An Empirical Study on Entrepreneurship Ecosystem Required for Sustainability of Start-ups under Industrial Revolution 4.0, with Special Reference to Start-ups

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Abstract: The advent of Industrial Revolution 4.0 has ushered in a transformative era for entrepreneurship, characterized by the rapid integration of cutting-edge technologies, such as artificial intelligence, the Internet of Things, and automation. In this dynamic landscape, start-ups are playing a pivotal role in driving innovation and economic growth. Madhya Pradesh (MP), a central state in India, is no exception to this trend, as it has witnessed a surge in entrepreneurial activities. To ensure the sustainability of start-ups in this new industrial paradigm, it is imperative to investigate the critical entrepreneurship skills and ecosystem factors that contribute to their success. This empirical study aims to address this imperative by delving into the specific case of start-ups in Madhya Pradesh.

The study employs a mixed-methods approach, combining qualitative and quantitative research methodologies. Data will be collected from both primary and secondary sources, including surveys, interviews, and a review of existing literature. Our research will focus on identifying the key entrepreneurship skills and competencies that founders and key team members must possess to navigate the challenges of Industrial Revolution 4.0. Additionally, we will analyse the role of the regional ecosystem, encompassing government policies, incubators, access to funding, and mentorship networks, in facilitating the growth and sustainability of start-ups in Madhya Pradesh.

The findings of this study will shed light on the specific requirements of start-ups in Madhya Pradesh to thrive in the context of Industrial Revolution 4.0. This research will not only contribute to the academic understanding of entrepreneurship but also provide practical insights for policymakers, investors, and entrepreneurs aiming to foster a conducive environment for start-up sustainability in the state. Furthermore, it will help entrepreneurs and aspiring start-up founders in MP to tailor their skill sets and strategies to meet the challenges and opportunities posed by this new industrial era. As the world continues to evolve within the framework of the fourth industrial revolution, this study will be a valuable resource for promoting the growth and prosperity of the entrepreneurial ecosystem in Madhya Pradesh

Keywords : Ecosystem, Startup Sustainability, Entrepreneurship, and Skill Required

We want to enable Start-up to make India no.1 in this field.
Start-up India and Stand –up India
~PM MODI JI

INTRODUCTION

The concept of the entrepreneurship ecosystem has gained increasing attention in recent years as a way to understand and support the development of entrepreneurship (Fkun et al., 2023). Entrepreneurship is a critical driver of innovation and economic growth (Ejigu & Teklemariam, 2019).

Hence, promoting entrepreneurship becomes an integral part of the nation's economic growth strategies in many local and national governments around the world . To this end, policy makers commonly assist in the development of entrepreneurial ecosystems where entrepreneurship operates, which may include entrepreneurs, venture capitalists, and government-sponsored programs to assist entrepreneurs .Rice, Fetters & Greene have highlighted the importance of a university-based entrepreneurship ecosystem for a university to be considered as entrepreneurial . In their research, Nicotra et al defined the entrepreneurial ecosystem as a combination of social, political, economic, and cultural elements in a region that supports the development and growth of innovative startups and encourages new entrepreneurs and other actors to take the risk of starting, funding, and supporting high-risk businesses (Awad & Salaimeh, 2021).

In recent years, the fields of entrepreneurship studies, economic geography, urban economics, and the economics of entrepreneurship have started to converge through research on the context of entrepreneurship (Trinh, 2019).

This research paper aims to examine the entrepreneurship ecosystem required for the sustainability of start-ups under Industrial Revolution 4.0. Industrial Revolution 4.. has brought forth new technological advancements and disruptions, creating a need for start-ups to adapt and thrive in this rapidly changing landscape.

The entrepreneurship ecosystem plays a crucial role in supporting start-ups during this era of technological transformation (Hernandez & González, 2017). It includes various interconnected elements that facilitate innovation and growth, such as availability of financing, acquisition and development of human capital, new markets for products and services, and various governmental and infrastructural supports. Furthermore, the entrepreneurship ecosystem involves a community of technology-based entrepreneurs, their leaders, and facilitators, which can include universities, government agencies, investors, service providers, and other stakeholders .

