of course, entrepreneurs themselves (Moore, 1993).

2.2.4.2 Components of an Innovation Ecosystem

Complex networks called innovation ecosystems foster and assist the development and commercialization of novel ideas. These ecosystems depend on a variety of people being networked, each of whom is essential to the innovation process. The following is a summary of the essential elements of a thriving innovation ecosystem:

The key components of an innovation ecosystem typically include:

- **Knowledge Institutions**: Within the ecosystem, Universities and research centers that generate new knowledge and technologies. They produce fresh information, carry out innovative research, and train the next generation of inventors (Adner, 2017).
- **Funding Entities**: Government grants, angel investors, and venture capitalists are the financial engines that drive innovation. These organizations make investments in ideas that show promise, helping business owners to realize their ideas (Adner, 2017).
- **Regulatory Bodies**: The legal and regulatory foundation for innovation is established in large part by government bodies. They establish the laws governing market competition, safety requirements, and intellectual property, creating an equitable and stable atmosphere that fosters innovation (Adner, 2017).
- **Market Actors**: Consumers and businesses that create demand for innovative products and services. The pull effect of their need for new goods and services encourages entrepreneurs to provide solutions that fill gaps in the market and offer value (Adner, 2017).
- **Intermediaries**: Within the ecosystem, institutions like as incubators and accelerators play a catalytic role. By giving them access to networks, workspace, mentoring, and other tools that help them polish their ideas and start profitable businesses, they give vital assistance to entrepreneurs (Adner, 2017).

The interplay among these elements determines an innovation ecosystem's potency and efficacy. Market players are more likely to adopt innovations when knowledge institutions provide ground-breaking ideas, financing sources give the necessary

financial backing, and regulatory agencies set up an accommodating environment. Conversely, intermediaries have the ability to close the gaps that separate these parties, encouraging cooperation and quickening the pace of invention. Societies can unleash the enormous potential of human invention and create innovative solutions that solve global concerns and spur economic progress by cultivating a robust and linked innovation ecosystem.

2.2.4.3 Role of Entrepreneurs in Innovation Ecosystems

Entrepreneurs act as the catalysts in innovation ecosystems. They identify opportunities, mobilize resources, and bring innovations to market. Their activities often serve as the bridge between research and commercialization (Autio, 1998).

2.2.4.4 Benefits of a Healthy Innovation Ecosystem

An innovation ecosystem in good health is a haven for advancement rather than just a collection of participants. When these elements function well together, they create a flourishing ecosystem that has many advantages:

- **Accelerated Innovation**: Innovation is accelerated by the interactions between various ecosystem participants. Universities can provide the most recent research, startups can try out novel concepts, and established businesses may contribute resources and knowledge. The innovation pipeline is fueled by this ongoing cooperation and information sharing, which hastens the development and commercialization of new products and technology.
- **Risk Mitigation**: There is inherent danger in innovation. A healthy ecology, nevertheless, may lessen these dangers. Entrepreneurs may benefit greatly from shared resources, information networks, and experienced players' mentoring, which can raise their chances of success. Furthermore, a wide variety of participants enable risk sharing, distributing the cost of any failures across the ecosystem.
- **Access to Capital**: Investors are drawn to a thriving innovation environment with a successful track record. Promising businesses functioning inside a supporting network are more likely to attract the attention of venture capitalists, angel investors, and other financing sources. Due to the better

access to financing, entrepreneurs are able to overcome a significant obstacle and realize their ideas. (Isenberg, 2010).

In addition to these fundamental advantages, robust innovation ecosystems may also:

Attract and retain top talent: A vibrant ecosystem full of exciting opportunities draws highly skilled individuals, creating a dynamic and innovative workforce.

Drive economic growth: Successful startups can spark new industries, create jobs, and make a major economic contribution to a region.

Improve quality of life: Innovation frequently results in the creation of new products and services that enhance people's lives and address societal challenges.

Communities may unleash a potent engine for advancement and pave the way for a more inventive, affluent, and sustainable future by fostering a robust innovation ecosystem.

2.2.4.5 Challenges in Building and Sustaining Innovation Ecosystems

Innovation ecosystems are very beneficial, but creating and sustaining one is not simple. Several obstacles may prevent this intricate network from operating as intended:

- **Misalignment of Interests**: There may be competing interests between the different actors in an ecosystem. While venture capitalists may be looking for short-term, high-return investments, universities may place a higher priority on basic research. These conflicting agendas may sour relations and impede cooperation.
- **Resource Scarcity**: Infrastructure, trained labor, and financial resources are all necessary for a healthy environment. These resources, meanwhile, may be hard to come by, particularly in underdeveloped nations. Insufficient resources have the potential to limit the assistance offered to entrepreneurs and impede the ecosystem's overall development.
- **Regulatory Hurdles**: Regulations that are too onerous may hinder innovation. Tight labor rules, complicated licensing processes, and tight intellectual

property restrictions may all work against entrepreneurship and the commercialization of novel ideas (Stam, 2015).

- **Travelling Through the Ecosystem:** Notwithstanding these obstacles, innovation ecosystems continue to be a potent driver of advancement. Through recognition of these possible obstacles, interested parties might endeavor to establish a more encouraging atmosphere:
- **Encouraging Cooperation:** It is possible to set up mechanisms that promote cooperation and communication amongst the many ecosystem participants. Public-private collaborations, knowledge-sharing platforms, and collaborative research endeavors may all be examples of this.
- **Optimizing Resource Allocation:** Techniques for luring capital, creating talent pipelines, and effectively sharing resources may assist in overcoming constraints imposed by scarcity.
- **Achieving a Balance in Regulations:** The protection of the public interest and the promotion of innovation must coexist in harmony in regulations. Clear intellectual property rules, financial incentives for R&D, and streamlined procedures may all contribute to an environment that is more conducive to innovation.

In summary, Innovation ecosystems are complex, ever-changing systems. It is essential to comprehend both the advantages and the difficulties in order to promote an atmosphere that is conducive to the growth of innovation and entrepreneurs. Stakeholders can unleash the enormous potential of innovation ecosystems to propel advancement and create a better future by cooperating and tackling these issues.

2.2.5 Case Studies

Several case studies highlight the role of innovation in entrepreneurial success. Companies like Apple, Tesla, and Airbnb have disrupted traditional industries through ground breaking innovations (Isaacson, 2011; Vance, 2015; Gebbia, 2016).

This section presents a selection of case studies that exemplify the role of innovation in entrepreneurial success. These real-world examples serve to illustrate the theories and frameworks discussed earlier.

2.2.5.1 Tesla, Inc.

Background: Founded in 2003, Tesla aimed to revolutionize the automotive industry through electric vehicles (EVs).

Founded in 2003 by engineers Martin Eberhard and Marc Tarpenning, and later joined by entrepreneur Elon Musk, Tesla, Inc. aimed to revolutionize the automotive industry by making electric vehicles (EVs) accessible and appealing to the mass market. The company's mission is "to accelerate the advent of sustainable transport by bringing compelling mass-market electric cars to market as soon as possible" (Tesla, 2021).

Innovation: Tesla's innovation lies not just in its electric cars but also in its business model, which includes direct sales, over-the-air software updates, and a focus on sustainability.

Tesla's innovation is multi-faceted, encompassing not just the product but also the business model, supply chain, and customer experience. Here are some key areas:

1. **Product Innovation**: Tesla's electric cars are known for their performance, safety features, and range. The company also introduced the concept of over-the-air software updates, allowing for continuous improvement even after the sale.
2. **Business Model**: Unlike traditional automakers who rely on dealerships, Tesla uses a direct-to-customer sales model. This allows for better control over the customer experience and also eliminates the middleman, reducing costs.
3. **Battery Technology**: Tesla has invested heavily in battery technology, not just for their cars but also for renewable energy storage solutions. Their Gigafactories aim to produce batteries at scale, thereby reducing costs and increasing accessibility.
4. **Autonomous Driving**: Tesla is a leader in the development of autonomous driving technology, with its Autopilot and Full Self-Driving features being among the most advanced in the market.
5. **Sustainability**: Beyond cars, Tesla's product range includes solar panels and energy storage solutions, aiming for a comprehensive approach to sustainability.

Outcome: Tesla has become a market leader in the EV space, challenging traditional automotive companies and pushing the entire industry toward sustainable practices.

Tesla has become a market leader in the electric vehicle space, with a market capitalization that surpasses many traditional automakers. It has not only challenged but also changed the automotive industry, pushing it towards more sustainable practices. Tesla's impact is also seen in the rise of electric vehicle startups and the increased focus on sustainability across the sector.

Challenges and Criticisms

While Tesla has been a pioneer, it has also faced various challenges, including production delays, quality control issues, and regulatory hurdles. Critics also point out the high cost of Tesla's vehicles, questioning the company's impact on making sustainable transport accessible to the mass market.

Lessons for Entrepreneurship

Tesla serves as a case study in how disruptive innovation can reshape an entire industry. It also highlights the importance of a strong vision, willingness to take risks, and the ability to adapt and evolve.

2.2.5.2 Airbnb

Background: Launched in 2008, Airbnb disrupted the traditional hospitality industry by allowing homeowners to rent out their spaces to travelers.

Airbnb was founded in 2008 by Brian Chesky, Joe Gebbia, and Nathan Blecharczyk as a platform to connect people looking for accommodation with those offering a place to stay. The initial concept was simple: provide a platform where homeowners could rent out an extra room to travelers. Over time, the platform has expanded to offer various types of accommodations, including entire homes, apartments, and even unique stays like treehouses and castles.

Innovation: The platform itself was innovative, but Airbnb also introduced a trust system, including verified IDs and a review system, which helped it gain user trust.

Airbnb's innovation lies in its disruptive business model and technology platform. Here are some key areas:

1. **Business Model**: Airbnb disrupted the traditional hotel industry by offering a peer-to-peer service that allows individuals to monetize their extra space. This model has expanded the range of options available to travelers and democratized the hospitality industry.
2. **Technology Platform**: Airbnb's user-friendly interface, secure payment system, and review mechanism have made it easy for both hosts and guests to engage in transactions with a sense of trust and community.
3. **Data Analytics**: The company uses sophisticated algorithms to match supply and demand, set pricing, and offer personalized recommendations. This data-driven approach has been crucial for its scalability.
4. **Community Building**: Airbnb places a strong emphasis on building a community of hosts and guests, offering a more personalized and local experience compared to traditional hotels.
5. **Experiences**: Beyond accommodations, Airbnb has expanded to offer "Experiences," allowing locals to offer activities and tours, thereby diversifying its revenue streams.

Outcome: Airbnb has expanded globally and has diversified its offerings, including experiences and restaurant reservations.

Airbnb has grown exponentially and is now a global platform with listings in more than 220 countries. Its market capitalization rivals that of established hotel chains, and it has fundamentally altered the way people think about travel accommodations.

Challenges and Criticisms

Airbnb has faced regulatory challenges in various cities where local laws were not designed to accommodate its business model. Issues related to safety, housing affordability, and taxation have also been points of contention.

Lessons for Entrepreneurship

Airbnb serves as a case study in leveraging technology to disrupt traditional industries. It highlights the importance of a customer-centric approach, the power of community, and the need for adaptability in the face of regulatory and market challenges.

2.2.5.3 Spotify

Background: Founded in 2006, Spotify transformed the music industry by offering a legal and user-friendly platform for streaming music.

Founded in 2006 by Daniel Ek and Martin Lorentzon, Spotify revolutionized the music industry by offering a legal and user-friendly platform for streaming music. The service launched to the public in 2008 and has since become one of the world's leading music streaming platforms, with millions of songs available to users across the globe.

Innovation: Spotify's use of algorithms to personalize playlists and suggest new music was a game-changer.

Spotify's innovation can be categorized into several key areas:

1. **Business Model**: Spotify introduced a freemium model that allows users to listen to music for free with ads or pay a monthly subscription for an ad-free experience. This model disrupted the traditional music sales and piracy landscape.
2. **Technology Platform**: Spotify's app is known for its sleek design, ease of use, and personalized playlists. The platform uses complex algorithms to recommend music based on user behavior, thereby enhancing user engagement.
3. **Data Analytics**: Spotify employs big data and machine learning algorithms to analyze user behavior, which helps in curating personalized playlists and also aids artists in understanding their audience.
4. **Global Licensing**: One of Spotify's major innovations was in negotiating global licensing agreements with music labels, making a wide range of music accessible to users worldwide.
5. **Podcasts**: Recognizing the growing popularity of podcasts, Spotify diversified its offerings by including a wide range of podcasts and even acquiring podcast networks to strengthen its position in the market.

Outcome: Spotify has become one of the world's leading music streaming services, with millions of paying subscribers.

Spotify has grown to have hundreds of millions of active users and has significantly impacted how people consume music. It has also provided a platform for artists to reach global audiences without the traditional barriers set by record labels.

Challenges and Criticisms

Spotify has faced criticism for its payment model, which some artists claim offers insufficient compensation. Additionally, the company has had to navigate complex licensing agreements and competition from other streaming services and platforms.

Lessons for Entrepreneurship

Spotify serves as a case study in how technological innovation can disrupt traditional industries. It also exemplifies the importance of adaptability, customer focus, and the strategic use of data analytics.

2.2.5.4 Patagonia

Background: Patagonia, an outdoor clothing and gear brand, has been a pioneer in corporate social responsibility.

Founded in 1973 by Yvon Chouinard, Patagonia is an American company that specializes in outdoor clothing and gear. The company has been a pioneer in corporate social responsibility and environmental sustainability, setting it apart from competitors in the outdoor apparel industry.

Innovation: The company's commitment to sustainability is not just a marketing strategy but is integrated into its product development and supply chain.

Patagonia's innovative approach is evident in several key areas:

1. **Sustainable Materials**: Patagonia has been a leader in using recycled and organic materials in its products, reducing the environmental impact of its manufacturing processes.
2. **Transparency**: The company is known for its transparency in sourcing and production, providing consumers with detailed information about where and how products are made.
3. **Business Model**: Patagonia's "Ironclad Guarantee" allows customers to return any item at any time for repair, replacement, or refund, encouraging long-term use and reducing waste.

4. **Environmental Activism**: Patagonia donates a portion of its profits to environmental causes and encourages its customers to do the same through its "1% for the Planet" initiative.
5. **Circular Economy**: The company has introduced a "Worn Wear" program that allows customers to trade in used Patagonia items for store credit, promoting a circular economy.

Outcome: Patagonia has built a strong brand loyalty and has set an example for other companies to follow in terms of environmental responsibility.

Patagonia has built a strong brand that is synonymous with quality, sustainability, and ethical business practices. Its innovative approaches have not only garnered a loyal customer base but have also influenced the broader industry to adopt more sustainable practices.

Challenges and Criticisms

While Patagonia has been lauded for its ethical and sustainable practices, it is not immune to criticism. The high cost of its products can be a barrier for some consumers, and there are ongoing debates about the effectiveness of corporate social responsibility initiatives in addressing systemic environmental issues.

Lessons for Entrepreneurship

Patagonia serves as a case study in how a commitment to innovation, sustainability, and ethical practices can differentiate a brand in a competitive market. It also shows that businesses can be both profitable and socially responsible.

2.2.5.5 Summary

These case studies demonstrate the diverse ways in which innovation can drive entrepreneurial success. They also highlight the importance of an enabling ecosystem, whether it's in the form of supportive regulations, consumer demand, or access to funding and resources.

2.2.6 Future Directions

As the pace of technological change accelerates, the role of innovation in entrepreneurship is likely to evolve. Future research could focus on the impact of emerging technologies like AI, blockchain, and IoT on entrepreneurial innovation (Makridakis, 2017).

This section aims to provide a comprehensive overview of the role of innovation in entrepreneurship, drawing from various theoretical frameworks and empirical studies. It underscores the importance of innovation in both the creation and scaling of entrepreneurial ventures.

2.3 Success Factors in Entrepreneurial Ventures

Research has identified various factors that contribute to the success of entrepreneurial ventures, such as leadership qualities, market orientation, and financial management (Brush et al., 2001; Wiklund & Shepherd, 2005).

Understanding the factors that contribute to the success of entrepreneurial ventures is crucial for both academics and practitioners. While there is no one-size-fits-all formula for entrepreneurial success, several key factors consistently emerge as influential.

Key Success Factors

1. **Innovation**: As discussed in the previous section, innovation is often a significant driver of entrepreneurial success. Companies that can innovate tend to stay ahead of the competition and adapt to changing market conditions.
2. **Market Research**: Understanding the target market is essential. Entrepreneurs who invest in market research are better positioned to identify opportunities and threats.
3. **Financial Management**: Effective financial planning and management are critical for the survival and growth of any venture.
4. **Team and Leadership**: The skills, experience, and leadership qualities of the founding team can significantly impact the venture's success.
5. **Business Model**: A well-thought-out business model that outlines how the venture will create, deliver, and capture value is crucial.
6. **Timing**: The timing of market entry can be decisive. Being too early or too late can have detrimental effects.
7. **Networks and Relationships**: Building strong relationships with stakeholders, including customers, suppliers, and investors, can provide a competitive advantage.

8. **Adaptability**: The ability to adapt to changing market conditions, customer preferences, and emerging technologies is vital for long-term success.
9. **Access to Resources**: Whether it's financial resources, human capital, or technological assets, having the right resources at the right time is crucial.
10. **Regulatory and Institutional Support**: Understanding and navigating the regulatory environment can also be a significant factor, especially for ventures in highly regulated industries.

Practical Implications

Entrepreneurs can use these factors as a checklist when planning and executing their ventures. Investors and policymakers can also benefit from understanding these factors to support entrepreneurship more effectively.

The identification of key success factors in entrepreneurial ventures has several practical implications for different stakeholders, including entrepreneurs, investors, and policymakers.

For Entrepreneurs:

1. **Risk Mitigation**: Understanding these factors can help entrepreneurs assess and mitigate the risks associated with their ventures.
2. **Strategic Planning**: Entrepreneurs can incorporate these success factors into their business plans and strategies, thereby increasing the likelihood of achieving their objectives.
3. **Resource Allocation**: Knowing what factors contribute to success can guide entrepreneurs in allocating their limited resources more effectively.
4. **Performance Metrics**: These factors can serve as performance indicators, helping entrepreneurs to monitor and adjust their strategies in real-time.

For Investors:

1. **Due Diligence**: Investors can use these factors as a framework for evaluating the potential of entrepreneurial ventures, thereby making more informed investment decisions.
2. **Portfolio Management**: Understanding these factors can help investors manage their portfolios more effectively, balancing risks and rewards.

For Policymakers:

1. **Policy Formulation**: Policymakers can design policies that foster conditions conducive to these success factors, such as innovation-friendly regulations, access to capital, and educational programs focused on entrepreneurship.
2. **Economic Development**: By supporting ventures that align with these success factors, policymakers can stimulate economic growth and job creation.

For Educators:

1. **Curriculum Development**: Business schools and entrepreneurship programs can incorporate these success factors into their curricula, better preparing students for entrepreneurial endeavors.
2. **Case Studies**: Educators can use real-world examples of ventures that have successfully leveraged these factors, enhancing the learning experience.

Theoretical Contributions

This section contributes to the entrepreneurship literature by synthesizing various success factors into a cohesive framework. It also bridges the gap between academic research and practical application.

The study of key success factors in entrepreneurial ventures contributes to several theoretical frameworks and paradigms in the field of entrepreneurship and business management. Below are some of the key theoretical contributions:

Advancing Opportunity Theory:

1. **Identification and Exploitation**: This study adds nuance to the understanding of how entrepreneurs identify and exploit opportunities, thereby enriching Opportunity Theory.
2. **Market Gaps**: The study can provide empirical evidence on how entrepreneurs successfully fill market gaps, thereby validating or challenging existing theoretical constructs.

Enriching Resource-Based View (RBV):

1. **Resource Allocation**: The study contributes to the RBV by examining how entrepreneurs allocate resources effectively to gain a competitive advantage.

2. **Resource Types**: It can also add to the taxonomy of resources that are crucial for entrepreneurial success, such as human capital, social capital, and financial resources.

Extending Social Network Theory:

1. **Network Dynamics**: This study can offer insights into how entrepreneurs leverage their social networks for various aspects like funding, mentorship, and customer acquisition.
2. **Network Structure**: It can also contribute to understanding the optimal structure of these networks, such as the balance between strong and weak ties.

Refining Psychological Traits Theory:

1. **Entrepreneurial Mindset**: The study can provide empirical data on the psychological traits that are most conducive to entrepreneurial success, thereby refining existing theories.
2. **Behavioral Aspects**: It can explore how these traits translate into entrepreneurial behaviors, such as risk-taking and innovation.

Enhancing Institutional Theory:

1. **Institutional Support**: The study can examine the role of institutional support systems, like incubators and accelerators, in entrepreneurial success.
2. **Regulatory Impact**: It can also look at how institutional frameworks and regulations either impede or facilitate entrepreneurial activities.

2.4 Failure Factors in Entrepreneurial Ventures

Contrary to success, failure in entrepreneurship is less studied but equally important. Studies have explored reasons like poor market fit, lack of resources, and managerial incompetence as leading causes of failure (McGrath, 1999).

Understanding the factors that contribute to the failure of entrepreneurial ventures is equally important as studying the success factors. This section delves into the various elements that can lead to the downfall of a startup or entrepreneurial project.

2.4.1 Market Misfit

The concept of market misfit is a critical factor that can lead to the failure of entrepreneurial ventures. It encompasses various dimensions, such as product-market

fit, customer understanding, and market timing, among others. Below are some of the key aspects that contribute to market misfit:

2.4.1.1 Product-Market Fit

A lack of alignment between the product and the target market often leads to failure.

One of the most common reasons for failure is the lack of product-market fit. Entrepreneurs may develop a product that does not meet the needs or solve the problems of their target market. This misalignment can result in poor sales and customer engagement.

2.4.1.2 Customer Understanding

A lack of deep understanding of customer needs, preferences, and behaviors can also contribute to market misfit. Entrepreneurs may make assumptions about what the customer wants without conducting adequate market research.

2.4.1.3 Market Timing

Entering the market too early or too late can be detrimental. Being too early means the market may not be ready for the product, while being too late may mean facing stiff competition and saturated markets.

2.4.1.4 Overestimation of Market Size

Incorrectly gauging the market size can result in overproduction and financial losses. Entrepreneurs often overestimate the size of their target market. This overestimation can lead to unrealistic revenue projections and, consequently, financial strain on the business.

2.4.1.5 Geographic Mismatch

Sometimes, the product may be well-suited for a particular geographic location but not for others. Ignoring geographic factors can result in a market misfit.

2.4.2 Financial Mismanagement

Financial mismanagement is another significant factor that can lead to the downfall of entrepreneurial ventures. The inability to effectively manage financial resources can result in a myriad of problems, ranging from cash flow issues to bankruptcy. Here are some key aspects that contribute to financial mismanagement:

2.4.2.1 Poor Budgeting

Inadequate or unrealistic budgeting can lead to overspending and financial strain. Entrepreneurs may underestimate the costs associated with running a business, leading to a financial shortfall.

2.4.2.2 Lack of Financial Planning

A lack of long-term financial planning can result in insufficient funds for scaling the business, R&D, or marketing efforts. This can stifle growth and lead to missed opportunities.

2.4.2.3 Inadequate Financial Controls

Weak internal controls can lead to financial losses through fraud or embezzlement. It can also result in regulatory fines if the company fails to comply with financial reporting standards.

2.4.2.4 Over-reliance on Debt

Excessive borrowing can put a strain on the business, making it unsustainable in the long run.

Excessive borrowing can lead to high interest payments, which can consume a significant portion of the company's revenue. This can result in a vicious cycle of debt that is difficult to escape.

2.4.2.5 Poor Cash Flow Management

Inadequate cash reserves or poor cash flow management can lead to bankruptcy.

Cash flow is the lifeblood of any business. Poor management of receivables and payables can lead to cash flow problems, making it difficult to meet operational expenses.

2.4.3 Poor Leadership and Team Dynamics

The role of leadership and team dynamics cannot be overstated in the context of entrepreneurial success or failure. Poor leadership and dysfunctional team dynamics can severely hinder a venture's ability to adapt, innovate, and grow. Below are some of the key aspects that contribute to poor leadership and team dynamics:

2.4.3.1 Lack of Vision and Direction

A lack of clear direction and purpose can demotivate the team and lead to failure.

A leader without a clear vision and strategic direction can leave the team feeling lost and disoriented. This lack of focus can result in wasted resources and missed opportunities.

2.4.3.2 Ineffective Communication

Poor communication within the team can lead to misunderstandings, conflicts, and ultimately, failure to achieve objectives. Effective communication is essential for coordination and for fostering a positive work environment.

2.4.3.3 Micromanagement

Overbearing leadership that involves excessive control and supervision can stifle creativity and lower employee morale, leading to decreased productivity and increased turnover.

2.4.3.4 Lack of Trust and Collaboration

High levels of internal conflict and employee turnover can disrupt operations.

A lack of trust among team members can result in a toxic work environment where individuals are hesitant to collaborate or share ideas, severely limiting the venture's innovative potential.

2.4.3.5 Skill Mismatch

Sometimes, the failure of a venture can be attributed to a mismatch between the skills of the team members and the skills required for the venture to succeed. This can result in poor execution and failure to meet business objectives.

2.4.4 Operational Inefficiencies

Operational inefficiencies can be a significant roadblock to the success of an entrepreneurial venture. These inefficiencies can manifest in various forms and can have a cascading effect on the overall performance and sustainability of the business. Here are some key aspects:

2.4.4.1 Inadequate Systems and Processes

Lack of well-defined systems and processes can lead to disorganization, delays, and errors. This not only affects productivity but also customer satisfaction and retention.

2.4.4.2 Supply Chain Issues

Inefficient supply chain management can lead to delays and increased costs.

Inefficiencies in the supply chain, such as delays in procurement, stock-outs, or overstocking, can have a direct impact on the bottom line. It can also lead to lost sales and increased operational costs.

2.4.4.3 Resource Wastage

Poor resource allocation and utilization can result in wastage of both time and material resources. This is particularly detrimental for startups operating on limited resources.

2.4.4.4 Lack of Automation

Failure to automate repetitive and time-consuming tasks can lead to increased operational costs and reduced competitiveness. Automation can be a key enabler of efficiency and scalability.

2.4.4.5 Regulatory and Compliance Failures

Non-compliance with industry regulations and standards can not only result in financial penalties but also damage the brand and customer trust.

2.4.4.6 Quality Control

Failure to maintain product or service quality can tarnish the brand's reputation.

2.4.5 External Factors

A robust innovation ecosystem offers a solid base, but entrepreneurs also need to manage outside factors that might have a big influence on their businesses. These outside variables are out of their direct control, yet they may have a significant impact on the success or failure of a company. Here's a deeper look at a few significant outside challenges:

1. **Economic Downturn**: External economic factors can severely impact a startup's ability to survive. The state of the economy as a whole may be crucial to a startup's ability to survive. Recessions may cause consumer spending to drop, capital markets to close, and general economic unpredictability to make conditions difficult for new businesses (Davidsson, 2015).
2. **Regulatory Hurdles**: A startup's operations may be disrupted by changes in government rules or unanticipated compliance concerns, which may require them to modify or rework their business plan. Entrepreneurs may face major

obstacles due to complicated licensing processes, changing industry norms, or unforeseen legal issues (Wright & Moeller, 2006).

2.4.5.1 Market Conditions

Market conditions such as demand, competition, and economic indicators can significantly affect a startup's viability. For instance, entering a saturated market without a unique value proposition can lead to failure.

2.4.5.2 Regulatory Environment

Changes in laws and regulations can have both positive and negative impacts. For example, stricter environmental regulations may increase operational costs for manufacturing startups.

2.4.5.3 Technological Changes

Fast technology development has the potential to upend whole markets and make even tried-and-true business strategies outdated. Entrepreneurs must keep an eye out for these developments and modify their plans as necessary (Christensen, 1997).

2.4.5.4 Social and Cultural Trends

Shifts in societal values, customer preferences, and demography may provide organizations both possibilities and problems. It is essential for entrepreneurs to comprehend these dynamic tendencies in order to guarantee the continued relevance of their offerings in the industry (Hills, 2018).

2.4.5.5 Political Climate

Political instability can have a detrimental effect on business operations, especially for startups that operate internationally. Trade restrictions, tariffs, and unstable currencies can all pose challenges.

2.4.5.6 Natural Disasters and Pandemics

Events like natural disasters and pandemics can disrupt supply chains, affect demand, and even force businesses to shut down temporarily or permanently.

2.4.5.7 Global Competition

Due to the growing interconnection of the global economy, startups may encounter competition from both domestic and foreign competitors. Success requires an

understanding of the competitive environment and the creation of tactics to set their offers apart (Cavusgil, Knight, & Riesenberger, 2017).

2.5 Cultural and Social Influences

Cultural norms and social networks have been found to significantly influence entrepreneurial behavior (Hayton et al., 2002; Aldrich & Zimmer, 1986).

Cultural and social factors are often overlooked but are critical in shaping the entrepreneurial landscape. These influences can affect both the entrepreneur's approach to business and the market's response to the entrepreneur's product or service. Here are some key areas where cultural and social influences play a role:

2.5.1 Social Norms and Entrepreneurial Stigma

In some cultures, failure is stigmatized, which can discourage entrepreneurial risk-taking. Conversely, cultures that celebrate failure as a learning experience tend to foster a more entrepreneurial spirit.

2.5.2 Gender Roles and Entrepreneurship

Traditional gender roles can influence who becomes an entrepreneur and what kinds of businesses they start. For example, in some cultures, women may face social barriers that limit their entrepreneurial activities to certain sectors.

2.5.3 Family and Social Support

The support—or lack thereof—from family and social networks can significantly impact an entrepreneur's ability to start and sustain a business. In some cultures, family plays a central role in business operations.

2.5.4 Cultural Attitudes Toward Innovation

Cultures that value innovation and creativity will likely produce more entrepreneurs who are willing to explore new market opportunities and take risks.

2.5.5 Social Capital

The importance of networks and relationships in business can vary from culture to culture. In some societies, social capital can be a significant asset for an entrepreneur, providing access to resources, knowledge, and opportunities.

2.5.6 Ethical and Religious Beliefs

Ethical and religious beliefs can also shape entrepreneurial activities. For example, certain types of businesses may be considered unethical or taboo in some cultures, affecting market demand and the entrepreneur's approach to business.

2.6 Sustainability and Entrepreneurship

The role of sustainability in entrepreneurship has gained attention in recent years, with studies focusing on sustainable business models and eco-innovation (Cohen & Winn, 2007; Schaltegger & Wagner, 2011).

The concept of sustainability has gained significant traction in the entrepreneurial landscape, especially in the wake of global challenges such as climate change, social inequality, and resource depletion. This section explores the intersection between sustainability and entrepreneurship, highlighting how entrepreneurs are increasingly incorporating sustainable practices into their business models.

2.6.1 The Triple Bottom Line

The Triple Bottom Line (TBL) framework, championed by John Elkington (1994), proposes a more holistic approach that emphasizes not just economic viability but also social responsibility and environmental stewardship. Entrepreneurs adopting this model aim for a balanced approach that benefits not only the business but also society and the planet.

The Triple Bottom Line (TBL) is a framework that extends the traditional metrics of business success—profit—to include social and environmental impact. Coined by John Elkington in 1994, this concept has become a cornerstone for sustainable business practices. The TBL framework is often summarized as the "Three Ps": Profit, People, and Planet.

Economic Profit

The economic aspect of TBL focuses on generating a sustainable income and ensuring long-term financial viability. This is the traditional bottom line that measures the company's financial performance in terms of revenues, profits, and losses.

Social Responsibility (People)

The social bottom line measures the organization's commitment to ethical practices, employee welfare, and community engagement. This includes fair labor practices, diversity and inclusion, and contributions to community development.

Environmental Stewardship (Planet)

The environmental bottom line evaluates the ecological impact of the business. This involves assessing the company's carbon footprint, waste management, energy efficiency, and overall environmental stewardship.

Measuring the Triple Bottom Line

Various metrics and indicators are used to measure the three bottom lines, such as ESG (Environmental, Social, and Governance) ratings, Social Return on Investment (SROI), and Life Cycle Assessments (LCA).

Criticisms and Limitations

While the TBL framework is widely embraced, it is not without criticisms. Some argue that it can be challenging to balance the three bottom lines effectively, especially when they appear to be in conflict. Others point out the lack of standardized metrics for measuring social and environmental impact.

2.6.2 Social Entrepreneurship

Social entrepreneurship focuses on creating social or environmental impact. These entrepreneurs often work in sectors like healthcare, education, and clean energy, aiming to solve pressing societal problems while achieving financial sustainability.

Social entrepreneurship is an approach to business that aims to solve social, cultural, or environmental issues while also achieving financial sustainability. Unlike traditional entrepreneurship, which primarily focuses on profit maximization, social entrepreneurs prioritize creating social value.

Social entrepreneurship is a potent catalyst for development. It transcends conventional business structures by using financial savviness and inventiveness to address environmental and social issues. Let's examine more closely at the salient features that characterize social enterprises:

Characteristics of Social Entrepreneurship

1. **Mission-Driven**: A well-defined social or environmental objective is the foundation of every social company (Dees, 2001). Making a beneficial contribution to society is the main driving force, not profit.
2. **Innovative:** Social entrepreneurs often employ innovative solutions to tackle complex problems (Schwab, 2010). They are skilled at creating novel approaches that effectively and scalable solve unmet demands. These remedies may take the form of innovative goods and technology, imaginative business plans, or neighborhood-based projects.
3. **Financial Sustainability**: While the primary focus is on social impact, financial sustainability is also crucial for long-term success (Austin, 2006). In order to maintain their operations, reinvest in their purpose, and pay their bills, social businesses must make enough money. This might include impact investment methods, grants, or earned income options.
4. **Scalability**: Isolated triumphs are not enough for social entrepreneurs (Martin & Osberg, 2007). With scalability in mind, they develop their solutions with the goal of reaching a larger audience and producing a broadly beneficial effect. Their emphasis on scalability guarantees that their programs may be duplicated and modified to tackle social and environmental issues on a more extensive level.

Types of Social Entrepreneurship

1. **Non-Profit**: Organizations that largely rely on grants, contributions, and philanthropic money to carry out their social missions are included in the category of nonprofit social entrepreneurs. These organizations put social effect ahead of financial prosperity, allocating funds to disadvantaged communities and societal challenges. Non-profit social businesses often take part in projects related to healthcare, education, and community development. The fact that this typology depends on outside financing sources to maintain operations and further social goals serves to emphasize it.
2. **For-Profit**: For-profit social entrepreneurship refers to companies that pursue social objectives in addition to a commercially viable model. These businesses provide products or services in an effort to make money, with the goal of reinvesting earnings back into the organization's social purpose. For-profit

social businesses use market processes to tackle societal issues in novel and sustainable ways. This category embodies the idea of "doing well by doing good" in the context of entrepreneurship because of its combined emphasis on profitability and social impact.

