# INTELLECTUAL PROPERTY RIGHTS, START-UP INDIA AND INNOVATIONS IN HIGHER EDUCATION

*Editors*

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# 1.

# Promoting Incubators Leads Entrepreneurship and Innovation

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**Abstract:** Academic incubators of innovation and entrepreneurship also cooperate with various institutions and companies in which students find employment or take apprenticeships. In addition, academic incubators of innovation and entrepreneurship, cooperating with various institutions and companies, enable the establishment of clusters of innovation, in which various economic entities, public institutions, scientific institutes and universities cooperate with each other. In this way, the possibilities of entrepreneurship development and generation of innovative solutions in assumed and developed research projects and startups are increasing. This paper deals with the functioning and importance of incubators in supporting the creation of new business and local economic development, as they help locally engage young entrepreneurs and thus retain expertise. Incubators help entrepreneurs who want to expand their specialist knowledge through interaction with other small business owners. Also discusses few points on Atal Innovation Mission, Atal Incubation Centre.

**Keywords:** Incubators, Start-ups, Small- business, Economic Development, Entrepreneur ship, and Innovation.

## Incubators

Academic incubators of innovation and entrepreneurship are developed at universities to support innovation and

entrepreneurship of students. Incubators are also a supplement to the educational program in the field of activating the innovation and entrepreneurship of students. Incubators sometimes also perform functions or cooperate with a career office for students. Career offices collect employment offers and organize internships for students through cooperation with companies and institutions that employ or give practice to students.

Business incubators are institutions that support entrepreneurs in developing their businesses, especially in initial stages. These are organizations geared towards speeding up the growth and success of start-ups and early stage companies. Incubation is usually done by institutions, which have experience in the business and technology world.

Incubation support includes providing technological facilities and advices, initial growth funds, network and linkages, co-working spaces, lab facilities, mentoring and advisory support. They are often a good path to capital from angel investors, government organizations, economic-development coalitions, venture capitalists and other investors.

Most of the incubators have potential capital to invest in growth startups, or have links to potential funding sources. They provide access to compliance services from professionals such as accountants and lawyers; not to mention the invaluable mentoring and networking support available at the incubation center, through the staff and other entrepreneurs at the incubator.

As early stage hand holders, incubators act as an integral part of the start-up ecosystem. They act as a catalyst for both regional as well as national economic development.

There are different types of incubators: Academic institutions; Non-profit development corporations; For-profit development ventures; Venture capital firms, and combinations of the above.

Incubators vary in their strategies. Some are located in an actual physical space meant to foster networking between incubate entrepreneurs and others in entrepreneurial space. While others operate on a virtual basis. Incubators sometimes call themselves accelerators instead, often when they are geared towards jump-starting businesses that are more developed. Also, business incubators differ from research and technology parks in their dedication towards supporting start-ups and early-stage companies.

Research and technology parks tend to be large-scale projects that house organizations ranging from government institutions, corporates, university labs to very small companies. They seldom offer business assistance services, unlike business incubators. Rather, it will be good to say that business assistance services are the hallmark of business incubators.

One of the popular startup incubator program in India is IIM Ahmedabad Centre for innovation incubation and entrepreneurship (OR) CIIE. It was set up by Association of India and the Gujarat government for seeding and incubation support with focus on mass impact areas and technology their portfolio involves, RIDLR, RAZORPAY, FRAMEBENCH, GREENWAY and many more.

An incubator is a way for the community to help entrepreneurs who have good ideas but do not have the resources to start their activities independently. Small business incubators are a way of boosting economic development

### *Role of Small Businesses on incubators*

Interest in incubators lies partly in the role that small businesses play in most local economies, for example, in the jobs created and the innovation generated. Furthermore, small businesses can be developed in greater numbers faster than the larger companies often not local.

Incubators are a vehicle of aid to local entrepreneurs as they constitute the local economy and are more likely to maintain their activity locally than multinational enterprises. In addition, supporting the creation of small local businesses can help locally engage young entrepreneurs by avoiding the loss of specialized skills in some geographical regions of the interior. However, there is a risk that 50% of small businesses will fail in the first 4 years of operation. This reality has diverse implications for local economic development, in the following aspects

- Small businesses are important because they can generate employment for residents.
- Small businesses often carry out activities in areas of technological innovation or artistic or creative areas that do not require many resources to operate the business.
- The development of small businesses contributes to the creation of local and regional economic capital (specialized knowledge and brands).
- Significant efforts must be made to ensure that the companies created will not fail.
- Because of the risk of small business failure, incubators should not be seen as the cornerstone of an economic development strategy but rather as a contribution of efforts to promote the development of SMEs in a given community.

***Objectives of incubation Programs***

Start-up incubators support the creation and growth of business through organizational and technical assistance, which at the same time contributes to the reduction of entrepreneurial failure. The three most common objectives of incubation programs are the following

1. The creation of employment in the community
2. The creation—or acceleration of growth—of a local industry
3. Diversification of the local economy

The incubation can be physical or virtual. Virtual incubation does not consist of a workspace, but it is included in a credible address destined to the market for professional contacts, including the holding of work meetings. We can affirm that an incubator is constituted by a common space of which a space (like office) is made available that is used for the beginning of activity of a new business. The price of rents may be lower than the market price due to public subsidies to promote entrepreneurship.

In addition to lower incomes, location sharing, or co-working among start-ups with similar activities, the incubator includes a set of support services to serve the technical and operational needs of start-ups, often owned by inexperienced entrepreneurs. In turn, co-working constitutes a physical space that fits a transversal work model for entrepreneurs with similar activities at the level of operational resources. It is a functional structure that allows entrepreneurs to have an office as reference location and professional contacts, enjoying a series of services shared with other entrepreneurs.

Atal Innovation Mission (AIM) is Government of India's flagship initiative to promote a culture of innovation and

entrepreneurship in the country. AIM's objective is to develop new programmer and policies for fostering innovation in different sectors of the economy, provide platform and collaboration opportunities for different stakeholders, create awareness and create an umbrella structure to oversee innovation ecosystem of the country.

Five major initiatives taken in first year of establishment:

1. *Atal Tinkering Labs*- Creating problem solving mindset across schools in India.
2. *Atal Incubation Centers*- Fostering world class startups and adding a new dimension to the incubator model.
3. *Atal New India Challenges*-Fostering product innovations and aligning them to the needs of various sectors/ministries.
4. *Mentor India Campaign*- A National Mentor network in collaboration with public sector, corporates and institutions, to support all the initiatives of the mission.
5. *Atal Community Innovation Center*- To stimulate community centric innovation and ideas in the unserved /underserved regions of the country including Tier 2 and Tier 3 cities.
6. *ARISE*-To stimulate innovation and research in the MSME industry.

Atal Innovation Mission (AIM) including Self-Employment and Talent Utilization (SETU) is Government of India's endeavor to promote a culture of innovation and entrepreneurship. Its objective is to serve as a platform for promotion of world-class Innovation Hubs, Grand Challenges, Start-up businesses and other self-employment activities, particularly in technology driven areas.

The Atal Innovation Mission (AIM) has two core objectives:

Entrepreneurship promotion through Self-Employment and Talent Utilization, wherein innovators would be supported and mentored to become successful entrepreneurs

Innovation promotion: to provide a platform where innovative ideas are generated

Under its core objectives, AIM intends to support the establishment of new incubation centers called Atal Incubation Centers (AICs) that would nurture innovative start-up businesses in their pursuit to become scalable and sustainable enterprises. Along with AICs, AIM shall also provide scale-up support to a few distinguished incubation centers of the country. These incubation centers, referred to as Established Incubation Centers (EICs) have already been in existence, but AIM intends to further catalyst their performance by providing them scale-up support.