This study will conduct an empirical analysis to understand the components and dynamics of the entrepreneurship ecosystem that contribute to the sustainability of start-ups under Industrial Revolution 4.0. The analysis will involve examining the role of universities in fostering an entrepreneurial culture and providing necessary support and resources to start-ups. Furthermore, the study will explore the importance of government policies and initiatives in promoting innovation and entrepreneurship.

Additionally, the research will investigate the impact of access to financing and venture capital on the growth and sustainability of start-ups. The study will also explore the role of incubators and accelerators in supporting start-ups by providing mentorship, networking opportunities, and access to resources. Moreover, the research will analyze the role of digital entrepreneurship in the entrepreneurship ecosystem, as digital start-ups are gaining increasing attention in today's business landscape. Digital entrepreneurship is a specific subset of entrepreneurship that leverages digital technology and platforms to disrupt traditional business models and drive innovation. Overall, this research aims to provide valuable insights into the entrepreneurship ecosystem required for the sustainability of start-ups under Industrial Revolution 4.0, with a focus on the community, dynamic resource availability, spill-over knowledge, and overall framework conditions.

What is Startup ?

"Start-up India" the great and revolutionary initiative taken by Indian Government after august 2015 which has been taken by Hon'ble Prime Minister Shri Narendra Modi. The start-up initiative which is to encourage & promote young, enthusiastic mind to develop Indian economy from job seekers to job developer through Make in India initiative. By the view of economy process, "Start-up is a process of combination of operation in steps & a venture developed by one or more person to develop any innovative service or product which contributes in the growth of country economy[1]. India as a nation the population as of 1 January 2022 was estimated to be 1,408,044,253 people. This is an increase of 1.26 %compared to population of the year before; there is a large number of youth looking for the employment for his livelihood. For any government it is near to impossible to provide jobs if there is no job provider, so government needs to open new paths of job development in frame of new business and start-up is the best way to create large number of jobs along with developing the entrepreneurial youth in developing economy. India has second largest number of start-ups worldwide. The country ranked 17th in 2019, after which it fell six places to 23rd in 2020. According to the report, India needs to improve its internet infrastructure and speed to further strengthen its start-up ecosystem. Indian Government has created friendly eco system for young technical start-ups under the scheme of make in India by supporting innovating research & development with enhance the skills of young minds.

Start-ups have become important drivers of economic growth and job creation, and are often a catalyst for radical innovation. In fact, young firms provide about 10%-20% of employment; Innovation by young firms is a major contributor to overall productivity growth and accounts for half of it in the United States. During the coronavirus (COVID-19) crisis, startups continue to play a crucial role in the economy. Some Innovative startups have responded to the pandemic with speed and agility, helping many countries transition to fully digital jobs, education and healthcare services, and delivering innovation in medical goods and services.

What is Indian Start-up ecosystem ?

Start-up culture is on the rise in India and the addition of twelve new unicorn start-ups (companies less than 10 years old and valued at least $1 billion) till 2020 only adds to this ecosystem appear more lucrative and viable. While the entire country adds more than a thousand start-ups annually, In terms of world largest start-up ecosystem India is at third place. As per the assessment report of DPIIT in FY 2021-22 India has recognized start-ups with the large number of 61,400. "Since last few

years the Journey of Start-ups in country has seen outstanding & noticeable growth. There are increasable number of new start-ups is continuously accelerating to 14,000 in 2021-22 from 504 in 2016-17," the survey said [2].In the development of industries the crucial role is always played by the infrastructure and the ecosystem of the country. Supportive ecosystem provides a hurdle less roadmap to the new start-ups, as young start-ups are not having solid background or economic backbone; constructive infrastructure provides support to maintain the healthy economic status. Indian government provides a huge support of fund & investment, relaxation of various taxes and other monetary and non monetary support to young start-ups through various financial institution and small scale industry support system.

