



Research Partnership Between Academic Institutions and Corporate sector

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Abstract :

As the industry is growing and at the same time educational institutions and organisations or Universities are also emerging. So, the needs are inevitably coming into the picture. Needs of what? So, the answer is the needs of companies and the need for education. As per the report from World Economic Forum, the Educational needs and Corporate needs are bouncing in a cycle. As the educational needs provide the corporates fulfilments and corporate needs provide educational fulfilments. Since there are many reports and discussions talking about the needs of each of the sectors not only private or public but of corporate and educational. As there is Public-Private Partnership for some needs, some benefits and for some growth. Thus, it is also important for this century to understand and apply the needs and benefits coming out of educational and industrial needs. There is a significant contribution of many researchers, authors, writers, professors, corporate officers, faculty members, business developers and entrepreneurs to elaborate on the uses and implications of an educational and industrial partnership. The research on 'Academic and corporate sector research partnership' seeks the needs, benefits, relationships and roles. It includes the case studies and data analysis about the achievements, and methods which are used to emphasize the importance of partnerships between the educational institutions and the corporate sector. There are many national and international partnerships which have been seen in many corporate world and educational institutions. There are many different ways to generate revenue, investments, Startups, Technology, new innovations, Commercialization and business development. Research that can give you empirical evidence or connect with the gap between one or two things. Under these particular partnerships, there is always a big debate about whether academic research fulfils the need of corporates or whether corporate research can fulfil the requirements of academic institutions. There have many positive and negative opinions on both kinds of research. But ultimately both the research is needed to establish the partnerships for a new innovation or for a new idea of business that can be beneficial for both the academics and corporates. The research is based more on the findings that how new innovative ideas are welcomed to establish new partnerships among academics and corporates to create jobs, business and entrepreneurship in this global world.

1. Introduction

The companies spend more on research in billion U.S dollars as per the year 2018 for their company needs and other important measures. As per the statistical analysis done by statista.com in the year 2018, companies like Amazon, Alphabet, Volkswagen, Samsung, Intel Co, Microsoft, Apple, Roche, Johnson & Johnson are the major companies who are spending billions of U.S. dollars on research. Amazon is the most lending company with faster pace by its potential of work,

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new innovations, application of new technology, business strategies and performance spent more on research for its future benefits. It has spent 22.6 billion dollars on research and achieved 22.5 billion U.S dollars of expenditure in the year 2018. Amazon comes in the first top five companies along with Alphabet, Volkswagen, Samsung and Intel Co for spending more money on research. Since Amazon is spending more on research because to innovate new products, new differentiation in products, more techno-savvy products, price differentiation in products by examining the consumer taste and preference as it includes the Consumer research too. The Academic and company Partnership is considered as an important support for our economy to grow. It even helps to keep our growing economy at a satisfactory rate of pace, it improves more innovative ideas, it also helps to grow out education system and it provides employment opportunities for various sectors. For many years innovative solutions and ideas has incorporated in our education system and innovation in education system has impacted the operation into the business world. In today's world, as the global market is expanding and the youth of this generation is entering into the growing and changing job market it helps to keep new change. In a similar way, the new generation of today is ready to take challenges and are ready to learn new technologies and adopting new skills. Now a days, many young enthusiastic people are also responsible representatives of today's multitasking conditions. Thus, we can see there are new entrepreneurs are also entering into this high quality business world. That is why entrepreneurs or say, the new emerging companies and growing education institutions need to understand with recognising new talent and giving them more opportunities and should build a strong and healthy framework for the new generation. Academic institution and company partnership could bring a new innovation hub in a global sceneries as well as in India. In countries like the US, corporate sectors have reached out to many diverse Universities and institutions all over the world. It has brought innovative solutions to their business requirements and work. In India, the corporate and industrial sector depends on and formulates its own research work but it didn't reach or reached out to Universities or any academic institutions. Currently in India, as the Hindustan Times gave its report, there are loopholes in a social environment, lack of awareness about scholarships, and the negative attitude toward researchers by corporates are some basic issues that are coming between academic and company partnerships. But still there are many partnerships that we can hope to grow in coming years. There are many different kinds of partnership took place in India that could probably make a change in our lives. Some of them working for many years that we don't even know. Thus, it is very important to study the role and benefits of the University-Company Partnership.