**About Atal Incubation Centre:**

AIM intends to support the establishment of new incubation centers called Atal Incubation centers (AICs) that would nurture innovative start-up businesses in their pursuit to become scalable and sustainable enterprises. The AICs would create world class incubation facilities across various parts of India with suitable physical infrastructure in terms of capital equipment and operating facilities, coupled with the availability of sectoral experts for mentoring the start-ups, business planning support, access to seed capital, industry partners, trainings and other relevant components required for encouraging innovative start-ups. Moreover, AICs would be established in subject specific areas such as manufacturing, transport, energy, health, education, agriculture, water and sanitation etc.

*Eligibility*

Entities such as such as higher educational institutions, R&D institutes, corporate sector, alternative investment funds registered with SEBI, business accelerators, group of individuals, and individuals are eligible to apply.

*Financial Support*

AIM will provide a grant-in-aid of up toRs. 10 crores for a maximum period of 5 years to cover the capital and operational expenditures to establish the AIC.

*Requirements*

The applicant would have to provide at least 10,000 sq. ft. of ready-to-use, built-up space, for the exclusive use of the AIC.

**Physical Installations**

The physical facilities provided by the incubators may take different forms depending on the sector of activity of the start-ups to be incubated. For example, the service start-up incubator may consist of individual offices with shared common areas (reusing a residential or commercial space), while incubators for high-tech manufacturing start-ups require larger spaces (industrial buildings).

**Benefits offered by incubators**

Incubators offer tangible and intangible benefits to start-ups. Tangible benefits often include the following operational aspects

- Shared use of equipment such as photocopying machines, telephones, computers, and Internet access
- Shared conference spaces and meeting rooms and informal interactions with other incubators
- Shared services for start-ups, such as secretarial, accounting, marketing, and legal support

- Technical assistance in marketing plan, business plan, financial system, and accounting
- Joint acquisition to suppliers and links between incubated start-ups relative to operating factors upstream and downstream in the value chain
- Assistance in obtaining funding in the start-up phase

The intangible benefits derive from the ability of entrepreneurs to act as a support system among incubated start-ups. Intangible benefits are more likely to occur among start-ups with similar activities. For example, incubated high-tech start-ups can share the development of ideas and innovation. Biotech start-ups can support each other in the development and commercialization of innovative products.

Even in incubators with start-ups operating in distinct sectors of activity, entrepreneurs can share their experience, ideas, and knowledge on certain subjects such as marketing, product development, recruitment, and accounting.

Following the above, we can briefly state that the main objective of incubators is to support the development of start-ups, which leave the incubator when they increase in size or become sufficiently stable to operate without specific benefits offered by the incubator. This makes room for other start-ups to start their incubator operations.

There are several active incubators spread across college campuses in the country. Here's a list of some of the business incubators for students to incubate their ideas:

1. Amity Innovation Incubator, Amity University Campus, Noida

2. Amrita Technology Business Incubator, Amrita Vishwa Vidyapeetham, Amritapuri Campus, Clappana, Kollam
3. Abhiyan, IIM Lucknow
4. Center for Entrepreneurship, SP Jain Institute of Management & Research
5. Center for Innovation, Incubation and Entrepreneurship, IIM Ahmedabad
6. Center for Entrepreneurship and Innovation, IIM Calcutta
7. C-TIDES, IIT Madras
8. Entrepreneurship Cell, IIT Kharagpur
9. Entrepreneurship Cell, FMS Delhi
10. E-Cell, IIM Kozhikode
11. Entrepreneurial Development Cell, IIT Guwahati
12. Entrepreneurship Development Cell, IIT Delhi
13. Entrepreneurship Development Institute of India, Ahmedabad

**Conclusion :**

Currently, there is a great difficulty in obtaining a job where the knowledge acquired in a higher education course can be applied, through the conclusion of a stable employment contract, and with a remuneration proportional to the education effort carried out as a personal investment. Therefore, it is imperative to adapt the education system to the challenges in the labor market. Therefore, rather than teaching someone to work for entrepreneurs, it will be necessary to pass on knowledge in order to encourage the emergence of new entrepreneurs in the community.

In this sense, the entrepreneurial education constitutes a challenge, on the one hand, to the institutions of higher education in what concerns the design and implantation of incubation in articulated network with diverse economic actors and, on the other hand, to the traditional pedagogical

methodology of transmission of knowledge and learning in the classroom.

Therefore, entrepreneurship education aims at increasing students' awareness of the various aspects of business creation, emphasizing a philosophy of learning oriented to practice and action in a turbulent environment.

*"Incubation contributes to the creation of new businesses and, consequently, to economic and social development.*

*The installation of incubators is a way of encouraging the creation of small businesses and recognition of their role in local economic dynamism in terms of job creation, the establishment of qualified young people, and the development of areas of sectorial and technological specialization".*

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# 2.

# Intellectual Property Rights (IPR) and Higher Education in 21st Century India

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## Introduction:

The 21st century Indian Higher Education scenario has witnessed several changes in the first two decades itself. Especially, the care and concern for academic integrity and ethics in research. It is evident in both UGC Quality Mandate as well as National Education Policy 2020. UGC Regulations regarding maintenance of Standards in Indian Higher Education Institutes also lay importance to the originality, authenticity and integrity in academia. UGC CARE is also another machinery to take care of these issues. Recent Guidelines for STRIDE which seek the plagiarism check of the research proposal is also indicative of the future of Intellectual Property Rights (IPR) in Indian Higher Education.

## Why we need IPR?

According to Prafulla Gangully, "Intellectual Property Right is needed because the need to 'ad(d) venture' with knowledge is these days being felt more than ever before". Hence, it is the need of realistic legal frameworks that would nurture innovation, and provide for ownership of knowledge, facilitate fearless knowledge sharing / transfer / rejuvenation, encourage fair benefit distribution between the innovators and society resulting in enhanced trade and societal advancement. The appreciation of the issues of

knowledge ownership and IPR linked issues have begun to take central stage in all knowledge linked activities.

**What is Intellectual Property?**

According to WIPO Intellectual property (IP) refers to "the exclusive right granted by the state to prevent others from using, manufacturing, distributing – inventions, processes, applications, new and original designs, trademarks, new plant varieties, data bases and artistic and literary works". IPR is applicable to creations of the mind that involves*:*

- inventions,
- literary and artistic works,
- and symbols, names, images, and
- designs used in commerce.

**What comes under IPR?**

Here is the list of the sectors that come under IPR:

1. Copyright and related rights
2. Trademarks, including service marks
3. Geographical indications
4. Industrial designs
5. Patents
6. Layout-designs (topographies) of integrated circuits
7. Undisclosed information, including trade secrets

**Copyright and Related Rights:**

The rights given to the authors of literary and artistic works which include but not limited to

- books and other writings,
- musical compositions,
- paintings,
- sculpture,
- computer programs and
- films

The validity of the copyright is for 50 years after the death of the author (relative).

Other similar rights singers and musicians, producers of phonograms and broadcasting organizations. In general there are two types of rights under copyright:

- economic rights,
- moral rights,

**Trademark and Related Rights:**

According to WIPO, a 'trademark' is "a distinctive sign that distinguishes certain goods or services produced or provided by an individual or a company from others". It helps consumers to identify and purchase a product or service based on its specific attribute or quality.

**Geographical Indications (GI):**

In some cases the name of the place name is sometimes used to identify a product, it is called as Geographical Indications (GI). It is a mark used on goods that have a distinct geographical origin and acquire qualities or a wider acceptability due its place of origin. Examples of GI include 'Darjeeling tea', 'Champagne', 'Scotch', and 'Roquefort' cheese, etc.