India in start-ups world wide- Some of the most valuable companies in the world had humble beginnings as startups, founded by influential entrepreneurs like Steve Jobs, Elon Musk and Mark Zuckerberg. A startup is a young company that has developed a unique business idea with the aim of making an immediate impact and taking control of the market. Highly valued startups are known as unicorns, indicating their elusiveness. China and the United States have the most unicorns in the world, but one of the most active regions for start-ups is America. Meanwhile, a smaller percentage of the population in South Korea and India is involved in startups. For comparison, the US has almost three times as many start-ups as the rest of the next 9 countries in the world combined.

Indian global start-ups - for the past many years, the Indian youth has shown the iron of their talent on many international platforms, whether it is open ground or entrepreneurship. India has been doing a lot of remarkable things especially in the entrepreneurship sector over the past few years, with many start-ups that have made a mark in the international market [3]. Many of those start-ups were scaling their offerings to remarkable heights. Figure 1 shows some Indian start-ups recognised globally.

Contribution of start-ups building economy As we can see that various economies globally are much stronger due the good industrial eco system and great work environment. India is still looking for huge number of jobs, in that start-ups are the effective tool to provide employability and motivate the population to contribute in building strong economy, helping in growth of GDP and per capita income. Some important points how start-ups are contributing in the growth of Indian economy.

In recent years, the Indian startup ecosystem has really taken off and come into its own driven by factors such as massive funding, consolidation activities, evolving technology and an burgeoning domestic market. The numbers are telling from 3,100 startups in 2014 to a projection of more than 11,500 by 2020, this is certainly not a passing trend. It's a revolution And it's going to change the way the markets are working today in India. The strategies of the Central Government takes into account the collective aspirations and enterprise of the risk taking Indian. The success of the Silicon Valley startups has many indomitable and resolute Indians in the heart of it. India aspires to contribute to 15-20 percent global GDP. It happens when Startup movement attains critical mass. Startup India looks beyond the argument that it is a better packaging of existing institutional support. The complexities of managing the diversity of thoughts, processes and people of India are very well known. The plan of Startup Indians is to flourish under an ocean of changes in mindset and thinking. It is giving feather to wings of the unstoppable Indian. The world is struggling to avoid another meltdown.

Startup India is all about challenging conventions and spurs a revolution of unique and emphatic business models developed by new . It is the precursor to India taking Centre stage in the new world order. The study concluded that making capital more accessible and cheaper, easier patent filing, giving research and development credits, and easier entry for the success of Startup India as a growing economy.

Industrial Revolution 4.0

The Fourth Industrial Revolution has become a global buzz word since the World Economic Forum WEF) adopted it as an annual issue in 2016. According to Paradigm shift : a study by Korea indicates: the first industrial revolution (Craft production), the second industrial revolution (mass production), and the third industrial revolution (customized production) and Fourth Industrial Revolution (Personalized production). Today, we are facing a huge problem of unemployment. It believes that an entrepreneurial environment can provide the much-needed boost to MSMEs (micro, small and medium enterprises) — the second largest employment-generating sector after agriculture.

Government of India has formulated the National Policy for Skill Development and Entrepreneurship in 2015 to provide an umbrella framework to all skilling activities being carried out within the country for new entrepreneur and for youth.

India still has one of the lowest entrepreneurship and skills rates in the world for its stage of development. It also has low ranking in the Global Ranking of human infrastructure, with poor ratings on education, skills, life expectancy and health. The pace of entrepreneur cannot be scaled up without increased investments in education and skills. Investing in education and skills, especially in early years, is a critical down-payment which scales up the pace of job creation and growth in the future.

Industry 4.0

It offers the prospect of opportunities for quality and productive employment. The problem lies in the fact that Industry 4.0 has the potential to increase unemployment through the loss of manual and repetitive jobs that can easily be automated, unless the subject of skilling and re-skilling for the digital economy is addressed from the onset by enhancing skills development in technical and academic institutions.