1.1 Background & significance

As the universities and companies are in association to gather more outputs for innovation through research but there was an outburst in the number of research partnerships between companies and universities. Companies, have been lowering their spending on initial period of research for around many years from other researchers but instead of that they had given the researcher's role to the universities to perform it. Universities often play a role of accepting new suggestions and ideas. Some observations under university-company partnerships are that Corporate Research needs Academic Research, which is accessible or can be accessed in specific domain. To frame accurate research questions and findings approachable to a specific organization or product/service or company, the Corporate Researcher needs to understand proper ways in terms of evidences, perceptions and innovation which Academic Research will be able to provide the

needs on corporate, entrepreneurial and business outcomes. Some corporate giants like General Electric, Siemens, Rolls-Royce, and IBM, which have collaborated with universities for many years. General Electric Company's partnership with Ohio State in 2018 along with its programme called GE additive Education Programme. Even General Electric had a collaboration with the Ohio state university (college of engineering). Siemens had a partnership with University of Sheffield. Rolls-Royce has a partnership between University of Cambridge and IBM's partnership with many global universities has put up a new face to technology, research and advance relevant skills for today's workforce. Many diverse and top most companies like Amazon, Facebook, Google, Uber are also having spectacular partnerships from their early stage of innovation to their present functioning and new strategies with many different universities. In addition, small and big companies like mining, automobile, semiconductor, manufacturing, software companies are also having collaborations with universities. For example, IQE company's partnership with Cardiff University. This partnership has resulted to boost business and technologies. Such collaborations between corporations and universities not only focuses on innovation but also to generate ecosystem. Kendall Square, Massachusetts, Block 71 are those companies who are mostly known for their partnership with the universities for innovation in ecosystem.

2. Review of literature

1. H. Kent Baker, J. Clay Singleton and E. Theodore Veit (2011) in their book titled 'Survey Research in Corporate Finance – Bridging The Gap Between Theory & Practice' discussed the survey method in corporate finance and have compared where the theory and practice actually meet. They have tried to figure it out that practice doesn't fit into theory and theory doesn't fit in practice. For the support to their title, they have mentioned Weaver's point of views on theory and practice. They have mentioned that survey research as unscientific and thus this research seems very biased. This research even stuck in many opinions expressed from other scholars. It doesn't follow the changes in the size of the gap between theory and practice. If though it was mentioned as their purpose of the study. Using primary data, the research tried to bridge the gap between theory and practice by the respondents that the research on finance revealing the insights about financial issues but the research did not explain the problems faced by the corporate and remedies to repair it using theory. This research lacks in explaining the use of theory into practice but this research only describes the difference between research methodology and survey methodology. So, the research looks very confusing and not determined properly. The research has used the respondents from financial journals and use of research for them but does not clarifies the use to theory in practice like in Business decisions etc.

2. Maureen Farrell (2008), in the article titled 'Universities that turn research into revenue' discussed that how the Licensing revenue could be established by the research by the Universities. How much income has generated by the Universities have been understood by the author and the author has put many recent data but not have given any previous data and its analysis. The article more focused on the revenue attained by the University from research and development. The article looks more comparative study but fails to deliver the exact attention on the Universities aim to achieve revenue. The main aim of the University to provide start-ups to generate the revenue and emerging as global start-up in the global submits. The Universities earning income from as entrepreneurs, and this article lacks to provide nature of the University as global entrepreneurs. The author also examines the use of patents of the Universities to generate revenue but it doesn't

explain how the patents are determined. Because when it comes to academic parenting there are IPs which had significant role in the generation of revenue. It also clarifies by how many patents the University has gained the revenue except explaining how. The article tries to generate the failure of the patent to access revenue but fails to describe the misuse of any patent in any case.

3. Greg Satell (2016), in the article titled 'Innovative Companies Get Their Best Ideas from Academic Research – Here's How They Do It' discussed on competitive advantage by the academic research. The public company can use the knowledge as key Knowledge to access the competitive advantage. The article focuses on how the process goes with the public domain. Since there are many difficulties may a research would face with the copyrights and other security issues. The article should have put light on how the process of moving research from one to other universities has and how does it works practically. The article described the cultural divide. Even though there must be many different ways to do research and different opinions among the research somehow the article only shows the pitfall but couldn't have any suggestions. Somehow the article concludes that there is understanding of the different cultures among the two disciplines. But lacks to justify the statement in this article. This article Points out the fast growth and development by academic research from ages but states that this speed should generate in a faster way not giving any ideas to the future challenges and gives more examples from the past and not elaborates the present inventions and innovations by the academic research.