**Industrial Design:**

The protection of the rights of Industrial Design includes -

- ornamental, artistic or creative aspects of
- a product including three-dimensional or two-dimensional design structures
- It may include wide variety of products like handlooms,
- handicrafts,
- jewelry,
- luxury items, and other similar items etc.
- Minimum10 years protection for industrial designs

**Patents:**

Patent is a right that is given for an invention which may be a new product or process. It may be an entirely new method of creating something or new technique for manufacturing or producing something. Patent is protected for a limited period, usually for 20 years.

**Patent Drafting for Beginners:**

One who desires to get a patent should have fundamental knowledge of design, drafting and legal aspects. The steps in preparing for patent drafting for beginners include the following points:

- Describing the Product Specifications
- Pointing out the exact Claims
- Patentability check is the preliminary requirement for registering any patent.
- Identification of the appropriate Patent Registrar at National / International level.

**Layout-designs of Integrated Circuits:**

- These are rights that protect semi-conductor integrated circuits designs and products
- It includes transistors and other integrated circuit elements that are conjointly twisted on a semi-conductor substance or an insulating material devised to execute an electronic circuit purpose

**Trade Secrets:**

A trade secret may be a

- formula,
- blueprint,
- apparatus or
- collection of information that is used in the industry,

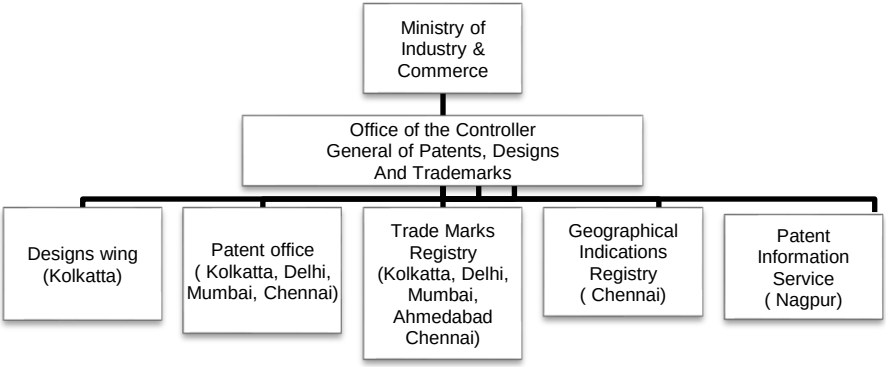
- and which confers a chance to obtain a comparative advantage over competitors
- It can be applied to protect valuable 'know-how' that grants business a comparative and competitive advantage over its rivals

**Legal Framework for IPR in India:**

It is also necessary to discuss the legal framework for Intellectual Property Rights in Indian Context. Here is a table that reflects the various acts and the concerned departments regarding the implementation of IPR.

| **Act** | **Ministry/Department** |
|---|---|
| The Copyright Act, 1957 | Higher Education |
| The Patents Act, 1970 | Industrial Policy & Promotion |
| The Designs Act, 2000 | Industrial Policy & Promotion |
| The Trade Marks Act, 1999 | Industrial Policy & Promotion |
| The Geographical Indications of Goods (Registration and Protection) Act, 1999 | Industrial Policy & Promotion |
| The Semiconductor Integrated Circuits Layout-Design Act, 2000 | Information Technology |
| The Protection of Plant Varieties and Farmers' Rights Act, 2001 | Agriculture and Cooperation |

**Organization Structure – IP Offices:** The following diagram discusses the organizational structure of the IP Offices in India.




## Conclusion:

This, it is concluded that IPR has become the necessity of the academia today. We need to know the importance of being authentic and ethical. IPR protects our rights and sets high ethical standards. There are several types of IPR. It is necessary for researchers and educationists to register the IP and protect the rights. NEP, NAAC (A&A), UGC (CARE), State Govt (Maharashtra Public University Act 2019), Universities (through Academic and Administrative Audit) and the leading colleges have voluntarily began to promote IPR.

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# 3.

# History and Scope of IPR in Various Disciplines of HEIs

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## Introduction:-

Intellectual Property (IP) deals with any basic construction of human intelligence such as artistic, literary, technical or scientific constructions. Intellectual Property Rights (IPR) refers to the legal rights granted to the inventor or manufacturer to protect their invention or manufacture product. These legal rights confer an exclusive right on the inventor/manufacturer or its operator who makes full use of it's his invention/product for a limited period of time.

In other words, we can say that the legal rights prohibit all others from using the Intellectual Property for commercial purposes without the prior consent of the IP rights holder. IP rights include trade secrets, utility models, patents, trademarks, geographical indications, industrial design, layout design of integrated circuits, copyright and related rights, and new varieties of plants. It is very well settled that IP plays an important role in the modern economy.

There are many types of intellectual property protection. A patent is a recognition for an invention that satisfies the criteria of global innovation, and industrial application. IPR is essential for better identification, planning, commercialization, rendering, and thus the preservation of inventions or creativity. Each industry should develop its speciality based on its IPR policies, management style,

strategies, and so on. Currently, the pharmaceutical industry has an emerging IPR strategy, which needs better focus and outlook in the coming era.

IPR is a strong tool, to protect the investment, time, money, and effort invested by the inventor/creator of the IP, as it gives the inventor/creator an exclusive right for a certain period of time for the use of its invention/creation. Thus, IPR affects the economic development of a country by promoting healthy competition and encouraging industrial growth and economic growth. The present review presents a brief description of IPR with particular emphasis on pharmaceuticals.

**Meaning of intellectual Property:-**

Intellectual Property can be defined as inventions of the mind, innovations, literary and artistic work, symbols, names and images used in commerce. The objective of intellectual property protection is to encourage the creativity of the human mind for the benefit of all and to ensure that the benefits arising from exploiting a creation benefit the creator. This will encourage creative activity and give investors a reasonable return on their investment in research and development.

IP empowers individuals, enterprises, or other entities to exclude others from the use of their creations. Intellectual Property empowers individuals, enterprises, or other entities to exclude others from the use of their creations without their consent.

According to Article 2 of the WIPO (World Intellectual Property Organisation) – Central Organisation for the protection of Intellectual Property Laws and the expert organization of the UN, “”Intellectual Property shall include the rights relating to literary, artistic and scientific

works, inventions in all fields of human endeavour, scientific discoveries, industrial designs, trademarks, service marks and commercial names and designations, protection against unfair competition, and all the other rights resulting from intellectual activity in the industrial, scientific, literary or scientific fields.""

**Meaning of intellectual property rights:-**

The intellectual property right is a kind of legal right that protects a person's artistic works, literary works, inventions or discoveries or a symbol or design for a specific period of time. Intellectual property owners are given certain rights by which they can enjoy their Property without any disturbances and prevent others from using them, although these rights are also called monopoly rights of exploitation, they are limited in geographical range, time and scope.

As a result, intellectual property rights can have a direct and substantial impact on industry and business, as the owners of IPRs one can enforce such rights and can stop the manufacture, use, or sale of a product to the public. IP protection encourages publication, distribution, and disclosure of the creation to the public, rather than keeping it a secret and to encourage commercial enterprises to select creative works for exploitation.

**Nature of intellectual Property:-**

Intangible Rights over Tangible Property: The main Property that distinguishes IP from other forms of Property is its intangibility. While there are many important differences between different forms of IP, one factor they share is that they establish property protection over intangible things such as ideas, inventions, signs and information whereas intangible assets and close relationships are a tangible object. In which they are

embedded. It allows creators or owners to benefit from their works when they are used commercially.