3. **Hybrid**: Organizations that incorporate aspects of both for-profit and non-profit business models into their operations are known as hybrid social entrepreneurs. These organizations use a variety of funding sources and organizational designs to accomplish their goals, demonstrating a multimodal approach to solving social challenges. Hybrid social businesses are those that produce revenue from commercial activity and receive grants or contributions to support their social objectives. Hybrid social entrepreneurship combines the best aspects of both the for-profit and non-profit sectors in an effort to increase impact while maintaining financial viability. This category highlights how social entrepreneurship models are adaptable and creative, supporting a variety of organizational tactics and techniques.

Examples

- **Grameen Bank**: Provides microloans to impoverished individuals without requiring collateral.
- **TOMS Shoes**: For every pair of shoes sold, another pair is donated to a child in need.

Challenges and Criticisms: Even while social entrepreneurship is a viable strategy for addressing environmental and social concerns, it is not without difficulties and complications. A deeper look at some of the major obstacles that social entrepreneurs face is provided below:

1. **Measuring Impact**: It may be quite difficult to show how an effort has affected society or the environment. Social companies must assess the good improvements they make, in contrast to standard corporations that gauge success by profit. This often entails creating solid frameworks and measurements, which may be difficult and subjective to produce. Establishing precise impact measuring procedures, however, is essential for drawing supporters and proving that their ideas work (Austin, 2006).

2. **Market and Mission Balancing:** It might be difficult to walk a tightrope between attaining social impact and financial viability. To attract a larger audience, social entrepreneurs would need to modify their service offerings or price structures, which might conflict with their primary goals. Furthermore, it might be difficult to depend only on earned income sources, particularly in the beginning. Investigating cutting-edge financing options like grants or impact investment may aid in closing this gap (Dees, 2001).
3. **Greenwashing**: Unfortunately, the increase of social entrepreneurship has brought to the rise of "greenwashing." According to Dean and Pforr (2009) In an attempt to take advantage of the rising demand from customers for socially conscious goods and services, some companies may make up the claim that they are social enterprises. Since this dishonest behavior has the potential to undermine public confidence in legitimate social enterprises, it is even more important that they openly convey their goals and effects.

2.6.3 Circular Economy

The circular economy model promotes the efficient use of resources by creating a closed-loop system for products and materials. Entrepreneurs in this space focus on reducing waste, promoting recycling, and designing products for longevity.

The circular economy is an economic model that aims to eliminate waste and promote the continual use of resources. Unlike the traditional linear economy—where goods are manufactured, used, and discarded—the circular economy focuses on creating a closed-loop system that is restorative and regenerative by design.

The "take-make-dispose" paradigm of the conventional economic model is running out of steam. The salient features that characterize this transformational method are broken down as follows:

Characteristics of Circular Economy

1. **Resource Efficiency**: Making the most of resources across their whole lifespan is a fundamental tenet of the circular economy. This includes tactics like creating items with numerous uses, prolonging their lives, and using recycled materials in manufacture. The circular economy minimizes its effect

on the environment and lessens dependency on virgin resources by optimizing resource efficiency (Ghiatome et al., 2013).

2. **Design for Longevity:** The environmental impact of a product is greatly influenced by its design. Products are made to be long-lasting, repairable, and upgradeable in a circular economy, reducing the frequency of replacement. This minimizes waste formation by increasing their longevity and lowering the requirement for frequent replacements (Ellen MacArthur Foundation, 2019).
3. **Recycling and Upcycling**: Material disposal after usage is a common practice in traditional waste management. "Closing the loop"—reintroducing materials into the manufacturing cycle—is a priority for the circular economy. This may be accomplished by upcycling, which involves creatively transforming waste materials into new, higher-value goods, or recycling, which involves processing wastes into new products (Prefeitura Municipal de Florianópolis, 2018).
4. **Business Model Innovation:** New business models like sharing, leasing, and "product as a service" are encouraged. Beyond material management and product design, there is more to the circular economy. Additionally, it supports creative business plans that increase resource efficiency and lengthen the life of products. Examples include sharing economy platforms that facilitate the effective use of current resources and product-as-a-service models, in which customers pay for the usage of a product rather than purchasing it completely (Korhonen et al., 2018).

Types of Circular Economy

1. **Biological Cycles**: The biological cycle, which mimics the natural world, is centered on organic materials. Waste and biodegradable materials are composted or otherwise returned to the soil as beneficial nutrients throughout this cycle. In doing so, the earth's resources are replenished and the need for landfills is decreased. Food leftovers, yard debris, and biodegradable packaging materials are a few examples (Braungart & McDonough, 2002).
2. **Technical Cycles**: Non-organic materials are reused, remanufactured, or recycled. Synthetic or non-biodegradable materials are the focus of this cycle.

Here, increasing the materials' worth and prolonging their lives are the main goals. (Ellen MacArthur Foundation, 2019). Among the strategies are:

- Reuse: Since products are made to last a long time, users are encouraged to reuse them whenever feasible. Reusable shopping bags and refilled water bottles are two examples.
- Remanufacturing: Reusable components are taken apart from used items, reconditioned, and then put back together to create new ones. This lessens the requirement for virgin resources and increases the lifetime of important materials. Remanufactured auto components are one of the best instances.
- Recycling: Discarded components are disassembled and converted into fresh raw materials for the production of new goods. Commonly recycled materials include aluminum cans and plastic bottles.

3. **The Combination:** Together, these two cycles form a closed-loop system. While technological cycles prolong the useful life of non-biodegradable materials and reduce waste and resource depletion, biological materials support the planet and provide resources for future generations.

Examples

- **Fairphone**: A smartphone designed to be easily repairable and upgradeable.
- **Interface Carpets**: Modular carpet tiles designed for easy replacement and recycling.

Beyond the Fundamentals:

There is more to the circular economy than these two fundamental cycles. It also highlights:

- Design for Disassembly: At the end of their useful lives, products are made to be readily dismantled, allowing for effective material recovery and separation.
- Cascading Use: To maximize the total value extraction of a material, it may be degraded for use in less demanding applications prior to ultimate recycling.

A Future Sustainably:

A path for a more sustainable future is provided by the circular economy, which embraces both biological and technology cycles. It reduces waste production,

increases resource efficiency, and creates a closed-loop system that separates environmental deterioration from economic development.

Challenges and Criticisms

Although it offers an appealing vision for a sustainable future, the circular economy is not without challenges. Here is a deeper look at a few major obstacles that must be overcome before broad adoption may occur:

1. **Initial Costs**: Making the switch to a circular economy might involve large upfront costs. Companies could have to create new recycling technologies, rethink goods for durability, and provide infrastructure for reverse logistics (gathering old items). Some organizations, particularly small and medium-sized firms (SMEs), may find these upfront fees to be a turnoff (Ghiatome et al., 2013).
2. **Regulatory Hurdles**: It's possible that current rules and regulations don't entirely adhere to the circular economy's tenets. Regulations may complicate waste management procedures or promote single-use goods. In order to foster an environment that supports the growth of circular firms, policy reforms and regulatory changes are essential (Prieto-Martinez et al., 2019).
3. **Consumer Behavior**: As stated by the Ellen MacArthur Foundation in 2019, Changing consumer habits and preferences is a significant challenge. Customers would need to be taught the advantages of circularity as they could be used to a linear consumption paradigm. The circular economy cannot succeed unless ethical consuming practices are promoted, such as favoring product repair over replacement and accepting product-as-a-service models.

2.6.4 Green Technologies

Entrepreneurs in the green tech sector aim to create products or services that have minimal negative impact on the environment. This can range from renewable energy solutions to sustainable agriculture practices.

Green technologies, often referred to as clean technologies, are tools, techniques, and processes that use available resources to create products and services with a minimal environmental footprint. They aim to solve environmental challenges through the sustainable use of resources, reducing emissions, and promoting energy efficiency.

A varied toolkit is needed to combat climate change and create a sustainable future. Green technologies are a broad category of inventions with the dual goals of minimizing negative environmental effects and increasing resource efficiency. Below is a summary of some important areas within the green tech market:

Types of Green Technologies

1. **Renewable Energy**: Solar, wind, hydro, and geothermal energy. Compared to fossil fuels, renewable energy sources are sustainable and clean. Among them are:
    - Solar Power: Using photovoltaic panels to turn sunshine into power.
    - Wind Power: Using wind turbines to capture wind energy to create electricity.
    - Hydropower: Using the energy of flowing water to create electricity.
    - Geothermal Energy: Harvesting heat from the Earth's core to create electricity or for heating.
2. **Waste Management**: Recycling, composting, and waste-to-energy technologies. Conventional ways of disposing of trash lead to considerable environmental impacts. Green technologies include methods for managing trash responsibly, such as:
    - Recycling: converting waste materials into new goods while reducing the need for virgin resources.
    - Waste-to-Energy Technologies: converting waste materials into useable energy sources, such as heat or electricity.
    - Composting: converting organic waste into nutrient-rich soil amendment. (Ghiatome and associates, 2013)
3. **Water Treatment**: Desalination, water recycling, and purification. Effective water management is essential in light of the increasing shortage of water. Sustainable water solutions benefit from the use of green technologies:
    - Water Recycling: Treating wastewater for reuse in non-potable applications like irrigation or industrial processes.
    - Water Purification: Eliminating impurities from water to ensure its safety for drinking and other uses.

- Desalination: Removing salt from seawater to create freshwater for consumption or irrigation.

4. **Transportation**: Electric vehicles, biofuels, and public transit solutions. A significant portion of greenhouse gas emissions originate from the transportation sector. Cleaner transportation solutions are becoming more popular thanks to green technologies:
    - Electric Vehicles (EVs): Swapping gasoline-powered cars with EVs that run on renewable energy.
    - Biofuels: Creating fuels from biomass sources that are renewable, such as plants or algae.
    - Public Transit Solutions: Putting money into easily accessible and effective public transportation networks to lessen dependency on personal automobiles.
5. **Green Building**: Energy-efficient materials, green roofs, and smart grids. Structures use a lot of energy and materials. The goal of green building principles is to reduce this environmental impact:
    - Energy-Efficient Materials: Using materials with high insulation qualities to lower the need for heating and cooling;
    - Green Roofs: Planting vegetation on rooftops to enhance air quality, reduce energy consumption, and control rainwater runoff;
    - Smart Grids: Putting in place intelligent building management systems that integrate renewable energy sources and optimize energy use.

Examples

- **Tesla's Solar Roof**: With the help of this creative innovation, solar panels and roofing materials are flawlessly combined to provide sustainable energy without sacrificing style.
- **Echogen**: With the help of this company's technology, waste heat—a byproduct of several industrial processes—can be converted into useful energy, increasing resource efficiency and lowering dependency on fossil fuels.

Challenges and Criticisms

1. **High Initial Costs**: Green technologies often require significant upfront investment. Green technology development and implementation sometimes involve large upfront costs. For broader adoption, government subsidies and cost savings from technology improvements are essential.
2. **Scalability**: Some technologies are not yet scalable to meet global needs. It's possible that certain green technologies, like geothermal energy, won't scale up to fulfill the need for clean energy that exists worldwide. Extensive investigation and advancement are essential to expand the reach of these remedies.
3. **Policy and Regulation**: Lack of supportive policies can hinder adoption. Adoption of green technology may be impeded by a lack of rules and supporting policies. By establishing incentives for the generation of renewable energy, sustainable waste management techniques, and the construction of energy-efficient infrastructure, governments may play a crucial role. (Prieto-Martinez and associates, 2019).

2.6.5 Sustainable Supply Chains

More entrepreneurs are scrutinizing their supply chains for ethical and environmental practices, often opting for local sourcing, fair trade, and other sustainable options.

Sustainable supply chains aim to integrate environmentally and socially responsible practices into the lifecycle of products, from the sourcing of raw materials to the production, distribution, use, and disposal of the product.

The circular economy, ethical sourcing, resource efficiency, transparency, and local sourcing are all components of integrating sustainable practices into the supply chain. Throughout a product's lifespan, this multifaceted approach encourages ethical concerns, resourcefulness, transparency, and responsible material management.

Components of Sustainable Supply Chains

- **Ethical Sourcing: Establishing a Conscientious Base**

A sustainable supply chain is built on ethical sourcing. It entails obtaining raw resources while keeping the environment and social welfare in mind. As methods for

validation, certifications such as Rainforest Alliance and Fair Trade ensure that suppliers follow:

Fair Labor Practices: These prohibit child exploitation or forced labor and provide respectable working conditions and pay.

Environmental Regulations: When it comes to waste management, resource exploitation, and pollution control, ethical providers abide by the relevant environmental regulations.

Standards for Community Welfare: Positive effects on the communities around industrial locations are fostered via ethical sourcing. This may include lending assistance to regional social services, infrastructure, and indigenous rights.

- **Efficient Use of Resources: Reducing Waste and Enhancing Sustainability**

The goal of resource efficiency is to do more with less. Its main objective is to reduce the impact that manufacturing operations have on the environment by:

Reducing Waste Generation: Reducing waste at its source may be achieved by putting techniques like lean manufacturing and material reuse programs into practice.

Optimizing Energy Consumption: There are substantial energy savings to be gained via the use of energy-efficient technology, renewable energy sources, and improved manufacturing procedures.

Water Conservation: Three essential elements in water conservation are the use of water-saving technology, production optimization, and wastewater treatment prior to release.

- **Transparency: Illuminating the Process**

Stakeholders like as investors, customers, and regulators are empowered by transparency to comprehend the whole supply chain. It entails giving insight into:

Supplier Practices: Providing easy access to data on labor laws, environmental regulations, and certifications of suppliers.

Production Processes: Disseminating information on the raw materials, manufacturing methods, and energy use in the process of making goods.

Enabling the monitoring of goods and materials throughout the supply chain in order to spot any problems and make sure moral standards are followed at all times is known as traceability.

- **The Circular Economy: Completely Creating a Sustainable Loop**

The circular economy places a strong emphasis on prolonging the life of resources and products. This creative strategy entails:

Recycling: Recovering and repurposing resources to create new goods via the implementation of effective recycling systems.

Refurbishing: Getting used goods back to working order while using less new resources and producing less waste.

Remanufacturing is a sustainable alternative to conventional manufacturing that involves disassembling discarded items and recycling components to make new ones.

Businesses may lessen their dependency on limited resources, generate less waste, and develop more sustainable production models by adopting circularity.

- **Local Sourcing: An Ecological Move Nearer to Your Home**

The goal of local sourcing is to reduce the physical distance between the manufacturing, distribution, and raw material acquisition processes. This corresponds to:

Decreased Carbon Footprint: Reducing the amount of transportation required greatly lowers the greenhouse gas emissions related to the delivery of goods.

Supporting Local Economies: Purchasing goods and resources locally helps small companies grow, encourages the creation of jobs, and fortifies the local economy.

Community Resilience: By lowering reliance on far-off suppliers, local sourcing strengthens linkages between companies and communities, boosting supply chain resilience.

In summary, including these sustainable practices into the supply chain promotes a company model that is more accountable and mindful of the environment. Businesses, communities, and the environment all benefit from it.

Examples

- **Unilever's Sustainable Living Plan**: A comprehensive approach to sustainable sourcing, waste reduction, and social impact.
- **Patagonia's Traceable Down**: Ensures ethical treatment of animals and responsible down production.

Challenges and Criticisms

1. **Cost**: Adopting sustainable methods sometimes necessitates a capital outlay. To maximize efficiency, businesses could need to make investments in new technology, find sustainable materials, or redesign their logistics. There may also be extra expenses associated with staff training and incorporating sustainability into corporate operations. The initial financial expenditure may be a turnoff for many businesses, despite the fact that these investments may ultimately result in considerable cost reductions and brand value upgrades. (Mentzer et al., 2001)
2. **Complexity**: Compared to conventional methods, managing a sustainable supply chain might be more difficult. Environmental and social considerations must be taken into account by businesses at every stage of the supply chain, from procuring raw materials to product end-of-life. Strong monitoring systems, cooperation with a variety of stakeholders, and making sure that changing requirements are followed are all necessary for this. Resources may be strained as a result of the increasing complexity, and companies may need to acquire new skills to ensure efficient management. (Seuring & Müller, 2008)
3. **Greenwashing**: Regrettably, the increased emphasis on sustainability has spurred the emergence of "greenwashing." Certain firms may provide false information on their sustainable practices in an attempt to take advantage of customer demand for environmentally friendly goods and services. The public's confidence is weakened by this dishonest behavior, which also jeopardizes the hard work of sincere companies striving to create supply chains that are really sustainable. (Dean & Pforr, 2009)

2.6.6 Regulatory Environment

Government policies can either facilitate or hinder sustainable entrepreneurial efforts. Tax incentives, grants, and regulations can play a significant role in promoting sustainability in entrepreneurship.

The regulatory environment plays a critical role in shaping the landscape of sustainable entrepreneurship. Governments and international bodies enact laws, regulations, and standards that directly or indirectly influence the sustainability practices of entrepreneurial ventures.

Instruments of Regulation That Propel the Development of Sustainable Supply Chains:

1. **Environmental Protection Laws:** Keeping environmental integrity intact is the first priority of environmental protection laws. Compliance with environmental protection legislation is an essential component of regulatory frameworks that are designed to encourage environmentally responsible behaviors. These regulations cater to essential factors such as the following:

   Pollution Control: Enforcing restrictions on emissions of air, water, and land pollutants to safeguard environmental well-being and mitigate harm to ecosystems.

   Resource Conservation: Regulating the extraction and utilization of natural resources such as timber, water, and minerals to promote sustainable management practices and prevent resource depletion.

   Promotion of Renewable Energy: Offering incentives and mandates to promote the adoption of renewable energy sources like solar, wind, and geothermal power, thereby reducing reliance on fossil fuels and combating climate change.

2. **Labor Laws:** The protection of worker rights and dignity is the second topic of discussion. When it comes to ensuring that workers are treated fairly and receiving enough protection across supply chains, labor regulations play a critical role. Typically, these restrictions encompass the following:

   Fair Compensation: The establishment of minimum wage standards to guarantee that workers receive fair compensation for their contributions.

Safety Standards: The mandated implementation of safety protocols, hazard mitigation measures, and conducive working conditions to protect worker health and well-being.

Protection of Workers' Rights: The guaranteeing of freedoms such as the right to association and collective bargaining, as well as the prohibition of exploitative practices such as forced labor and child exploitation.

3. **Reporting on Corporate Social Responsibility (CSR) Initiatives:** Fostering Transparency and Accountability Requirements for corporate social responsibility reporting are designed to increase openness on the social and environmental effect of a firm. These restrictions might be either:

   The practice of mandating that businesses of a specific size publish their environmental and social performance indicators, including features linked to their supply chain operations, is referred to as mandatory reporting.

   Voluntary Disclosure: The process of encouraging businesses to voluntarily disclose on their social impact, labor policies, and sustainability activities in order to cultivate a culture of responsible corporate citizenship.

4. **Tax Incentives:** Tax incentives are a means of encouraging environmentally responsible business practices. Providing companies with financial incentives to adopt environmentally responsible practices is the purpose of tax incentives. Incentives like this might take the form of:

   Providing direct reductions in tax liability to businesses who invest in renewable energy, deploy resource-efficient technology, or engage in sustainable sourcing practices is what is meant by the term "tax credits." The provision of tax deductions for costs connected to sustainability efforts, such as environmentally friendly packaging or training programs on responsible sourcing procedures, is an example of a tax deduction.

5. **International Trade Sanctions and Tariffs:** Leveraging Trade to Achieve Sustainability Goals. The use of trade tariffs and fines is a strategy that may be used to encourage adherence to sustainability standards. These measurements could include the following:

Import Tariffs: The imposition of extra tariffs on items that do not satisfy certain environmental or labor standards, with the purpose of encouraging compliance with legislation.

Export Sanctions: Sanctions on exports are defined as the restriction or prohibition of the export of goods that are connected with actions that are detrimental to the environment or with labor circumstances that are unethical. Through the application of these regulatory instruments, governments want to establish an environment that is conducive to the promotion of responsible corporate behavior and to the facilitation of the transition towards supply chains that are more environmentally friendly.

Examples

- **European Union's Green Deal**: Aims to make the EU's economy sustainable by turning climate and environmental challenges into opportunities.
- **U.S. Clean Air Act**: Regulates air emissions from stationary and mobile sources.

Obstacles and Rebuttals: Handling the Barriers to Sustainable Supply Chains

Even with the best of intentions, there are still a number of issues and complaints with regulations, which need to be carefully considered in order to guarantee their effectiveness. Let's examine these challenges in more detail:

1. **Regulatory Intricacy: Sorting Through the Net of Regulations**

   The multitude and complexity of rules provide a formidable obstacle for enterprises, particularly those functioning within complex international supply chains. There are several obstacles to overcome while navigating a maze of regional, national, and worldwide legislation with disparate standards, such as:

   Uncertainty: Companies may find it difficult to understand and comply with a variety of rules, which may lead to uncertainty and prevent them from investing in sustainable practices.

   Administrative Burden: Smaller businesses are disproportionately affected by the time and resources required to interpret and comply with rules.

Uneven Playing Field: Differences in national regulatory frameworks lead to inequalities that may disadvantage companies operating in stricter regulatory regimes.

2. **Costs of Compliance: The Price of Sustainability**

Adopting sustainable methods sometimes requires large upfront expenditures for supply chain reorganization, technology, and training. These expenses provide difficulties, especially for:

Small and Medium Enterprises (SMEs): Due to their limited financial resources, SMEs may find it difficult to quickly absorb the expenditures associated with implementing new technologies or changing their manufacturing methods in order to comply with sustainability standards.

Emerging Countries: Because of their limited infrastructure and financial resources, emerging countries may find it difficult to comply with stricter requirements.

3. **Enforcement: Regulation's Achilles' Heel**

Enforcing rules effectively requires strong and reliable systems, yet there are still a number of obstacles to overcome:

Lax Enforcement: Ineffective or uneven enforcement damages the legitimacy and potency of laws. Companies operating in areas with weak enforcement may not be motivated to follow the rules, giving them an unfair advantage.

Resource Limitations: Insufficient resources may prevent government organizations entrusted with enforcing laws from effectively monitoring compliance within intricate supply chains.

International Difficulties: Enforcing rules across worldwide supply chains is a logistically challenging task that requires international collaboration and coordinated efforts across multiple jurisdictions.

These difficulties highlight the need for constant communication and cooperation between public authorities, private sector companies, and civil society groups in order to develop transparent, consistent, and legally binding rules that encourage sustainable supply chain practices.

2.6.7 Challenges and Opportunities

While the move toward sustainability opens up new avenues for innovation and market differentiation, it also presents challenges such as higher costs, complex regulations, and consumer skepticism.

The intersection of sustainability and entrepreneurship presents both challenges and opportunities that are shaped by a variety of factors, including technological advancements, consumer behavior, and the regulatory environment.

Obstacles on the Road to Sustainability: Difficulties Beyond Regulation

Although rules are a vital starting point, attaining sustainable supply chains presents a number of tough obstacles:

1. **Resource Limitations: Allocating Resources for a Sustainable Future**

   Making the switch to sustainable practices often requires large upfront expenditures that cover a range of topics, including:

   New technology: Adopting cutting-edge recycling techniques, infrastructure for renewable energy sources, or resource-efficient technology sometimes requires a large financial investment.

   Sustainable Materials: Budgets for manufacturing may be impacted by the increased expenses associated with switching from conventional to more environmentally friendly materials.

   Supply Chain Restructuring: Significant adjustments to current collaborations and processes are required when realigning supply chains to favor ethical sourcing, local manufacturing, or circular economy concepts.

   These restrictions on resources may disproportionately impact:

   SMEs: Financial constraints may make it difficult for SMEs to invest in the technology and infrastructure needed for sustainability.

   Emerging countries: Limited financial resources and rapid technical development may make it difficult for emerging countries to adopt sustainable practices on a large scale.

2. **Acceptance in the Market: Linking Sustainability and Customer Choice**

   Although consumers have a big say in what goods are demanded, there are obstacles in the way of getting sustainable products accepted by the market:

Price Sensitivity: Because of the aforementioned considerations, sustainable items sometimes have higher price tags than conventional products, which may put off buyers, especially if they are not aware of the advantages to the environment or society.

Lack of Awareness: Customers are less able to make well-informed selections that prefer sustainable solutions when they lack a thorough awareness of the environmental and social effects of their purchases.

Greenwashing Concerns: Customers' mistrust of unsubstantiated sustainability claims emphasizes the need for companies to show a sincere dedication to moral behavior.

3. **Expanding Sustainability: From Local Remedies to Worldwide Effects**

Local communities have a wealth of viable sustainable solutions that are adapted to particular situations and available resources. However, there are obstacles to expanding these ideas for a larger impact:

Limited Infrastructure: Local solutions might not be widely adopted if they depend on resources or infrastructure that isn't available in other areas.

Financial Viability: Local solutions might not be financially feasible at larger scales, requiring modifications to cost structures or business models.

Lack of Standardization: Scaling may need standardizing procedures and technology, which may be difficult in many regional supply chains.

4. **Regulatory Labyrinth: Handling a Difficult Environment**

Managing the regulatory environment is difficult for companies looking to implement sustainable practices:

Conflicting Regulations: Varying national laws create ambiguity and complexity, making compliance difficult for companies involved in international supply chains.

Compliance Costs: The time and money required to comprehend and abide by a variety of laws is a significant burden, particularly for smaller companies.

Limited Transparency: When regulations are opaque, it is difficult for companies to plan ahead and invest in sustainable practices.

5. Knowledge Gap: Overcoming the Expertise Divide in Sustainability**

A strong knowledge foundation is necessary for the effective implementation of sustainability practices:

Supply Chain Visibility: Limited visibility into upstream supply chains obstructs identification and resolution of sustainability issues across production stages.

Technical Expertise: Businesses may lack in-house proficiency to evaluate, select, and implement suitable sustainable technologies and processes.

Strategic Planning: Including sustainability into broad corporate strategy requires a thorough grasp of possible obstacles and possibilities; this may include the need for outside advice or specialist expertise.

Working together is necessary to address these complex issues. Businesses, governments, and academic organizations working together may promote creativity, provide affordable solutions, and close knowledge gaps. Furthermore, encouraging consumer education and understanding of the advantages of sustainable products may boost market acceptability and drive demand in the direction of a more sustainable future.

Possibilities for Ecological Methods

1. Innovation: Promoting Original Thoughts

The quest for sustainability stimulates innovation in a number of areas, such as business structures, manufacturing techniques, and product design. Businesses with a focus on sustainability often experiment with new methods of using resources, cutting waste, and finding environmentally suitable substitutes. This invention fosters resilience and competitiveness in the market in addition to improving environmental stewardship.

2. Market Distinction: Making a Name for Yourself Among the Crowd

Businesses may stand out in a crowded market by adopting sustainable practices. By integrating social and environmental responsibility into their business practices, companies may stand out from the crowd and appeal to ethical customers. This distinction boosts company loyalty and reputation while also drawing in ecologically sensitive customers.

3. **Customer Loyalty: Building Long-Term Connections**

   More and more customers value sustainability and are prepared to pay more for environmentally friendly goods. Companies may build long-lasting connections with devoted consumers by showing a commitment to sustainability and harmonizing with consumer values. Beyond simple purchases, this devotion promotes advocacy, long-term brand attachment, and trust.

4. **International Collaborations: Teamwork for Mutual Benefit**

   The global nature of sustainability concerns offers prospects for cross-border cooperation and partnerships. Businesses may tackle complicated sustainability challenges by forming alliances with stakeholders from a variety of industries and geographical areas. This allows them to pool their total experience, resources, and influence. These international collaborations promote information sharing, the spread of innovation, and group efforts toward common sustainability objectives.

2.7 Gaps in Existing Literature

Despite extensive research, there are gaps in understanding the nuanced relationship between innovation and entrepreneurship, especially in different cultural and regulatory contexts (Zahra & Wright, 2016).

The existing literature has not sufficiently explored the relationship between the success rate of innovation and entrepreneurship and their societal impact. This study aims to fill this gap.

A lot of studies have been done on the success rate of innovation and entrepreneurship. A lot of studies have been done on its impact on the society. In Van den Bosch, S., & Taanman, M. (2006) and Hostettler, S. (2018) studies have been done on the innovations impact on society. Ahlstrom, D. (2017) and Neumann, T. (2021) studies have been done on entrepreneurship and its impact on society. Researchers have observed that there is no study which establishes the relationship between the success rate of innovation and entrepreneurship and its impact on society. There are very few studies that have been done to check the relationship between the success rate of innovation and entrepreneurship and their impact on society. That's why researchers are doing this study to check the success rate of innovation and entrepreneurship and their impact on society. The earlier tools of measurement to

check the success rate of innovation and entrepreneurship were different, such as: Mechanisms of deepening, broadening, and scaling up, which explain the pattern of broad-scale societal change emerging from small-scale innovations, Van den Bosch, S., & Taanman, M. (2006), Technological innovations in the Global South must be low-cost, scalable, robust, and socio-culturally accepted, Hostettler, S. (2018, June 16). The effects of technological innovations on labour markets, their impact on the total number of jobs, and significant job restructuring Goos, M., Arntz, M., Zierahn, U., Gregory, T., Gomez, S. C., Vazquez, I. G., & Jonkers, K. (n.d.). 2022, April 6. Innovative firms can supply important goods and services to consumers, particularly those at the base of the pyramid Ahlstrom, D. (2017, November 30), and the impact of social innovation in higher education can be felt Elliott, G. (2021, January 1). Now, this study is measuring the success rate and the impact on society by looking at successful innovation and crowdfunding, successful entrepreneurs and crowdfunding, successful entrepreneurs and listed companies, successful entrepreneurs and patents filed, and successful entrepreneurs' recent consumer purchase trends.

2.8 Statement of the Problem

The study aims to understand why people are more inclined towards job security rather than taking the entrepreneurial route, and how this affects societal progress.

Currently, there are not many innovators around and people are more prone to take a Job. The mind-set of people is to have a fixed income instead of taking the risk involved in becoming an entrepreneur. These job-oriented people may not be able to innovate in their daily routine. Also, receiving seed funding to become an entrepreneur is a tough task hence people are not moving toward becoming an entrepreneur nor they are interested in innovations. There is a great need to understand the impact of innovations and entrepreneurship on people's life and society. Here in this study, researcher try to address this problem and understand the exact impact of innovation and entrepreneurship through successful innovation and crowdfunding, successful entrepreneur and crowdfunding, successful entrepreneur and listed companies, successful entrepreneur and patents filed, and successful entrepreneur's recent purchase trends.

2.9 Hypothesis

The hypotheses of this study are formulated to test the objectives and provide empirical evidence that can either support or refute existing theories in entrepreneurship. Each hypothesis is designed to be measurable, specific, and aligned with the research questions.

1. **Null hypothesis**- There is no association or correlation between the successful innovation and crowdfunding received

   Alternate hypothesis- There is an association or correlation between the successful innovation and crowdfunding received
2. **Null hypothesis**- There is no association or correlation between the successful entrepreneur and crowdfunding received

   Alternate hypothesis- There is an association or correlation between the successful entrepreneur and crowdfunding received
3. **Null hypothesis**- There is no association or correlation between the successful entrepreneur and consumer recent purchase trends

   Alternate hypothesis- There is an association or correlation between the successful entrepreneur and recent consumer purchasing trends
4. **Null hypothesis**- There is no association or correlation between the successful entrepreneur and Patents filed

   Alternate hypothesis- There is an association or correlation between the successful entrepreneur and Patents filed

CHAPTER – III

RESEARCH METHODOLOGY

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.

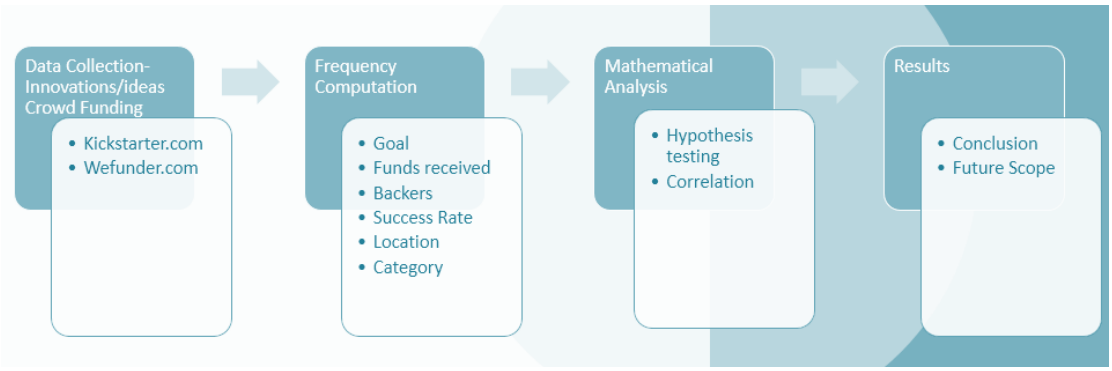

Fig. 3.2 : Methodology Process for Crowd funding

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.

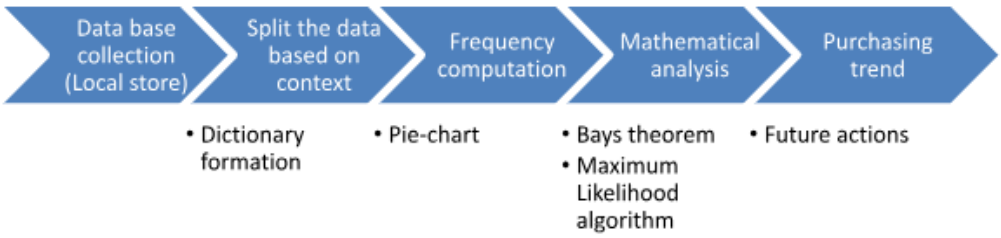

Fig. 3.3 : Methodology Process to segregate data lexical context, such as electronic consumer items and mobile accessories

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.