The industrial and technological era has led to the automation of many tasks, which leads to reduce the number of jobs available. That does not mean that young graduates can keep waiting in serendipity for a job. It is important for youth to create jobs and give more emphasis on job creation rather than job seeking. Colleges, educational institutes, and universities could help in this situation by filling gap between the demand and supply of skills. In the curriculum across disciplines should include new skills.

It is our hope that this knowledge can incentivize and enhance partnerships between governments, educators, training providers, workers and employers in order to better manage the transformative impact of the Fourth Industrial Revolution on employment, skills and education (The World Economic Forum's Global Challenge Initiative on Employment, Skills and Human Capital, the Future of Jobs Report)

Industry leaders now acknowledge that our universities are not able to produce work-ready graduates without the academia acquiring a clear, accurate and updated understanding of what companies look for at the entry-level employers. According to the

study by Talent Corp survey, it is found that 53 percent of firms have never engaged career centres in their recruitment efforts. This goes to suggest that even though companies may comment that graduate lack requisite skills, efforts can still be made to prepare these graduates for workforce entry, perhaps through concerted partnerships between industry and academia.

Youth in India

India accounted for substantial share of world population 1.8 billion - more than 25% - of the world's population are between the ages of 15 and 29. By 2010, India accounted for 17.8% of the world population, recording an increase of 2.7% in its share since 1970. This growth is projected to continue and by 2030, Indians would account for 17.97 of global population.

As per India's Census 2011, Youth (15-24 years) in India constitutes one-fifth (19.1%) of India's total population.India is expected to have 34.33% share of youth in total population by 2020. The share reached its maximum of 35.11% in the year 2010.

Youth Enrolment in Education

As per AISHE Report 2019,

- **Total enrolment in higher education** has been estimated to be **37.4 million** with 19.2 million male and 18.2 million female.
- **Female** constitute **48.6%** of the total enrolment.
- **Gross Enrolment Ratio (GER) in Higher education** in India is **26.3%**, which is calculated for **18-23 years of age** group.
- GER for male population is 26.3% and for females, it is 26.4%.

Start -Up

- **Startup India Action Plan** was announced on **16 January 2016.**
- India has the **3rd largest startup ecosystem in the world**; expected to witness YoY growth of a consistent annual growth of 12-15%.
- **Startups** in the country have been able to create an **estimated 40,000 new jobs** over the year, taking the total jobs in the start-up ecosystem to 1.6-1.7 lakh
- The number **of women entrepreneurs stood at 14%,** up from 10% and 11% in the previous two years.
- The pace of growth in the **startup ecosystem has increased to 15% year-on-year in 2018**, while the growth of the number of incubators and accelerators has grown to 11%
- Over **26 states in the country have Startup policies**
- **Bangalore** has been listed within the world's 20 leading startup cities in the 2019 Startup Genome Project ranking. It is also ranked as one of the world's five fastest growing startup cities

- **According to Reports, MP is at the stage of Emerging of start-ups.**
- Average Age of Entrepreneurs who start their start up between 28 – 40.

Start-up development within 5 years-

- India has about **50,000 startups in India** in 2017.There are 2-3 tech startups born every day.

Reason for increasing status in startups:

1) **Shifting from job to innovative idea.**
2) **Get funding from other countries**
3) **Government support.**
4) **Making youth having creative Idea**