- Right to sue: In the language of the law, IP is an asset that can be owned and dealt with. Most forms of IP are contested in rights of action that are enforced only by legal action and by those who have rights. IP is a property right and can, therefore, be inherited, bought, gifted, sold, licensed, entrusted or pledged. The holder of an IPR owner has a type of Property that he can use the way he likes subject to certain conditions and takes legal action against the person who without his consent used his invention and can receive compensation against real Property.
- Rights and Duties: IP gives rise not only to property rights but also duties. The owner of the IP has the right to perform certain functions in relation to his work/product. He has the exclusive right to produce the work, make copies of the work, market work, etc. There is also a negative right to prevent third parties from exercising their statutory rights.
- Coexistence of different rights: Different types of IPRs can co-exist in relation to a particular function. For example, an invention may be patented, and the invention photograph may be copyrighted. A design can be protected under the Design Act, and the design can also be incorporated into a trademark. There are many similarities and differences between the various rights that can exist together in IP. For example, there are common grounds between patent and industrial design; Copyright and neighbouring rights, trademarks and geographical indications, and so on. Some intellectual property rights are positive rights; the rest of them are negative rights.

- Exhaustion of rights: Intellectual property rights are generally subject to the doctrine of exhaustion. Exhaustion basically means that after the first sale by the right holder or by its exhaustion authority, his right ceases and he is not entitled to stop further movement of the goods. Thus, once an IP rights holder has sold a physical product to which IPRs are attached, it cannot prevent subsequent resale of that product. The right terminates with the first consent. This principle is based on the concept of free movement of goods which is in force by consent or right of the rights holder. The exclusive right to sell goods cannot be exercised twice in relation to the same goods. The right to restrict further movements has expired as the right holder has already earned his share by the act of placing goods for the first sale in the market.

- Dynamism: IPR is in the process of continuous development. As technology is rapidly evolving in all areas of human activities, the field of IP is also growing. As per the requirement of scientific and technological progress, new items are being added to the scope of IPR, and the scope of its preservation is being expanded. Bio Patents, Software Copyrights, Plant Diversity Protection, these are few names which reflect contemporary developments in the field of IPR. The importance of intellectual property and its mobility is well established and reflected at all levels, including statutory, administrative and judicial.

**Scope of intellectual Property:-**

The scope of IP rights is broad; two classification modes are used to determine whether IP is copyright or Industrial Property. Industrial properties include patents or

inventions, trademarks, trade names, biodiversity, plant breeding rights and other commercial interests. A patent gives its holder the exclusive right to use the Intellectual Property for the purposes of making money from the invention.

An invention is itself a new creation, process, machine or manufacture. Having copyright does not give you the exclusive right to an idea, but it protects the expression of ideas that are different from a patent. Copyright covers many fields, from art and literature to scientific works and software.

Even music and audio-visual works are covered by copyright laws. The duration of copyright protection exists 60 years after the death of the creator. In other words, an author's book is copyrighted for his entire life and then 60 years after his death. Unlike patent laws, there is no requirement of the administrative process in copyright laws.

**Why promote and protect Intellectual Property?:-**

There are several reasons for promoting and protecting intellectual property. Some of them are:

1. Progress and the good of humanity remain in the ability to create and invent new works in the field of technology and culture.
2. IP protection encourages publication, distribution, and disclosure of the creation to the public, rather than keeping it a secret.
3. Promotion and protection of intellectual Property promote economic development, generates new jobs and industries, and improves the quality of life.

Intellectual Property helps in balancing between the innovator's interests and public interest, provide an

environment where innovation, creativity and invention can flourish and benefit all.

**Kinds of intellectual Property:-**

The subject of intellectual property is very broad. There are many different forms of rights that together make up intellectual property. IP can be basically divided into two categories, that is, industrial Property and intellectual property. Traditionally, many IPRs were collectively known as industrial assets.

It mainly consisted of patents, trademarks, and designs. Now, the protection of industrial property extends to utility models, service marks, trade names, passes, signs of source or origin, including geographical indications, and the suppression of unfair competition. It can be said that the term ‘industrial property” is the predecessor of ‘intellectual property”.

**Copyright**

Copyright law deals with the protection and exploitation of the expression of ideas in a tangible form. Copyright has evolved over many centuries with respect to changing ideas about creativity and new means of communication and media. In the modern world, the law of copyright provides not only a legal framework for the protection of the traditional beneficiaries of copyright, the individual writer, composer or artist, but also the publication required for the creation of work by major cultural industries, film; Broadcast and recording industry; And computer and software industries.

It resides in literary, dramatic, musical and artistic works in ”original’ cinematic films, and in sound recordings set in a concrete medium. To be protected as the copyright, the idea must be expressed in original form. Copyright

acknowledges both the economic and moral rights of the owner. The right to copyright is, by the principle of fair use, a privilege for others, without the copyright owner's permission to use copyrighted material. By the application of the doctrine of fair use, the law of copyright balances private and public interests.

**Patent**

Patent law recognizes the exclusive right of a patent holder to derive commercial benefits from his invention. A patent is a special right granted to the owner of an invention to the manufacture, use, and market the invention, provided that the invention meets certain conditions laid down in law. Exclusive right means that no person can manufacture, use, or market an invention without the consent of the patent holder. This exclusive right to patent is for a limited time only.

To qualify for patent protection, an invention must fall within the scope of the patentable subject and satisfy the three statutory requirements of innovation, inventive step, and industrial application. As long as the patent applicant is the first to invent the claimed invention, the novelty and necessity are by and large satisfied. Novelty can be inferred by prior publication or prior use. Mere discovery 'can't be considered as an invention. Patents are not allowed for any idea or principle.

The purpose of patent law is to encourage scientific research, new technology, and industrial progress. The economic value of patent information is that it provides technical information to the industry that can be used for commercial purposes. If there is no protection, then there may be enough incentive to take a free ride at another person's investment. This ability of free-riding reduces the

incentive to invent something new because the inventor may not feel motivated to invent due to lack of incentives.

**Trademark**

A trademark is a badge of origin. It is a specific sign used to make the source of goods and services public in relation to goods and services and to distinguish goods and services from other entities. This establishes a link between the proprietor and the product. It portrays the nature and quality of a product. The essential function of a trademark is to indicate the origin of the goods to which it is attached or in relation to which it is used. It identifies the product, guarantees quality and helps advertise the product. The trademark is also the objective symbol of goodwill that a business has created.

Any sign or any combination thereof, capable of distinguishing the goods or services of another undertaking, is capable of creating a trademark. It can be a combination of a name, word, phrase, logo, symbol, design, image, shape, colour, personal name, letter, number, figurative element and colour, as well as any combination representing a graph. Trademark registration may be indefinitely renewable.

**Geographical indication**

It is a name or sign used on certain products which corresponds to a geographic location or origin of the product, the use of geographical location may act as a certification that the product possesses certain qualities as per the traditional method. Darjeeling tea and basmati rice are a common example of geographical indication. The relationship between objects and place becomes so well known that any reference to that place is reminiscent of goods originating there and vice versa.

It performs three functions. First, they identify the goods as origin of a particular region or that region or locality; Secondly, they suggest to consumers that goods come from a region where a given quality, reputation, or other characteristics of the goods are essentially attributed to their geographic origin, and third, they promote the goods of producers of a particular region. They suggest the consumer that the goods come from this area where a given quality, reputation or other characteristics of goods are essentially attributable to the geographic region.

It is necessary that the product obtains its qualities and reputation from that place. Since those properties depend on the geographic location of production, a specific link exists between the products and the place of origin. Geographical Indications are protected under the Geographical Indication of Goods (Registration and Protection) Act, 1999.