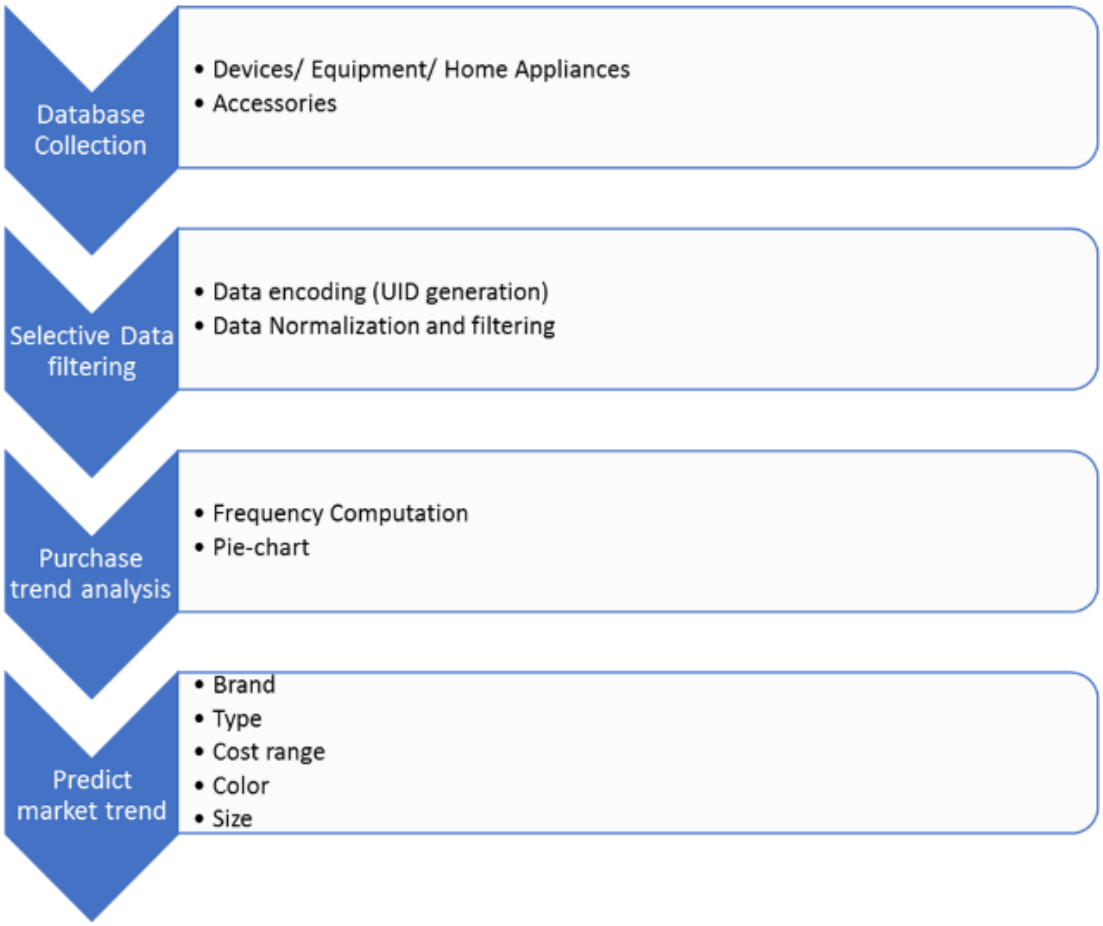

Fig. 3.4 : Sub categorical analysis (Mobile accessories)

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.

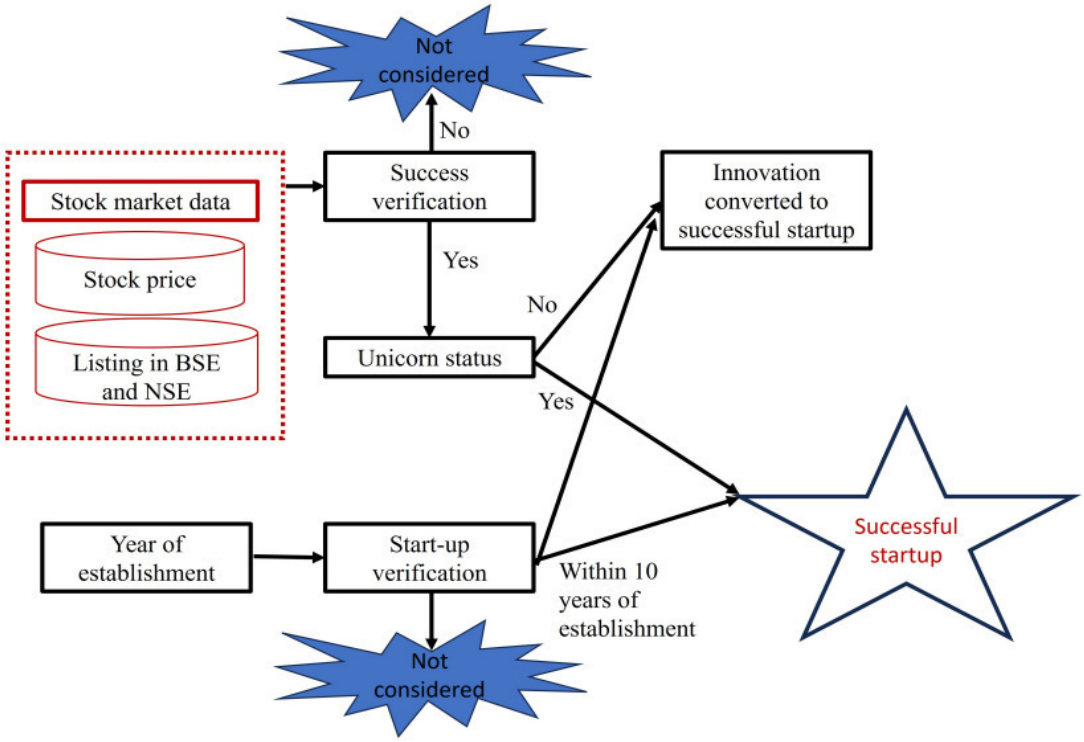

Fig. 3.5 : The overall outline of the proposed work to link innovation and success

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.

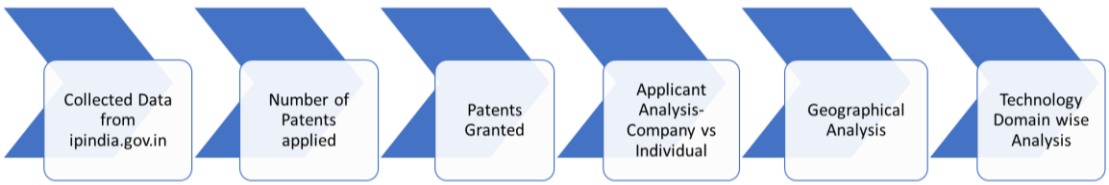

Fig. 3.6 : Methodology Process for Indian Patents- Granted & Published

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.

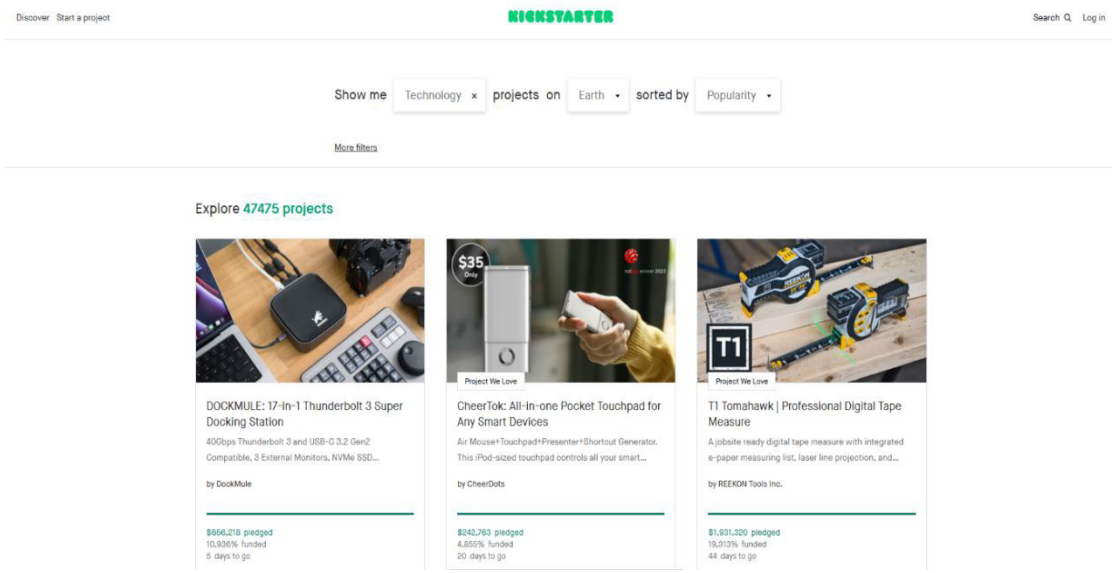

Image 3.1: Kickstarter Website

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.

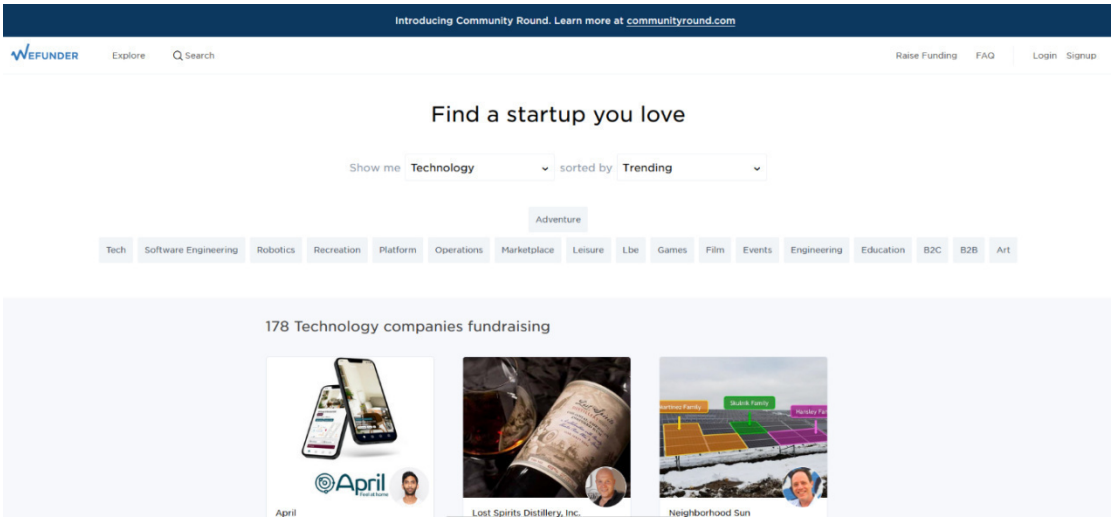

Image 3.2: WeFunder Website

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.

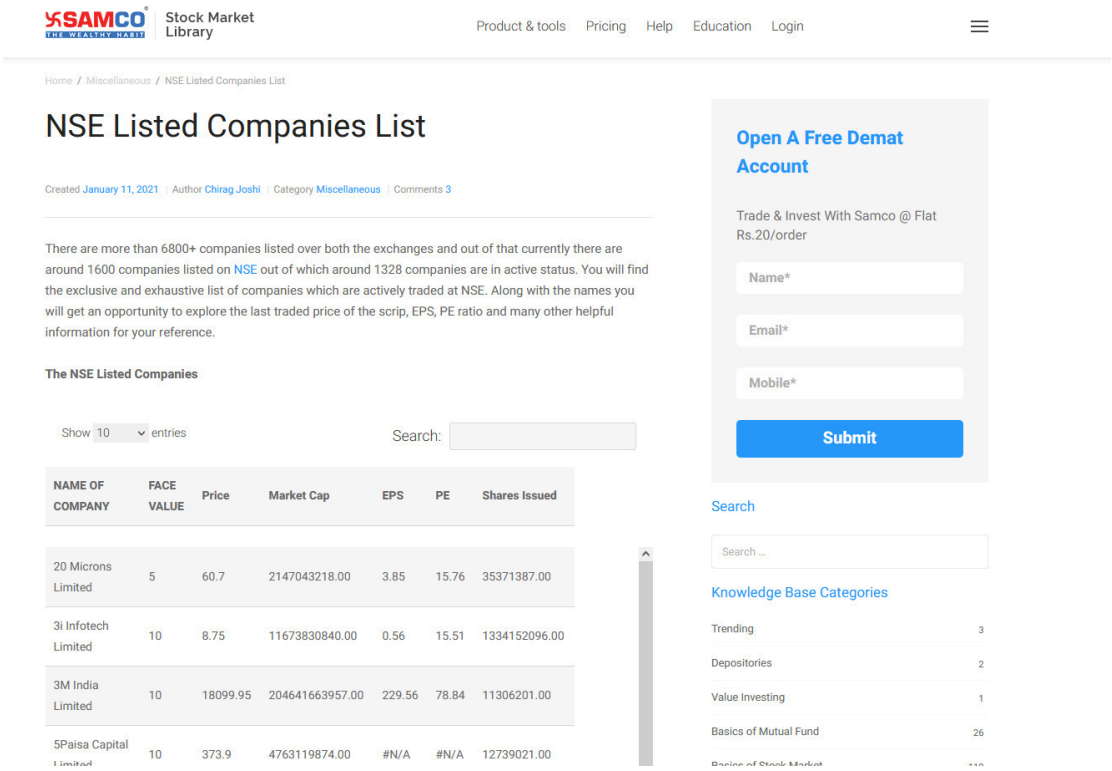

Image 3.3: NSE Listed Companies

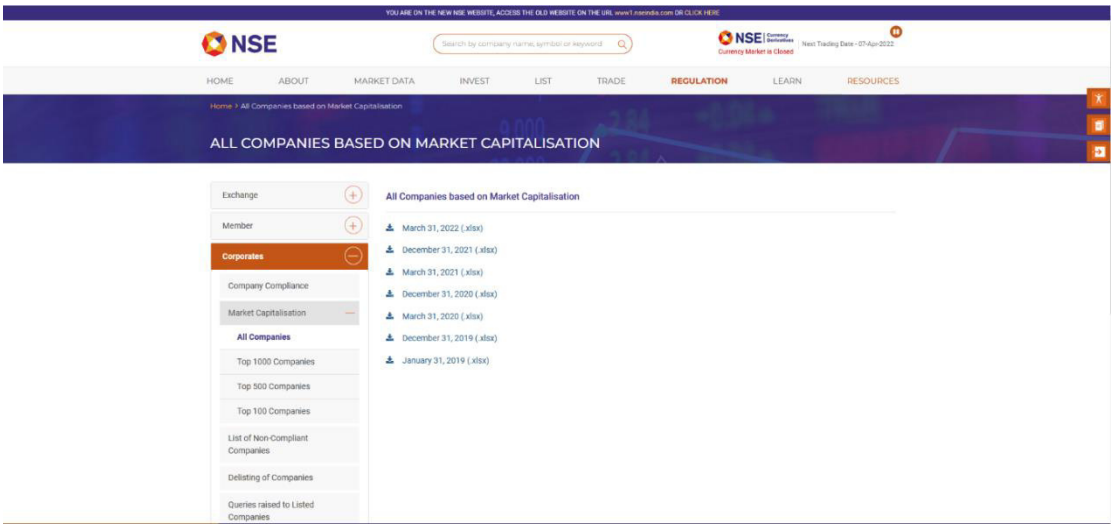

Image 3.4: NSE Website

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).

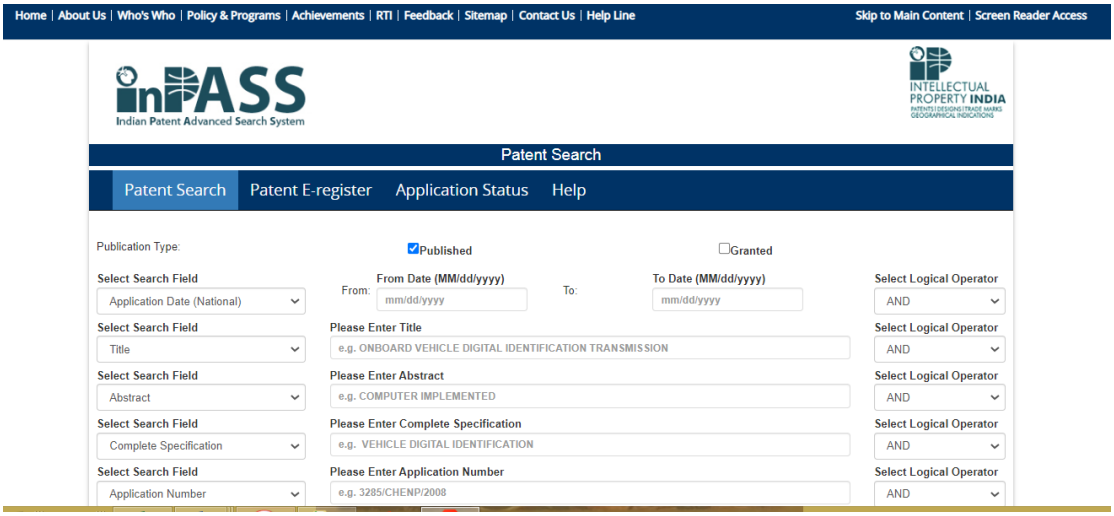

Image 3.5: Public Search for granted Patents

d. Survey:

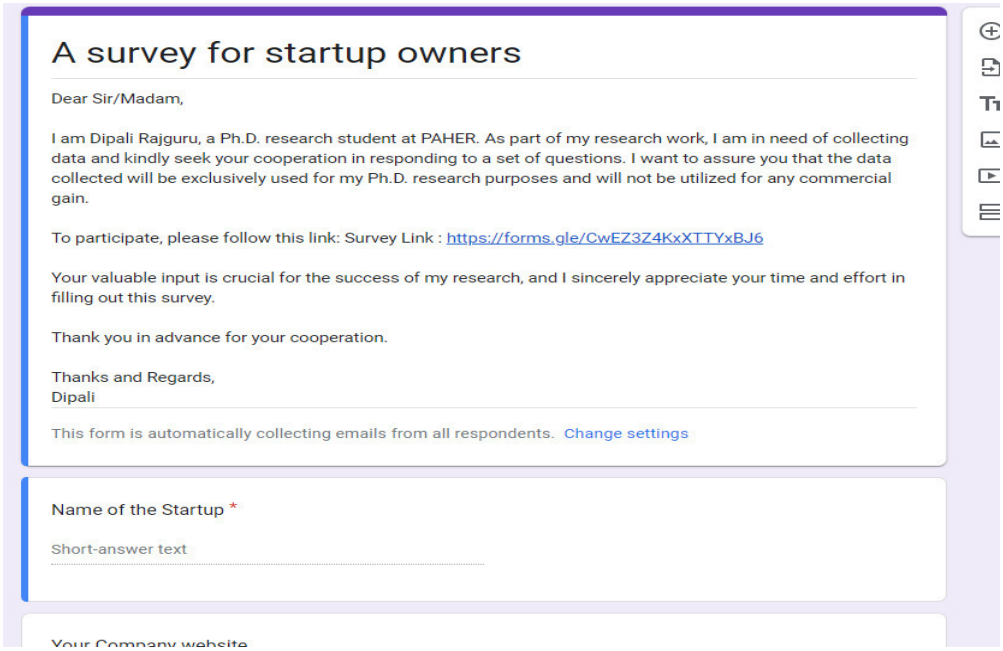

Image 3.6: Survey Questionnaire for Startup Owners

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

CHAPTER – IV

SIGNIFICANCE OF THE STUDY

The study aims to encourage a positive attitude towards innovation and entrepreneurship, thereby contributing to societal and economic growth.

The significance of this study lies in its multifaceted contributions to the fields of entrepreneurship and innovation, as well as its practical implications for stakeholders ranging from policymakers to entrepreneurs. Below are the key areas where this study aims to make a significant impact:

The proposed study will help in building a positive attitude toward innovation and entrepreneurship, which is a need for an hour. Entrepreneurship and innovation can help businesses keep up with current trends, which can lead to new opportunities. Researcher assume by studying the impact on society, researcher can better insight and help improve entrepreneurship. The overall standard of leaving will improve and society's Economic growth is also boosted.

4.1 Academic Significance

By addressing the gaps in existing literature, this study aims to advance the academic discourse in the field of entrepreneurship.

The academic significance of this study is manifold, contributing to both theoretical and empirical understandings of entrepreneurship and innovation. Here are the key areas where the study aims to make a substantial academic impact:

4.1.1 Theoretical Contributions

This study fills existing gaps in literature by integrating various theories such as Opportunity Theory, Resource-Based View, and Social Network Theory, thereby offering a more comprehensive understanding of entrepreneurial success and failure.

- **Integration of Multiple Theories**: One of the standout features of this study is its integration of various theoretical frameworks like Opportunity Theory, Resource-Based View, Social Network Theory, and others. This holistic approach provides a more comprehensive understanding of the factors that influence entrepreneurial success and failure.
- **Advancement of Existing Theories**: The study aims to extend existing theories by introducing new variables or contexts, thereby enriching the theoretical landscape of entrepreneurship research.

4.1.2 Methodological Advancements

The research design and methodologies employed in this study serve as a blueprint for future research in similar domains.

- **Innovative Research Design**: The research design employed in this study is innovative, incorporating both qualitative and quantitative methods to provide a more nuanced understanding of the subject matter.
- **Data Analysis Techniques**: The study employs advanced data analysis techniques, such as machine learning algorithms, to identify patterns and trends that traditional methods might overlook.

4.1.3 Gaps in Existing Literature

- **Addressing Unexplored Areas**: This study aims to fill gaps in the existing literature by exploring under-researched areas like the role of cultural and social influences on entrepreneurship and the impact of sustainability practices.

4.1.4 Cross-Disciplinary Relevance

- **Interdisciplinary Insights**: The study's findings are not just limited to the field of entrepreneurship but also have implications for psychology, sociology, and economics, making it a cross-disciplinary endeavor.

4.2 Practical Significance

Practical Implications: The findings are expected to offer actionable insights for entrepreneurs, policymakers, and educators.

The practical significance of this study extends beyond the academic realm, offering actionable insights and recommendations for entrepreneurs, policymakers, and industry stakeholders. Here are the key areas where the study aims to make a substantial practical impact:

4.2.1 Entrepreneurial Decision-Making

Entrepreneurial Ecosystem: Insights from this study could help incubators, accelerators, and venture capitalists in making more informed decisions.

- **Risk Assessment**: The study provides a comprehensive framework for assessing the risks and opportunities associated with entrepreneurial ventures, thereby aiding in more informed decision-making.
- **Resource Allocation**: Insights from the Resource-Based View and other theories can guide entrepreneurs in the effective allocation of resources, optimizing for long-term success.

4.2.2 Policy Implications

The findings could guide policymakers in crafting more effective policies to foster entrepreneurship and innovation.

- **Regulatory Guidelines**: The study's findings can inform the development of policies that foster a more conducive environment for entrepreneurship and innovation.
- **Sustainability Initiatives**: The research also has implications for sustainability policies, particularly in the areas of green technologies and sustainable supply chains.

4.2.3 Industry Practices

- **Innovation Strategies**: The study offers a deep dive into various types of innovation and their role in entrepreneurial success, providing a blueprint for companies looking to innovate.
- **Team Dynamics**: Insights into the importance of leadership and team cohesion can be directly applied in organizational settings to improve performance.

4.2.4 Social Impact

Through the focus on sustainability and social entrepreneurship, the study aims to contribute to societal well-being.

- **Job Creation**: By understanding the factors that contribute to entrepreneurial success, the study indirectly supports job creation and economic development.
- **Social Entrepreneurship**: The study also sheds light on the growing field of social entrepreneurship, offering guidelines for ventures that aim to achieve social as well as economic objectives.

4.3 Social Relevance

The social relevance of this study is multifaceted, addressing not only economic aspects but also broader societal implications. Here are some key areas where the study aims to make a meaningful social contribution:

4.3.1 Social Inclusion and Equality

- **Diversity in Entrepreneurship**: The study explores how various social and cultural factors influence entrepreneurial success, providing insights that can help promote diversity and inclusion within the entrepreneurial ecosystem.
- **Gender Equality**: By examining the barriers and opportunities for female entrepreneurs, the study contributes to ongoing efforts to achieve gender equality in the business world.

4.3.2 Community Development

- **Local Economies**: The research has implications for revitalizing local economies, particularly through small and medium-sized entrepreneurial ventures.
- **Social Capital**: The study's focus on Social Network Theory offers insights into how community relationships can be leveraged for entrepreneurial success, thereby strengthening social capital.
- **Job Creation**: By understanding the factors that contribute to entrepreneurial success, this study indirectly supports job creation and economic development.

4.3.3 Ethical and Sustainable Practices

- **Ethical Business**: The study addresses the ethical considerations in entrepreneurship, encouraging more responsible business practices.
- **Sustainability**: The research also contributes to the understanding of sustainable entrepreneurship, particularly in the context of the Triple Bottom Line and circular economy models. The study also delves into the role of sustainability in entrepreneurship, thereby contributing to long-term social and environmental well-being.

4.3.4 Public Awareness and Education

- **Educational Programs**: The findings can be incorporated into educational curricula, providing aspiring entrepreneurs with the knowledge and skills they need to succeed.
- **Public Discourse**: By shedding light on less-explored aspects of entrepreneurship, such as the Success and Failure Paradox, the study enriches public discourse on the subject.

4.4 Technological Advancements

The study holds significant implications for technological advancements, particularly in the realms of innovation and entrepreneurship. The study provides a nuanced understanding of the role of innovation in entrepreneurship, which could potentially lead to technological advancements in various sectors. Here are some key areas where the study aims to contribute to technological progress:

4.4.1 Fostering Innovation

- **Innovation Ecosystems**: The research delves into the components and dynamics of innovation ecosystems, providing a roadmap for technological advancements in various sectors.
- **Barriers to Innovation**: By identifying and analyzing the barriers to innovation, the study offers solutions that can accelerate technological development.

4.4.2 Digital Transformation

- **Digital Entrepreneurship**: The study explores how digital technologies are reshaping traditional business models, offering insights into the future of digital entrepreneurship.
- **Data Analytics**: The research also touches on the role of data analytics in entrepreneurial decision-making, which is a cornerstone of technological advancement.

4.4.3 Industry 4.0

- **Automation and AI**: The study examines the impact of automation and artificial intelligence on entrepreneurship, providing a nuanced understanding of their role in technological progress.

- **IoT and Smart Systems**: The research includes a focus on the Internet of Things (IoT) and smart systems, highlighting their potential to revolutionize various industries.

4.4.4 Cybersecurity

- **Data Privacy**: Given the increasing reliance on digital platforms, the study also addresses the critical issue of data privacy and cybersecurity in entrepreneurial ventures.
- **Ethical Hacking**: The research explores the role of ethical hacking as a means to secure digital assets, contributing to advancements in cybersecurity.

4.5 Global Relevance

The study's findings are not confined to a single geographical or cultural context but have broader implications that resonate on a global scale. Here are some of the key areas where the study aims to contribute to global relevance:

4.5.1 Cross-Border Entrepreneurship

- **Global Markets**: The research explores how entrepreneurial ventures can scale beyond local markets and make a global impact, offering insights into international business strategies.
- **Cultural Sensitivity**: The study also examines the importance of cultural understanding and localization in global entrepreneurship.
- **Cross-Cultural Insights**: By considering cultural and social influences, the study has a broader, more global relevance, making its findings applicable in diverse settings.

4.5.2 Sustainable Development Goals (SDGs)

- **Social Entrepreneurship**: The research aligns with several United Nations Sustainable Development Goals, particularly those related to poverty alleviation, quality education, and climate action.
- **Global Partnerships**: The study emphasizes the role of international collaborations and partnerships in achieving these goals.

4.5.3 Technological Diffusion

- **Innovation Transfer**: The research investigates how technological innovations can be transferred between countries, contributing to global technological advancement.
- **Digital Divide**: The study also addresses the issue of the digital divide and how entrepreneurship can help bridge this gap on a global scale.

4.5.4 Policy Implications

- **Global Policies**: The research has the potential to influence policy-making at an international level, particularly in areas like trade regulations, intellectual property rights, and environmental standards.
- **Global Economic Impact**: The study explores the economic implications of entrepreneurship, which can have ripple effects on global economic stability and growth.

CHAPTER – V

DATA ANALYSIS AND FINDINGS

Any research project revolves on its data analysis and results, which work as a catalyst to convert raw data into useful knowledge and insights. In the data analysis stage, researchers carefully go through the information they have gathered using logical and statistical methodologies. To find underlying patterns, trends, and linkages, this entails cleaning, organizing, and summarizing data. Finding relationships between variables and presenting complicated data in understandable ways like charts, graphs, and tables are made easier by methods like statistical analysis and visualization. After doing this analysis, researchers examine the data and interpret the findings to make inferences that respond to the hypothesis or research question. To do this, one must recognize newly emerging patterns and trends, draw conclusions from the data, and provide concise justifications for occurrences that are seen. In the end, data analysis and discoveries fill the knowledge gap between gathered data and study goals, providing researchers with important information that improves their profession and may have practical implications.

5.1 Success Rate of Innovation Through Crowd Funding

This research looks at the difficulties entrepreneurs have getting financing and how new goods affect crowdfunding campaigns. To ascertain the elements determining project success or failure, the researchers will review 123 projects on two reward-based crowdfunding sites, Kickstarter.com and wefunder.com. They want to test two hypotheses: the alternative hypothesis (H1), which suggests a connection, and the null hypothesis (H0), which suggests no association between a successful idea and crowdfunding received.

The degree to which financing and project success are related will be evaluated using correlation analysis and hypothesis testing techniques. P-value, which assesses the importance of the data, and scatter plots, which graphically depict the correlations between dependent and independent variables, are two important statistical ideas used in the investigation.

There are now fewer innovators and a reluctance to take risks due to the social tendency that prioritizes job security above entrepreneurial endeavors. It is difficult to get startup money for entrepreneurial ventures, which deters would-be business owners and innovators even more. The research assesses these assumptions using a

mix of P-values and correlation coefficients (r). To help with data interpretation and the identification of possible correlations, scatter plots are used to graphically depict the connections between dependent and independent variables.

The research intends to shed light on variables affecting entrepreneurial activities in the digital era and provide insights into the relationship between innovation success and crowdfunding dynamics.

This study analyzed the data to find the correlations between success and the project's location, number of backers, and category. By analyzing manually collected data from 123 Kickstarter projects, researchers employed correlation and regression to examine factors influencing project success.

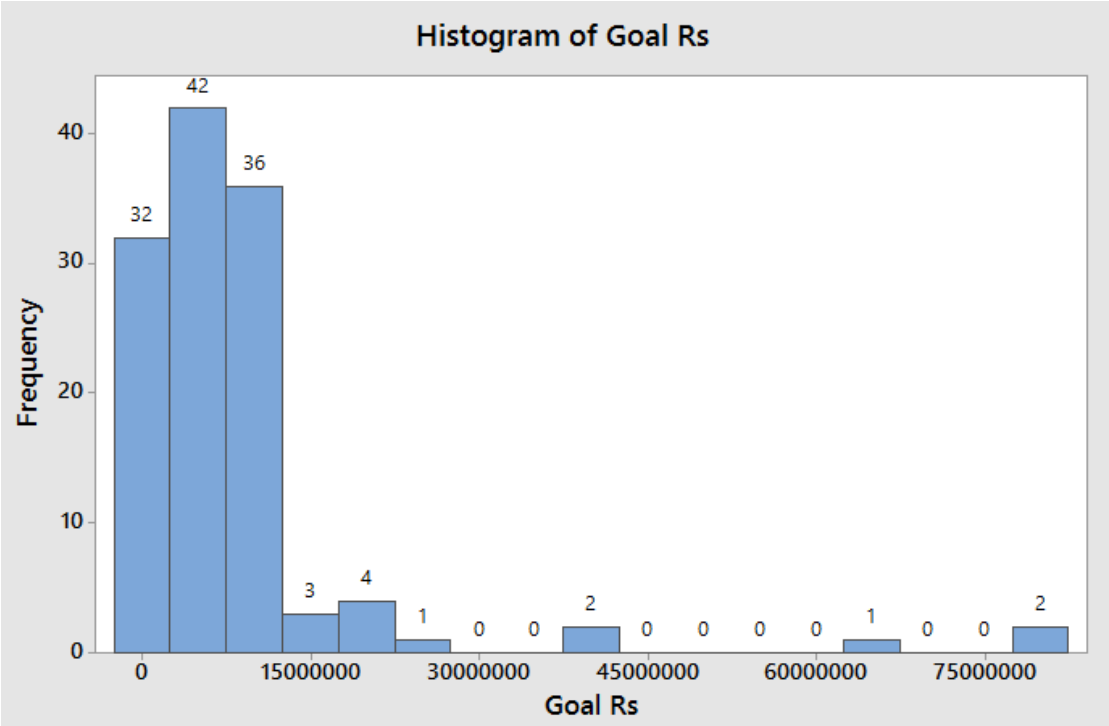

Fig. 5.8 : Goal in Rupees

Figure 5.8 is a histogram, which is a type of bar graph that shows how a continuous variable in this case, the project's goal amount in rupees is spread out. The vertical axis shows the frequency (number of projects) that fall within each range, while the horizontal axis shows the objective amount range (for example, 15 lakhs to 30 lakhs rupees).

The histogram indicates that, among Kickstarter projects in this sample, the most common target amount range was between 25 lakhs and 1.25 crore rupees, or around $33,000 and $166,000 USD. A smaller number of initiatives between 1.75 crore and 8.25 crore rupees, or around $233,000 to $1.1 million USD had substantially greater objective amounts.

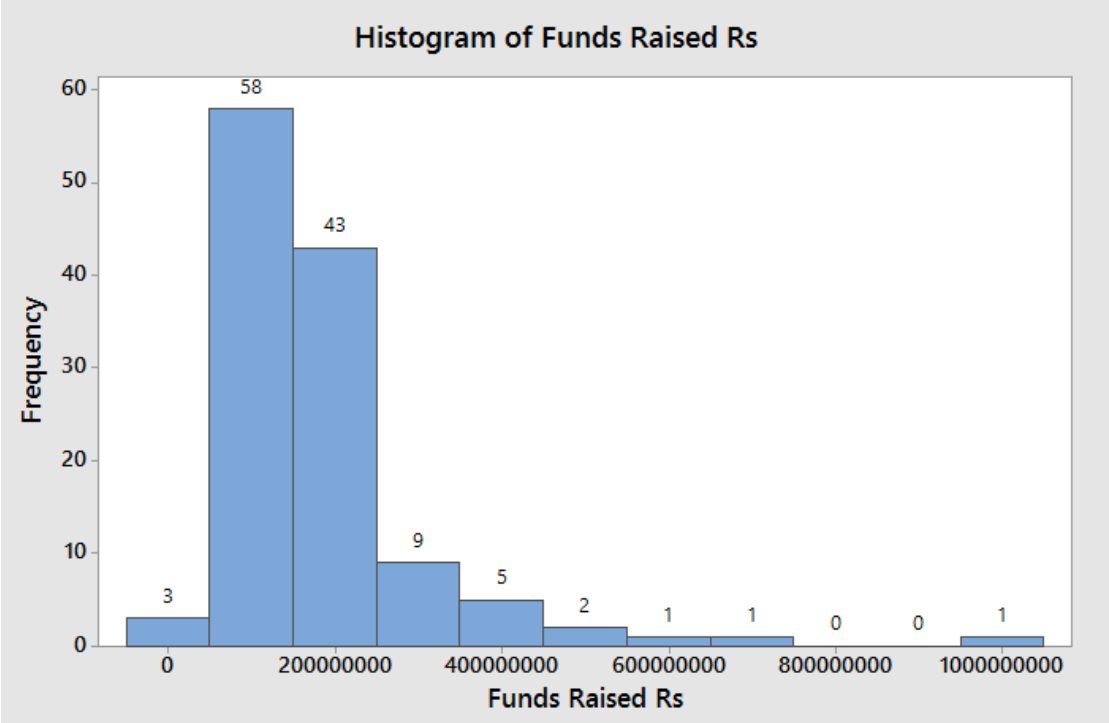

Fig. 5.9 : Funds Raised in Rupees

Figure 5.9 depicts the distribution of a continuous variable (the amount of money collected in rupees) using a histogram, a form of bar graph. The vertical axis shows the frequency, number of projects that fall within each range, while the horizontal axis shows the amount of cash collected in crore rupees (one crore is 10 million). The initiatives with the greatest frequency were those that raised between Rs. 5 crore and Rs. 15 crores, or around $6.6 million and $19.8 million in US dollars.