3. Objectives

1. To understand the benefits of research partnership with academic institution and corporate sector.
2. To understand the role of research partnership between academic institution and corporate sector.
3. To understand the relationship between academic institutions and corporate sector for research partnership.

4. Research Methodology

The research is Exploratory. The data collection Technique is based on secondary data. This data collection analysis will be better understood by the different case studies. The secondary data is collected by previous research papers, reviews, books, surveys and articles. Data collection and its analysis is based on the data issued by international Universities. Ex. University of Southampton, University of Edinburgh, University of Oxford, Columbia Business School etc. The data will be collected from online portals of different universities of different countries. Research paper like 'Survey Research in Corporate Finance – Bridging The Gap Between Theory & Practice, reviews like Harvard Business review, Articles from Forbes, India Today, Hindustan Times, Times of India and Surveys like Amazon Survey, Office of Research Commercialization survey has been taken as a guiders for the respective research. The research process will gather the information on Institutions and industries expectations to understand the need of the Industry/Company partnership with Institutions or Universities. Thus, it get categories by the different avenues of exploring the needs of the partnerships. The different approaches to a gather the need for the partnership will also help to understand the benefits coming out from the partnership by different perspective. On this basis of that, It will get easy to find out the findings and its analysis that it further gives its conclusion and it helps to reach out to the suggestions.

5 Findings and Analysis

5.1 Case Study - Research Increases University Revenue

According to the Forbes, in 2006, the Stanford University took in \$4.5 million in research-related income (including licensing revenue and returns on equity stakes in start-ups) while shelling out \$28 million on research. That same year, Stanford pulled in \$62 million against a \$700 million investment; return on investment (ROI) of 8.7%. In the similar way, New York University, which pulled in \$157 million in research-related income on \$210 million in research and development (R&D) expenditures. As a result, it tops the list with a 75% yield. And The University of California, ranks no. 14 on the Forbes list, generates significantly more revenue from its research than all other U.S. universities. This universities are making more revenue from research, does it has become mandatory to understand the relationships between university's revenue and the research universities provides. There are many University-Company Partnerships that are increasing university revenue, but also finding a major place in market as it also providing benefits to the partners.

5.2 Howard University and Google Partnership

Partnerships between universities and companies are known as the key performance indicators of the innovation in business and economy. This highlights the interaction of academics with corporates under research and development. There are many universities and companies which has a great partnership at this moment, Silicon Valley companies like Google is one of them. Google is known as the internet search giant. Google has expanded their partnership with Howard University in the year 2018 for a student program known as Howard West. It is a pipeline program. The nature of the programme is on-campus programme and it opened to 100 students from Howard University and other Universities. The main motto of this programme is that to recover the loopholes in workforce as they want to achieve equality in work for all gender, class, colour and creed. Thus, this programme provides internships at Google's Silicon Valley Headquarters to the students who are pass outs and the exact number of selecting the pass outs for the internships is 740 students. But the participation in this programme was less and student who was participating were only 10 to 30 in numbers. The main concern of Howard University students is that after completing software engineering programme in Howard University that there are less jobs in Silicon Valley and African-American students have to struggle for it. The Google-Howard University partnership could benefit students as Google can give an equal opportunities to them.

The benefits to introduce Howard West programme –

1. To boost confidence among students.
2. Calling card to students in future.
3. To learn, to lead and to take risks in leadership positions.
4. Reducing students' apprehensions.
5. Getting students in professional setting at an early stage.

As there is less participation in Howard West Programme but the students did enjoy fully who have participated and even the organisation committee is willing to expand their programme in future with getting positive responses from the students. There are many debates like the Howard West programme is not pipeline programme but it is a talent programme. If the programme goes harder the students will feel like they are working in Silicon Valley and the students will experience some additional skills and the programme will provide networking opportunities with companies.

5.3 MIT and IBM Partnership

MIT and IBM has MIT-IBM Watson AI lab, which has collaboration in research together. IBM planned \$240 million investment to create the MIT-IBM Watson AI Lab in partnership with MIT for 10 years. The lab will process with the fundamental artificial intelligence (AI) research. The collaboration aims to AI hardware, software, and algorithms. AI's impact on industries has increased such a way that the health care and cyber security will establish new AI methods. The AI will explore the economic applications. This new project will be mobilizing the talent of more than 100 AI scientists, professors, and students to pursue joint research at IBM's Research Lab in Cambridge, Massachusetts. It also brings new job opportunities in this area of study.