**Industrial design**

It is one of the forms of IPR that protects the visual design of the object which is not purely utilized. It consists of the creation of features of shape, configuration, pattern, ornamentation or composition of lines or colours applied to any article in two or three-dimensional form or combination of one or more features. Design protection deals with the outer appearance of an article, including decoration, lines, colours, shape, texture and materials. It may consist of three-dimensional features such as colours, shapes and shape of an article or two-dimensional features such as shapes or surface textures or other combinations.

**Plant variety**

A new variety of plant breeder is protected by the State. To be eligible for plant diversity protection, diversity must be

novel, distinct and similar to existing varieties and its essential characteristics under the Plant Protection and Protection Act, 2001 should be uniform and stable. A plant breeder is given a license or special right to do the following in relation to different types of promotional material:

1. Produce and reproduce the material
2. Condition the material for the purpose of propagation
3. Offer material for sale
4. Sell the materials
5. Export the materials
6. Import the materials
7. The stock of goods for the above purposes

Typically, countries are protecting new plant varieties through the Sui Genis system. The general purpose of conservation is to encourage those who intend to manufacture, finance, or exploit such products to serve their purpose, particularly where they otherwise do not work at all.

The enactment of the Protection of Plant Varieties and 'Farmers' Rights Act 2001 is an outcome of the India's obligation which arose from article 27(3)(b) of the TRIPs Agreement of 2001 which obliges members to protect plant varieties either by patents or by effective sui generic system or by any combination thereof India declined to protect plant varieties by a sui generis law, i.e. the Plant Varieties Act.

**How an average person benefits?:-**

There are many benefits of acquiring intellectual property rights. For example, protecting your IP may result in:

1. The increased market value of your business – IP can generate income for your business through licensing, selling or commercializing protected products or services. This, in turn, can improve your stock market or increase your profit. In the case of a sale, merger or acquisition, registered and protected IP assets can increase the value of your business.
2. Convert ideas into profitable assets – IP can help to convert creative ideas into commercially successful products and services. For example, licensing your patent or copyright can result in a steady stream of royalties and additional income that can result in profitable assets.
3. Market the products and services of the business – IP is necessary to create an image for your business like trademark, logo, or design of your product. So, it will help in differentiating the product and advertise and promote it to the customers.
4. Increase export opportunities for the business – IP can increase the competition in export markets. One can use their brands and design for marketing foreign goods and are looking for franchising agreements with foreign companies or to export your patented products. Consumers won't be confident buying means without products or reliable services, international trademark protection and enforcement machinery to discourage counterfeiting and piracy.

**Need for Sui Generis protection in IPR:-**

"Sui Generis" stands for its own kind and includes a set of laws which are nationally recognized and ways of extending plant variety protection other than through patents. TRIPs themselves do not define what the meaning of Sui Generis is or should be. One of the main purposes of

the sui generis protection is that the exclusive monopoly granted by the State should enable the real owners of traditional knowledge to be adequately compensated for their contribution. It also refers to a law that can protect images contained in construction, inventions, models, drawings, designs, innovations, figures, emblems, petroglyphs, art, music, history and another traditional artistic feeling.

One of the main objectives of Sui generis protection granted by that exclusive monopoly of the State should enable traditional 'owner's knowledge for adequate compensation of their contribution towards economic growth. In general, it refers to a particular form of protection, a form that is specifically adapted to a specific subject or specific circumstances, which is specifically made for specific needs, priorities, and reality.

The "effective sui generis system" referred to in Article 27.3 (b) of the TRIPS Agreement is clearly intended as an alternative to the patent system. In this regard, it is useful to remember that the UPOV system was also established in 1961, which, as a special type of protection, would cover only plant varieties and especially adapted plant varieties, instead of the patent system. In this sense, the UPOV system was already conceived as an alternative to the patent system in 1961 as a Sui Generis protection with different provisions.

The need to Develop a suitable regime in the case of IPR to include traditional medicine adequate measures for 'sharing profit". Codified System and measures of Traditional Medicines are TKDL(Traditional Knowledge Digital Library) like databases is expected to play a major role in preventing for bio-theft but non-codified.

Such as regulation of traditional medicine folklore practices, tribal practices etc. New rules are urgently needed for creating patented ‘and Sui generis” system for the preservation and promotion of our traditional knowledge Like some national-level programs initiated by the National Innovation Foundation to enable non-traditional traditional medical practices Identified, documented, standardized and better used for therapeutic benefits as well as ailing mankind.

**Can a person get IP rights for Tribal songs, if yes, then how?:-**

India is a diverse country when we talk about folk and ethnic culture with ethnic, linguistic and religious groups with hundreds of origins and lifestyles, divided over time, into parts and over the centuries. The notion of folklore in India is associated with various art forms, mainly tribal and simple rural people, rather than raw and ephemeral. Folklore and its laws are complicated by the presence of hundreds of ethnic groups with their languages and dialects, costume styles, paintings, mythology, legends, songs, music, dance and theatre. To simplify this folklore, some common denominators such as economics, community size, etc.In recent times there has been a strong resurgence of interest in folk arts, and indiscriminate entrepreneurs have used expressions of folklore for commercial gain in India. These are not linked in any way to the origins of exploitative communities, nor do they accept or contribute monetarily to the welfare of the communities generated by their earnings. This is a sign of a lack of laws and implementation despite the formulation of laws to protect folklore in India. The WIPO program and the 1998–1999 budget were initiated to address growing

concerns about the intellectual property rights of indigenous knowledge holders.

The Constitution of India, Part III, Article 29 states that the protection of the culture of minorities is a fundamental right, which states in a broad sense that a citizen of any specific language, script or culture has the right to protect it. The Constitution provides for the preservation of the cultural identity of the tribal population, although Schedule 6 to Article 371 empowers such groups to have an autonomous council for self-government in accordance with their customs and traditions. Legislative bodies have the power to make laws to protect traditions and customs.

There is also Article 51A (f) which makes it a fundamental duty of every citizen to value and preserve the rich heritage of India's culture, but no legislative, or codified law, which means that it is written on paper only. The Constitution provides for the preservation of the cultural identity of the tribal population, although Schedule 6 to Article 371 empowers such groups to have an autonomous council for self-government in accordance with their customs and traditions.Such councils have the power to make laws to protect traditions and customs. In order to prevent commercial exploitation of folk cultures and to maintain originality, it is necessary for folklore to establish intellectual property laws today.

**Conclusion:-**

Intellectual property rights are monopoly rights that grant temporary privileges to their holders for the exclusive exploitation of income rights from cultural expressions and inventions. There must be good reasons for a society to grant such privileges to some of its individuals, and so proponents of these rights provide us with three widely accepted justifications to protect today's inter-global

intellectual property rights. It is clear that the management of IP and IPR is a multi-disciplinary task and calls for many different functions and strategies that need to be aligned with national laws and international treaties and practices. It is no longer fully driven from the national point of view.Different forms of IPR demand different treatment, handling, planning and strategies, and individuals' engagement with different domain knowledge such as science, engineering, medicine, law, finance, marketing, and economics. Intellectual property rights (IPR) have social, economic, technical and political implications.Leading rapid technology, globalization and fierce competition to protect against infringement of innovations with the help of IPRs such as patents, trademarks, service marks, industrial design registrations, copyrights and trade secrets. But there is still a violation of intellectual property rights. The government is also taking measures to stop them. There are laws regarding the prevention of infringement of intellectual property rights.

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# 4.