Additionally, other initiatives Crowdsourcing garnered a lot more money—possibly as much as Rs. 105 crore, or $13.8 million USD. According to the statistics, fewer initiatives collected money in the lower range—possibly even less than Rs. 5 crores.

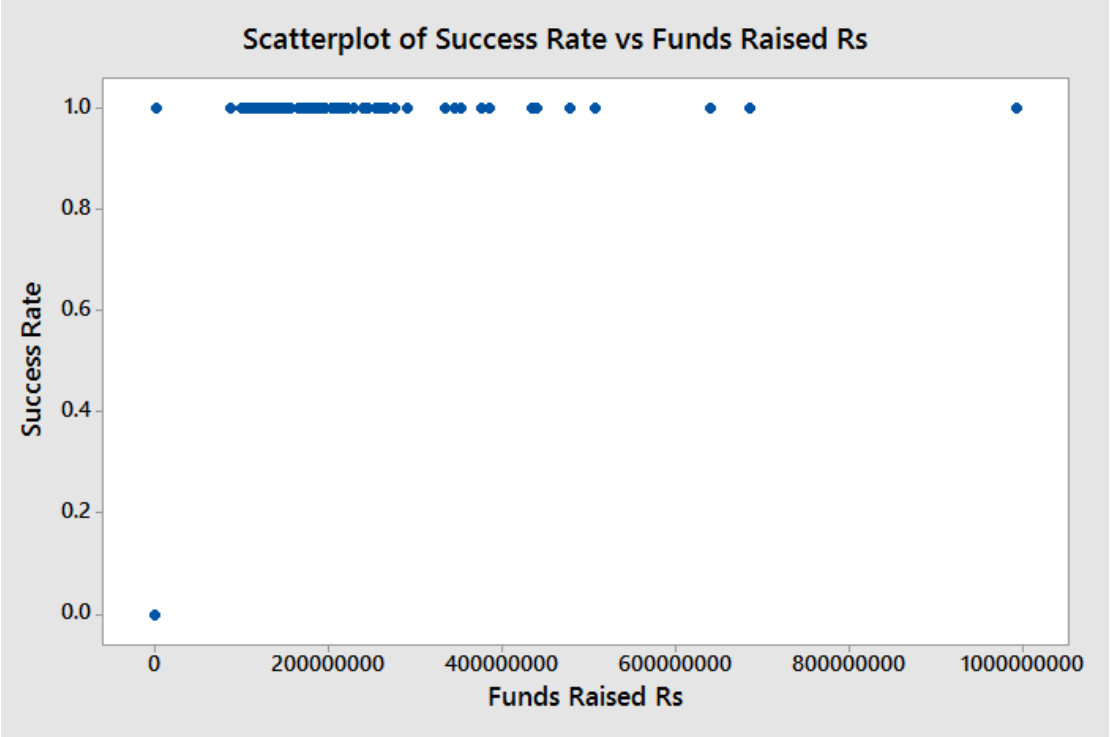

Fig. 5.10 : Success rate Vs funds raised

Figure 5.10 represents a scatterplot, a type of graph that displays the values of two variables for each data point. The vertical axis displays the project's success rate, likely expressed as a percentage between 0 and 1, with 1 signifying success, while the horizontal axis displays the total money collected in rupees.

The scatterplot shows a little rising trend, but the data points are quite dispersed. This demonstrates a positive correlation between the amount of money collected and the success rate. The 0.192 correlation coefficient, supports this.

Correlation Coefficient: There are two possible correlation coefficients: -1 and +1. A positive value indicates a positive correlation, while a negative number indicates a negative correlation. A coefficient closer to zero indicates a weaker correlation between the variables. In this instance, the positive correlation is quite minor, at 0.192.

P-Value: A P-value is 0.033. In hypothesis testing, researcher use a p-value to assess the statistical significance of a result. When the p-value is less than 0.05, often used as a benchmark, it is unlikely that the observed link is the result of chance. In this case, there is some indication that the positive correlation is statistically significant since

the p-value of 0.033 is less than 0.05. Given a p-value <0.05, H0 is erroneous and H1 is accepted.

A p-value of 0.033 indicated that there was a 0.192 correlation coefficient between the success of the crowdfunding campaign and the quantity of money raised. This suggests that projects with higher funding levels have a statistically significant positive connection and a marginally higher chance of success.

Overall, the results of the correlation study point to a marginally strong but statistically significant positive connection between the success rate of Kickstarter projects in this dataset and the amount of money collected. This indicates that the likelihood of projects succeeding was marginally higher for those who collected more money than for those who raised less.

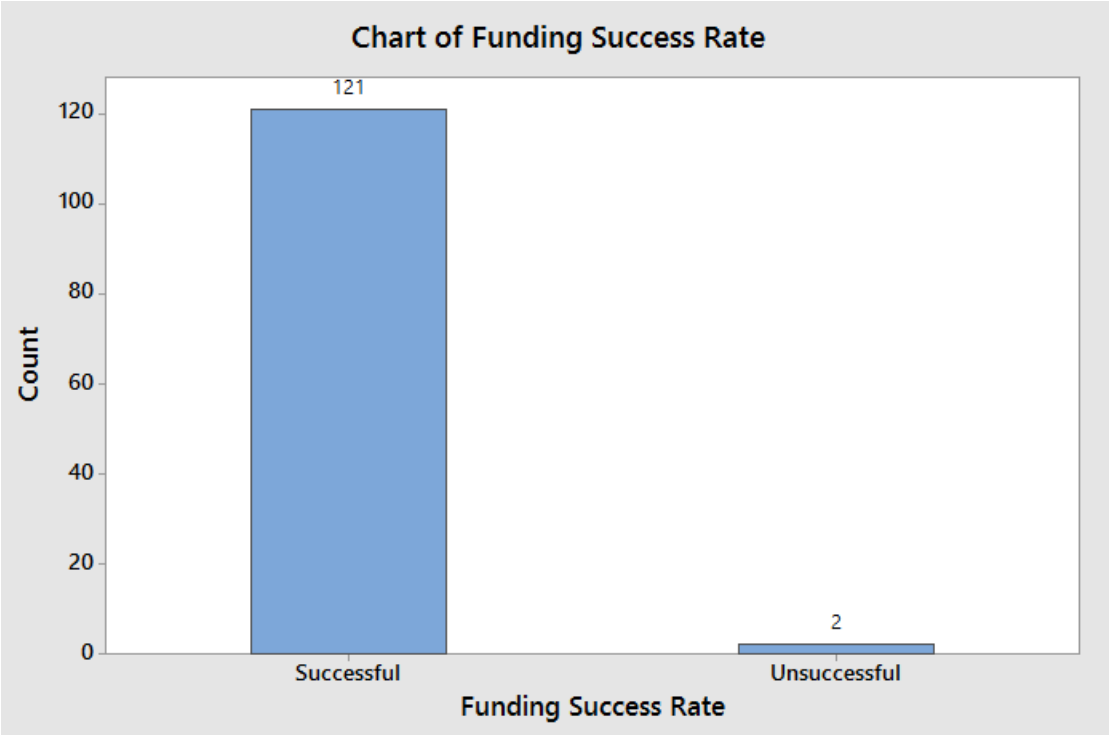

Fig. 5.11 : Successful vs Non-successful

Figure 5.11 is a bar chart that illustrates the classification of project results into two distinct categories: those that were successful and those that were not successful. "Success" was measured as reaching funding goals. A total of 121 initiatives were successful, while just two were unsuccessful, according to the text that accompanies the figure. This dataset contains 121 out of 123 projects, and the bar chart makes it

quite evident that the great majority of those initiatives were successful. It is quite probable that they were successful in reaching their financial targets on Kickstarter. There were just a very limited number of initiatives that did not end up being successful.

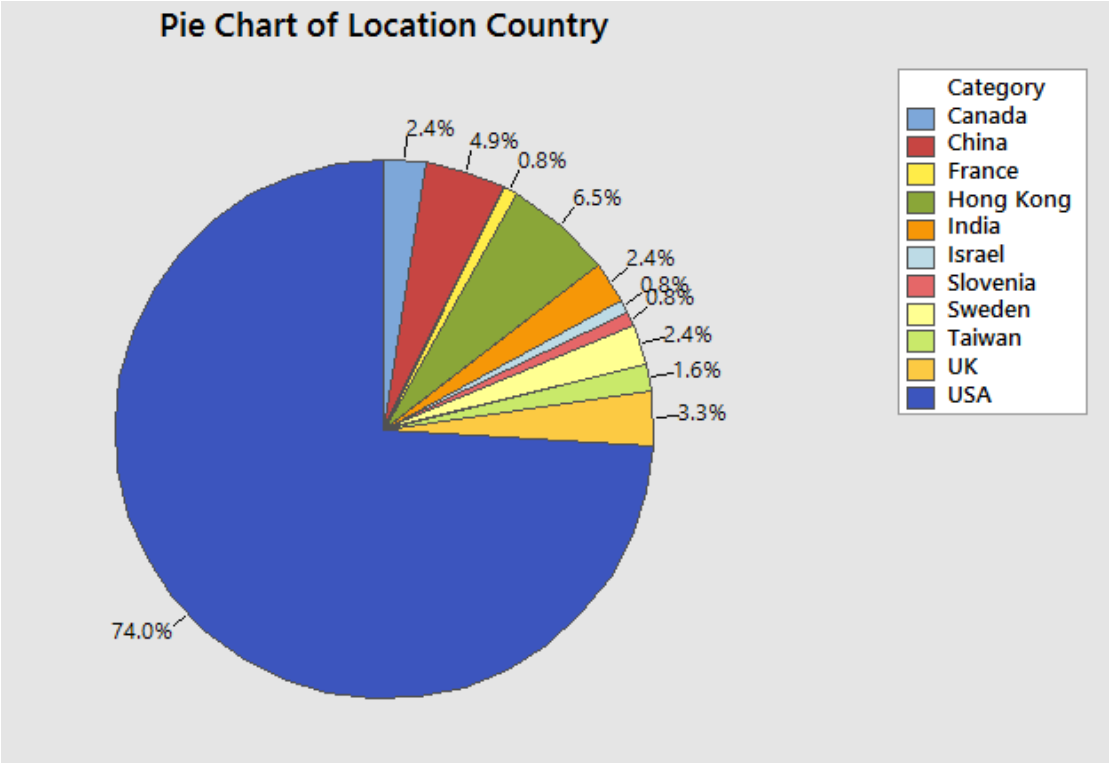

Fig. 5.12 : Location

This research looked at the distribution of successful Kickstarter projects across a variety of countries. A pie chart in **Figure 5.12** which is a circular chart that has been cut into slices to illustrate the percentage of the total that each category accounts for. Here is a pie chart that illustrates the proportion of successful Kickstarter projects that came from different nations. Based on the pie chart, it can be seen that the United States of America accounted for 74% of the successful initiatives that were included in this dataset. There was a much lower percentage of projects that originated from Hong Kong (6.5%), China (4.9%), and the United Kingdom (3.3%). It is estimated that around 2.4% of the successful initiatives were contributed by projects from Canada, Sweden, India, and Taiwan respectively. Slovenia, Israel, and France each had a relatively modest percentage of the successful initiatives in this sample, with each country having a share of less than 0.8%. There is a considerable drop-off in the

number of successful initiatives that originate from other nations, with the United States being the most prominent source of successful ventures. Please keep in mind that the statistics shown here is only representative of 123 of the projects that were funded via Kickstarter. In addition to geography, some elements, such as the kind of project or marketing techniques, may also have a role in determining the level of success achieved.

5.2 Success rate of Entrepreneur through Crowd Funding

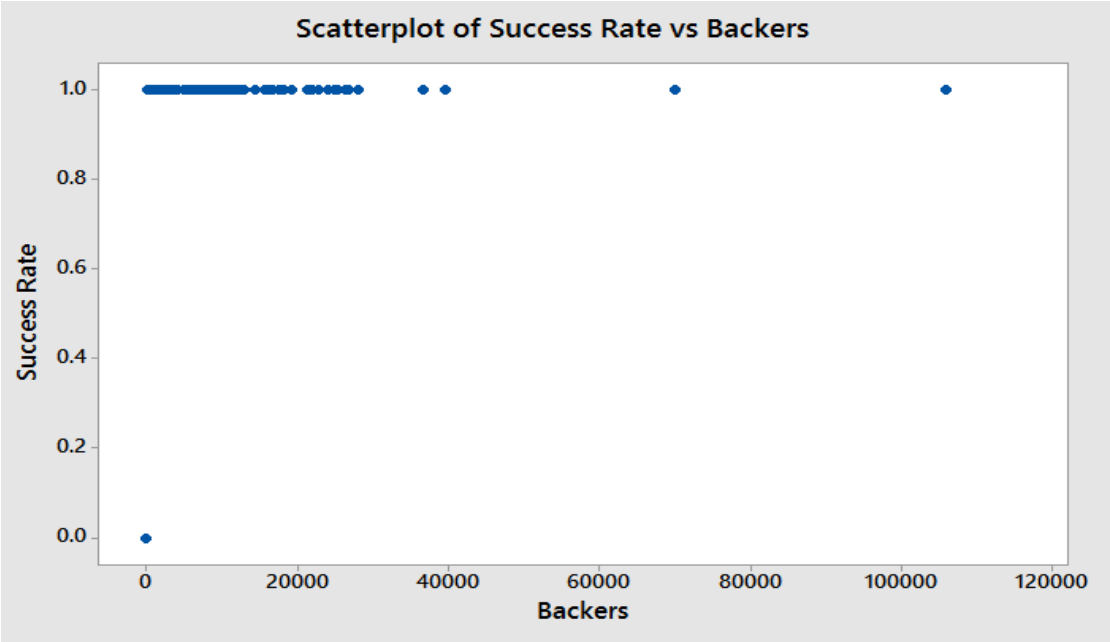

Fig. 5.13 : Success rate vs backers

Figure 5.13 The scatter plot of supporters demonstrates a positive, strong linear relationship between crowd financing success and backers. Research looked at the connection between Kickstarter project success rates and supporter counts. The number of supporters and success rate were compared by the researchers using correlation analysis. One statistical method for determining the direction and degree of a link between two variables is correlation analysis. A scatterplot, which displays the values of two variables for every data point, is shown in Figure 13. The vertical axis shows the project's success rate, which is often expressed as a percentage between 0 and 1, with 1 denoting success, while the horizontal axis shows the number of supporters for the project. The scatterplot's data points indicate an overall rising trend, with projects that have more supporters often seeing greater success rates. This implies that the number of supporters and project success are positively correlated.

The range of a correlation coefficient is -1 to +1. A positive correlation is shown by a positive value, while a negative correlation is indicated by a negative number. A weaker correlation between the variables is indicated by a coefficient that is closer to zero. In this instance, the positive correlation is quite minor, at 0.189. A p-value is used in hypothesis testing to evaluate a result's statistical significance. The observed link is unlikely to be the result of chance when the p-value is less than 0.05, which is often employed as a benchmark. In this case, there is some indication that the positive correlation is statistically significant since the p-value of 0.031 is less than 0.05. Overall, the results of the correlation study point to a marginally significant but statistically significant positive connection between the success rate of Kickstarter projects in this dataset and the number of supporters. This indicates that the likelihood of success for initiatives with more supporters was somewhat higher than that of those with fewer backers. It's critical to keep in mind that causality differs from correlation. It is not a given that having more supporters makes a project successful, even when there is a positive link between the two variables. Success may also be influenced by other elements, such as the caliber of the project concept, the project presentation, or the use of marketing and promotion techniques. Furthermore, given that there were only 123 projects in the sample, the correlation coefficient's strength may be low.

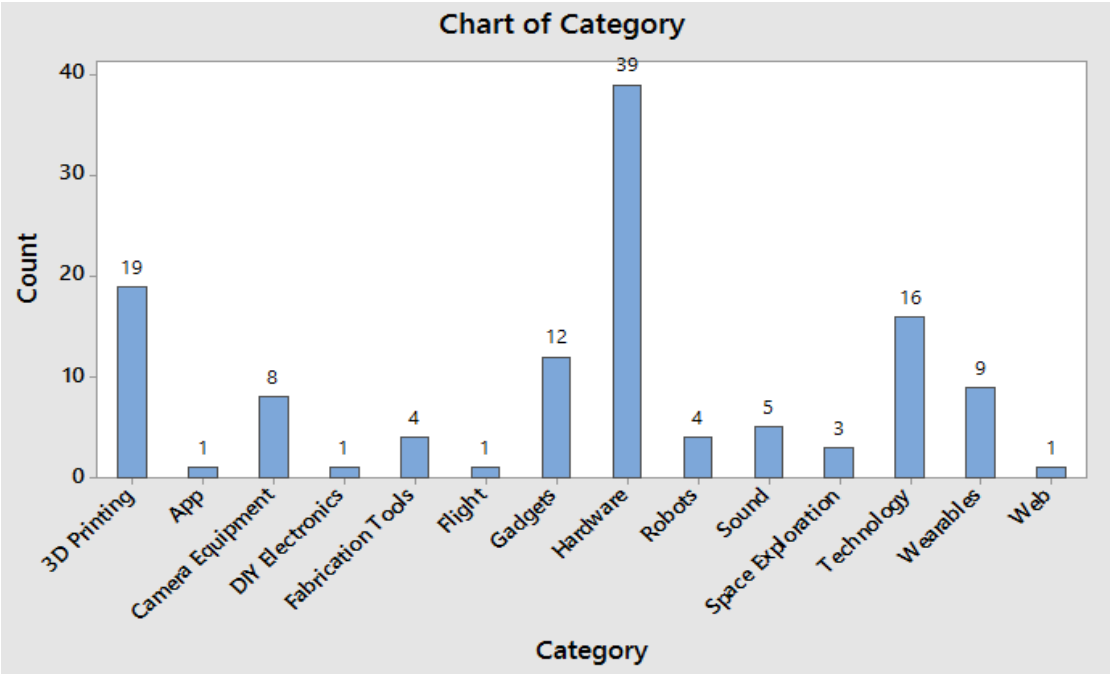

Fig. 5.14 : Category

The **Figure 5.14** A bar chart, is a graph where the frequency or percentage of categorical data is represented by rectangular bars. Here, the categories are the many Kickstarter project kinds, and the number of successful projects in each category is shown by the height of the bar. With 39 completed projects, the Hardware project category in this dataset was the most successful, as seen by the bar chart. 3D printers (19 successful projects) and technology (16 successful projects) came next, respectively, to hardware. There was only one successful project in each of the following project categories: DIY Electronics, Apps, Flight, and Web. Additionally, there were a few successful ventures in the fields of robotics (4), music (5), and space exploration (3). The number of successful initiatives in categories including gadgets (12), cameras (9), and wearables (8) was modest. The most successful initiatives were in the hardware category; just a few successful projects were found in various other areas.

5.3 Success rate of Entrepreneur through Consumer Purchasing Trends

Through an analysis of consumer buying behaviors, the goal of this study seeks to determine the market share (consumer purchasing trends) of new items or brands that have found success. This study will investigate the null hypothesis (H0), which states that there is no relationship between a successful entrepreneur's product and what customers have previously purchased. On the other hand, the alternate hypothesis (H1) proposes that there is a relationship between successful business owners and current customer buying patterns for their novel items. Put more simply, this research wants to know whether customers are really choosing to purchase the goods that successful entrepreneurs have made. This research uses data from over 3,000 purchases to examine how popular consumer electronics are among Mumbai, India's citizens. According to the report, TVs are the second most popular product after mobile phones. According to subcategory research, the most popular mobile accessories are smartphone covers and headphones/earphones. The Maximum Likelihood technique and the Bayes theorem were used by the researchers to examine historical purchasing trends and forecast new ones.

The survey also showed that customers like products like smartphone covers and headphones/earphones. To comprehend patterns in customer behavior, the researchers used statistical techniques including the Maximum Likelihood algorithm and the

Bayes theorem. While the Maximum Likelihood method makes predictions about customer purchasing patterns using both primary and secondary data, the Bayes theorem modifies forecast probabilities depending on fresh information.

In order to identify purchasing patterns, the process comprises data gathering from nearby retailers, subcategory analysis, data filtering, frequency calculation, and pie chart analysis. Predicting market trends such as brand choice, pricing range, and product features is further aided by frequency calculation and pie chart analysis.

Through the integration of different statistical methodologies, the research adds to a complete knowledge of consumer behavior in the digital era by offering insightful information on consumer preferences and future market trajectories in the consumer electronics sector. This research explores the most popular consumer electronics among 3,000 suburban Mumbai residents, focusing on their everyday uses and preferences. Our analysis leverages the Bayes theorem and Maximum Likelihood algorithm.

The Bayes Theorem is a statistical technique that may be used to determine the conditional probability of an event happening in the presence of another event that has already occurred. Put more simply, it lets you adjust the likelihood of something happening after learning new information. It is less often employed in descriptive statistics, as this research seems to be, but it might be used in this case for more complex analysis (not covered in the paragraph), including forecasting the purchase of gadgets based on a person's demographics.

The Maximum Likelihood Algorithm is a statistical technique that determines which statistical model parameters are most likely to have created the observed data. Put another way, it assists in determining the most likely reason for the information you have gathered. Although it's not discussed in the text, it might be employed here to determine the aspects impacting consumers' purchasing patterns for electronics, even if it's more often used in complicated models.

The substantial positive association (correlation coefficient r = 0.959) between the performance of businesses and their conformity to current consumer purchasing trends is evident. This implies that an entrepreneur's degree of success tends to correlate strongly with the latest trends in customer purchasing. The p-value of 1.20e-

05, which is much less than the usually accepted significance level of 0.05, indicates that the observed association is statistically significant.

The remarkably low p-value and the extremely high correlation coefficient (r) lead to the acceptance of the alternative hypothesis (H1) and the rejection of the null hypothesis (H0). The alternative hypothesis that successful entrepreneurs are more in line with current consumer purchasing trends is supported by a statistically significant positive correlation between the success of entrepreneurs and their alignment with these trends.

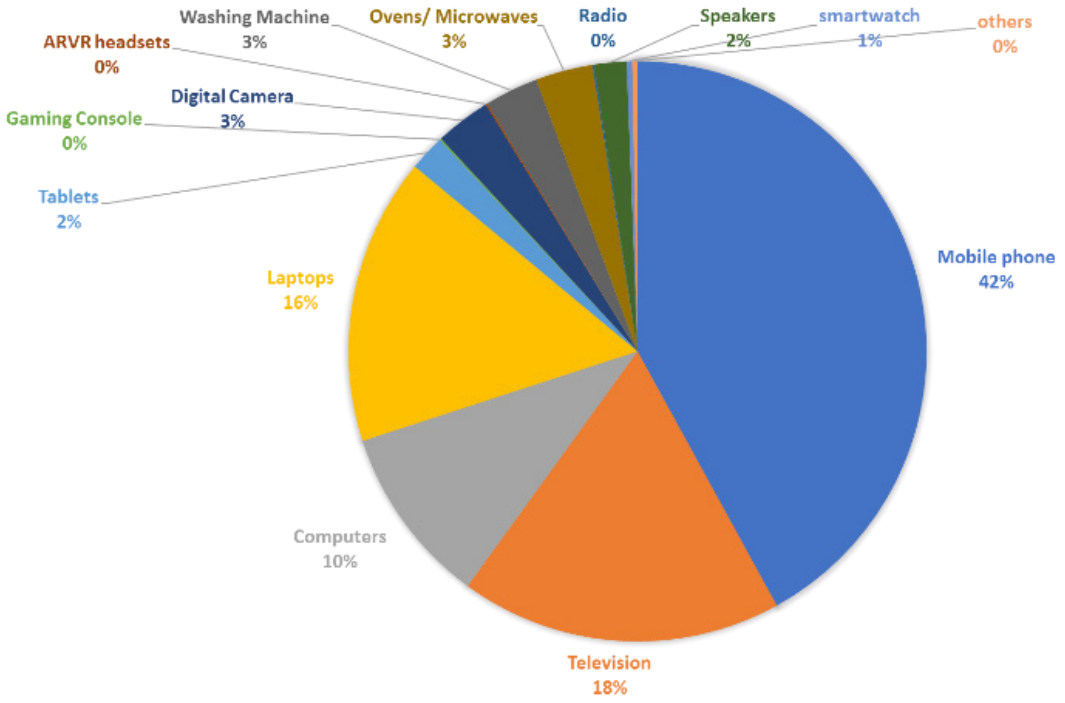

Fig. 5.15 : Consumer Electronic Products purchase trend

The pie chart in **Figure 5.15** depicts the percentages of Mumbai suburbs' electronic product purchases are shown in the research. Most people choose mobile phones and TVs. The population was 3000. A pie chart, or circular chart broken into slices to show the percentage of a total that each category takes up, is seen in **Figure 5.15** With 42% of respondents indicating a purchase, the pie chart shows that mobile phones were the most popular consumer electronic device bought by suburban Mumbai residents. Televisions ranked second in popularity, having been purchased by 18% of respondents. Consumers preferred laptops (16%) and computers (10%). Gaming consoles, and tablets were all far less common, with fewer than 10% of respondents

selecting any of them. Fewer than 3% of the respondents bought other devices, such as speakers, washing machines, microwaves, radios, digital cameras, and smartwatches. Preferences for consumer electronics may evolve over time. Other devices were much less popular than mobile phones and TVs, which were the undisputed leaders.

Table 5.1 : Consumer Electronic Products table

Consumer Electronic Products	Actual device sold
Mobile phone	1260
Television	540
Computers	300
Laptops	480
Tablets	60
Gaming Console	3
Digital Camera	93
ARVR headsets	3
Washing Machine	90
Ovens/ Microwaves	96
Radio	3
Speakers	54
smartwatch	9
others	9

Table 5.1 shows the actual consumer electronic products sold. For the variable of interest (consumer electronics purchases), **Table 5.1** offers a descriptive statistical analysis that summarizes the data to provide insights into core trends (averages) and dispersion (how spread out the data is). The proportion of inhabitants who bought each kind of consumer electronics is shown in the table.

Mobile phones were the most popular consumer electronics purchase among 3,000 suburban Mumbai residents surveyed; an astounding 42.0% of respondents said they had purchased one. At 18.0%, televisions came in a distant second, ahead of laptops (16.0%) and PCs (10.0%). With washing machines, microwaves, ovens, and digital cameras each hovering around 3% of responses, appliances and cameras showed a

sharp decline in popularity. Ownership of speakers and tablets was significantly lower, at less than 2% apiece. Smartwatches, the least popular category with just 1% of the total, rounded out the list. The undisputed leaders were mobile phones and TVs, followed by laptops and PCs. Other devices and appliances were much less common.

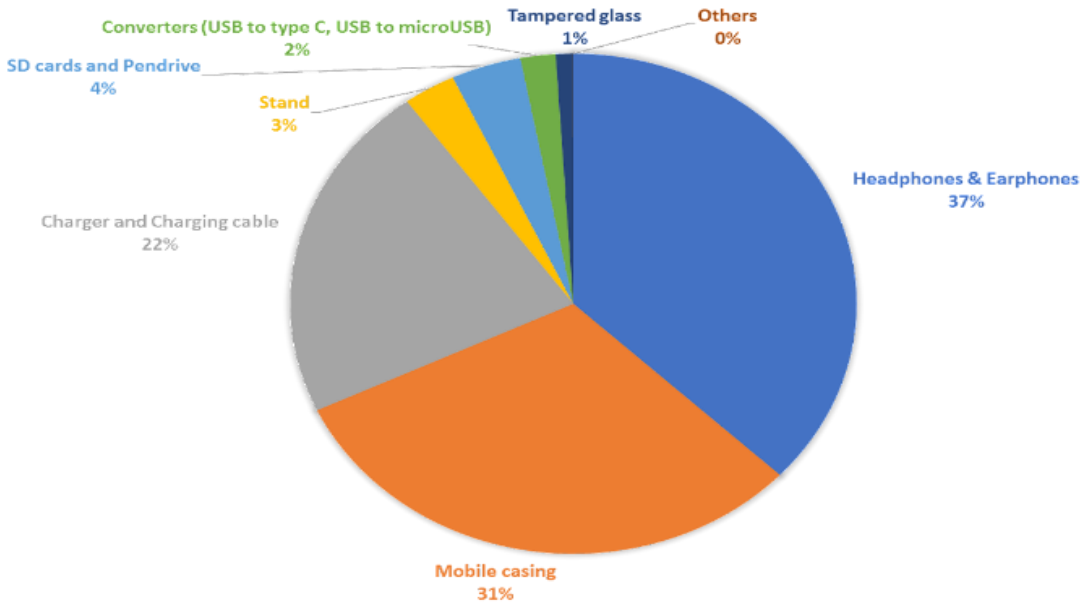

Fig. 5.16 : Mobile Accessories Purchase Trend

The pie chart in **Figure 5.16** shows the percentage of mobile accessories purchased by consumers in one of the Mumbai suburbs. The researchers used a descriptive statistical study, summarizing survey data, to determine how common it is for suburban Mumbai people to acquire mobile phone accessories. The pie chart is a circular diagram that has been broken into slices to show how much of a whole each category takes up. The proportion of residents who bought each kind of mobile phone accessory is shown in a pie chart. According to sales data, which represent 37% of the total, headphones and earbuds are the most widely used mobile phone accessories. At 31%, mobile cases didn't far behind, underscoring their significance for phone protection. With 22% of sales, chargers and charging cords were also significantly high demand. But tempered glass displays, SD cards, and USB converters all saw sharp declines in sales, accounting for only 4%, 2%, and 1% of total sales, respectively. Lastly, stands came in last with just 3% of the total, indicating that among this consumer group, they were the least desired phone accessory.

Table 5.2 : Mobile Accessories Table

Mobile Accessories	Actual device sold
Headphones & Earphones	1110
Mobile casing	930
Charger and Charging cable	660
Stand	90
SD cards and Pen drive	120
Converters (USB to type C, USB to micro USB)	60
Tampered glass	30
Others	1

Table 5. shows the actual Mobile accessories sold. Some intriguing customer preferences are shown by the "Mobile Accessories Table". With an astounding 1110 units sold, headphones and earbuds are the most popular item by a wide margin. With 930 units sold, mobile cases trail closely behind, underscoring their significance in safeguarding devices. Another popular category is chargers and charging cords, which move 660 units. But sales of stands (90 units), SD cards and pen drives (120 units), and converters (60 units) show a significant decline in popularity. Thirty pieces of tampered glass are sold, although not nearly as many as the best-selling items. There is a "Others" category in the table as well, but no sales data is given for those products.

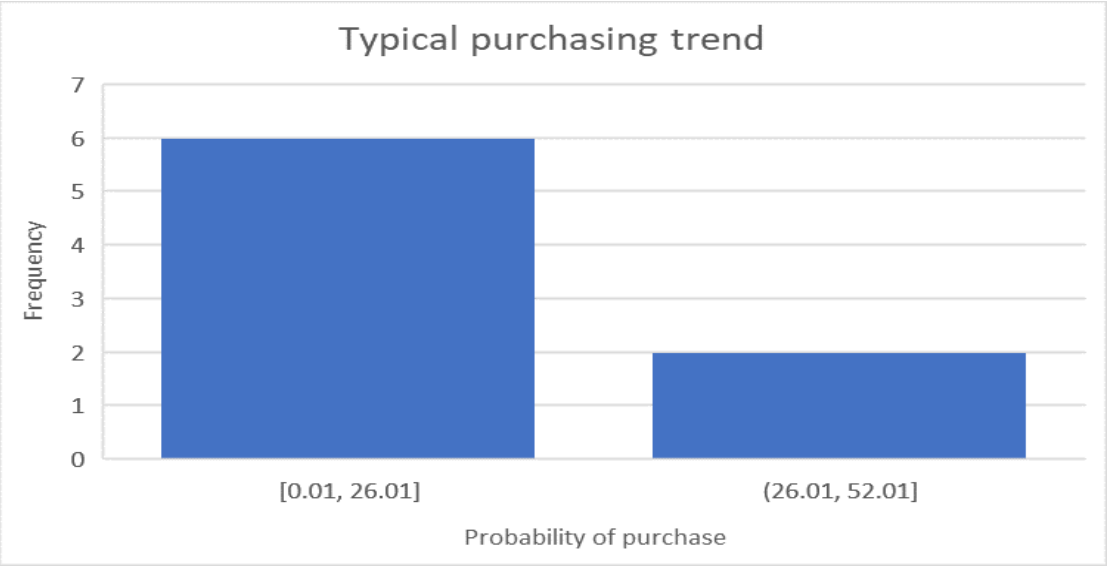

Fig. 5.17 : Purchasing trend in Mobile accessories

Figure 5.17 This study analysed mobile accessory purchasing trends to determine physical property-based merging. The first two are important stakeholders in mobile phones and casings. The remaining six goods have a probability of less than 25% and are heavily sold. You may open a mobile accessory business with eight goods. If you have less money, you can start your shop with headphones and cell phone casings, which make up over 50% of the overall value. The first column lists the essentials, while the second lists supplementary retail accessories. This research calculated frequency and found that only two products- earphones or headphones and smartphone cases, which account for more than 50% of total revenue are enough to establish a mobile accessories shop in India. Business success requires eight products, with 99.9% of purchases covered.

5.4 Success rate of Entrepreneur through Stock market – Startup success

The aim of this study is to conduct an analysis of the stock exchange listings of all ent repreneurs of start-up companies over the past five years. This research explores the complex link between innovation, research, and the success of startup companies in the Indian stock market, focusing on those that reach "unicorn" status—that is, a value of $1 billion or more. Using a unique dataset that encompasses all new listings on the National Stock Exchange (NSE) and the Bombay Stock Exchange (BSE) in the last five years, the study carefully examines the trends and patterns these startups displayed between 2021 and 2023 when they went public.

From a methodological standpoint, the study collects and analyzes large amounts of stock market data from the BSE and NSE in order to try to understand the complex dynamics that are present in the startup scene. The goal of this analytical project is to unearth subtle insights into the variables influencing these emerging businesses' success paths.

Important conclusions drawn from the investigation highlight a range of outcomes seen in initial public offerings (IPOs) in various industries. Successful examples include firms like Mankind Pharma and Nexus Select, which have made significant profits since going public. Such successes are ascribed to a number of things, such as the strong Indian startup scene, an abundance of skilled individuals, and encouraging government programs that promote development and innovation. Furthermore,

promising businesses in industries like healthcare, agriculture, financial services, and logistics are expected to have a big influence on the Indian economy, even outside of the limelight cast by the top 10 unicorns. This study has global implications that go beyond the Indian setting, providing a useful guide for entrepreneurs and governments who want to foster innovation-driven economies. The report promotes encouraging an innovative culture and stressing the critical role that research plays in driving technical developments, employment creation, and economic prosperity.