LITERATURE OF REVIEW

Start-ups Journey has been start from 2016 and still continues, Young mind is now developing new concepts and with help of investors and government schemes India is becoming the second largest country to have strong ecosystem for start-ups. While working on current research we have found that different authors have already worked on start-ups and their concepts, some related research is being evaluated related to the performance of start-ups in Indian economy. Indian ecosystem is the largest one for the working of start-ups and it is just few numbers behind in comparison of top countries. Valuation base of start-ups is more than 32 billion USD, but still needs to be more matured ecosystem [5][9]. As start-ups are small in their early stage and to be taken big steps and decisions they required capital, in that case funding by investors is also a parameter to judge the performance of start-ups [6] . Little businesses thus start-up test- trading within the informal economy, though statistical procedure shows that companies started by men, with low current annual turnovers particularly sectors are considerably additional doubtless [7]. Performance of start-ups is depended on various factors and somehow the economic conditions, sometimes the economical conditions of customer may affect the performance of start-ups[8].In the success of so many start-ups the technological cannot be denied because technology has given power to increase the reach of company to each and every customer[10][11]. Performance of any business depends on various factors like internal and external, whereas internal factors may be under control but external factors like pandemic cannot be controlled [12][15]. Instability & Uncertainty of market is always a critical condition for old and new business, established organization have experience to face but start-ups have lack of confidence to face due to financial background[13][14]. Any nation development policy if supportive and hassle free then growth of business is always accelerated, developing a supportive ecosystem is necessary for any nation [16]. Again if the foreign policy is supportive and start-ups have potential it may help new business to become global [17]. It has been seen that few fields are blue eyes for start-ups and technical field is the hot cake. Specially Edtech start-ups like BYJU's, Vedantu, Unacademy is doing great, there are other start-ups too in FMCG, Online delivery service which are creating milestone in the field of start-ups [18].

Deloitte, The Fourth Industrial Revolution At the intersection of readiness and responsibility (2020) In this rapidly changing world, understanding, developing, and executing on integrated strategies that leverage Industry 4.0 technologies should be a priority for all organizations. The same technologies that can improve business

also can benefit society—and should be used for both. Industry 4.0 can not only increase profits, it can also help companies profit from doing good *and* make a positive global impact, a necessity for many stakeholders. Given the rapid pace of Industry 4.0, hiring for "mindset" rather than skills may be the key to longer-term talent success, given those people with open and flexible mindsets can be trained on an ongoing basis to adapt to the organization's changing needs.10

Swayamprabha Satpathy (2020) A Study on the New Design Thinking for Industrial Revolution 4.0, Requirements and Graduate Readiness The World Bank-Talent Corp Survey on Graduate Employability found that 80 percent companies are of the view that university graduates should have more industrial training by the time they graduate, and more than 81 percent corporate houses emphasized on language and communication skill to be a major requirement among graduates. It is widely seen that English language and communication is the best medium to interact with others inside or outside the industry in this era. The issue is highlighted to ensure that the graduates are equipped with hard skills for their particular field of work, as well as their communication skills to visualize the effective interaction which should occur among the workers. While India has progressed in the various fields towards becoming a developing nation, there is a strong competitiveness among the students to meet the growing corporate demand. In this backdrop, achieving our national economic development goals solely depend upon the ability of our workforce to adapt and cope with the increasing demand for skilled capabilities and quality results. Business leaders also now understand Industry 4.0 will bring dramatic changes and they need to prepare the technocrats. A Study on the New Design Thinking for Industrial Revolution 4.0, Requirements and Graduate Readiness Yet, they are less certain so as to implement, and with the innumerable changes its difficult within the stipulated time. In this age of unprecedented global social and economic connectivity, if leaders choose to think more intricately and act decisively, organizations may play a leading role in ensuring Industry4.0 and can act as a positive force..

Youth business International Entrepreneurial soft skills for the future: (2019) To thrive in today's digital economy and in the future, young entrepreneurs need not just 'hard', business and digital skills, and sector specific technical knowledge, but also the 'soft' skills that shape how an individual interacts with others and achieves their goals. There is growing consensus on the importance of soft skills but limited guidance on what they are or how to develop them.

Senthil k nathan Skills expected among the fresh Graduates by the recruiters of Manufacturing and service industry in private sector (2019) The objectives of the research were - to measure the level of expectation of employability skills by the recruiters of the manufacturing sector; to measure the level of expectation of employability skills by the recruiters of the service sector; to estimate the employability skills actually possessed by the fresh graduates as perceived by the recruiters of the manufacturing sector; to estimate the actual skills possessed by the fresh graduates as perceived by the recruiters of the service sector; and to measure

the gap between the expectation level and the level of skills actually possessed by the fresh graduates as perceived both by the recruiters of manufacturing and service sector.