# IPR: An Overview

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Property designates those things that are commonly recognized as being the possessions of an individual or a group. A right of ownership is associated with property that establishes the good as being *one's own thing* in relation to other individuals or groups, assuring the owner the right to dispense with the property in a manner he or she deems fit, whether to use or not use, exclude others from using, or to transfer ownership. Properties are of two types - tangible property and intangible property i.e. one that is physically present and the other which is not in any physical form. Building, land, house, cash, jewelry are few examples of tangible properties which can be seen and felt physically. On the other hand, there is a kind of valuable property that cannot be felt physically as it does not have a physical form. Intellectual property is one of the forms of intangible property. It also has a material value which can be higher than the value of a tangible asset or property.

Intellectual Property can be defined as inventions of the mind, innovations, literary and artistic work, symbols, names and images used in commerce. The objective of intellectual property protection is to encourage the creativity of the human mind for the benefit of all and to ensure that the benefits arising from exploiting a creation benefit the creator. This will encourage creative activity and give investors a reasonable return on their investment in research and development.

There are various rights that are protected under Intellectual Property Right:

i. Patents
ii. Industrial designs
iii. Copyrights
iv. Trademarks
v. Geographical indications of goods
vi. Protection of Integrated Circuits layout design
vii. Biological diversity
viii. Plant varieties and farmers rights
ix. Undisclosed information

IPR is a strong tool, to protect the investment, time, money, and effort invested by the inventor/creator of the IP, as it gives the inventor/creator an exclusive right for a certain period of time for the use of its invention/creation. Thus, IPR affects the economic development of a country by promoting healthy competition and encouraging industrial growth and economic growth.

George Alfred DePenning is supposed to have made the first application for a patent in India in the year 1856. On February 28, 1856, the Government of India promulgated legislation to grant what was then termed as "exclusive privileges for the encouragement of inventions of new manufactures" i.e. the Patents Act. On March 3, 1856, a civil engineer, George Alfred DePenning petitioned the Government of India for grant of exclusive privileges for his invention - "An Efficient Punkah Pulling Machine". On September 2, DePenning, submitted the specifications for his invention along with drawings to illustrate its working. These were accepted and the invention was granted the first ever Intellectual Property protection in India.Since then, the protection of intellectual property in India underwent several changes and modifications in its form to reach the

present status. The Rules and Laws governing Intellectual Property Rights in India are as follows:

1. The Copyright Act, 1957, The Copyright Rules, 1958 and International Copyright Order, 1999
2. The Patents Act, 1970 The Patents Rules, 2003, The Intellectual Property Appellate Board (Patents Procedure) Rules, 2010 and The Patents (Appeals and Applications to the Intellectual Property Appellate Board) Rules, 2011
3. The Trade Marks Act, 1999, The Trade Marks Rules, 2002, The Trade Marks (Applications and Appeals to the Intellectual Property Appellate Board) Rules, 2003 and The Intellectual Property Appellate Board (Procedure) Rules, 2003
4. The Geographical Indications of Goods (Registration and Protection) Act, 1999 and The Geographical Indications of Goods (Registration and Protection) Rules, 2002
5. The Designs Act, 2000 and The Designs Rules, 2001
6. The Semiconductors Integrated Circuits Layout-Design Act, 2000 and The Semiconductors Integrated Circuits Layout-Design Rules, 2001
7. The Protection of Plant varieties and Farmers' Rights Act, 2001 and The Protection of Plant varieties and Farmers Rights' Rules, 2003
8. The Biological Diversity Act, 2002 and The Biological Diversity Rules, 2004
9. Intellectual Property Rights (Imported Goods) Rules, 2007

A general nature of the Intellectual property can be summarized as below:

1. Intangible Rights over Tangible Property

2. Right to sue
3. Rights and Duties
4. Coexistence of different rights
5. Exhaustion of rights
6. Dynamism

The scope of IPR is very wide and vast. Generally, there are two types made for the IPR to identify its nature- copyright or Industrial Property. Industrial properties include patents or inventions, trademarks, trade names, biodiversity, plant breeding rights and other commercial interests. On the other hand, a patent gives its holder the exclusive right to use the Intellectual Property for the purposes of making money from the invention.

In a nutshell, Intellectual Property Rights are monopoly rights that grant temporary privileges to their holders for the exclusive exploitation of income rights from cultural expressions and inventions. IP empowers individuals, enterprises, or other entities to exclude others from the use of their creations. Intellectual Property empowers individuals, enterprises, or other entities to exclude others from the use of their creations without their consent.Leading rapid technology, globalization and fierce competition to protect against breach of innovations could all be covered with the help of IPRs such as patents, trademarks, service marks, industrial design registrations, copyrights and trade secrets.

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# 5.

# Present Status and Potential Future Of Semiconductor Intellectual Property (SIP)

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Semiconductor intellectual property has its existence since the advent of the semiconductor industry. In the early years, IC Suppliers such as Fairchild, Intel, TI and Motorola developed proprietary SIP (including data and circuit design expertise, process knowledge, packaging test equipment and other items) for their internal use. They fiercely protected their SIP through patents, trade secrets and other legal protections. Occasionally SIP was licensed to third parties, but this tended to be the exception rather than the rule.

Semiconductor intellectual property (IP) blocks, also known as IP cores, are reusable design components that are used to build advanced integrated circuits (ICs). It is typically impossible to create new IC designs without pre-designed IP blocks as a starting point. These design components are called “intellectual property” blocks because they are traded as rights to use and copy the design. Firms that focus on this business model are often called “chipless” semiconductor firms. The main objective of this article is to describe the current status and potential future developments in semiconductor IP.

As technology allows now, billions of transistors on one semiconductor die, it is impossible to build new chips from scratch. Instead, designers start with large libraries of semiconductor IP and construct new chips by combining,

modifying, and complementing earlier designs. For products such as mobile phones, television, desktop boxes, digital cameras, MP3 players, automobile engine and industrial process controllers, toys, smart cards, hearing aids, heart monitors, and basically everything that uses or processes information and data.

In the history of the semiconductor industry, manufacturing, assembly and testing activities have relatively rapidly moved to countries with low manufacturing costs. Today, with the exception of Intel, IBM, Samsung and few other Integrated Device Manufacturers (IDMs), theactual manufacture of semiconductor chips is dominated by firms located in Taiwan, China, and Singapore.Also Intel and IBM are increasingly producing leading-edge semiconductors in Asia. Intel started the construction of its first semiconductor manufacturing plant in China at the end of 2007, investing $2.5 billion in the project.

In December2007 ,IBM, inturn,licensedits advanced 45 nanometer technology to SMIC, now globally the third-largest independent semiconductor manufacturer, based in China.

The semiconductor industry is today in a historically unique situation. For almostfive decades the industry has been driven by continuous miniaturisation. The size of transistors on semiconductor die is now measured in nanometers. The smallest features on leading-edge chips are now down to three atomic layers. As the cost of manufacturing has remained almost constant per square millimeter, transistors are now tens of millions times less expensive than they were just three decades ago.

SIP is critical for the design and implementation of complex system ICs. As designs become more complex, a greater number of SIP products are being embedded in IC designs. SIP has become a key part of the electronic design process because it can reduce IC development costs, accelerate time-to-market, reduce time-to-volume and increase end-product value; in short, it can provide a solution that enables companies to bridge the “design gap.”