Through an examination of unicorn businesses' paths, the report highlights the importance of research in fostering sustainable development and highlights the powerful effects of innovation-driven tactics. These results have significant ramifications for all parties involved in the startup ecosystem. They provide them with the information they need to make well-informed choices, create winning strategies, and create an atmosphere that supports businesses' long-term success.

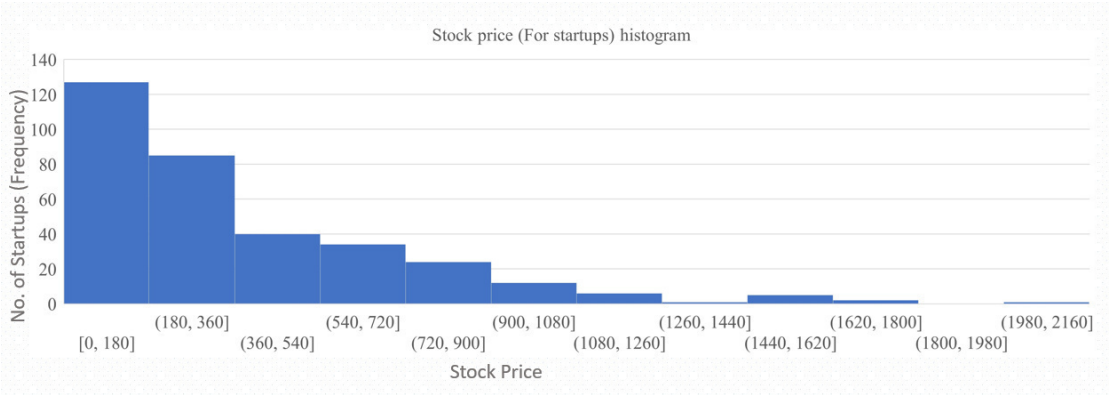

Fig. 5.18 : Histogram for the stock prices of startups (from 2019-2023)

Figure 5.18 The stock exchange statistics for 2021 and 2022-2023 listed IPOs showed startup success tendencies. The Bombay Stock Market and National Stock Exchange listed 49 IPOs in 2021. PayTM, Zomato, and Policybazaar raised considerable funding and were valued at 6,000 to 18000 crores. Others with successful IPOs include Metro Brands, FSN E-Comm, Nykaa, and Windlas Biotech.

A distribution is represented graphically by a histogram. It shows the frequency of each value in a data collection using bars. The vertical axis (y-axis) in Figure 18 displays the frequency (number of startups) within each price range, while the horizontal axis (x-axis) most likely depicts the range of startup stock values (in

rupees) shown in the data. Understanding the distribution of the data, the presence of a central tendency (average price), and if the data is biased toward higher or lower values are all made easier with the aid of this kind of presentation.

In the last five years (2019–2023), startup stock prices have ranged from Rs. 10 to Rs. 2160, with the majority of businesses' stock values lying between Rs. 180 and Rs. 360. The distribution of these prices is shown in further detail in the histogram (Figure 18). It probably indicates that a greater proportion of startups have stock values between Rs. 180 and Rs. 360, indicating that this may be the most typical price range or the center trend. The high-value anomalies, with values beyond the most common range (Rs. 180-360), such as PayTM, Zomato, and Policybazaar.

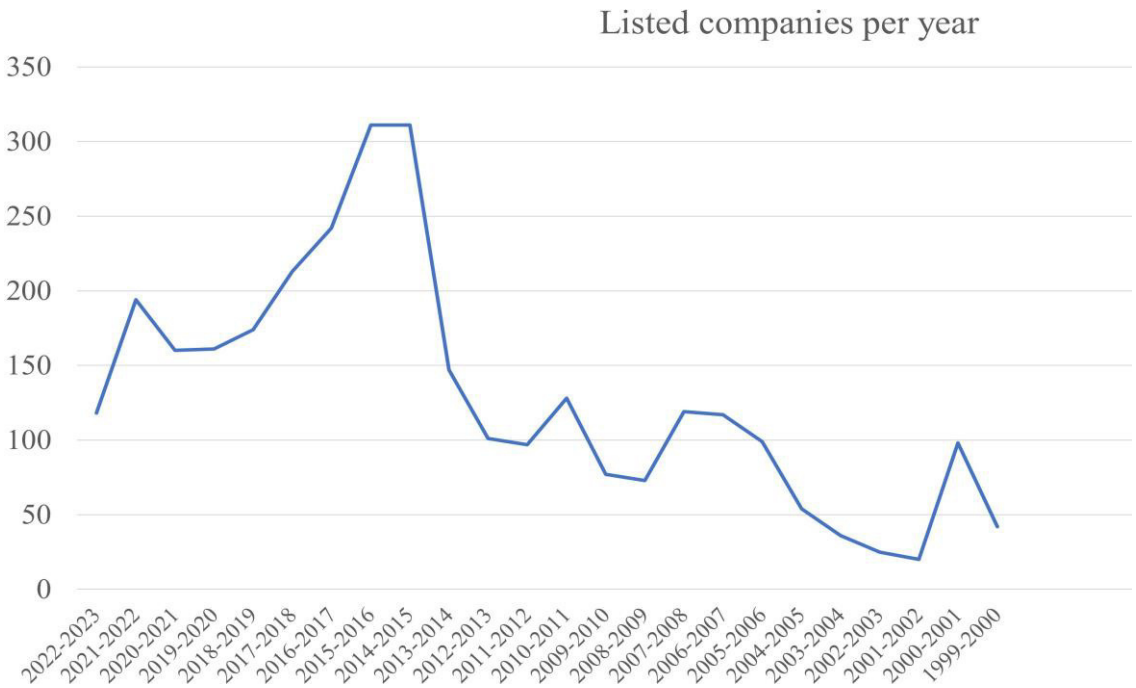

Fig. 5.19 : Company listing trend over last 23-years

Figure 5.19 displays the listed companies from 2000 to 2023 (this 23-year data was collected to assess trends over numerous years). A line graph, which is a graphic depiction of data points linked by a line throughout time, is used to display the data. When it comes to seeing patterns and trends across time, this kind of graph is helpful. **Figure 5.19's** vertical axis (y-axis) most likely depicts the number of businesses listed on the stock market for that year, while the horizontal axis (x-axis) reflects the years 2000 to 2023. The number of listed firms has fluctuated over time, with a notable spike in 2014 and a subsequent period of stability until 2019. It also reveals a drop in

firm listings after 2019, which might be brought on by COVID-19. The trend of business listings over the last 23 years is shown graphically in Figure 19. Listings seem to have increased significantly about 2014, then stabilized for a while until 2019. **Figure 5.19** along with a potential pattern of rising firm listings, which may have been followed by a fall in recent times. It would be beneficial to take into account other economic variables outside of COVID-19 that could have affected firm listing activity in order to get more solid results.

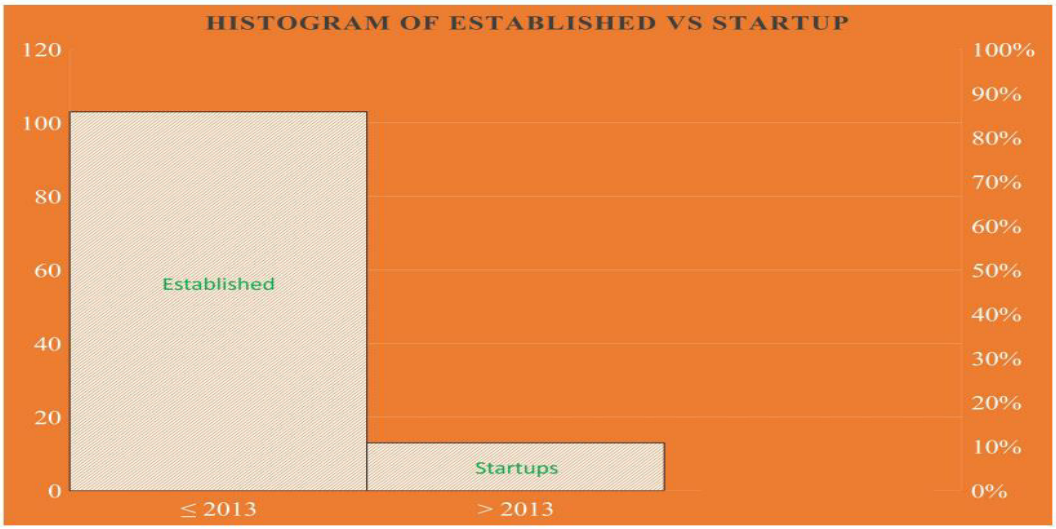

Fig. 5.20 : Histogram of established and startups in the listed companies, over the period of 5 years. X-axis shows start date of company so in 2023 all companies started after 2013 are treated as Startups and rest all are established.

Table 5.3 : Start-up companies listed on stock market

Company name	Foundation Year	Year of listing	Valuation (INR Crore)
Nexus Select	2023	2023	291.88
Udayshivakumar	2019	2023	185.00
Dharmaj Crop	2015	2022	164.40
Electronics Mart India	2018	2022	1689.07
Veranda Learning Solutions	2018	2022	199.92
HP Adhesives	2019	2021	233.00
Latent View	2021	2021	539.00
Fino Payments	2017	2021	348.31
FSN E-Co Nykaa	2012	2021	1,428.55
Nuvoco Vistas	2016	2021	9318.00
Glenmark Life	2011	2021	2123.21
PowerGrid InvIT	2021	2021	324.32
Nureca	2016	2021	42.759
Route	2014	2020	2002.00
Happiest Minds	2011	2020	1216.22
Sterling Wilson	2017	2019	1206.93

Figure 5.20 displays the 5-year histogram of listed firms' established and startup firms. 10% of listed companies are startups; the rest are established. The survey also

indicated that 14% of 2021 businesses will become unicorns within ten years. The stock market valued this group of companies due to their growth and innovation. However, most firms did not become unicorns during this time, highlighting the complexity of startup success and the hurdles many new ventures encounter. The year 2022-2023 had 47 IPOs. LIC, Delhivery, and Pardeep Phosphates were influential IPOs. LIC raised 21008 crores. Despite selling shares at a cheap price (|39 to |42 per share), firms like Pardeep Phosphates gained market interest. Overall, stock market data research revealed firms' journeys to unicorn status. The analysis showed that successful IPOs become unicorns, indicating startup ecosystem development and innovation. The findings also highlight the hurdles many businesses have in reaching similar success, highlighting the need for more research and strategic methods to promote and foster creative stock market startups. Prince Pipes and Fittings Ltd., listed on December 30, 2019, at 178, has performed well. Its listing day gain was -6.40%, as the stock finished at 166.6. The stock price has since risen to 645.5, yielding a 262.64% profit. However, equities like FSN E-Commerce Ventures Limited gained 96.15% on listing day but then fell 88.96%. The research paper also highlights equities like Rolex Rings Limited, which had an issue price of 900 and is now worth 1923.55, a 113.73% profit. Other firms like HP Adhesives Limited and Global Surfaces Limited have faced stock price changes but still managed to stay profitable, gaining 48.03% and 48.18%, respectively. Brookfield India Real Estate Trust and KFin Technologies Limited also saw stock prices drop, with listing day gains of -1.83% and -0.55%, respectively. Overall, the study paper shows the diversified performance of stock market stocks during the given period, demonstrating financial market complexity and uncertainty. It stresses the significance of thoughtful stock investment analysis and decision-making. The data covers July 2022–May 2023. The data comprises company name, listing date, list price, high price, low price, LTP, and trading volume. Stock prices and trading volumes varied widely for various corporations during the period. In particular, on May 11, 2023, Innokaiz India was listed at 148.2 and traded between 147.83 and 163.39 with 350,400 shares. With 105,469 shares traded, Mankind Pharma, launched on May 9, 2023, opened at 1300 and ranged from 1439 to 1355.95. Other firms, including Retina Paints, Sancode Technologies, Avalon Technologies, Exhicon

Events Media, and others, had stock price and trading volume changes. Some companies grew, while others struggled, according to the data. The study paper examines market fluctuations' causes and their effects on investors and businesses. The data shows that certain IPOs have made big gains, while others have struggled. Nexus Select, listed on May 19, 2023, has gained 7% since listing. Mankind Pharma, which debuted on May 9, 2023, has gained 50.57% since its IPO. Some companies have had negative returns. Since listing, Agni Steels, listed on February 14, 2023, lost 4.44%, and Elin Electronics, listed on December 30, 2022, lost 30.85%. The research paper examines the elements that affected these IPOs' stock market success and their effects on investors and corporations. The rise of unicorn businesses in India is a milestone in entrepreneurship. India has 108 unicorn businesses worth above $300 billion as of January 2023. These unicorns demonstrate their rapid growth and ability to alter India's economy and technology. Of the top 10 Indian unicorn firms, Byju's, Flipkart, Paytm, Oyo Rooms, Swiggy, Zomato, PolicyBazaar, Unacademy, and Freshworks have solved major problems for Indians. These startups have created new markets, disrupted industries, and improved millions of lives with creative solutions. Byju's and Unacademy have reinvented education, while Flipkart and Paytm have transformed shopping and digital payments. The vibrant Indian startup ecosystem has promoted innovation and growth, contributing to its success. India's rich talent and government backing for startups through legislative initiatives and financial programs have helped them succeed. India is becoming a global innovation hub, attracting investors and entrepreneurs. Beyond the top 10 unicorns, India has several potential startups in healthcare, agriculture, financial services, and logistics. These firms will boost job creation, technology, and socioeconomic growth in India. These firms could boost India's startup ranking by relentlessly seeking innovative solutions. Startup growth brings hurdles and uncertainties. As they scale, unicorns and promising firms must manage growth, profitability, and competition. The next generation of businesses will need government backing and venture capital investment to grow. In conclusion, India's unicorn startup boom shows its innovation and entrepreneurship prowess. India might lead the global startup ecosystem with these startups' success. With a strong startup culture, talent access, and supporting laws, India is prepared to continue its innovation path and contribute to the Indian economy and the world.

5.5 Success rate of Entrepreneur through Patent publication and granting

The study looks at the relationship between patent filings and innovation in India. It makes the hypothesis that there is no connection (null hypothesis H0) between these two variables. On the other hand, the alternate hypothesis (H1) suggests that there is a relationship between the quantity of patents filed by profitable business owners and their level of success. The study investigates innovation levels by evaluating patent filings together with other affecting variables including research and development spending, educational access, and governmental regulations. It does this by using patent data from the India Patent Office from 2019 to 2022. The results show a positive relationship between innovation and patent filings, suggesting that higher levels of innovation follow increases in patent filing activity. The modest strength of this link, however, indicates that innovation is driven by a variety of variables in addition to patent filings.

The research highlights the role that patents play in innovation, but it also highlights the necessity for an all-encompassing approach to innovation policy that goes beyond just encouraging patent applications. It highlights the rising tendency in both published and granted patents by interpreting a bar graph showing patent application patterns during the research period using mathematical analytic methods. The research does, however, concede that more information is required to ascertain the application success rate and provides a circumspect analysis of the graph's meaning.

In order to identify spatial patterns and variations in the data, the paper also explores potential mathematical analysis methods for interpreting a state-by-state colored map of India with labeled values. These methods include descriptive statistics, choropleth map analysis, and spatial autocorrelation analysis. In conclusion, it looks at a pie chart that shows how various businesses are distributed within Patents Granted in India. It offers descriptive statistical techniques to evaluate the information on the chart, but it also notes its limits and takes into account a more thorough interpretation.

Finally, using rigorous mathematical analytic approaches supporting the interpretation of pertinent data visualizations, the research provides insightful information on the relationship between patents and innovation in India.

This research delves into the relationship between innovation and patent filings in India, analyzing data from the India Patent Office from 2019 to 2022. It further explores the distribution of patents across both states and technological domains.

The number of patent applications and entrepreneur success have a very strong positive link, as seen by the correlation coefficient of 0.974. This indicates that there is a tendency for the number of patents filed to rise dramatically in tandem with the success rate of entrepreneurs.

The p-value of 1.95e-06, which is extremely low and much less than the usually accepted significance level of 0.05, indicates that the observed association is statistically significant.

The remarkably low p-value and the extremely high correlation coefficient lead to the acceptance of the alternative hypothesis (H1) and the rejection of the null hypothesis (H0).The alternative hypothesis that successful entrepreneurs are more likely to submit patents is supported by a statistically significant positive correlation between the number of patents filed and the success of entrepreneurs.

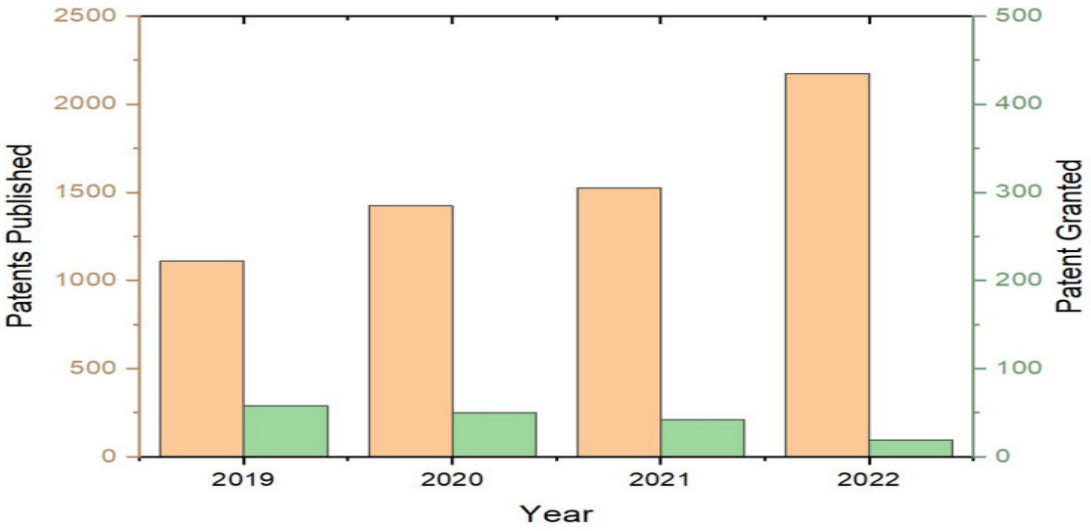

Fig. 5.21 : A Bar Graph illustrating the number of Patents Published and Granted in India between 2019 and 2022

Our investigation showed numerous noteworthy findings: Difference between Published and Granted Patents: The quantity of technical product patents published vs. granted is significant. This highlights the difficulty of patent application-to-grant. Indian patent publication and award trends are shown in the **Figure 5.21** bar graph

(2019–2022). The left y-axis shows patents published, the right y-axis shows patents issued, and the x-axis shows years. From 1109 in 2019 to 2175 in 2022, patent publication increased steadily. However, patents awarded rapidly declined, from 58 in 2019 to 19 in 2022. The difference between published and granted patents indicates a rising inequality in India's patent ecosystem. Several factors may cause this:

Increased Patent Applications: The increased quantity of patent applications strains the patent examination process, which may delay patent approvals. In recent years, India's patent examination procedure may have become more difficult and lengthier, delaying patent grant decisions.

Increased Rejections: India has strict patent approval requirements. The rising number of rejected applications may be lowering patent grants. Finally, the growing discrepancy between published and granted Indian patents is worrisome. Innovation and technological advancement need to address root causes. The government has begun to improve the patent assessment process, but more is needed to promote innovation and develop technology in India.

Company vs. Individual Patents: Company-held patents exceed individual patents, showing a bigger corporate presence in patents.

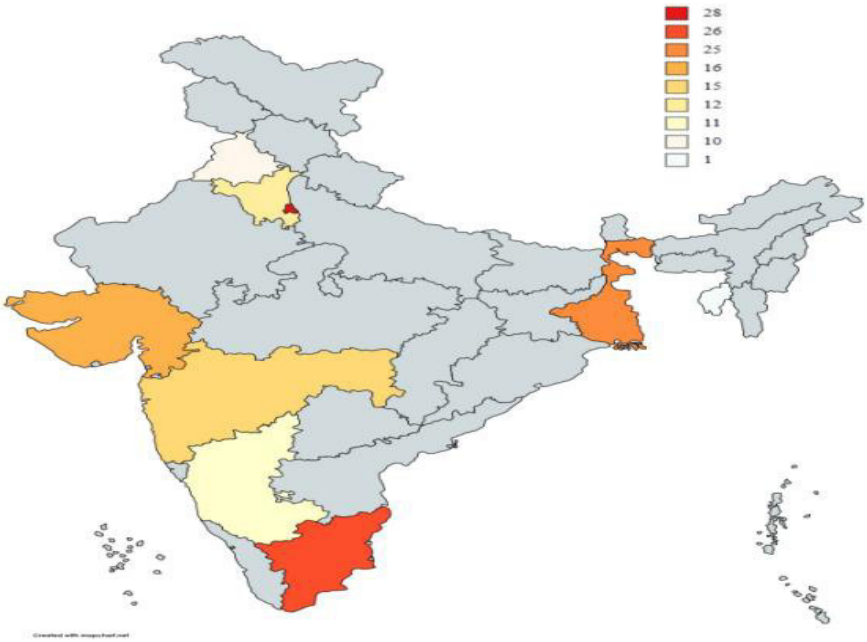

Fig. 5.22 : A Map Illustrating the Trends in Patents Granted in India Between 2019 and 2022

Statewise Trends: Map in **Figure 5.22 shows** Delhi, a manufacturing and sales hub, led patent filings. Tamil Nadu and West Bengal followed closely, while Tripura had the fewest patents.

Technical Domains: Mechanical, Computer, and Chemical Engineering dominated patent filings, demonstrating their importance in innovation.

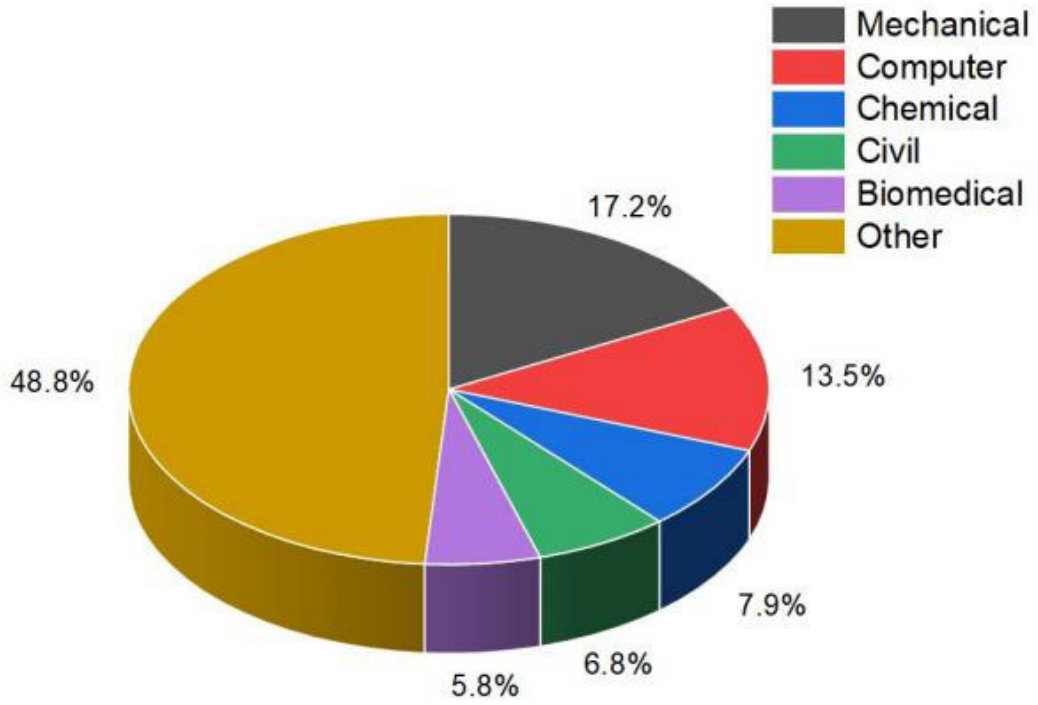

Fig. 5.23 : A Pie Chart Illustrating the Diversity of Innovation with Respect to Engineering Sectors for Patents Granted in India between 2019 and 2022

Figure 5.23 pie chart depicts India's 2019–2022 engineering patent proportion. The "Other" category, which covers electrical, electronics, and materials engineering, received 48.8% of patents. Mechanical engineering received 17.2% of patents, followed by computer (13.5%), chemical (7.9%), civil (6.8%), and biological (5.8%). Despite the diversity of engineering innovation in India, the "other" category accounts for roughly half of all engineering patents, highlighting the need for targeted support in certain engineering disciplines. This includes encouraging innovation in electrical and electronics engineering to boost India's economy.

Our investigation found a significant link between Indian patent filings and grants from 2019 to 2022. Innovation increased with patent filings. Variables other than

patent applications influence innovation, as indicated by the moderate correlation. This includes R&D funding, education quality, and favorable government policies. This research also acknowledged that patent numbers cannot capture India's diversified innovation scene. These findings highlight the complicated relationship between patent applications and innovation, underscoring the complexity of innovation ecosystems and the necessity for holistic policy.

5.6 Survey - Startup Owners

The purpose of this research is to investigate the dynamics of Mumbai's startup ecosystem in order to provide a thorough overview of the existing situation and pinpoint elements that are essential to enhancing Mumbai's standing as a major global startup center. The study uses a mixed methods approach, integrating quantitative and qualitative data to provide a thorough understanding of the variables affecting Mumbai startup success. Stratified random sampling was used to guarantee a representative sample of startups from a range of sectors and stages of growth. Secondary data was obtained from online platforms and questionnaires with company founders were used in the data collecting process.

The study placed a high priority on ethical research practices, ensuring participant anonymity, confidentiality, and informed permission. It also noted certain drawbacks and difficulties with the selected technique, including possible bias, validity issues, and reliability issues. The study begins with a null hypothesis (H0) that claims there is no link between successful entrepreneurs and the amount of crowdfunding they get, and an alternative hypothesis (H1) that contends there is.

The story of Mumbai's startups revolves on funding dynamics, where crowdsourcing, venture capital, and angel investment have become key players in the city's financing scene. Nevertheless, these financing sources' dynamics, patterns, and the difficulties entrepreneurs confront in obtaining them are intricate and varied.

In the highly competitive world of startups, intellectual property becomes strategically important, protecting ideas and acting as indicators of a company's potential and legitimacy. This study will examine the patent environment in Mumbai, looking at sectoral patterns, patent filing trends, and startup tactics for navigating the complexities of IP protection.

Mumbai's startups are shaped by success variables such as talent availability, networking, and mentoring. This study aims to clarify the significance of networking in Mumbai's competitive environment, the influence of mentoring programs, and the crucial relationship between talent availability and startup success.

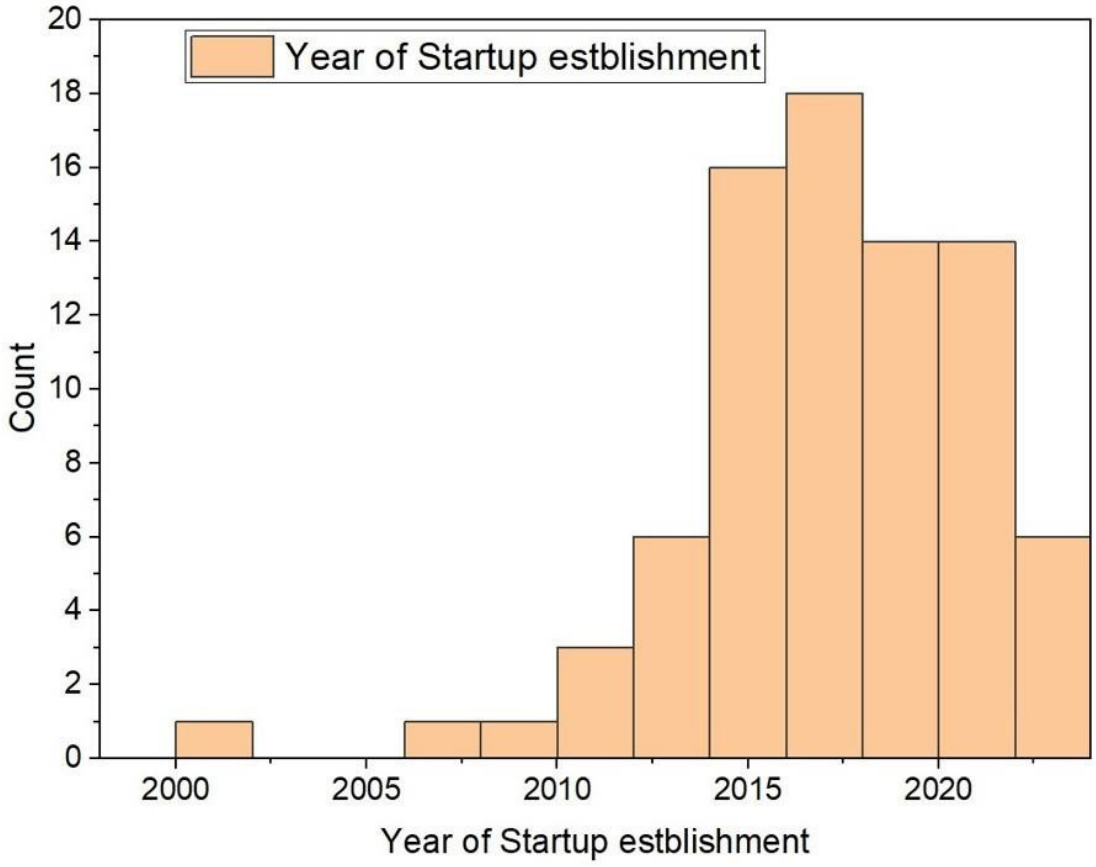

Fig. 5.24 : The bar graph indicates that the majority of startup owners who responded to the survey started their companies in 2010 or later. Out of the 80 companies surveyed, only three referred to themselves as startups before 2010.

Startup Duration: Having founded little more than ten years ago, most firms seem to be rather recent. The number of startup owners who answered the survey is shown in **Figure. 5.24** as a bar graph, classified by the year the firm was founded. Seventy-seven out of eighty respondents said their companies were formed in 2010 or later. Merely three participants said that their firms were founded prior to 2010.

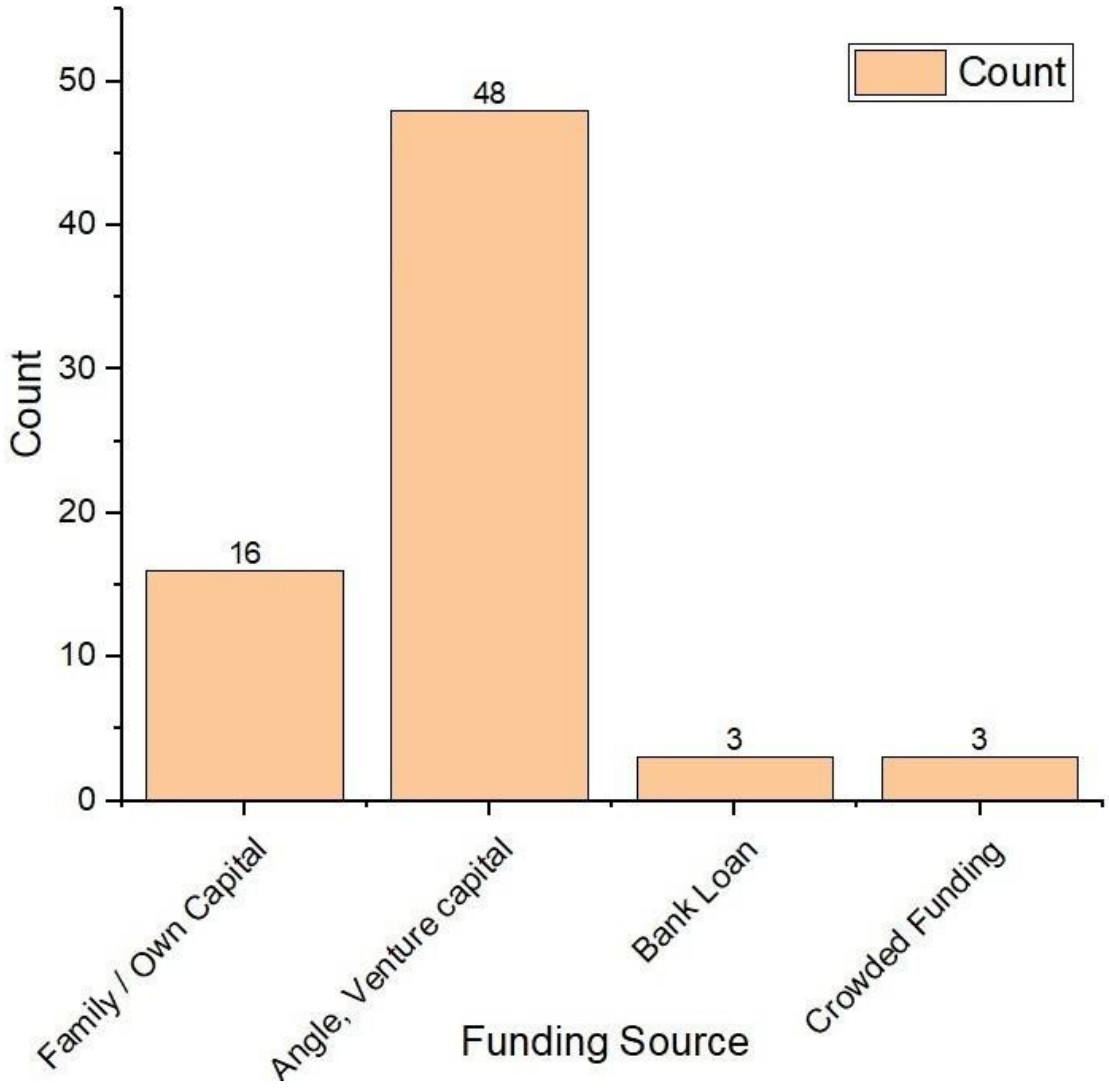

Fig. 5.25 : Startup Funding Sources Distribution Among Survey Respondents

Finance Sources: Family or personal money serves as the main source of finance for most firms. One notable exception is "Tech Cryptors Private Limited," which has drawn venture and angel funding with success.

The financing sources that startups use is shown in the bar graph in **Figure 5.25**, which was provided by company owners in a survey. Remarkably, 16% of the examined firms received investment from family and friends, making them the most common source of funding. This suggests a dependence on personal networks for early finance. Together, angel and venture capitalists account for 48% of startup financing, making them the second most common source. This indicates that professional investors play a big role in the startup ecosystem. With bank loans making up just 3% of total investment, they are a far smaller source than professional

investors and personal networks. This may be because early-stage companies have difficulty obtaining traditional loans. In a similar vein, crowdsourcing accounts for just 3% of financing sources, suggesting that companies do not generally use crowdfunding platforms even if they exist. It is essential to acknowledge that the information shown here is based on a single poll and could not accurately represent the whole startup ecosystem. Still, it provides insightful information about the varied financial environment that entrepreneurs face.