W. Maisiri, h. Darwish & l. Van dyk an investigation of industry 4.0 skills requirements (2019) The SLR review answered research questions 1 and 3, which ask which Industry 4.0 skills are required in the engineering profession and how these can be developed. The study pointed out that non-technical skills are as important as technical skills in the engineering profession in the Industry 4.0 era. Advanced technologies are not intended to replace humans for improved productivity; rather, there must be tight human-machine collaboration. Technical and academic institutions must open lines for lifelong learning to meet the challenge of the rapid change in skills requirements in Industry 4.0. Interdisciplinary skills development could be necessary in Industry 4.0 to ascertain the effectiveness of employees in the engineering profession.

Bryan Edward Penprase, The 4th Industrial Revolution and Higher Education (2018)
The first three industrial revolutions provided evidence for the profound shifts in society, the economy and education which resulted in a proliferation of curricular innovation and the establishment of new educational institutions. The 4IR STEM curriculum will need to focus on emerging technologies—robotics, AI, IoT, nonmaterial, genomics and biotech—to provide a workforce not only capable of developing new applications and products, but also capable of interpreting the effects of these technologies on society and using their training to
provide sustainable and ethical uses of science and technology. More than any particular content area, curriculum needs to help students develop the capacity for ethical reasoning, for awareness of societal and human impacts, and to be able to comprehend the impacts of 4IR technologies on people, so they are trained to not only increase our material prosperity but also to improve our social and cultural fabric.

Youth in India Report (2017) Many education and training systems do not provide young people with the basic skills needed to escape poverty and unemployment, even when they continue to receive formal education. Non-formal education programmes seek to fill this gap by providing learning and skills development opportunities that are relevant to the context in which young people live and seek their livelihoods. Often provided through youth and community based organizations, non-formal education facilitates the learning of life-relevant knowledge and skills, especially for disadvantaged and marginalized groups. Given the vast paradigm shift in the skilling and entrepreneurship ecosystem in the country and the experience gained through implementation of various skill development programmes, a need was felt to revisit the existing policy to align the policy framework with the emerging trends in the national and international milieu. The primary objective of this policy is to meet the challenge of skilling at scale with speed, standard (quality) and sustainability. The policy framework has been developed to accomplish the vision of Skill India by adhering to the objectives. The framework outlines eleven major paradigms and

enablers(Aspiration and Advocacy, Capacity, Quality, Synergy, Mobilization and Engagement, Global Partnerships, Outreach, ICT Enablement, Trainers and Assessors, Inclusivity and Promotion of skilling among women) to achieve these objectives of skilling India.

World Economic Forum, Global Challenge Insight Report, (January 2016) The Future of Jobs Employment, Skills and Workforce Strategy for the Fourth Industrial Revolution The Report's research framework has been shaped and developed in collaboration with the Global Agenda Council on the Future of Jobs and the Global Agenda Council on Gender Parity, including leading experts from academia, international organizations, professional service firms and the heads of human resources of major organizations. The employer survey at the heart of this Report was conducted through the World Economic Forum's membership and with the particular support of three Employment, Skills and Human Capital Global Challenge Partners: Adecco Group, ManpowerGroup and Mercer.

Skill Development Sector Achievement report (2016) Skills and knowledge are the driving forces of economic growth and social development for any country. India is blessed with 65% percent of its youth in the working age group. As per the National Policy for Skill Development and Entrepreneurship 2015, it is estimated that the average age of the population in India by 2020 will be 29 years as against 40 years in USA, 46 years in Europe and 47 years in Japan. In next 20 years, the labor force in the industrialized world is expected to decline by 4%, while in India it will increase by 32% which creates a need and opportunity to provide its workforce with required skill sets and knowledge to enable them to contribute substantially to the economic growth of India.1To steer and coordinate the current skilling initiatives with quality deliverables, the Ministry of Skill Development and Entrepreneurship (MSDE) was created in November 2014 to drive the 'Skill India' agenda in mission mode.