New technologies, including carbon nanotubes, graphene transistors, self-organising molecular devices, and quantum computing can potentially bypass the physical limits of known semiconductor technologies. Eventually, such radical new technologies could substitute current technologies and enable progress in ICTs. The present study does not discuss these future technologies in any detail, for a very simple but important reason: it starts from the observation that even if radical new technologies were available today in industrial volumes, their deployment would require knowledge, manufacturing technologies, and design methods and tools that are radically different from those currently used in the semiconductor industry. The underlying claim is a rather strong one. Even if, for example, new carbon-based transistors and full-scale manufacturing methods for them existed today, the industry would still face a major technical disruption that would rewrite the rules under which it has operated for the last several decades. This disruption will occur irrespective of whether the new technologies are there today, or in thirty years time. Although the full story is obviously more complicated, the present study empirically focuses on the current industrial reality and simultaneously argues that the continuous progress that characterised the development of ICTs is about to end.

The analysis of future developments in the semiconductor IP industry is therefore based on charting the current business landscape and generic patterns of technology development, instead of focusing on possible scientific breakthroughs and innovative new technologies. A further justification for this approach is that there are no known alternatives for the currently used technologies that could be manufactured in industrial volumes in the foreseeable future.

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# 6.

# Impact of Intellectual Property in Higher Education Institutions

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## Introduction

Universities and public research institutions are among the direct contributors towards innovation and research, particularly in emerging economies. The potential pool of talent for innovation in these economies also emanates largely from educational institutions and research institutions. Off late, the significance of Intellectual Property Rights (IPR) in higher education has been widely recognised. This could be credited to the National IPR Policy approved by the Union Cabinet in May 2016, which was the first ever IPR policy framed by the Government of India. The primary focus of this Policy is towards promoting innovation and creativity, especially amongst entrepreneurs and in higher education institutions.

The University Grants Commission (UGC), the nodal authority for determining and maintaining of standards of university education in India, issued a letter for inclusion of the Intellectual Property Rights (IPR) as a generic elective subject under the Choice Based Credit System (CBCS). In addition, the National Institutional Ranking Framework (NIRF), a ranking system adopted by the Ministry of Human Resource Development (MHRD), ranks institutions of higher education in India. These rankings act as

mechanism for the institutions to include promoting innovation, research and development while assessing their performance beyond academics. One of the parameters considered while ranking and which is significant to our discussion is Research and Professional Practice that includes IPR and patents. The ranking of top educational institutions was found to be proportional to the number of applications filed for patents. Patents help universities to improve their ranking, establish an innovation ecosystem, incubate knowledge-based start-ups, earn additional revenue and measure research activity.

But the awareness of Intellectual Property Rights is limited to higher education institutions.

**Basics about Intellectual Property**

Intellectual Property law developed to reward an innovator with some type of limited property right in the fruits of his or her innovative endeavors. The need to provide an incentive for innovation and creativity was recognized in the U.S. Constitution.

The two primary purposes of Intellectual Property law are:

(1) to encourage creativity and/or investment for research and development by rewarding innovation; and

(2) to protect inventors from improper competitive activities.

There are three main areas of Intellectual Property law: **patents**, **trademarks** and **copyrights**.

**Patents**

Patent protection is one of the most powerful types of Intellectual Property protection. Once a patent has been obtained, the owner is allowed to prohibit others from making, using, selling, offering for sale or importing the

patented invention for the life of the patent (generally 20 years from the filing date of the patent). In exchange for disclosing the innovation to the rest of the world, the government will give the inventor a monopoly of limited scope and duration. The advantage gained for the public by disclosure is the stimulation and promotion of further research and development and free access to the invention at the end of the patent monopoly. A patent is available for "any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof."It is possible to patent a wide range of items including computer software, genetically engineered animals, oil-eating microbes, methods for performing certain tasks, and the more traditional patentable subject matter, such as mechanical devices.

To be patentable, the invention must be new. The "novelty" requirement means that the invention must not be identical to a prior invention and must not be obvious to one of "ordinary skill in the art" in light of the prior art. These requirements require diligence on the part of potential owners of Intellectual Property, since an invention which was first offered for sale, publicly used or described in a printed publication more than one year prior to the filing date of a patent application is not patentable.

The patent application consists of two primary parts: the **specification** and the **claims**. The specification includes a written description of the invention and any drawings necessary for understanding the invention. It must contain enough detail so that a person of "ordinary skill in the art" could reproduce the invention without undue experimentation, and it must disclose the "best mode" of making the invention known to the inventor at the time the application is filed.

The claims define the legal boundaries of the patent protection conferred upon the inventor by the patent. The claims are the heart of the patent. Once a patent issues, the claims will be used to determine if other products fall within the definitions set out by the claims and therefore infringe the patent. There are several different types of patents which provide protection to inventions. The most common type is the utility patent. The other types include design patents, plant patents and method patents. A patent is currently valid for a period of 20 years measured from the filing date of the application.

**Trademarks**

A trademark is any word, name, symbol or device used to identify the source or origin of goods or services and to distinguish the goods or services from others. Trademark protection applies to trademarks, service marks, collective membership marks and certification marks. The overall image of a product, including its packaging, configuration, design or overall impression, can sometimes be protected as a trademark and is referred to as the “trade dress” of the goods or services. Examples of trade dress include the unique design of the Coca-Cola bottle and the pink color of Owens-Corning fiberglass. The owner of trademark rights in a mark can prevent others from using similar marks on goods or services.

**Copyrights**

A copyright is a property right that protects against the copying of “original works of authorship fixed in any tangible medium of expression.” These works can include literary works (including computer programs), dramatic works (including associated music), musical works (including associated verbiage), pantomimes and

choreographic works, pictorial, graphic and sculptural works, motion pictures and other audiovisual works, sound recordings and architectural works.

Copyright law gives the copyright owner exclusive rights to reproduce, adapt, publicly distribute, publicly perform and publicly display the work. The right of adaptation refers to the right of preparing derivative works based upon the copyrighted work. A derivative work is a work that borrows substantially from a preexisting work.

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# 7.

# Intellectual Property Rights and Chemical Science

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## Abstract

This is the revolutionary state for looking ahead to next century and witnessing fast developments in Science and Technologies. In this world there are many new inventions & innovative ideas which are very important for survival and progress of human beings. Chemical Science has revolutionized the lives with its innovative concepts and designs in manufacturing process and drugs and pharmaceuticals. The invention constitutes the process of manufacturing that requires some initiative or inventive step and should be industrially applicable. This paper brings out the importance of Intellectual property rights for the scientific community. Patent Act 1970 and Design Act, 1911 in India, can protect inventions and designs. Their nature & applicability for inventions and designs especially to the Chemical Sciences is discussed.

## Introduction

Property is such a thing that the owner may use it as his wish and that nobody else can legally use his property without his permission. There are three types of properties[1] Movable (Vehicles, Bank deposits, etc), Immovable (Homes, Land, Plots, etc), and **Intellectual**. Intellectual property is the conception of human intelligence and it includes all knowledge based goods. Hence, these

knowledge-based dealings are declared as Intellectual properties. It is necessary to protect one's intellectual properties and governed by appropriate legislation, so that nobody can take benefits of other's efforts. The nature of intellectual property[2, 3] as provided by World Intellectual Property Organization (WIPO) include the right relating to:

- Inventions in all fields of human endeavor.
- Scientific discoveries
- Industrial designs
- Trademarks, Service marks and Commercial names
- Literary, artistic and scientific works
- Performance of performing artists, phonograms.
- Protection against unfair competitions

In large companies, a separate department normally exists to carry out this and related important activities, known as **Intellectual Property Rights** (IPR)4.

**Forms Of Intellectual Property Rights**

Various forms of Intellectual properties are Patents of inventions, Industrial designs, Trademarks for marketing and Copyrights5. Among these forms, we shall discuss about the first two forms, as these are more relevant in engineering community.