5.4 HDFC Bank and IIT Bombay Partnership

HDFC bank has announced its partnerships with over 50 technology companies and business schools to catch innovating and emerging 'fintech' (Financial Technologies) ideas. And the HDFC bank has started its first partnership with IIT-Bombay. Financial Technology seems an important need to the business and manufacturing world today. Financial Technology defines delivery of the financial methods or to improve the delivery of financial activities by new innovating technology.

Objectives of the partnership

1. To identify potential of financial technology ideas in an entrepreneurial way in the Institutes.
2. To help Institutions to progress into a consumer-ready product.
3. The Bank will use its domain expertise to mentor start-ups on customer experience, reduce time to market and costs.

The academic research has some limitation as the heads of some institutions believes that. According to them, the Academic research ends with just some scholarly outcome but doesn't reach or help to turn into a product that can be ready for adoption. But any partnership with industry could make worth to use academic research in the business world having suggestions from the industry whom they are partnered with. Many students are shifting to the financial services so it has become an important task to perform by the industry and institution partnership. The Ministry of Human Resource and Development (MHRD) also increased funding to IIT- Madras by nearly \$47 million, nearly Rs. 300 Crore. India Electronics and Semiconductor Association (IESA) has signed a partnership with IIT-Kharagpur. These are some collaborations that are leading to emerge innovative ideas in India. By creating the academic foundations for the next generation and improving their short term and long term based augment problems with gathering new talent is one of the most essential part of creating Universities and Corporate partnerships brings more innovation and where the universities perform a role of stakeholders. Either making other entities as a source of information and research University-Companies partnership is considered as opening avenues to new branch of knowledge and application.

5.5 Business Incubators & Accelerators tie-ups with Universities

5.5.1 Incubator Organisation

Following are the top most Incubators and Accelerators.

• Ycombinator	• Innovacrop	• Research Spin-off
• 500 start-ups	• The founder Institute	• Captial Factory
• Techstar	• Highline BETA	• AngelPad
• The DMZ at Ryerson University	• Creative Destruction Lab	• Berytech

• Economic Development Organisation	• The Next 36	• Start-up Village
• Infodev	• IdeaLab	• York Entrepreneurship development institute
• Tumml		• Startupbootcamps

5.5.2 Emerging role of Incubators and Accelerators

According to the UBI Global World Benchmark Study 2017 – 2018, University-Business Incubators and Accelerators show their value and impact in the innovation ecosystems and the broader economy. Business incubators and accelerators can be linked to universities in different ways including direct management, affiliation or collaboration. This can also help get the innovation out of the lab and classroom and into the market. Unlike traditional academic design, incubators are more likely to be in start-up offices, offering people choice to identify where and how they want to work. Incubators provide students a glimpse of where they could go after they take a gap from campus to workplace. According to Gensler Global Education Programme, they are expanding their incubators in cities including London, New York, Chicago, Houston, Cambridge, Baltimore, São Paulo and Suzhou. Incubator's space could bring students to companies, because the Incubators are directly connected to the market and companies could find out them and recruit them. This also provides many new emerging start-ups. In India, there are many Accelerators provide start-up platforms and many of them are associated with Universities, some of them are, Amplifi Asia, Anscelator, Appy Hours, Avishkar, Axilor Ventures, CATALYST – SG GSC Accelerator, Cisco Launchpad, DesignGild. Similarly, AIM Smart city Accelerator, born out of Ashoka University in Sonapat, Haryana, in 2016, was launched to empower start-ups primarily working on three issues - healthcare, sanitation, and waste management.

5.6 Commercialization of Research

5.6.1 Process of Commercialization of Research

As per the Harvard Business review, the companies should make commercialization a priority. But the companies do focus on commercialization of technologies but the companies equate the Commercialization of research along with it. The question is why this company equate commercialization of research and yet the answer is that the companies do understand the need of commercialization of research for new innovative solutions. It is somehow very important to understand the role of commercialization of research in a broad way. The University of Pittsburgh has committed to support commercialization of research as part of its educational objectives. The University has invested \$700 million dollars into the research and development. Commercialization provides innovators the opportunity to explore and develop the commercial support for their research. It also helps to transform them into products for its benefits.