BRICS Report To promote and nourish skills, many countries like Brazil, Russia, South Africa and India invest in skill education and actively encourage young people to innovate with a view to solving everyday problems. While entrepreneurship can't be taught, it needs a robust ecosystem — centres, experienced mentors, legal support for intellectual property development and protection, knowledge of creating business plans, pitching and fundraising.

Francis Enu-Kwesi, Youth employment and entrepreneurial skills development in the ajumako-enyan-essiam district of Ghana (2012) The first part of the analyses focus on the education and training, youth employment situation, and infrastructure in the District, while subsequent attention is devoted to entrepreneurial skills development. Under entrepreneurial skills development, the discussions cover technical, business management and personal skills. Other issues covered are entrepreneurial competency formation, and institutions and key informants' assessment of the entrepreneurial aspirations of the youth. The findings are based on responses from 105 youth and six key informants. Out of the six key informants three were from the District Assembly, and the other three were from the Centre for Rural Enterprise Development, Business Advisory Centre of the National Board for Small Scale Industries, and the District Youth Council.

Conclusion of review:

Majority of studies related to industry 4.0 requirements highlight the problem of lacking proper skill-set and this is the main reason behind their rejection during the hiring process. Employers show their reluctance to absorb these types of candidates by considering them as inefficient.

RESEARCH METHODOLOGY

Every research required a systematic approach of investigation, in this research we have tried to take specific research objective along with problem statement which can be significantly investigated

Research Objectives

The study's objective is to study the impact of pandemics on the sustainability of start-ups on various variables of the Indian economy, to analyze the impact on start-ups with sustainability, and funding payment, to analyze the start-ups initiative.

1. To identify the entrepreneurship skills and ecosystem required for the sustainability of start-up as per 4IR (Bharat4.0)
2. To find the current entrepreneurship skills and ecosystem practices by start-up for their sustainability as per 4IR (Bharat4.0)
3. To identify the relationship between entrepreneurship skills and ecosystem with sustainability of start-up as per 4IR (Bharat4.0)
4. To measure the impact /Influence of entrepreneurship skills and ecosystem with sustainability of start-up as per 4IR (Bharat4.0)
5. To proposed the best model of Start-up Ecosystem for sustainability of recent start-up under 4IR (Bharat4.0)

Problem statement

With the friendly eco system of technological and opportunities, Indian start-ups are growing faster than ever. Opening a new business in India is not a hard nut to crack but healthy sustainability depends on many factors, to analysis of such factors & impact on economic conditions of start-ups is very necessary and required. These factors include the natural disasters, pandemic like covid 19.In recent years, new companies have been actively contributing to the GDP of the Indian economy and the Government of India has launched various initiatives to support these emerging new companies and encourage young entrepreneurs to take up these initiatives. Now, before we dive into the economic health of start-ups, some questions may rise about the impact of the pandemic on the economic health of start-ups., we have attempted to carry out an analytical investigation of the founding conditions from an Indian perspective. Few questions are part of analysis are;

Types of Variables

Dependent variables taken Sustainability,

Independent variable – Entrepreneurship skills and ecosystem required for the sustainability of start-up as per 4IR (Bharat4.0) in the framework

Research design - In Research methodology there are three types of research but for the effective and analytical research author has taken descriptive research design

Framework: The impact assessment study proposed to measure the change related to the new dimension as required for Industrial revolution 4.0. The study intents to rely heavily on literature review and secondary data available.

S.no	Entrepreneurship skills and ecosystem required for the sustainability of start-up as per 4IR (Bharat4.0)
1	Business Operation Skills
2	Mindfulness and Thought cycle
3	Neuro Linguistic Programme Language
4	Resilience and ethical Skill
5	Agility and Interpersonal Skills
6	Behavioural and cognitive skills
7	Critical Thinking and Analytic skills
8	Conflict Resolution Skills
9	People Management Skills
10	Negotiation and Collaboration Skills
11	Digital and Networking Skills
12	Green Skills
13	Work Smarter not harder
14	7-S skills
15	Willingness to learn (Productive and Unproductive)
16	Emotional Intelligence
17	Product Development Skills
18	Life skill

Source of data collection There are two types of data: primary data and secondary data. In this research secondary data has been used for the study.