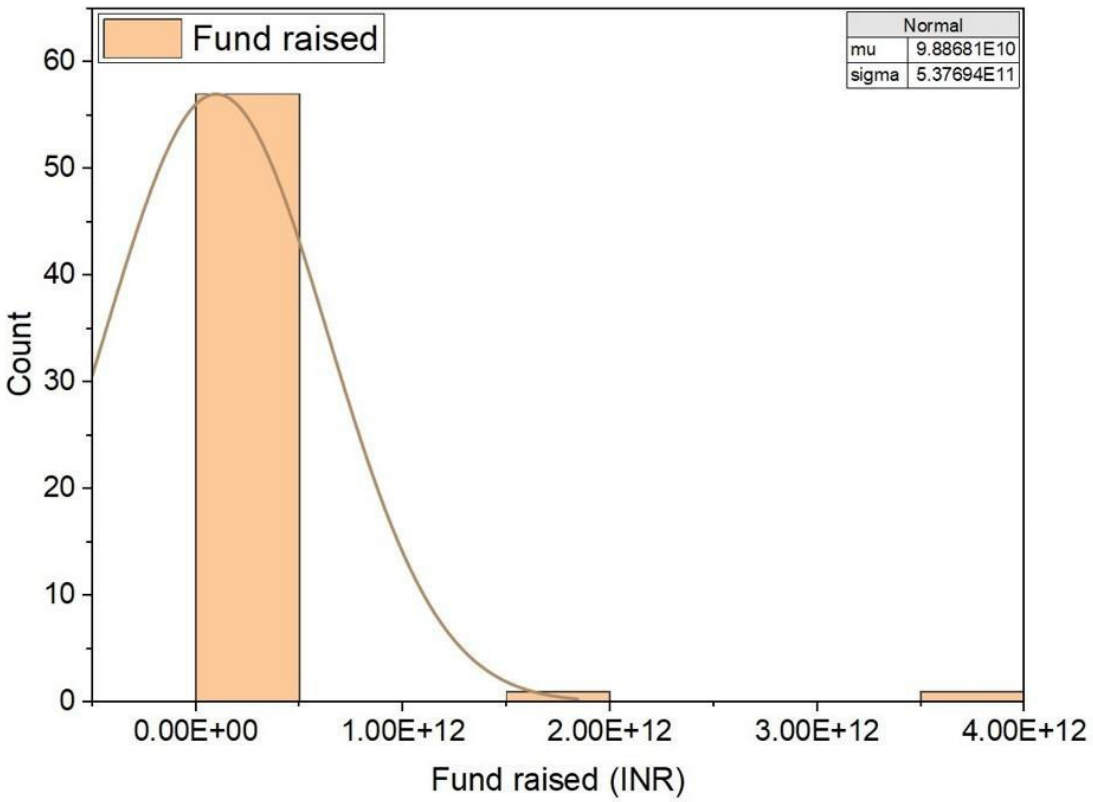

Fig. 5.26 : The bar graph and curve fitting indicate the amount of funds raised by startups. The majority of startups fall below 10 lakhs, while a few have reached up to 4000 billion.

Variability in financing Amounts: The startup cohort's varied financial environments are highlighted by the wide variety of financing sources, which include crowdsourcing, venture capital, and personal or family savings. The money raised by startups is shown in **Figure. 5.26** with a bar graph and curve fitting. While some businesses raise as much as Rs. 4000 billion, the majority are around Rs. 10 lakhs.

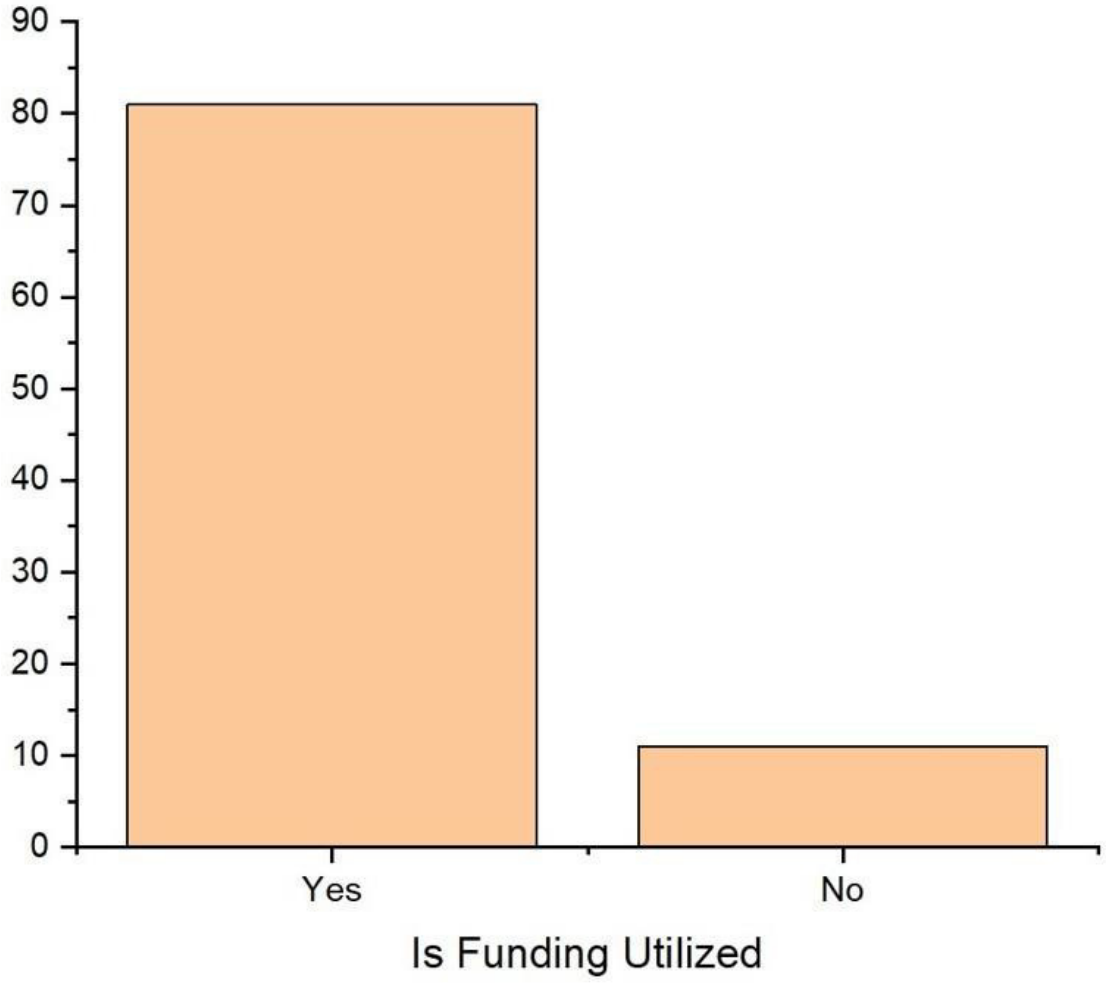

Fig. 5.27 : The bar graph illustrates the utilization of the budget

Funding Utilisation: It's interesting to note that a number of businesses haven't made the most of the capital they've raised. This highlights the need for more research to identify the underlying causes.

The "Teach Us App" and "E-Gefier Technology" are notable for their adept use of crowdsourcing. Though "Av Consultant" did try crowdfunding, the fact that the sum is reported as "000" raises the possibility of a mistake or a failed campaign.

The association between respondents' responses to the question "Is funding utilised?" is shown in **Figure 5.27** bar graph. There is a clear difference in the funding utilisation rates between the "Yes" and "No" respondents.

The percentage of responders that selected "Yes" was 83%. This suggests that a sizable majority of those who were able to get funds were able to devote a significant percentage of it to their projects.

Conversely, those who gave a "No" response used, on average, 12% of their funds. This discrepancy might be due to a number of things, such as not having received financing at first or using a modest amount for early expenses or research. Remarkably, only 5% of respondents did not answer this question.

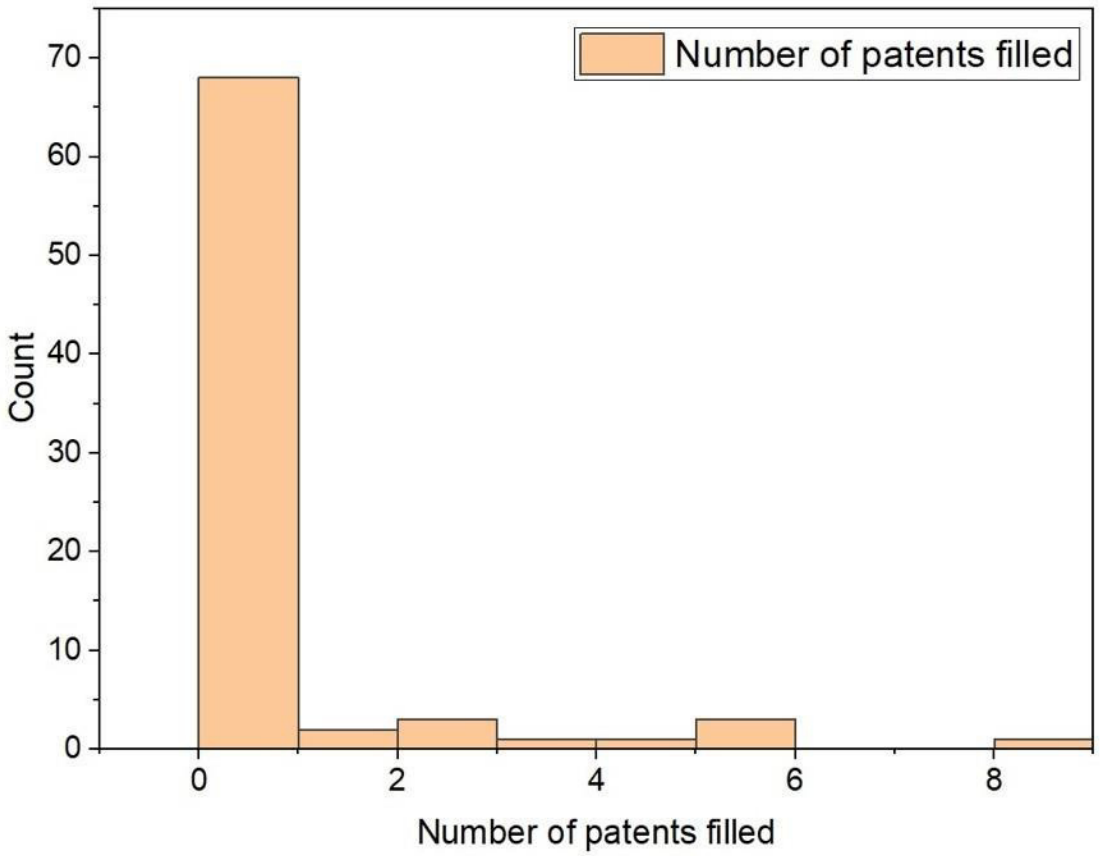

Fig. 5.28 : The bar graph explores the number of patents filed by startups. It was found that almost 67% of companies are not filing patents; conversely, there are a few that have filed up to 8 patents as well.

Patents: "Shri IPR consultancy" sets itself apart by applying for and obtaining over five patents, demonstrating a strong dedication to intellectual property. Conversely, it's possible that other firms have not explored filing patents or that the relevant information is not accessible.

The bar graph in **Figure 5.28** explores the number of patents that startups have filed. According to the research, about 67% of businesses do not register patents; just a small percentage—up to 8%—have done so. "Shri IPR consultancy" distinguishes out

due to its significant number of patent applications that have been approved, demonstrating its dedication to intellectual property.

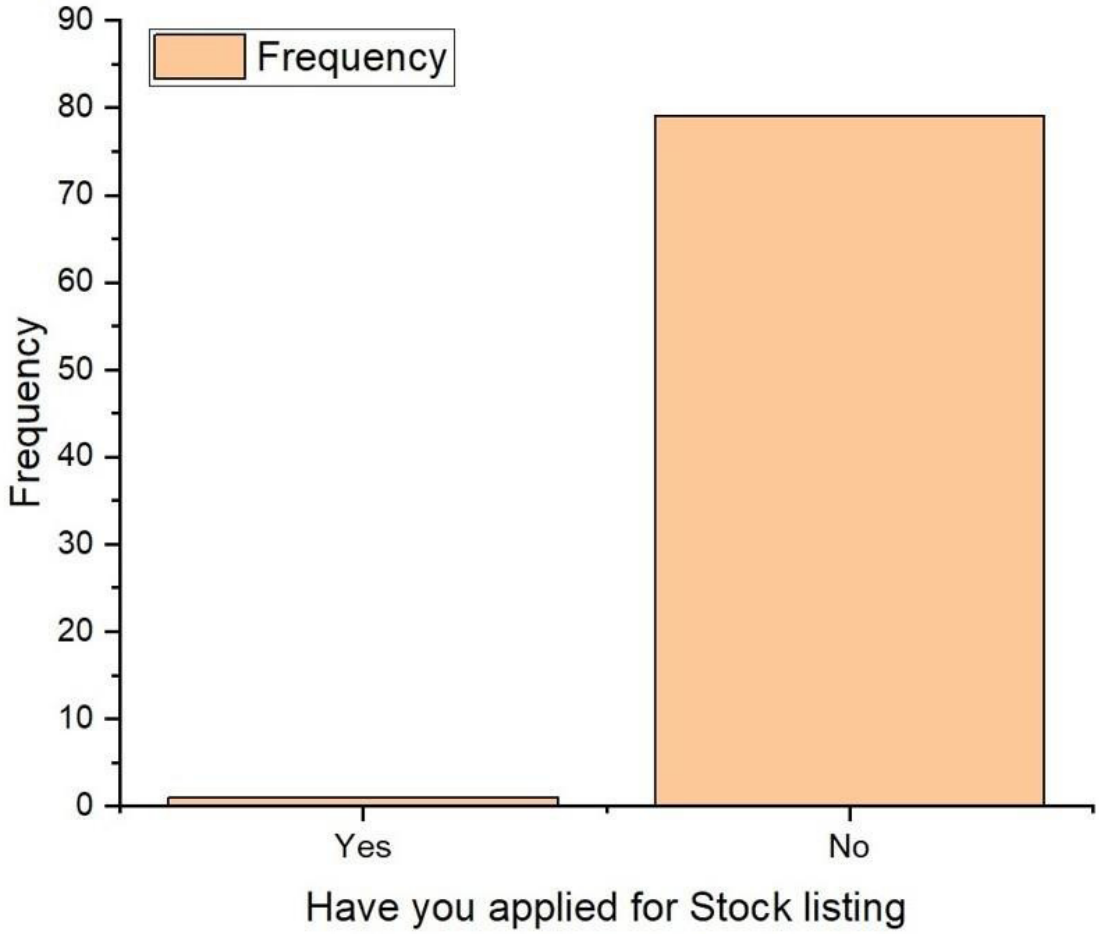

Fig. 5.29 : A bar graph illustrates companies that are eligible and have applied for stock market listing. It was observed that over 80% of startups do not meet the criteria for being listed on the stock market, and they also refrain from applying, preferring to retain full control of their companies.

Public Listing: It seems that there are currently no intentions to go public since none of the companies in the dataset have started the process of being publicly listed.

Date of IPO:

Since no company offers an IPO date, it is clear that none of them have gone through the process of being listed on a public exchange.

A bar graph showing the firms that are qualified and have applied for stock market listing is shown in **Figure 5.29**. According to the observation, more than 80% of companies don't meet the requirements to be listed on a public exchange.

Furthermore, some firms decide not applying in order to keep total control over their businesses.

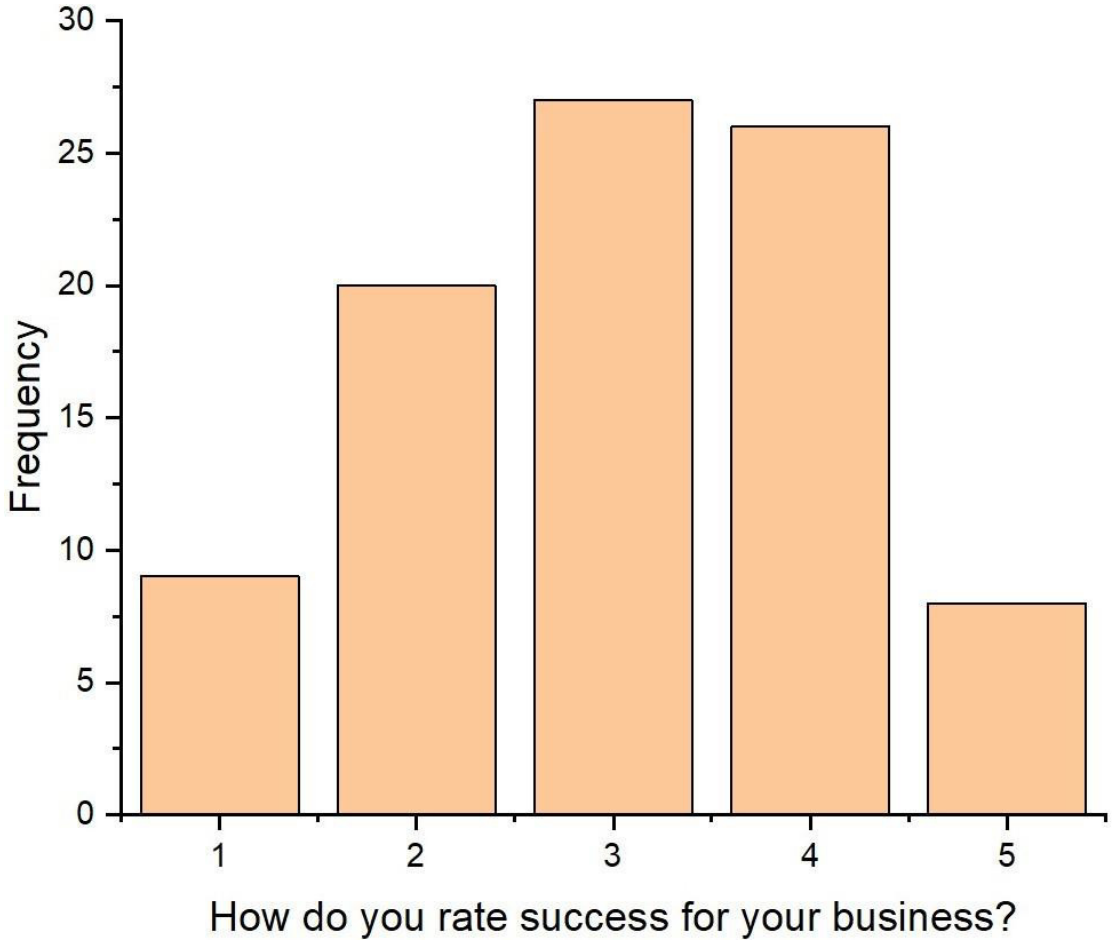

Fig. 5.30 : Bar graph Indicating success ratio as per the owner's opinion. Rating is between 1 to 5 and distribution is Gaussian. Few think they are successful and few thinks they are un-successful most of them rate themselves between 2 to 4

Success Definition: One noteworthy finding is that each business lacks clearly stated success criteria, which makes it difficult to determine success consistently across the board.

The industries:

The companies are diverse across a range of areas, including business supplies and equipment, technology and services, and others.

The information shown in the bar graph in **Figure 5.30** provides insight into how entrepreneurs see the success of their businesses. Founders were asked to rank their businesses from 1 (least successful) to 5 (most successful) on a scale in this survey. A

bell-shaped curve shows that although a lesser percentage of entrepreneurs think they have had notable success (rating 5), a comparable percentage think their initiatives have not gone well (rating 1). Most entrepreneurs rate their businesses between two and four, placing them in the centre.

There are complications with interpreting these ratings, however. The definition of "success" is arbitrary and varies widely throughout individuals. As a result of the lack of a common definition, measuring the performance of startups across various sectors becomes difficult. The research is further complicated by the fact that the data covers a wide range of businesses, including technology, services, and business supplies and equipment.

The study's main conclusions include the wide range of businesses represented in the startup scene, the diversity of founders' views of success, and the challenge of standardising success across industries.

Future-focused, significant queries come up. What standards do entrepreneurs use to evaluate their own achievements? What effects do elements unique to the sector have on these perceptions? Is it possible to compare subjective self-reported success with more objective performance metrics? Through further exploration of these questions, our research might arrive at a more sophisticated comprehension of the arbitrary yet crucial notion of success in the ever-changing startup landscape.

Fig. 5.31 : The word cloud is created from the responses of startup owners answering domain-related questions.

The startup domain's related keywords are graphically represented by the word cloud in **Figure 5.31** where the magnitude of each term indicates its relative popularity in the dataset. Some terms of note are: "financial services," "technology," "commerce," "education," "human resources," "internet," "learning," "fintech," "edtech," and "services."

The word cloud's collection includes details about the sectors and industries in which startups operate, as well as the technology they utilise and the services they provide. Among the noteworthy observations are:

1. Put Financial Services and Technology Front and Centre: The use of terminology such as "financial technology (fintech)" suggests that there are a lot of companies that are using technology and financial services to create innovative goods and services.
2. Diverse Range of businesses: Words like "internet," "human resources," "education," and "commerce" imply that the dataset include startups from a wide range of businesses.
3. Emphasis on Services: Terms like "human resources" and "services" suggest that a large number of companies in the dataset provide services to customers directly or to other enterprises.
4. Emerging Trends: The term "edtech" appears in the dataset, indicating that it may also include companies in rapidly growing industries like education technology.

Essentially, the word cloud provides an overview of the most common themes and patterns in the startup industry, which is indicative of the dataset's particular emphasis. It's important to understand that certain phrases may not be entirely indicative of the startup ecosystem as a whole; rather, their prevalence may reflect the specific focus of the dataset that was utilized.

CHAPTER – VI

CONCLUSION

6.1 Success rate of Innovation and Entrepreneurship

This research has delved into various aspects of innovation, entrepreneurship, and startup success, drawing insights from diverse datasets and methodologies. Crowdfunding emerges as a significant avenue for innovative entrepreneurs, providing new funding sources and fostering success in areas where traditional funding may be lacking. This research examination of Kickstarter and WeFunder.com projects highlight the importance of factors such as geographical location, project type, and backers in determining crowdfunding success. The findings reinforce the alternative hypothesis (H1) that crowdfunding positively impacts innovation success, supported by statistical analyses and correlation studies.

Furthermore, our exploration of consumer electronics purchasing patterns in Mumbai suburbs offers valuable insights into societal preferences and behaviors, potentially aiding startup entrepreneurs in product category selection. USA (74%) innovators had the most successful crowdfunding projects, followed by Hong Kong (65%) and China (49%). Backers backed hardware (39), 3D printing (19), and technological (16) innovations, according to our analysis. It suggests that project type and geography affect crowdfunding campaign success.

This research examines the recent consumer electronics product purchases in the Mumbai suburbs. Regarding consumer goods, Mumbai's most popular consumer electronics are mobile phones (42%). TV dominates large-screen products. Mobile accessories like earphones and headphones are popular. Mobile casings are the most popular passive electronics accessory. The lifespan of consumer electronics equipment varies, but the maximum was 10 years, with accessories lasting 3 years. Our prediction is that study will help start-up entrepreneurs choose a product category. The findings indicate support for the alternate hypothesis (H1), which posits a correlation between successful business owners and the current buying patterns of their novel items by customers. The study also underscores the importance of understanding societal purchasing power in shaping market strategies.

Additionally, our investigation into the relationship between innovation, research, and startup success, particularly within the Indian context, sheds light on the transformative impact of innovation-driven tactics on stock market performance. This

research showed Indian unicorn firms to understand their rapid growth and valuation. This study found a substantial link between innovation and startup success. Byju's, Flipkart, and Paytm are among India's top 10 unicorn firms that have disrupted sectors and created new markets with creative solutions. These firms demonstrate how technology-driven tactics may solve problems and meet consumer needs. Cutting-edge research and development have given them a competitive edge, leading to outstanding stock market values and growth. This study also found that the Indian startup environment is vital to innovation and research. Startups thrive in India due to its tremendous talent and helpful government policies. Innovative firms in India have grown due to venture capital backing and a wide range of resources. These firms have made India a global innovation hub, attracting investment from around the world. This research found startup difficulties on their way to success. Startups must manage growth, profitability, and market rivalry. Startups must mix innovation with market research to suit consumer requirements and preferences. This research has consequences beyond the Indian startup environment. The link between innovation, research, and startup success might help entrepreneurs and policymakers in other nations create innovation-driven economies. Promoting research and innovation can enhance economic growth, job creation, and technology. In conclusion, this research paper illuminates how innovation, research, and startup success affect the Indian stock market. Understanding the top unicorn startups has shown the transformative impact of innovation-driven tactics and the importance of research for startup success. Our studies help entrepreneurs, investors, and governments worldwide understand startup success factors. Innovation and research are essential to a vibrant entrepreneurial ecosystem as startups expand.

Moreover, our comprehensive analysis of India's patent landscape from 2019 to 2022 reveals the complex interplay between patent filings and innovation. While the significant disparity between published and granted patents underscores existing challenges in bridging this gap, the identification of key technological fields and regional patent filing trends offers valuable insights for policymakers and stakeholders seeking to enhance India's innovation ecosystem.

This gap may be due to an increase in patent applications, inspection inefficiencies, and application denials. Addressing these issues is crucial for India to innovate and

grow technologically. Our analysis also showed that companies have a lot of patents, demonstrating their importance in India's patent market. The state-by-state investigation found that West Bengal, Tamil Nadu, and Delhi filed the most patents. Mechanical, computer, and chemical engineering were the most popular technological fields, reflecting their importance in innovation. Engineering patents' large "other" category shows the need for technical support to boost economic growth. Our research also found a positive association between patent applications and patent wins in India, demonstrating that innovation increases patent application activity. This association is only moderately strong, demonstrating that many factors affect innovation other than patent filings. This research data reinforced the alternate hypothesis (H1) that there is an association or correlation between a successful entrepreneur and patents filed. Research and development funding, educational standards, and government laws are examples. Our research shows the complexity of innovation ecosystems and the necessity for careful policymaking. India's patent system has improved, but addressing the gap between patent applications and grants and encouraging invention in more technical domains would boost creativity and economic progress. Policymakers, scholars, and other stakeholders interested in understanding and improving India's innovation landscape will find this page useful.

The analysis of startup characteristics and experiences gleaned from this survey-based study provides valuable insights into the intricacies of the entrepreneurial landscape. Notably, the majority of startups surveyed appear to be relatively new, established within the past decade, underscoring the dynamic nature of the ecosystem. Family and personal capital emerge as the primary funding sources, with angel and venture capital also playing significant roles, reflecting the reliance on personal networks and engagement from professional investors in the startup funding landscape. However, it's noteworthy that bank loans and crowdfunding represent relatively minor funding sources, indicating potential challenges in accessing conventional loans and limited adoption of crowdfunding platforms among startups. This study aids the alternate hypothesis (H1) that there is an association or correlation between the successful entrepreneur and crowdfunding received.

The wide range of funding sources underscores the diverse financial landscapes within the startup cohort, while the observation of incomplete utilization of funding

highlights the need for further investigation into underlying reasons and potential implications for startup sustainability. Crowdfunding emerges as a viable option for some startups, with notable successes observed, although challenges persist, as evidenced by unsuccessful attempts.

Patent activity varies among startups, with a minority actively pursuing patents, indicating differing strategies and priorities regarding intellectual property protection. Similarly, the absence of startups initiating public listing suggests a prevailing preference for maintaining control rather than seeking external capital through the stock market.

The subjective nature of success poses challenges for standardized assessment across diverse industries, with founders' perceptions varying widely. This diversity in success definitions, coupled with the broad spectrum of sectors represented within the startup landscape, complicates comparative analyses. Future research endeavors should aim to unravel the criteria employed by founders to assess success, the influence of industry-specific factors on these perceptions, and the effectiveness of comparing subjective self-reported success with objective performance metrics.

6.2 The Social effects of Innovation and Entrepreneurship

This comprehensive study offers insightful information on a range of topics related to innovation-driven entrepreneurship and its social effects, especially in the Indian setting.

6.2.1 Financing Innovation Through Crowdfunding:

The study examines the workings of crowdfunding websites such as Kickstarter and Wefunder, identifying variables that affect the ability of creative concepts to obtain capital from a wider range of social sources. This emphasizes crowdsourcing as a substitute funding source that gives entrepreneurs more equitable access to finance and permits a greater variety of inventions to be released on the market.

6.2.2 Aligning Innovations with Customer Needs:

The research provides entrepreneurs with help on choosing product categories that resonate with social tastes by looking into Mumbai consumer purchasing trends for electronic items and accessories. The probability of new offers succeeding in the

market and providing value that satisfies actual customer needs is increased by this alignment.

6.2.3 Encouraging Economic Growth Through Successful Startups:

The study emphasizes how crucial successful startups are to the creation of jobs and the health of the economy. Through the identification of elements that contribute to startup success, like funding sources, IP tactics, and founder characteristics the research helps shape laws and programs that can encourage an environment that is favorable to entrepreneurship and innovation-driven economic growth.

6.2.4 Educating Patent System Reform for Innovation:

By means of an extensive examination of India's patent terrain, the study reveals prominent technological fields, regional centers of innovation, and the discrepancy between patent applications and approvals. Providing Transformative Innovation in Action: These insights can help policymakers reform the patent system, address inefficiencies, and foster innovation across diverse fields, thereby enhancing the nation's technological prowess.

6.2.5 Showcasing Transformative Innovation in Action:

The stock market performance analysis of Indian unicorn startups demonstrates the transformative impact of innovation-driven, technology-enabled strategies. These success examples show how creative thinking can upend established businesses, open up new markets, solve societal issues, and satisfy changing consumer needs all of which contribute to economic advancement.

6.2.6 Creating Environments That Encourage Entrepreneurship:

The startup founder survey provides a detailed insight of the dynamics of finance, the entrepreneurial path, and the subjective definitions of success. These realizations can guide the creation of ecosystems that encourage entrepreneurship and innovation, creating an atmosphere that allows for the expansion and prosperity of creative endeavors.

All things considered, this research has an impact on society by educating legislators, investors, business owners, and the general public on the workings, obstacles, and potential of innovation-driven entrepreneurship. The study can stimulate attempts to leverage the transformational power of innovation for beneficial societal effect,

technological advancement, and sustainable economic development, both inside and outside of the Indian context, by offering a comprehensive viewpoint.

6.3 Overall Conclusion

This study examined the relationships between innovation success and a number of variables, such as patents, consumer trends, entrepreneur traits, and crowdsourcing. Initially, this study put up null hypotheses that suggested there was no connection between these variables and the success of innovations. On the other hand, the study results uniformly validated the alternative theories, indicating favourable correlations all around. The research discovered that the success of crowdfunding was impacted by supporter demographics, project type, and region, which in turn affected innovation results. These variables were also associated with successful entrepreneurs, indicating a connection between the traits of successful entrepreneurs and the attainment of innovation. The idea that increasing patent activity is driven by innovation was validated by the positive correlation seen in India between patent applications and patent victories. Gaining knowledge into Mumbai's consumer electronics buying habits helped businesses choose their product categories more wisely, which might boost the success of their innovations. The study validates the significance of patents, consumer trends, successful entrepreneurship, crowdsourcing, and innovation results in the entrepreneurial domain. In all cases, the study results confirmed the alternative hypothesis. Increased innovation success has been linked to a number of factors, including recognizing consumer patterns, filing patents, crowdfunding, and successful entrepreneurs.

In conclusion, this study contributes valuable insights into the multifaceted dynamics of startups, shedding light on funding trends, patent strategies, public listing aspirations, and subjective definitions of success. By addressing key questions and delving deeper into the complexities of startup experiences, this research can foster a more nuanced understanding of the entrepreneurial journey and inform strategies for promoting innovation and sustainable growth within the startup ecosystem.

REFERENCES

7.1 References

1. Helm, R., & Conrad, D. (2014). The impact of customer-specific and market-related variables on the preference for highly innovative products. Review of Managerial Science, 8(2), 233-249. https://doi.org/10.1007/s11846-014-0123-y.
2. Van den Bosch, S., & Taanman, M. (2006). How innovation impacts society. *Patterns and mechanisms through which innovations contribute to transitions. Pages*.
3. Hostettler, S. (2018). From innovation to social impact. In S. Hostettler (Ed.), The Sustainability of Technology and Innovation (pp. 1-16). Springer. https://doi.org/10.1007/978-3-319-91068-0_1
4. Goos, M., Arntz, M., Zierahn, U., Gregory, T., Gomez, S. C., Vazquez, I. G., & Jonkers, K. (2019). The impact of technological innovation on the future of work (No. 2019/03). JRC Working Papers Series on Labour, Education and Technology.
5. Ahlstrom, D. (2010). Innovation and growth: How business contributes to society. Academy of management perspectives, 24(3), 11-24.
6. Shiller, R. J. (2013). Capitalism and financial innovation. Financial Analysts Journal, 69(1), 21-25.
7. Phillips, W., Lee, H., Ghobadian, A., O'regan, N., & James, P. (2015). Social innovation and social entrepreneurship: A systematic review. Group & Organization Management, 40(3), 428-461.
8. Elliott, G. (2021). Character and impact of social innovation in higher education. In Essays on Impact: Theory and Practice in Higher Education (pp. 1-20). Palgrave Macmillan. https://doi.org/10.1007/978-3-030-83864-5_7
9. Abella, A., Ortiz-de-Urbina-Criado, M., & De-Pablos-Heredero, C. (2017). A model for the analysis of data-driven innovation and value generation in smart cities' ecosystems. Cities, 72, 307-317. https://doi.org/10.1016/j.cities.2017.08.016
10. Zahra, S. A., & Wright, M. (2016). Understanding the social role of entrepreneurship. Journal of management studies, 53(4), 610-629.

11. Gordon, D., Sherif, D., Mauricio, R., & Qasem, A. (2021). The role of social impact innovation and entrepreneurship in global health. In Innovations in Global Health (pp. 121-140). Springer. https://doi.org/10.1007/978-3-030-83864-5_7https://link.springer.com/chapter/10.1007/978-3-030-83864-5_7#citeas

12. Rawhouser, H., Cummings, M., & Newbert, S. L. (2019). Social impact measurement: Current approaches and future directions for social entrepreneurship research. *Entrepreneurship Theory and Practice*, *43*(1), 82-115.