1. Research

The observations and experiments in any field of study can bring a new innovation for desirable needs.

2. Invention Disclosure

It is a confidential document that includes aspects of the invention that can provide advantages and benefits.

3. Assessment

This is procedure where the review of the invention disclosure takes place and this process go with the understanding of the invention, if it has any commercialization potential and it could be applicable to the market or not.

4. Intellectual property

It includes the licensing with copyrights and trademarks. The patent can be secured with its uniqueness and sometimes with some reasons the patents has to get in proper way can be very costly and time consuming.

5. Marketing

This process goes with the marketing of the research that identifies and contacts candidate companies (potential licensees) with the expertise, resources, and business partnerships required to bring the technology to market.

6. Licensing

It is to negotiate with the licensed agreement and the agreements provide rights to the company.

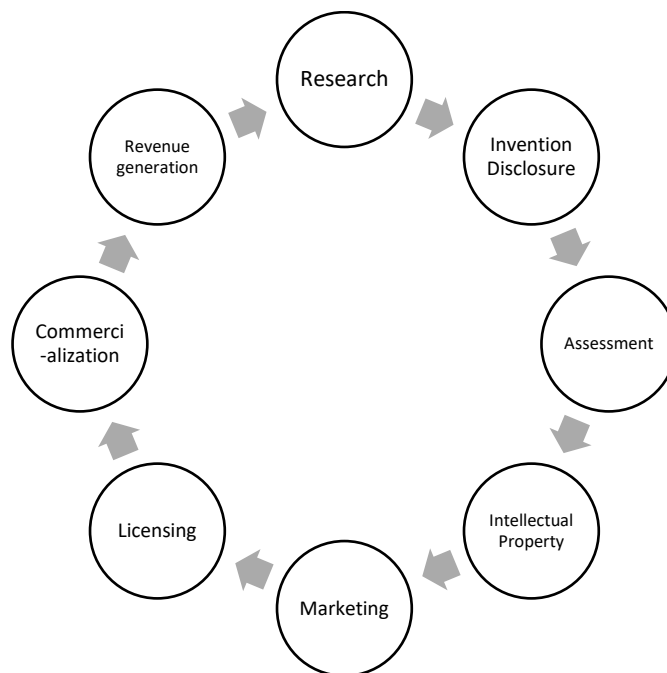
7. Commercialization

Company makes investments for a commercialization of the product.

8. Revenue Generation

It is generated from commercialization of the research.

5.6.2 The process and Innovation Cycle of Commercialization of Research



5.6.3 Benefits of commercialization of research

Commercialization of research helps new products and services that can be used to make improvements into the consumers and business in a public domain. Healthcare, environment, fitness, education, industry and innovations resulting from University research are most impactful when they are in the hands of those who can benefit from them most. Taking innovations to market through commercialization of research also benefits to the economy. For example, licensing of technology to other companies, new start-up company development, Commercialization provides new revenue generation and job creation. Commercialization provides an opportunity to engage with industry partners, investors and other businesses. These partnerships can result in additional funding sources to further University research. The commercialisation of the industry gives recruitment and retention to the students and some commercial partners in addition. Bridging academia and industry can result in increased knowledge of the business sector, career development opportunities and investor relations.

Where the commercialization of the Research can be done?

1. Office of Research commercialization, North Carolina State University.
2. Office of licensing and ventures, Duke University of medicine.
3. Technology Development & Commercialization, University Health Network, Canada.

6. Conclusion & Suggestions

The focus needs to be largely on improving the Research and Development wings of institutes. The Tatas are choosing to invest \$25 million in globally-recognised institutions like Harvard and Yale for top-end research instead of betting on India. As there are many university and company partnership in forms like 'University-Incubators', 'Engineering Collage/University-Software Company', 'University-Bank', 'University-Semiconductors' etc. Another area for development could be encouraging a public-private initiative to launch faculty development programmes in leading universities and focus on more outcome-based research. Additionally, industry should participate in developing the entrepreneurial culture in India by setting up incubation centres and research parks for innovative research. Corporates are beginning to realise the significance and engage in more and more research-based projects. As in India, the attitudes of the corporates towards these projects was not so good. Government projects likes Start-up India and the Prime Minister's Fellowship Scheme for Doctoral Research will help bridge this gap and inculcate innovation across industries/sectors.

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