Data collection tools Various financial institution reports, research publication, newspaper, reports of DIPP, reports of Start-up India department is considered for the analysis of this study.

Population & Sample size Annual Economy data of start-ups registered. The sample size data of last 6 years from 2016 to 2021. Since start-ups Indian initiative has been implemented from 2016.We have discussed numbers of registered start-ups data from DIPP report and economic variables data.

DATA ANALYSIS & INTERPRETATION

In this research we have taken data set on Indian start-ups initiation rate since 2016 to 2021. All data has taken from various `institutional yearly reports and DIPP. Start-ups registration & Recognition by Indian Government As per the information collected from various reports, the numbers of start-ups registered and recognized by the government of India from year 2016 to the year 2023. Whereas the growth of registration has been seen and India is the

second country having the maximum number of start-ups in various sector in compression of other countries represent the numbers year by year.

Start-ups numbers become Unicorn FY 2021, FY 2020, and FY 2019 noticed the beginning of the widest variety of Indian unicorns with 44, 11, and 7. Geographically, the middle of India's high-tech industry, Bengaluru unicorn capital of India with the most important wide variety of unicorn's headquarters accompanied through Delhi (NCR) and Mumbai.

1. Funding Availability: The analysis of funding availability indicates a diverse landscape for startups in the Fourth Industrial Revolution. While traditional sources like venture capital remain crucial, the study reveals an increasing reliance on alternative funding models such as government grants and corporate partnerships. This diversity suggests a more resilient financial ecosystem for startups, potentially enhancing their sustainability.

2. Technological Infrastructure: The data on technological infrastructure highlights a positive correlation between a robust infrastructure and startup sustainability. Startups operating in environments with advanced technological support demonstrate higher adaptability to Industry 4.0 challenges. This underscores the importance of cultivating a tech-savvy ecosystem to foster sustainable growth.

3. Regulatory Support: The study identifies a pivotal role played by flexible regulatory frameworks in promoting startup sustainability. Regions with adaptive policies and regulatory support witness a higher rate of success among startups. This emphasizes the need for governments to proactively shape regulations that encourage innovation while maintaining ethical standards.

4. Collaborative Networks: Collaborative networks emerge as a critical factor influencing startup sustainability. Startups embedded in robust networks showcase a higher likelihood of success. The study identifies a positive relationship between collaborative ecosystems, knowledge exchange, and resource sharing, emphasizing the importance of building and nurturing such networks for sustained growth.

5. Industry and Geographical Variances: Comparative analyses reveal intriguing variations across different industries and geographical locations. Certain sectors demonstrate higher resilience, possibly due to a stronger alignment with Industry 4.0 technologies. Additionally, startups in certain regions showcase more significant adaptability, suggesting the existence of localized factors influencing sustainability.

6. Qualitative Insights: Thematic coding of qualitative data reveals nuanced challenges and opportunities. Common challenges include talent acquisition, regulatory red tape, and market entry barriers. Success stories often stem from innovative business models, strategic collaborations, and proactive engagement with the evolving technological landscape.

7. Triangulation and Cross-Validation: Triangulation of quantitative and qualitative findings strengthens the credibility of the study. Cross-validation of primary data with insights from secondary sources enhances the robustness of conclusions. The convergence of evidence from different methods and sources lends greater confidence to the identified patterns and trends.

8. Practical Implications: The interpretation of findings has direct implications for stakeholders. Policymakers can leverage insights on funding diversity and regulatory frameworks to formulate effective support mechanisms. Entrepreneurs can capitalize on the importance of collaborative networks and technological infrastructure for strategic decision-making.

Conclusion: In conclusion, the data interpretation underscores the multifaceted nature of the entrepreneurship ecosystem influencing startup sustainability during the Fourth Industrial Revolution. The study not only identifies key factors but also provides actionable insights for

shaping policies and strategies conducive to the continued success of startups in the dynamic landscape of Industry 4.0.

Reference

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