13. El Ebrashi, R. (2013). Social entrepreneurship theory and sustainable social impact. *Social Responsibility Journal, 9*(2), 188-209. https://doi.org/10.1108/SRJ-07-2011-0013

14. Mair, J., & Marti, I. (2007). Entrepreneurship for social impact: Encouraging market access in rural Bangladesh. *Corporate Governance, 7*(4), 493-501. https://doi.org/10.1108/14720700710820579

15. Jiao, H. (2011). A conceptual model for social entrepreneurship directed toward social impact on society. *Social Enterprise Journal, 7*(2), 130-149. https://doi.org/10.1108/17508611111156600

16. Neumann, T. (2021). The impact of entrepreneurship on economic, social, and environmental welfare and its determinants: A systematic review. Management Review Quarterly, 71, 553-584. https://doi.org/10.1007/s11301-020-00193-7

17. Portales, L. (2019). Social innovation and social entrepreneurship. Fundamentals, Concepts, and Tools. Cham, Switzerland: Palgrave Macmillan.

18. García-Jurado, A., Pérez-Barea, J. J., & Nova, R. J. (2021). A new approach to social entrepreneurship: A systematic review and meta-analysis. Sustainability, 13(5), 2754. https://doi.org/10.3390/su13052754

19. Wong, P. K., Ho, Y. P., & Autio, E. (2005). Entrepreneurship, innovation, and economic growth: Evidence from GEM data. Small Business Economics, 24(3), 335-350. https://doi.org/10.1007/s11187-005-2000-1

20. Fritsch, M., & Mueller, P. (2007). The effect of new business formation on regional development over time: The case of Germany. Small Business Economics, 29(1), 15-29. https://doi.org/10.1007/s11187-007-9067-9

21. Fernandes, C. I., Veiga, P. M. M., Ferreira, J. J., Teixeira, S. J., & Rammal, H. G. (2020). The impact of innovation and entrepreneurship on competitiveness. In Competitive Advantage Strategies in the Global Economy (pp. 71-90). Springer. https://doi.org/10.1007/978-3-030-51995-7_5

22. Bacq, S., & Eddleston, K. A. (2016). A resource-based view of social entrepreneurship: How stewardship culture benefits scale of social impact. Journal of Business Ethics, 133(4), 619-634. https://doi.org/10.1007/s10551-016-3317-1

23. Vicens, L., & Grullón, S. (2011). Innovation and entrepreneurship: A model based on entrepreneur development. Publications; publications.iadb.org., https://publications.iadb.org/publications/english/document/Innovation-and-Entrepreneurship-A-Model-Based-on-Entrepreneur-Development.pdf

24. Crudu, R. (2019). The role of innovative entrepreneurship in the economic development of EU member countries. Journal of Entrepreneurship, Management and Innovation, 15(1), 35-60. https://jemi.edu.pl/vol-15-issue-1-2019/the-role-of-innovative-entrepreneurship-in-the-economic-development-of-eu-member-countries

25. Sopjani, X. (2019). Challenges and opportunities for startup innovation and entrepreneurship as tools towards a knowledge-based economy: The case of Kosovo. RIT Scholar Works. Retrieved from https://scholarworks.rit.edu/theses/10215/

26. Naudé, W., & Szirmai, A. (2013). Technological innovation, entrepreneurship, and development. The European Business Review. Retrieved from https://www.europeanbusinessreview.com/technological-innovation-entrepreneurship-and-development/

27. Parwez, S. (2017). Community-based entrepreneurship: evidences from a retail case study. Journal of Innovation and Entrepreneurship, 6(1). https://doi.org/10.1186/s13731-017-0074-z

28. Juliana, N. O., Hui, H. J., Clement, M., Solomon, E. N., & Elvis, O. K. (2021). The impact of creativity and innovation on entrepreneurship development: evidence from Nigeria. *Open Journal of Business and Management*, *9*(4), 1743-1770.

29. Medeiros, V., Marques, C., Galvão, A. R., & Braga, V. (2020). Innovation and entrepreneurship as drivers of economic development: Differences in European economies based on quadruple helix model. *Competitiveness Review: An International Business Journal*.

30. Sasikumar, P., & Vijayakumar, M. (n.d.). Digital Consumers' Shopping Trends In India: A Review | Semantic Scholar. Digital Consumers' Shopping Trends in India: A Review | Semantic Scholar. https://www.semanticscholar.org/paper/Digital-Consumers%27-Shopping-Trends-in-India%3A-A-Sasikumar-Vijayakumar/77a41109533049e 066079 a503195cb37d4003660.

31. Vijayalaxmi, S. (2019). Consumer buying behaviour for electronic products: A study of select items. Semantic Scholar. Retrieved from https://www.semanticscholar.org/paper/Consumer-Buying-Behaviour-for-Electronic-Products-A-Vijayalaxmi/dc82ed598f47e76c023e 0959a88ce8d0c391f1ea

32. Jain, N., Sanghi, K., & Jain, A. (2020). Ten trends that are altering consumer behavior in India. BCG. Retrieved from https://www.bcg.com/en-in/publications/2019/ten-trends-altering-consumer-behavior-india

33. Deshpande, M., Rokade, Y., & Darda, P. (2020). The impact of advertisement on consumer buying behavior in the electronic industry. Semantic Scholar. Retrieved from https://www.semanticscholar.org/paper/The-Impact-of-Advertisement-on-Consumer-Buying-in-Deshpande-Rokade/5a2b22ca9551a9b6e84ce8b4916e58e48fdc5fe3

34. Sasikumar, P., & Vijayakumar, M. (n.d.). Digital Consumers' Shopping Trends In India: A Review | Semantic Scholar. Digital Consumers' Shopping Trends in India: A Review | Semantic Scholar. https://www.semanticscholar.org/paper/Digital-Consumers%27-Shopping-

Trends-in India%3A-A-Sasikumar-Vijayakumar/77a41109533049e066079a503195cb37d4003660.

35. Page, T. (2009). Feature creep and usability in consumer electronic product design. International Journal Of Product Development, 8(3), 228-248. https://doi.org/10.1504/IJPD.2009.027474
36. Mollick, E. (2014). The dynamics of crowdfunding: An exploratory study. Journal of business venturing, 29(1), 1-16.
37. Venslavienė, S., Stankevičienė, J., & Vaiciukevičiūtė, A. (2021). Assessment of Successful Drivers of Crowdfunding Projects Based on Visual Analogue Scale Matrix for Criteria Weighting Method. Mathematics, 9(14), 1590.
38. Bakker-Rakowska, J. (2014). Crowdfunding for innovation: A qualitative research on resources, capabilities and stakes (Master's thesis, University of Twente).
39. Borrero-Domínguez, C., Cordón-Lagares, E., & Hernández-Garrido, R. (2020). Analysis of success factors in crowdfunding projects based on rewards: A way to obtain financing for socially committed projects. Heliyon, 6(4), e03744.
40. Böckel, A., Hörisch, J., & Tenner, I. (2021). A systematic literature review of crowdfunding and sustainability: highlighting what really matters. Management review quarterly, 71(2), 433-453.
41. Haji Gholam Saryazdi, A., Rajabzadeh Ghatari, A., & Mashayekhi, A. (2019). Systematic Literature Review of Crowdfunding. Roshd-e-Fanavari, 1(57), 44.
42. Oba, B., Atakan, S., & Kirezli, O. (2018). Value creation in crowdfunding projects-evidence from an emerging economy. Journal of Innovation Economics Management, 26(2), 37-62.
43. Hervé, F., & Schwienbacher, A. (2018). Crowdfunding and innovation. Journal of economic surveys, 32(5), 1514-1530.
44. Agrawal, A., Catalini, C., & Goldfarb, A. (2013). Crowdfunding: Social frictions in the flat world? NBER Working Paper No. 19133. National Bureau of Economic Research.
45. Mollick, E. (2014). The dynamics of crowdfunding: An exploratory study. Journal of Business Venturing, 29(1), 1-16. [CrossRef]

46. Jenik, I., Lyman, T., & Nava, A. (2017). Crowdfunding and financial inclusion. CGAP: Washington, DC, USA.

47. Sangvikar, B. V., & Katole, H. J. (2012). A study of consumer purchase behavior in organized retail outlets. Journal of Business and Retail Management Research, 7(1), 39-47.

48. Sasikumar, P., & Vijayakumar, M. (n.d.). Digital Consumers' Shopping Trends In India: A Review | Semantic Scholar. https://www.semanticscholar.org/paper/Digital-Consumers%27-Shopping-Trends-in-India%3A-A-Sasikumar-Vijayakumar/77a41109533049e066079a503195cb37d4003660

49. Vijayalaxmi, S. (2019). Consumer buying behaviour for electronic products: A study of select items. Semantic Scholar. Retrieved from https://www.semanticscholar.org/paper/Consumer-Buying-Behaviour-for-Electronic-Products-A-ijayalaxmi/dc82ed598f47e76c023e0959a88ce8d0c391f1ea

50. Jain, N., Sanghi, K., & Jain, A. (2020). Ten trends that are altering consumer behavior in India. Retrieved from https://www.bcg.com/en-in/publications/2019/ten-trends-altering-consumer-behavior-india

51. Deshpande, M., Rokade, Y., & Darda, P. (2020). The impact of advertisement on consumer buying behavior in the electronic industry. Retrieved January 1, 2020, from https://www.sem anticscholar.org/paper/The-Impact-of-Advertisement-on-Consumer-Buying-in-Deshpande-Rokade/5a2b22ca9551a9b6e84ce8b4916e58e48fdc5fe3.

52. Page, T. (2009). Feature creep and usability in consumer electronic product design. International Journal of Product Development, 10(3-4), 128-143. https://doi.org/10.1504/IJPD.2009.027474

53. Pellegrini, M. M., Ciampi, F., Marzi, G., & Orlando, B. (2020). The relationship between knowledge management and leadership: Mapping the field and providing future research avenues. *Journal of Knowledge Management, 24*(6), 1445-1492. https://doi.org/10.1108/JKM-08-2019-0386

54. Anttiroiko, A.-V. (2016). City-as-a-platform: The rise of participatory innovation platforms in Finnish cities. Sustainability, 8(9), 922. https://doi.org/10.3390/su8090922

55. Mowery, D. C., & Rosenberg, N. (1999). Paths of innovation: Technological change in 20th-century America. Cambridge University Press.

56. Rizvanović, B., Zutshi, A., Grilo, A., & Nodehi, T. (2023). Linking the potentials of extended digital marketing impact and start-up growth: Developing a macro-dynamic framework of start-up growth drivers supported by digital marketing. Technological Forecasting and Social Change, 186, 122128. https://doi.org/10.1016/j.techfore.2022.122128

57. Wójcik, D. (2017). Innovation and stock markets: International evidence on manufacturing and services. In Handbook on the Geographies of Money and Finance (pp. 197-222). Edward Elgar Publishing.

58. Zhang, J., & Duan, Y. (2010). The impact of different types of market orientation on product innovation performance: Evidence from Chinese manufacturers. Management Decision, 48(6), 849-867. https://doi.org/10.1108/00251741011053441

59. Carmel, E., & Richman, J. (2013). Building international social capital at the Startup Chile accelerator. SSRN. https://ssrn.com/abstract=2326003

60. Wolf, G. (2017). Entrepreneurial university: A case study at Stony Brook University. *Journal of Management Development, 36*(2), 286-294. https://doi.org/10.1108/JMD-09-2015-0127

61. Putra, T. P., Anindita, R., & Suhartini, S. (2018). Critical success factors of Java Preanger coffee chain in Bandung Regency. *Agricultural Socio-Economics Journal, 18*(1), 42-47.

62. Bae, B., & Lee, C. C. (2020). Corporate bankruptcy prediction model for internet startup companies. SSRN. Retrieved from https://ssrn.com/abstract=3529795

63. Zakic, N., Popovic, J., & Miskic, M. (2020). The linkages between investments in innovation and business performance in Serbia. *Management: Journal of Sustainable Business and Management Solutions in Emerging Economies, 25*(3), 23-35.

64. Vijayakumar, S., & Nethravathi, P. S. (2021). The mega conglomerate of India-Success story of growth of Reliance Industries: A case study. *International Journal of Case Studies in Business, IT, and Education (IJCSBE), 5*(1), 143-154.

65. Lleo, S., Zhitlukhin, M., & Ziemba, W. T. (2022). Using a mean-changing stochastic processes exit-entry model for stock market long-short prediction. *The Journal of Portfolio Management, 49*(1), 172-197. https://doi.org/10.3905/jpm.2021.1.228

66. Sabatinus, S., & Utami, C. W. (2021). Innovation strategy analysis through a Blue Ocean Strategy for Wear It. Retrieved from http://www.wearitinnovations.com/strategy-analysis.pdf

67. Singh, A. K., Jain, S. K., & Burhan, M. (2017). Patents as proxy for measuring innovations: A case of changing patent filing behavior in Indian public funded research organizations. *Technological Forecasting and Social Change, 123*, 181-190. https://doi.org/10.1016/j.techfore.2017.07.020

68. Chatterjee, D., & Sahasranamam, S. (2014). Trends in innovation management research in India-an analysis of publications for the period 1991-2013. *Current Science, 107*(9), 1800-1805.

69. Haley, G. T., & Haley, U. C. (2012). The effects of patent-law changes on innovation: The case of India's pharmaceutical industry. *Technological Forecasting and Social Change, 79*(4), 607-619. https://doi.org/10.1016/j.techfore.2011.05.012

70. Kademani, B. S., Kumar, V., Kumar, A., & others. (2005). Publication productivity of the Bio-organic Division at Bhabha Atomic Research Centre: A scientometric study. *Annals of Library and Information Studies, 52*(4), 135-145.

71. Krishnan, R. T., & Prashantham, S. (2019). Innovation in and from India: The who, where, what, and when. *Global Strategy Journal, 9*(3), 357-377. https://doi.org/10.1002/gsj.1335

72. Saraswat, S. (2014). Patent analysis on bioremediation of environmental pollutants. *Journal of Bioremediation & Degradation, 5*(251), 2. https://doi.org/10.4172/2155-6199.1000251

73. Singh, V., & Chakraborty, K. (2019). Transfer of innovations. *Current Science, 117*(6), 1032-1044.

74. Srivastava, S., & Adholeya, A. (2019). Intellectual property: Data mapping in the area of biofertilizers. In *Intellectual Property Issues in Microbiology* (pp. 193-221). Springer.

75. Trappey, A. J. C., Trappey, C. V., Wu, C. Y., & others. (2012). A patent quality analysis for innovative technology and product development. *Advanced Engineering Informatics, 26*(1), 26-34. https://doi.org/10.1016/j.aei.2011.08.005

76. David, D., Gopalan, S., & Ramachandran, S. (2021). The startup environment and funding activity in India. Investment in startups and small business financing, 1-23.

77. Garg, S., & Kumar, A. (2021). Investment patterns of venture capitalists in Mumbai: Focus on late-stage funding and sectoral trends. Journal of Entrepreneurship Management, 9(2), 4-12.

78. Sharma, S., & Kapoor, R. (2022). Challenges faced by startups in securing VC funding in Mumbai: An exploratory study. International Journal of Entrepreneurship and Innovation, 23(3), 15-28.

79. Gupta, A., & Rao, S. (2023). Motivations and investment preferences of angel investors in Mumbai: Insights from a network perspective. The Journal of Indian Business Research, 66(1), 101-118.

80. Bhalla, M., & Patel, J. (2022). The impact of angel investor networks on the growth and success of startups in Mumbai. Journal of Small Business and Entrepreneurship, 35(4), 567-590.

81. Patel, K., & Mehta, D. (2021). Effectiveness of crowdfunding platforms for Mumbai startups: Promoting innovation and democratizing access to capital. International Journal of Innovation Management, 25(8), 1743-1765.

82. Mukherjee, S., & Das, A. (2022). Growth of patent filings by Mumbai-based startups: Insights into technological innovation trends. Journal of Intellectual Property Law, 18(2), 123-140.

83. Jain, P., & Singh, R. (2023). Sectoral distribution of patent filings by Mumbai startups: A focus on biotechnology and information technology. International Journal of Technology Management, 45(1), 34-52.

84. Patel, K., & Sharma, S. (2021). Patent strategies of successful startups in Mumbai: Balancing offensive and defensive approaches. Journal of Entrepreneurship and Innovation Management, 20(4), 331-354.

85. Gupta, A., & Mehta, D. (2023). The impact of mentorship programs on startup success in Mumbai: A study of guidance, network access, and resource acquisition. Journal of Business Venturing, 40(2), 101258.

86. Bhalla, M., & Jain, P. (2021). The role of networking in the success of Mumbai startups: An analysis of industry events, co-working spaces, and online platforms. Journal of Small Business Strategy, 32(3), 1-12.

87. Mukherjee, S., & Das, A. (2022). Developing startup talent in Mumbai: The role of educational institutions and government initiatives. Journal of Technology Transfer, 47(3), 871-892.

88. Mathew, G. E. (2010). India's innovation blueprint: How the largest democracy is becoming an innovation super power. Elsevier. Mathew, G. E. (2010). India's innovation blueprint: How the largest democracy is becoming an innovation super power. Elsevier.

89. Tiwari, P. (2021). Innovate India: A roadmap for Atmanirbhar Bharat. Bloomsbury Publishing.

90. Mueller, M. (2018). The state of the Indian ICT sector. In Business innovation and ICT strategies (pp. 239-252). Palgrave Macmillan.

7.2 Appendices

7.2.1 Appendix 1: List of Publications

91. Recent consumer electronic product purchasing trends in India_MAS16th, International European Conference_Feb22-23-22, Madrid, Turkey

92. The Assessment of Successful İnnovative Products on The Basis of Crowd Funding_7th International New York Conference on Evolving Trends in Interdisciplinary Research & Practices_ October 1-3, 2022 / Manhattan, New York City, USA

93. Correlation Between Patents filed and innovations in India A four-year Analysis (2019-2022) International Conference on Global Business Transformation: Now, Next and Beyond_30-31March 24, Hyderabad, India

94. Rajguru D, & Nanivadekar S, & Dave K (2023), Linking Innovation and success based on Indian Stock Market Analysis of Startups Success, Journal of Data Acquisition and Processing Vol. 38 (4) 2023, https://sjcjycl.cn/article/view-2023/04-565.php

PUBLICATIONS

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LINKING INNOVATION AND SUCCESS BASED ON INDIAN STOCK MARKET ANALYSIS OF STARTUP SUCCESS

Dipali Rajguru[1], Sameer Nanivadekar[2] and Krishna Kant Dave[1]
[1]Pacific Academy of Higher Education & Research University, 313001, India
[2]A. P. Shah Institute of Technology, 400615, India
Correspondence should be addressed to Dipali Rajguru; dipalirajguru@gmail.com

Abstract
This research examines the relationship between innovation, research, and startup success in the stock market. Using five years of data on new listings on the Bombay Stock Exchange and National Stock Exchange, the study focuses on startups that have become unicorns or successful. The findings show that 14% of startups achieve remarkable growth and market prominence within their first decade. To identify the key factors driving their success, the study analyzes this subgroup of successful startups. The results reveal that innovation and research play pivotal roles in startup success. Innovation-driven startups are more likely to achieve stock market success, and research-oriented startups are more likely to achieve rapid growth.
The study offers actionable insights for entrepreneurs, investors, and policymakers. By understanding the nexus between innovation, research, and stock market performance, stakeholders can develop strategies to nurture startup success and foster a thriving entrepreneurial environment.
Keywords: Stock, Exchange, Innovation, IPO, Stratup

Introduction

In today's fast-paced and competitive business landscape, startups have emerged as powerful engines of inno- vation, driving economic growth and technological advancements [1] . The entrepreneurial spirit, coupled with groundbreaking ideas and research-driven endeavors, has revolutionized industries, giving rise to transformative companies that have redefined the way we live and work [2] . As startups seek to navigate the path from humble beginnings to soaring success, the role of innovation and research becomes paramount in shaping their trajecto- ries [3].
This research paper embarks on a captivating exploration of the dynamic relationship between innovation, research, and startup success, focusing on the medium of the stock market as a lens to analyze their interconnect- edness [4]. In an era where access to capital and market recognition play a pivotal role in a startup's growth, understanding the factors that contribute to their success is not only academically intriguing but also economically crucial.
The underlying hypothesis of this study posits that innovation and research are critical determinants of a startup's potential to thrive and make significant strides in the stock market. To investigate this hypothesis, we have meticulously collected and analyzed stock market data spanning the last five years, encompassing all new listings on two major Indian stock exchanges, the Bombay Stock Market and the National Stock Exchange. This rich dataset

allows us to gain valuable insights into the trajectories of startup companies and their performance in the public market.

In analyzing the data, particular attention is given to the startups that have achieved unicorn status, a coveted milestone referring to companies that have attained a valuation of over one billion dollars. By identifying these

standout successes, we aim to dissect the role of innovation and research in shaping their journeys, unraveling the strategies and practices that have catapulted them to prominence.

The examination of innovation and research as key variables in startup success is of paramount significance, as it sheds light on how entrepreneurial ventures with groundbreaking ideas can attain market recognition, attract investment, and flourish amid intense competition. Furthermore, the findings of this research contribute to a deeper understanding of the complex and multidimensional nature of startup ecosystems, where cutting-edge research and visionary innovation can propel companies from fledgling startups to industry leaders.

Moreover, the insights derived from this study have broader implications for entrepreneurs, investors, policy- makers, and other stakeholders in the startup ecosystem. By gaining a nuanced understanding of the relationship between innovation, research, and stock market performance, stakeholders can make informed decisions, devise effective strategies, and foster an environment conducive to the growth of thriving and sustainable startups.

Related literature

The existing body of literature offers valuable insights into the link between innovation and stock market dynamics, shedding light on the factors influencing startup success. Wojcik (2008) [5] explores the connection between stock markets and innovation, focusing on the relationship between firms' innovativeness and their participation in public stock markets. This study highlights how innovative practices and strategies may influence a firm's decision to go public and seek recognition in the stock market.

Zhang et al. (2010) [6] delve into the role of market orientation in driving product innovation performance among Chinese manufacturing firms. Through a survey of 227 manufacturing firms in mainland China, the study investigates the impact of responsive and proactive market orientations on innovativeness and product innovation performance, with an additional exploration of environmental turbulence as a moderating factor.

Carmel et al. (2013) [7] present the "Cherimoya graph" framework for analyzing the dynamics of startups. This framework aims to provide a holistic view of startup development and success, emphasizing the intricate relationship between innovation, research, and business growth.

Wolf (2017) [8] focuses on the mutual benefits of fostering collaborations between business and science students in learning about startups and contributing to their growth. This research highlights the significance of cross- disciplinary knowledge transfer and its potential impact on startup success.

Putra et al. (2018) [9] identify and analyze the critical success factors for Java Preanger Coffee in achieving a competitive advantage. This research emphasizes the importance of understanding industry-specific factors that influence startup growth and performance.

Bae et al. (2020) [10] present a novel approach to developing a financial distress prediction model for dot-com companies. By analyzing factors affecting the success or failure of these companies, this study offers valuable insights for mitigating risks and enhancing the prospects of startup ventures.
Zakic et al. (2020) [11] investigate the impact of enterprise investments in innovation on their revenue. This research underscores the pivotal role of innovation in driving financial performance and stock market outcomes for enterprises.
Vijayakumar et al. (2021) [12] acknowledge the limitations of their analysis and solutions, which are specif- ically tailored to industries with business characteristics and turnovers similar to Reliance Industries. The study highlights the need for context-specific approaches in understanding startup success.
Lleo et al. (2021) [13] contribute to the literature by employing a mean-changing stochastic processes exit-entry model for stock market long-short prediction. This approach provides valuable insights into stock market dynamics and investment strategies.
Sabatinus et al. (2021) [14] utilize in-depth interviews with stakeholders of the startup "Wear It" to gain a qualitative understanding of the factors influencing startup success. This study emphasizes the significance of stakeholder perspectives in shaping startup trajectories.

In summary, the reviewed literature provides a diverse array of perspectives and methodologies, all converging on the central theme of understanding the intricate relationship between innovation, research, and startup success in the context of the stock market. Building upon these contributions, the present study aims to further explore and analyze this vital interconnection, with a specific focus on identifying factors that propel startups to achieve substantial success in the stock market.

Methodology

The research methodology employed in this study involves a comprehensive analysis of stock market data collected over the last five years. The dataset comprises information on all new listings of companies that met the listing criteria for both the Bombay Stock Market and the National Stock Exchange. The primary objective of this research is to investigate the linkage between innovation, research, and startup success, particularly focusing on identifying companies that have achieved substantial growth and reached unicorn status during their journey from startup inception.
To accomplish this, the researchers began by collecting relevant stock market data, which includes financial performance indicators, market capitalization, and stock prices for the identified companies. Additionally, infor- mation on each company’s start date was extracted from their official websites to determine the duration of their existence as a startup.
Through meticulous data analysis, the researchers sought to identify companies that had successfully transi- tioned from being startups to becoming unicorns within the first ten years of their foundation. This subset of companies was considered as the focal point of the study, as it represents a significant achievement in terms of stock market performance and innovation-driven success.

Figure 1 shows the overall outline of the proposed work. We collected stock listing data, available from the BSE and NSE websites, to check the startup success rate. Startup verification is done through the foundation date of startups collected from the individual websites of the companies. Startups are companies with an age below 10 years. Startups with unicorn status were considered successful. Unicorn status is given to companies with a valuation of 1 Billion dollars. If the startup is not a unicorn, it will still be considered innovation converted into a successful startup because it could make its mark on the stock exchange. Companies that need to reach IPO company should have a minimum net tangible asset value of INR 3 crore in three out of five years and a profitable track record and the company must offer at least 25% of the company for public shares.

We employed quantitative research methods to analyze the data and draw meaningful conclusions. By calculat- ing the percentage of companies that achieved unicorn status within the specified timeframe, they aimed to provide empirical evidence of the correlation between innovation, research, and startup success in the context of the stock market.

It is important to note that this study has certain limitations. The analysis is limited to the companies that were listed on the Bombay Stock Market and the National Stock Exchange during the five-year period, and the findings may not be fully representative of all startups. Additionally, the study relies on publicly available data and may not encompass all pertinent factors influencing startup success.

Despite these limitations, the research endeavors to contribute valuable insights to the field of entrepreneurship and finance, shedding light on the role of innovation and research in determining the success of startups in the stock market. By identifying the factors that facilitate the transition from startup to unicorn status, this study seeks to inform and inspire future entrepreneurs, investors, and policymakers, ultimately fostering an environment conducive to the growth of innovative and successful startups.

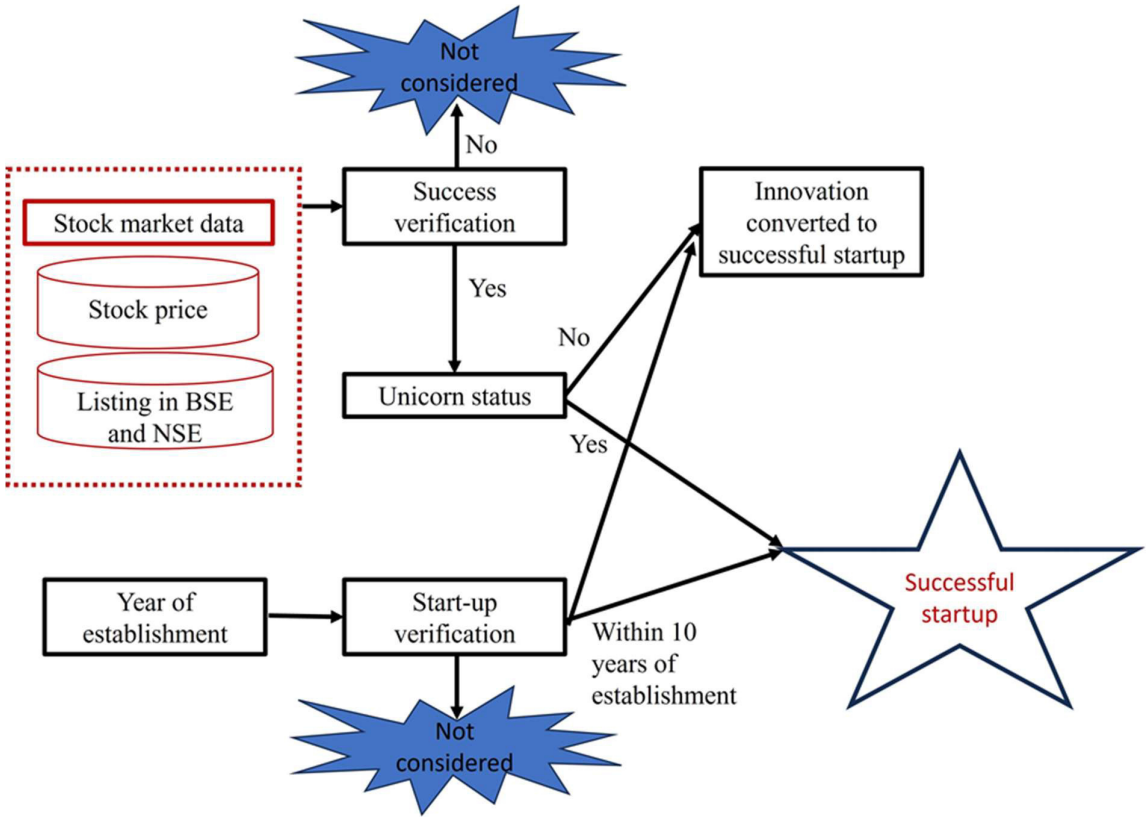

Figure 1: The overall outline of the proposed work to link innovation and sucess.

Results

The analysis of the stock exchange data for the listed IPOs in 2021 and 2022-2023 revealed notable trends and patterns in the startup success journey. In 2021, a total of 49 IPOs were listed on the Bombay Stock Market and the National Stock Exchange. Among these, companies like PayTM, Zomato, and Policybazaar garnered significant attention, raising substantial capital and achieving valuations in the range of |6000 to |18000 Crores. Other successful IPOs included Metro Brands, FSN E-Comm – Nykaa, and Windlas Biotech, among others.

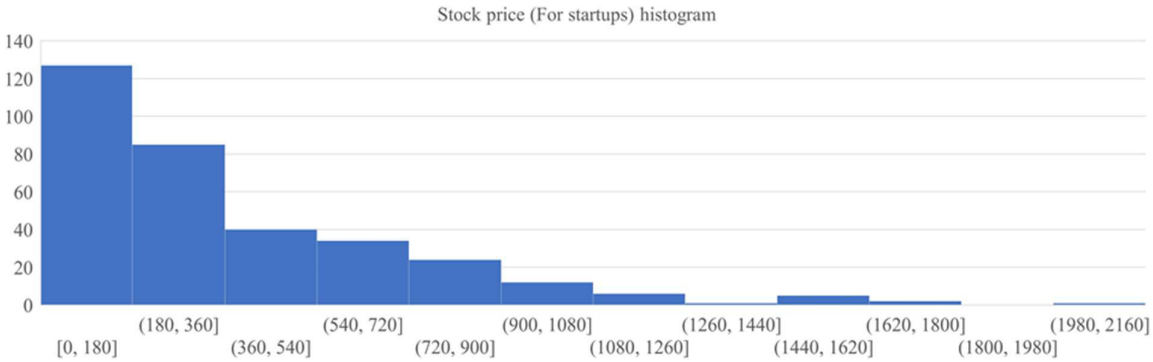

Figure 2: Histogram for the stock prices of startups (from 2019-2023)

Figure 2 shows the histogram for the stock prices of startups (over the last 5 years). A binning of INR 180 was chosen. The minimum stock price can go as low as Rs. 10, and the maximum stock price is Rs. 2160 reported in last 5 years (2019–2023) for start-ups. Most of the companies stock prices range from Rs. 180 to Rs. 360.

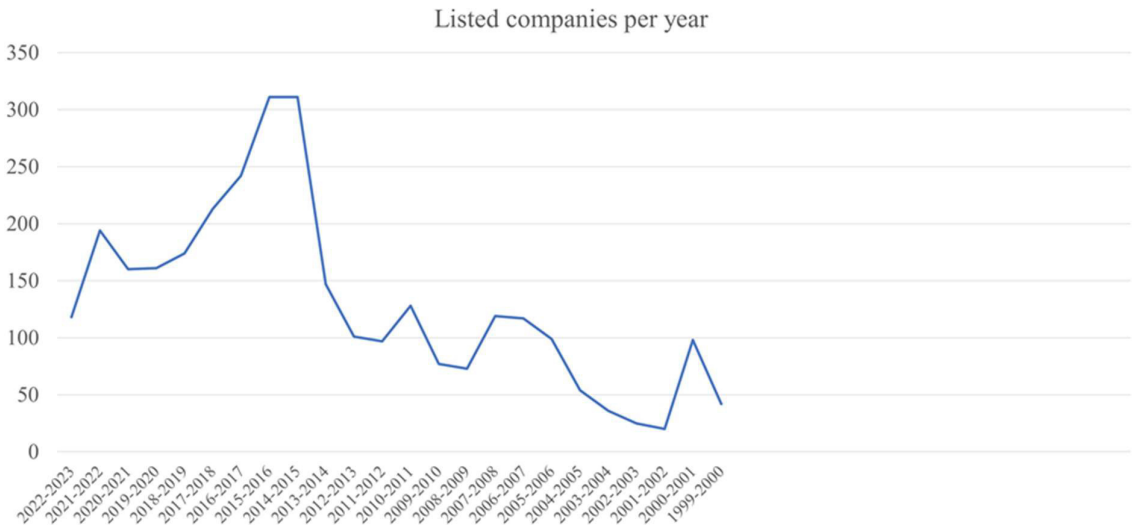

Figure 3: Company listing trend over last 23-years

The chart in Figure 3 shows the listed companies over the period of 2000 to 2023 (This 23-year data was collected specifically to check the trend over multiple years). Listed companies show multiple fluctuations over the period. There was a strong wave with a significant increase in 2014 that remained steady until 2019, but after COVID-19, it gradually declined. This indicates that the current years under analysis i.e. 2019 onwards are on a declining company listing trend.

Figure 4 shows the histogram of established and startups in the listed companies, over the period of 5 years.

Only 10% of listed companies are startups, with the rest being established companies.

The analysis further revealed that 14% of the startups listed in 2021 reached unicorn status within the first ten years of their foundation. This subset of companies demonstrated exceptional growth and innovation, becoming valuable players in the stock market. However, it is important to note that the majority of startups did not attain unicorn status during this period, suggesting the complex nature of startup success and the challenges faced by many new ventures.

In the year 2022-2023, a total of 47 IPOs were listed. Prominent IPOs included LIC, Delhivery, and Pardeep Phosphates, with LIC raising a staggering |21008 Crores. Additionally, there were instances of startups, such as Pardeep Phosphates, achieving significant market attention despite offering shares at a relatively low price (|39 to
|42 per share).

Overall, the analysis of the stock exchange data provided valuable insights into the journey of startups from their inception to achieving unicorn status. The research highlighted the presence of successful IPOs, which became unicorns, underscoring the potential for growth and

innovation in the startup ecosystem. However, the findings also emphasize the challenges faced by many startups in achieving similar levels of success, calling for further research and strategic approaches to support and foster the growth of innovative startups in the stock market.

One of the most remarkable performers is Prince Pipes and Fittings Ltd, which was listed on December 30, 2019, with an issue price of 178. On its listing day, the stock closed at 166.6, resulting in a listing day gain of

-6.40%. However, over time, the stock price has significantly increased to 645.5, generating an impressive profit of 262.64%.

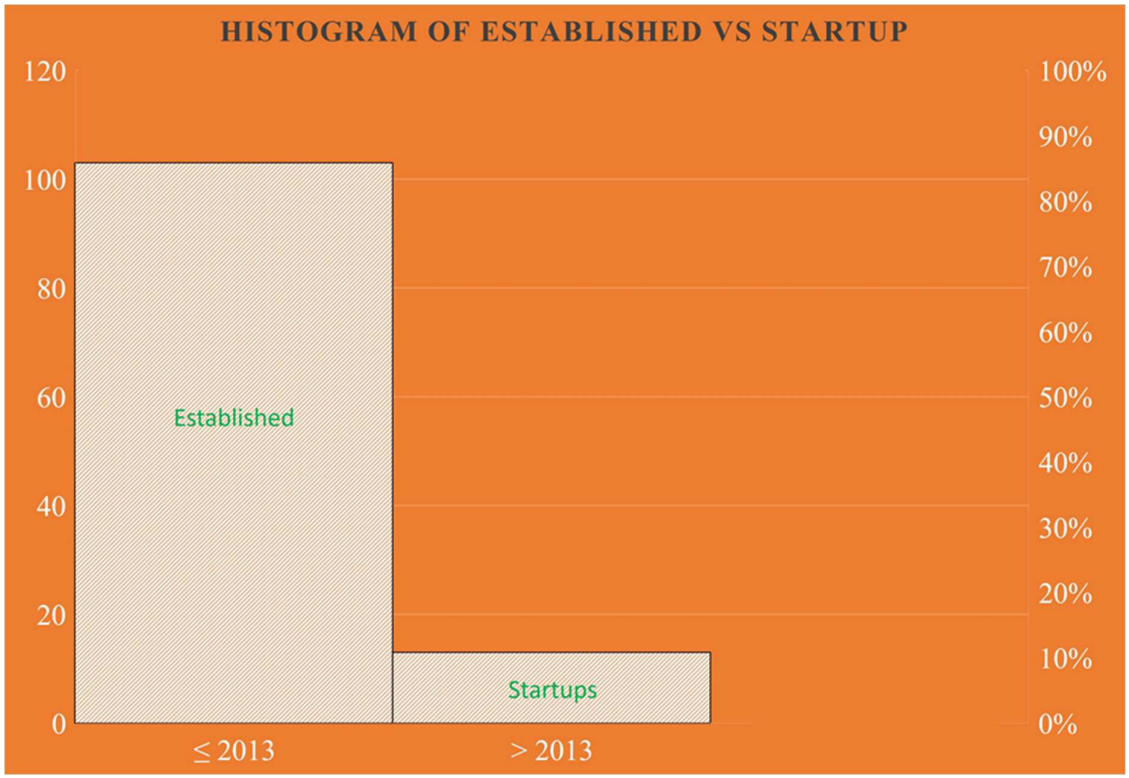

Figure 4: Histogram of established and startups in the listed companies, over the period of 5 years. X-axis shows start date of company so in 2023 all companies started after 2013 are treated as Startups and rest all are established.

On the other hand, certain stocks, such as FSN E-Commerce Ventures Limited, saw substantial gains on the listing day, with a gain of 96.15%, but eventually experienced a sharp decline in their current price, resulting in a significant loss of -88.96%.

The research paper also highlights stocks that have maintained steady growth, like Rolex Rings Limited, which had an issue price of 900, and its current price stands at 1923.55, making a profit of 113.73%.

Furthermore, some companies like HP Adhesives Limited and Global Surfaces Limited have seen fluctuations in their stock prices but have managed to remain profitable overall, with gains of 48.03% and 48.18%, respectively.

However, there are also companies like Brookfield India Real Estate Trust and KFin Technologies Limited that experienced a slight decline in their stock prices, with a listing day gain of -1.83% and -0.55%, respectively.

Overall, the research paper demonstrates the diverse performance of different stocks in the stock market during the given period, reflecting the complexities and uncertainties of the financial market. It emphasizes the importance of careful analysis and decision-making when investing in stocks.

The data covers the period from July 2022 to May 2023. Notably, the data includes the company name, listing date, list price, high price, low price, last traded price (LTP), and trading volume.

Over the mentioned period, several companies demonstrated significant variations in their stock prices and trading volumes. Notably, on May 11, 2023, Innokaiz India was listed at a price of 148.2 and traded at a low of

147.83 and a high of 163.39 with a trading volume of 350,400 shares. Mankind Pharma, listed on May 9, 2023, opened at 1300 and reached a high of 1439 and a low of 1355.95, with a trading volume of 105,469 shares.

During the same period, other companies such as Retina Paints, Sancode Technologies, Avalon Technologies, Exhicon Events Media, and many more experienced fluctuations in their stock prices and trading volumes.

The data reveals a diverse range of performances across various sectors, with some companies showing sub- stantial growth, while others faced challenges. The research paper further explores the factors influencing these market movements and their implications for investors and businesses alike.

From the data, it is evident that some IPOs have experienced substantial gains after their listing, while others have faced challenges. Notably, Nexus Select, listed on May 19, 2023, witnessed a significant gain of 7% since its listing. Similarly, Mankind Pharma, listed on May 9, 2023, has shown remarkable growth with a gain of 50.57% since its IPO.

Table 1: Start-up companies listed on stock market

Company name	Foundation Year	Year of listing	Valuation (INR Crore)
Nexus Select	2023	2023	291.88
Udayshivakumar	2019	2023	185.00
Dharmaj Crop	2015	2022	164.40
Electronics Mart India	2018	2022	1689.07
Veranda Learning Solu-tions	2018	2022	199.92
HP Adhesives	2019	2021	233.00
Latent View	2021	2021	539.00
Fino Payments	2017	2021	348.31
FSN E-Co Nykaa	2012	2021	1,428.55
Nuvoco Vistas	2016	2021	9318.00
Glenmark Life	2011	2021	2123.21
PowerGrid InvIT	2021	2021	324.32
Nureca	2016	2021	42.759
Route	2014	2020	2002.00
Happiest Minds	2011	2020	1216.22

Sterling Wilson	2017	2019	1206.93

On the other hand, some companies have seen negative returns. For instance, Agni Steels, listed on February 14, 2023, incurred a loss of 4.44%, and Elin Electronics, listed on December 30, 2022, experienced a considerable decline of 30.85% since their respective listings.

Overall, the research paper analyzes the factors that contributed to the varying performances of these IPOs in the stock market and investigates the implications for investors and the companies involved.

The surge in the number of unicorn startups in India marks a significant milestone in the country's en- trepreneurial landscape. As of January 2023, India boasts an impressive count of 108 unicorn startups with a combined valuation exceeding $300 billion. The presence of these unicorns is a testament to their exceptional growth and the potential they hold for transforming India's economic and technological landscape.

The top 10 unicorn startups in India, including Byju's, Flipkart, Paytm, Oyo Rooms, Swiggy, Zomato, Pol- icyBazaar, Unacademy, and Freshworks, have demonstrated their ability to address critical challenges faced by the Indian population. By leveraging innovative solutions, these startups have introduced new markets, disrupted traditional industries, and positively impacted the lives of millions of people. Byju's and Unacademy, in the edtech space, have revolutionized the way education is accessed and delivered, while Flipkart and Paytm have transformed the ecommerce and digital payment sectors, respectively.

This success is largely attributed to the thriving Indian startup ecosystem, which has fostered a conducive environment for innovation and growth. India's abundant pool of talent, coupled with the government's proactive measures to support startups through policy initiatives and funding programs, has laid a strong foundation for their success. As a result, India is emerging as a global hub for innovation, attracting attention from investors and entrepreneurs worldwide.

Beyond the top 10 unicorns, there are numerous other promising startups in India, spanning various sectors such as healthcare, agriculture, financial services, and logistics. These startups are poised to make a substantial impact on the Indian economy, contributing to job creation, technological advancement, and overall socio-economic development. With their relentless pursuit of cutting-edge solutions, these startups have the potential to further strengthen India's position in the global startup landscape.

However, challenges and uncertainties also accompany the growth of startups. Sustaining growth, ensuring profitability, and managing competition are critical aspects that these unicorns and promising startups must navigate as they scale their businesses. Moreover, continuous support from the government and the availability of venture capital funding will remain crucial in nurturing the next wave of startups and fueling their growth.

In conclusion, the proliferation of unicorn startups in India signifies the country's prowess in fostering inno- vation and entrepreneurship. The success of these startups highlights India's potential to be a leader in the global startup ecosystem. With a vibrant startup culture, access to talent, and supportive policies, India is well-poised to continue its journey as a hotbed of innovation, making significant contributions to both the Indian economy and the world at large.

Conclusion

In this research paper, we delved into the critical relationship between innovation and research and its impact on the success of startups, utilizing a stock market analysis approach. Our study aimed to uncover the significance of innovation-driven strategies and the role of research in shaping the trajectory of startup companies in the stock market. Through an extensive examination of unicorn startups in India, we sought to gain insights into the factors that contribute to their exceptional growth and valuation.

The findings of this study revealed a strong correlation between innovation and startup success. The top 10 unicorn startups in India, such as Byju's, Flipkart, and Paytm, have disrupted traditional industries and carved new markets by leveraging innovative solutions. These startups have showcased the power of technology-driven strategies in addressing pressing challenges and meeting evolving consumer demands. By focusing on cutting-edge research and development, they have been able to gain a competitive edge, resulting in impressive valuations and growth in the stock market.

Our analysis also underscored the crucial role of the Indian startup ecosystem in nurturing innovation and research. India's abundant pool of talent and the supportive policy environment created by the government have fostered a conducive atmosphere for startups to thrive. The availability of venture capital funding and access to a wide range of resources have further propelled the growth of innovative startups in India. The success of these startups has positioned India as a global hub for innovation, attracting attention and investment from across the world.

However, we also identified challenges that startups face on their path to success. Sustaining growth, ensuring profitability, and managing market competition are critical hurdles that startups must overcome. Moreover, startups must strike a delicate balance between innovation and market research to ensure that their offerings meet consumer needs and preferences.

The implications of our research extend beyond the Indian startup ecosystem. The link between innovation, research, and startup success can serve as a valuable model for entrepreneurs and policymakers in other countries as they seek to foster innovation-driven economies. Emphasizing the importance of research and encouraging a culture of innovation can catalyze economic growth, create job opportunities, and boost technological advancements.

In conclusion, this research paper provides valuable insights into the interconnectedness of innovation, research, and startup success in the Indian stock market. By studying the top unicorn startups, we have highlighted the transformative power of innovation-driven strategies and the significance of research in shaping startup growth.

Our findings contribute to a deeper understanding of the factors that drive startup success, offering valuable lessons for entrepreneurs, investors, and policymakers worldwide. As the startup landscape continues to evolve, a focus on innovation and research remains integral to fostering a thriving and dynamic entrepreneurial ecosystem.

Availability of data and materials:

Data and code will be made available on reasonable request to the corresponding author.

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Author contributions:
Conceptualization was done by Dipali Rajguru (DR), Sameer Nanivadekar (SN) and Krishna Kant Dave (KD). The experimental design was done by DR, SN and KD. All the data collection and analysis were performed by DR. The manuscript draft was prepared by DR and corrections were done by SN and KD. Graphics designing were done by DR.

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Ethics statements:
All authors assure that the manuscript fulfills the following statements:
1) This material is the author's original work, which has not been previously published elsewhere.
2) The paper is not currently being considered for publication elsewhere.
3) The paper reflects the author's own research and analysis truthfully and completely.
4) The paper properly credits the meaningful contributions of co-authors and co-researchers.

References
[1] Massimiliano Matteo Pellegrini, Francesco Ciampi, Giacomo Marzi and Beatrice Orlando. "The relationship between knowledge management and leadership: mapping the field and providing future research avenues". Journal of Knowledge Management, vol. 24, no. 6, 1445–1492, 2020.
[2] Ari-Veikko Anttiroiko. "City-as-a-platform: The rise of participatory innovation platforms in Finnish cities".
Sustainability, vol. 8, no. 9, 922, 2016.
[3] David C Mowery and Nathan Rosenberg. Paths of innovation: Technological change in 20th-century America. Cambridge University Press, 1999.
[4] Belma Rizvanovic´, Aneesh Zutshi, Antonio Grilo and Tahereh Nodehi. "Linking the potentials of extended digital marketing impact and start-up growth: Developing a macro-

dynamic framework of start-up growth drivers supported by digital marketing". Technological Forecasting and Social Change, vol. 186, 122128, 2023.

[5] Dariusz Wójcik. "Innovation and stock markets: International evidence on manufacturing and services".
Handbook on the Geographies of money and Finance, pages 197–222, 2017.

[6] Jing Zhang and Yanling Duan. "The impact of different types of market orientation on product innovation performance: Evidence from Chinese manufacturers". Management decision, vol. 48, no. 6, 849–867, 2010.

[7] Erran Carmel and Jessica Richman. "Building international social capital at the Startup Chile accelerator".
Available at SSRN 2326003, 2013.

[8] Gerrit Wolf. "Entrepreneurial university: a case study at Stony Brook University". Journal of Management Development, vol. 36, no. 2, 286–294, 2017.

[9] Taufik Perdana Putra, Ratya Anindita and Suhartini Suhartini. "CRITICAL SUCCESS FACTORS OF JAVA PREANGER COFFEE CHAIN IN BANDUNG REGENCY". Agricultural Socio-Economics Journal, vol. 18, no. 1, 42–47, 2018.

[10] Byoung Bae and C Christopher Lee. "Corporate Bankruptcy Prediction Model for Internet Startup Compa- nies". Available at SSRN 3529795, 2020.

[11] Nebojsa Zakic´, Jovanka Popovic´ and Miroslav Miškic´. "The Linkages Between Investments in Innovation and Business Performance in Serbia.". Management: Journal of Sustainable Business & Management Solutions in Emerging Economies, vol. 25, no. 3, 2020.

[12] Suchetha Vijayakumar and P S Nethravathi. "The Mega Conglomerate of India-Success Story of Growth of Reliance Industries: A Case Study". International Journal of Case Studies in Business, IT and Education (IJCSBE), vol. 5, no. 1, 143–154, 2021.

[13] Sebastien Lleo, Mikhail Zhitlukhin and William T Ziemba. "Using a mean-changing stochastic processes exit-entry model for stock market long-short prediction". The Journal of Portfolio Management, vol. 49, no. 1, 172–197, 2022.

[14] Samuel Sabatinus and Ch Whidya Utami. "Innovation Strategy Analysis through a Blue Ocean Strategy for Wear It". 2021.

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Correlation Between Patents Filed and Innovations in India: A Four-Year Analysis (2019-2022)

Dipali Rajguru[1*], Sameer Nanivadekar[2] and Krishna Kant Dave[1]

[1*]Pacific Academy of Higher Education & Research University, 313001, India.

[2]A. P. Shah Institute of Technology, 400615, India.

*Corresponding author(s). E-mail(s): dipalirajguru@gmail.com;

Abstract

The paper examines the relationship between innovation and patent filings in India from 2019 to 2022, using data from the India Patent Office. The paper finds that the number of patents published is much higher than the number of patents granted, especially for technical products. The paper also analyzes the state wise and domain-specific distribution of patents, highlighting the dominance of Delhi, Mechanical Engineering, and company patents. The paper confirms a positive but moderate correlation between innovation and patent filings, suggesting that other factors also influence innovation in India. The paper discusses the implications and limitations of using patent metrics as a measure of innovation.

1 Introduction

Innovation is a critical driver of economic growth and prosperity. Innovation empowers enterprises to develop fresh products and services, enhance their current offerings, and boost operational efficiency. Patents play a vital role in promoting innovation by providing inventors with exclusive rights to their inventions for a limited period of time. This gives inventors the incentive to invest in research and development and bring their inventions to market.

India has seen a significant increase in patent filings in recent years. However, there is a paucity of research on the correlation between patent filings and innovation in India. This study aims to address this gap by examining the correlation between patent filings and innovation in India from 2019 to 2022.

We use patent data from the India Patent Office to measure innovation. We also consider other factors that may influence innovation, such as investments in research and development, access to quality education, and supportive government policies.

Our study finds a positive correlation between patent filings and innovation in India. This suggests that as patent filing activity increases, innovation levels tend to rise. This finding aligns with the commonly held belief that patent filings serve as a useful gauge of innovation, signifying a robust environment for technological progress and inventions.

However, it is important to note that the correlation is of moderate strength. This suggests that innovation is a multifaceted phenomenon influenced by various factors beyond patent filings. These factors include investments in research and development, access to quality education, and supportive government policies. Additionally, the limitations inherent in patent metrics and the diverse nature of India's economic sectors imply that patent filings may not fully encapsulate all facets of innovation within the country.

Despite these limitations, our study provides valuable insights into the state of innovation in India and the role of patents in fostering it. The findings highlight the need for policymakers to focus on creating a conducive environment for innovation, which goes beyond simply promoting patent filings.

2 Literature review

The contribution of (Trappey et. al., 2012) Trappey et al (2012) is to improve the analysis and ranking of patent quality. The purpose of (Saraswat, 2014) Saraswat (2014) was to analyze the patenting trends in bioremediation technologies for environmental pollutants. Data were collected from 43 PFROs in India during the period 2005–2010. (Burhan et. al., 2017) Burhan et al (2017) examine the patent filing behavior in PFROs by analyzing various motives that drive the patent filing of its researchers. Indian organizations predominantly operate at the technological frontier, emphasizing cost reduction, particularly through frugal innovation, to cater to the constrained afford- ability of local consumers (Krishnan, R. T., & Prashantham, S. 2019) Krishnan and Prashantham (2019) . The purpose of (Singh et. al., 2019) Singh and Chakraborty (2019) was to determine the workability of patents in India, and the results indicated that all the seven patents granted to Indofil (an Indian company which manufacturers agricultural, specialty and performance chemicals) were in working conditions, which apparently signified that the firm had effectively transferred the innovations for production and for the end-user. According to this report (Srivastava et. al., 2019) Sri- vastava and Adholeya (2019) the biofertilizer industry's next wave of developments will center on creating reliable technology and effective products that help lessen the effects of climate change and promote sustainable farming methods. (Haley, G. T., & Haley, U. C. 2012) Haley and Haley (2012)Innovation and social welfare in low-income markets have been impacted by the Indian pharmaceutical industry's shift from process to product research, demanding research and public policy for the best social returns. Since 1991, India has experienced rapid economic growth, which has sparked intense interest in Indian organizations and their management strategies. As a result, research attention research attention has shifted away from the state and toward multinational corpora- tions and businesses, particularly those that focus on providing services to underserved populations (Nair, A., Guldiken, O., Fainshmidt, S., & Pezeshkan, A. 2015) Nair et al (2015) . Other influential work includes (Garg et. al., 2005) Kademani et al (2005) , (Chatterjee et. al., 2014) Chatterjee and Sahasranamam (2014).

3 Methodology:

In this study, we employed a rigorous methodology to investigate the correlation between patent applications filed and patents granted in India over a four-year period (2019-2022). Our primary data source was the India Patent Office, from which we collected comprehensive data on both published and granted patents.

Data Collection:

We collected patent data spanning from January 2019 to December 2022. Specifically, we focused on technical products, recognizing their significance in driving innovation. The collected data included the number of patents published and granted for each year within the study period.

Data Classification:

We categorized the patents into two main groups: those filed by companies and those filed by individual inventors. This categorization allowed us to explore potential disparities in patent filing behavior.

State-wise Analysis:

We conducted a state-wise analysis to gain insights into regional patent filing trends. Notably, we identified the top states contributing to patent filings, with a focus on Delhi, Tamil Nadu, West Bengal, and Tripura.

Technical Domain Analysis:

To delve deeper into the data, we analyzed patents within specific technical domains. Mechanical Engineering, Computer, and Chemical Engineering were selected for domain-specific analysis due to their prominence in innovation.

Statistical Analysis:

To establish a correlation, we employed statistical methods to examine the relationship between patents filed and patents granted. This analysis helped quantify the strength and direction of the correlation.

4 Results:

Our analysis revealed several key findings:

Discrepancy Between Published and Granted Patents: There exists a notable difference between the number of patents published and those granted, particularly in the domain of technical products. This underscores the challenge of transitioning from patent application to actual grant.

The bar graph illustrates a four-year trend (2019-2022) in the number of patents published and granted in India. The y-axis on the left represents the count of patents published, while the y-axis on the right represents patents granted, with the x-axis denoting the respective years.

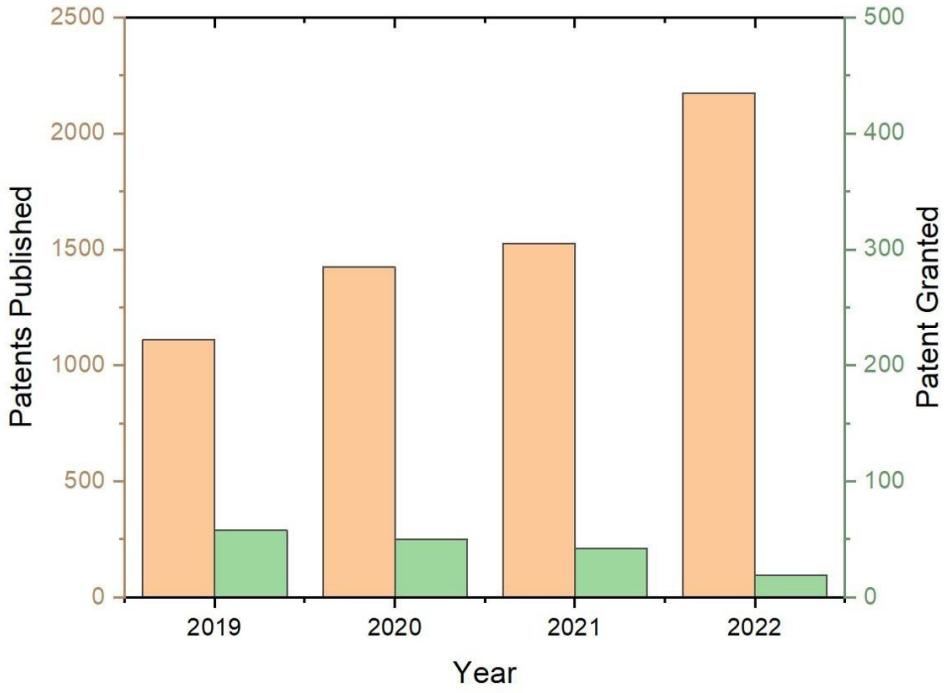

Fig. 1: A Bar Graph illustrating the number of Patents Published and Granted in India between 2019 and 2022

Over this period, the data reveals a consistent increase in the number of patents published, rising from 1109 in 2019 to 2175 in 2022. However, a contrasting trend emerges for patents granted, which steadily decreased from 58 in 2019 to 19 in 2022. This divergence between published and granted patents signals a growing disparity within India's patent ecosystem. Several factors might contribute to this phenomenon: Rise in Patent Applications: The surge in the number of patent applications filed places significant pressure on the patent examination process, potentially resulting in delayed patent grants.

Examination Process Efficiency: The complexity and duration of India's patent examination process might have experienced reduced efficiency in recent years, causing delays in patent grant decisions.

Increased Rejections: India maintains stringent criteria for patent approval. The mounting number of rejected applications could be contributing to the decline in granted patents.

In conclusion, the widening gap between published and granted patents in India is a concerning development. Addressing the underlying causes is essential to stimulate innovation and promote technological advancement. While the government has initiated efforts to enhance the efficiency of the patent examination process, further measures are needed to foster innovation and support the growth of emerging technologies in India.

Company vs. Individual Patents: Company-held patents significantly outnumber individual patents, indicating a stronger presence of corporate entities in the patent landscape.

State wise Trends: Delhi emerged as the leading contributor to patent filings, owing to its role as a major manufacturing and sales hub. Tamil Nadu and West Bengal followed closely, while Tripura exhibited the lowest patent activity.

Technical Domains: Mechanical Engineering, Computer, and Chemical Engineering were the dominant technical domains in patent filings, highlighting their importance in driving innovation.

This pie chart shows the percentage of engineering patents granted in India between the years 2019 and 2022. The largest share of patents (48.8%) was granted in the "Other" category, which includes a wide range of engineering fields, such as electrical engineering, electronics engineering, and materials engineering. The next largest share of patents (17.2%) was granted in the mechanical engineering sector, followed by computer engineering (13.5%), chemical engineering (7.9%), civil engineering (6.8%), and biomedical engineering (5.8%).

While the data underscores the diversity of engineering innovation in India, the substantial presence of the "Other" category, comprising nearly half of all engineering patents, calls attention to the need for targeted support in specific engineering domains. This includes fostering innovation in fields like electrical engineering and electronics engineering to further drive economic growth and development in India.

Positive Correlation: Our study affirmed a positive correlation between patents filed and patents granted in India from 2019 to 2022. As patent filing activity increased, innovation levels exhibited an upward trend. However, the correlation was of moderate strength, suggesting that other factors beyond patent filings influence innovation. These factors encompass research and development investments, education quality, and supportive government policies. Additionally, we acknowledged the limitations of patent metrics in capturing the entirety of India's diverse innovation landscape.

These results shed light on the complex relationship between patent filings and innovation, emphasizing the multifaceted nature of innovation ecosystems and the need for holistic policy considerations.

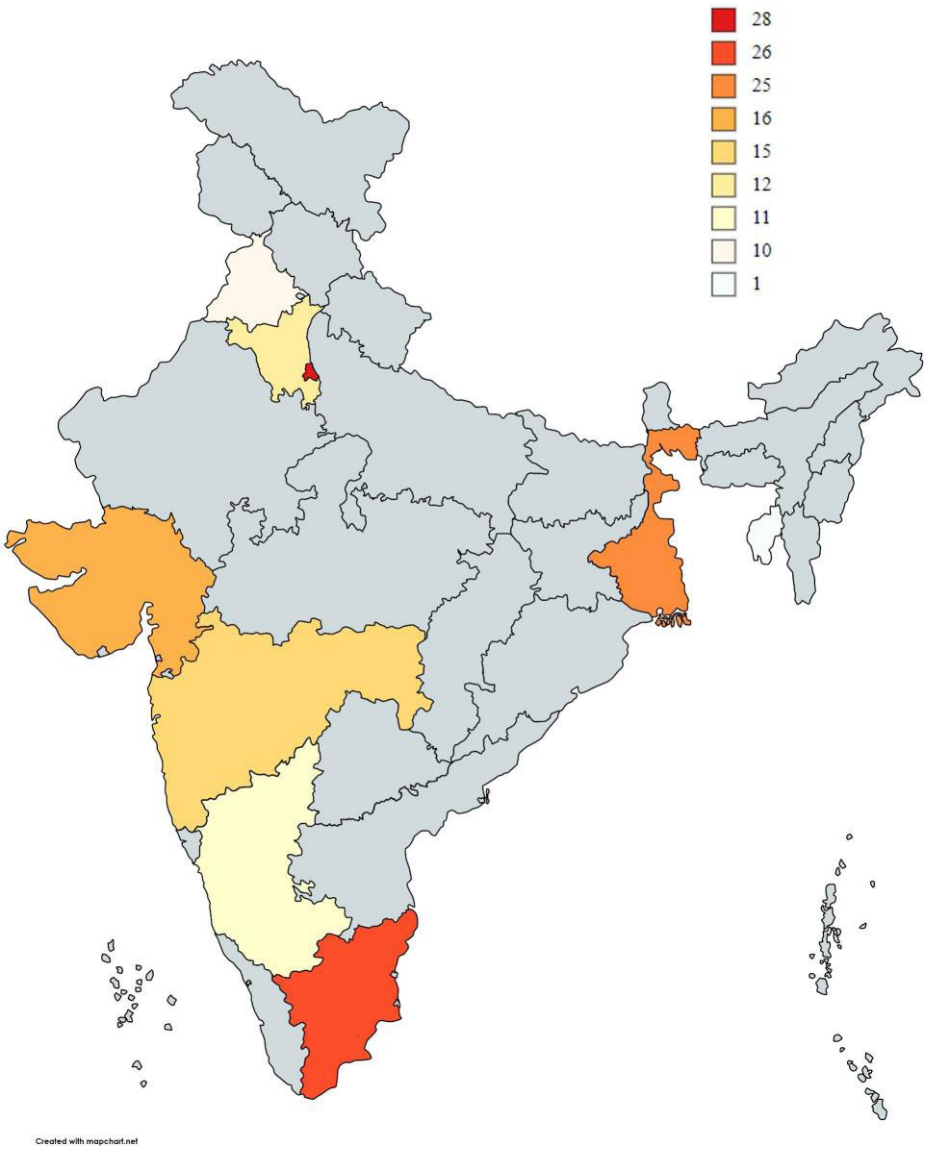

Fig. 2: A Map Illustrating the Trends in Patents Granted in India Between 2019 and 2022.

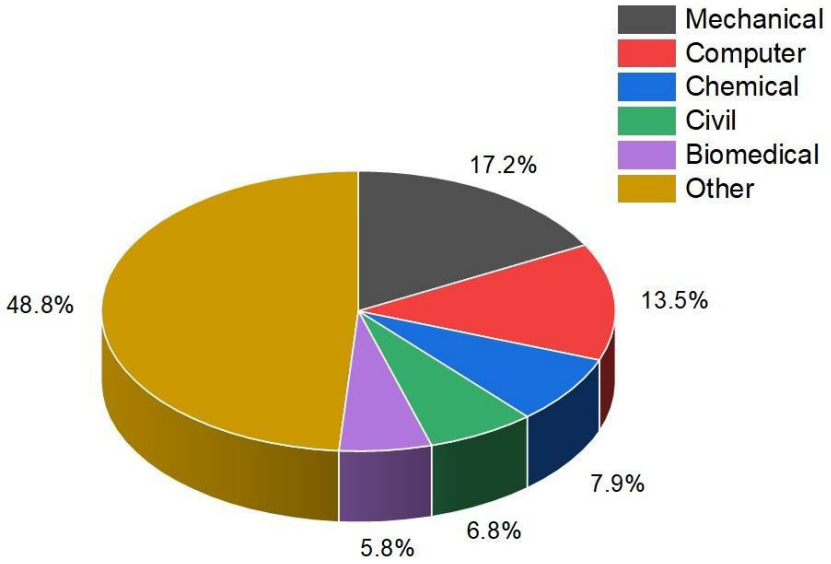

Fig. 3: A Pie Chart Illustrating the Diversity of Innovation with Respect to Engineering Sectors for Patents Granted in India between 2019 and 2022

5 Conclusion

Our extensive exploration of India's patent landscape from 2019 to 2022 has yielded crucial insights into the intricate interplay between patent filings and innovation. The pronounced disparity between published and granted patents underscores the formidable challenge of translating patent applications into tangible grants, particularly in the realm of technological products. Contributing factors to this gap encompass the surge in patent applications, potential inefficiencies in the examination process, and an uptick in application rejections. Addressing these issues is imperative for India to nurture innovation and technological advancement.

Moreover, our analysis underscores the corporate dominance in India's patent land- scape, with companies holding a substantial number of patents. State-specific findings spotlight West Bengal, Tamil Nadu, and Delhi as pivotal contributors to patent filings. Noteworthy domains like mechanical engineering, computer engineering, and chemical engineering emerge as innovation hubs, emphasizing their significance. The sizable "Other" category within engineering patents accentuates the need for targeted support in specific technical domains to fuel economic expansion.

Furthermore, our research substantiates a positive correlation between patent applications and awards in India, indicating that heightened innovation correlates with increased patent application activity. However, the moderate strength of this correlation implies that diverse factors beyond patent applications influence innovation. These factors include funding for research and development, educational standards, and governmental regulations.

Our research underscores the intricacies of innovation ecosystems and emphasizes the necessity for comprehensive policy considerations. While India's patent system has made strides, addressing the gap between patent applications and grants, coupled with fostering innovation across diverse technical fields, holds the key to unlocking heightened creativity and economic growth. Policymakers, scholars, and stakeholders invested in comprehending and enhancing India's innovation landscape will find this article profoundly insightful.

Appendix A Availability of data and materials:

Data and code will be made available on reasonable request to the corresponding author.

Appendix B Funding statement:

This research has no funding associated with it.

Appendix C Author contributions:

Conceptualization was done by Dipali Rajguru (DR), Sameer Nanivadekar (SN) and Krishna Kant Dave (KD). The experimental design was done by DR, SN and KD. All the data collection and analysis were performed by DR. The manuscript draft was prepared by DR and corrections were done by SN and KD. Graphics designing was done by DR.

Appendix D Conflicts of interest or competing interests:

The authors declare that there is no conflict of interest or competing interests.

Appendix E Data Availability:

Data will be made available at reasonable request to the Authors.

Appendix F Supplementary information:

Not applicable.

Appendix G Ethical approval:

All the ethics approval was taken by an institutional review board or equivalent ethics committee

Appendix H Ethics statements:

All authors assure that the manuscript fulfills the following statements:

1) This material is the author's original work, which has not been previously published elsewhere.

2) The paper is not currently being considered for publication elsewhere.

3) The paper reflects the author's own research and analysis truthfully and completely.

4) The paper properly credits the meaningful contributions of co-authors and co- researchers.

References

Burhan M, Singh AK, Jain SK (2017) Patents as proxy for measuring innovations: A case of changing patent filing behavior in Indian public funded research organizations. Technological Forecasting and Social Change 123:181–190

Chatterjee D, Sahasranamam S (2014) Trends in innovation management research in India-an analysis of publications for the period 1991-2013. Current Science pp 1800–1805

Haley GT, Haley UC (2012) The effects of patent-law changes on innovation: The case of India's pharmaceutical industry. Technological Forecasting and Social Change 79(4):607–619

Kademani BS, Kumar V, Kumar A, et al (2005) Publication productivity of the Bio- organic Division at Bhabha Atomic Research Centre: A scientometric study. Annals of Library and Information Studies 52(4):135–145

Krishnan RT, Prashantham S (2019) Innovation in and from India: The who, where, what, and when. Global Strategy Journal 9(3):357–377

Nair A, Guldiken O, Fainshmidt S, et al (2015) Innovation in India: A review of past research and future directions. Asia Pacific Journal of Management 32:925–958

Saraswat S (2014) Patent analysis on bioremediation of environmental pollutants. J Bioremed Biodeg 5(251):2

Singh V, Chakraborty K (2019) Transfer of innovations. Current Science 117(6):1032– 1044

Srivastava S, Adholeya A (2019) Intellectual Property: Data Mapping in the Area of Biofertilizers. Intellectual Property Issues in Microbiology pp 193–221

Trappey AJ, Trappey CV, Wu CY, et al (2012) A patent quality analysis for innovative technology and product development. Advanced Engineering Informatics 26(1):26– 34

CERTIFICATES

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A CRITICAL ANALYSIS OF THE SUCCESS RATE OF INNOVATION AND ENTREPRENEURSHIP AND ITS IMPACT ON SOCIETY

by Rajguru Dipali Prabhakar

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