**Patents**

This is an Intellectual property which legally protects the 'Inventions". A patent can be linked to fence erected around an area of technology and bearing the sign ‘trespassers will be prosecuted'. There are about 140 countries including India, in the world, giving legal protection to the inventors through the grant of patents. For chemical science, it is very important to distinguish between the inventions that consist of products and inventions that consist of process or

combination of both. If patent is not worked or the patentee or he does not allow others to work the same, the patent can be revoked or the patent is forced to give compulsory (after fixing remuneration) license, which is an authorization to exploit the invention. The term invention has been defined in section 21(j) of patents Act, 1970 as new and useful

- Art, process, method or manner of Manufacture
- Useful machine, apparatus or other Article
- Substance produced by manufacturer, includes any new and useful improvement of any of them and an alleged involvement**.**

The substances intended for use or capable of being used as food or medicine or drug are not granted patents and include alloys, optical glass, semi- conductors, inter metallic compounds and substances produced by chemical process. However, claims for method of synthesis of these substances are patenable[3, 4]. In India, the grant of patents is as per the provision of Patent Act 1970 and the Patent rules 1972, which were brought into force with effect from 20-4-72. The proceedings of the patent office regarding filing, acceptance, opposition, and grant of patents are notified in gazette of India, Part III section-2.

**The patenting process of interest to Chemist**.

New methods to synthesize a substance are patentable, provided either one of the reactants or the product is new. Let us take the example of chemical process for synthesis of sulfuric acid, by passing over a catalyst at a temperature of xoC. The patent will probably have been allowed to include in the claim the range of catalysis and range of temperature on either side of x. Chemical substances, which are ordinarily used as intermediates in the preparation of medicines, food, insecticides, germicides,

fungicides etc., are not patentable.
In chemical Industry it is most important to obtain a patent covering inventions on what are called ‘compositions of mater' or specifically new chemical entities. These compositions of matter patents are of great value as they will dominate any future patenting activity by competitors, for instance of materials showing improvements but falling within the generic structure defined in the original patent. They are therefore a potential source of income to the company from license fees. Composition of matter patents is relatively easy to protect from misuse by unscrupulous competitors. The value of filing an application for chemical processes, unless it has any major commercial significance is often questioned. Chemical reactions are carried out in a confidential patent in the myriad of chemical laboratory throughout the world. In such circumstances, it is often better to treat the process details as trade secrets, relying on a good internal secrecy system to keep these details from falling into the wrong hands. It is therefore difficult to know if somebody is infringing a process patent in the myriad of chemical plant operating throughout the world.

**Conclusion**

An intellectual property right encourages inventive activities. In the context of present political, economic and industrial situation existing in India, the acts are to be reformulated and revised. Patent laws provide protection for a limited period. Some countries are proposing to shorten the validity period to promote inventive activities. Also now, time has come to review the incentives and penalty clauses of Acts relating to Intellectual Property Rights.

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# 8.

# Intellectual Property Rights and Mathematics

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1. Introduction :

Intellectual Property rights means providing property rights through patents, copyrights and trademarks. Holders of intellectual property rights have monopoly on the usage of property or items for a specified time period. The term intellectual property began to be used in the 19$^{th}$Century. Only in the 20$^{th}$century did it become part of the world's legal systems. The four main types of intellectual property are listed below.

1. Patents – It is used for protecting new inventions, ideas or processes. Patent holders need to pay periodic government renewal fees. An approved patent is for a limited time period.
2. Copyrights – It protects the ideas, examples would be written works, music, art etc.
3. Trademarks – It is something that protects the symbols, colors, phrases, sounds, design etc.
4. Trade Secrets – It may be strategies, systems, formulas or other confidential information of an organization that provides them competitive advantage in the market.

2. Mathematical methods under Indian patents act :

According to the section 3 (k) of the Indian Patent Act, mathematical and business methods, computer programmes per se or algorithms are categorized as non patentable

subject matter. The Manual of Patent Office Practice and Procedure provides reason as to why mathematical or business methods are not considered patentable.With reference to section 3 (k), the manual quote:

*"*Mathematical methods' are considered to be acts of mental skill. A method of calculation, formulation of equations, finding square roots, cube roots and all other methods directly involving mathematical methods are therefore not patentable. With the development in computer technology, mathematical methods are used for writing algorithms and computer programs for different applications and the claimed invention is sometimes camouflaged as one relating to the technological development rather than the mathematical method itself. These methods, claimed in any form, are considered to be not patentable."

The interpretation of this section has generated several debates and arguments over the years. This section can be analyzed in support of a case, which may provide a better interpretation of section 3 (k) and especially inventions dealing with mathematical methods.

3. The Mathematics of patents:

As a general rule, mathematical methods are excluded from patentability, although practical applications involving mathematics may still be patentable (advances in cryptography, for example). Here are five common aspects of patent law involving relatives of words you might expect to find in a maths textbook.

a) Added Subject Matter, by Addition (+) :

A patent application is a snapshot of the invention at a particular point in time once it has been finalised to a large extent. Of course, you may continue improving your

invention after a patent application has been filed – this happens all the time. However, you are not allowed to add any new information to your patent application to describe those improvements.

b)Added Subject Matter, by Substraction (-) :

This is the other side of the coin to the situation above. Claim 1 of your patent application might claim “a widget comprising a first widget part, a second widget part and a third widget part”. All of these features are in the independent claim (claim 1), so they are considered to be essential to how your invention works.

c ) Multiple Embodiments (x) :

It is often the case that an invention can be put into practice in more than one way. If you have found two or more ways to solve the same technical problem, then there are potentially multiple embodiments to describe when preparing a patent application. For example, a lever-type door handle solves the same problem as a rotatable doorknob – but one of these is only useful if you need to keep a bear in the next room.

d ) Divisional Applications (÷) :

A divisional application can only be filed whilst the original application is still pending or usually no later than three months before the compliance deadline. This is one reason why it can be beneficial not to get a patent granted as fast as humanly possible – keeping an application pending retains the option to file a divisional, which can be useful if there is infringement.

e) Infringement by Equivalence (=):

An infringing product does not need to copy every single feature of a claim in a granted patent for there to be

infringement. Sometimes, it is enough that an equivalent feature is provided. That is to say, patent protection isn't limited to the literal wording of the claims – it is the claims as construed in light of the specification as a whole, and taking account of equivalent features, that determines the scope of protection and whether a variant infringes.For example, in 1990, the Improver v Remingtoncase found that a slitted rubber rod was equivalent to a helical spring, mainly because the epilator obviously worked in the same way.

4. Copyright of Mathematical formulas :

Intellectual property -- trademarks, copyrights, patents -- is a business asset. You can't copyright formulas, but there are other ways you can protect them from the competition. You cannot copyright an idea or concept, only the way that it's expressed. You also cannot copyright a fact, such as "Two plus two equals four." Algorithms and math formulas don't fit well between these restrictions. In 2010, for instance, a judge threw out two plaintiffs' claims that they could copyright their mathematical model for electron dynamics. If your formula is part of a business process, however -- an investment strategy, for instance -- it might be patentable.

5. Famous Intellectual Property Disputes in Mathematics :(Isaac Newton vs.GottfriedWilhelmLeibniz) :

By the early 18th century, many credited the German mathematician and philosopher Gottfried Wilhelm Leibniz with inventing the study of calculus. Leibniz had, after all, been the first to publish papers on the topic in 1684 and 1686. But when Englishman Isaac Newton published a book called *Opticks* in 1704, in which he asserted himself as the father of calculus, a debate arose. Each of the

thinkers' respective countries wanted to stake a claim in what was one of the biggest advances in mathematics.Newton claimed to have thought up the "science of fluxions," as he called it, first. He apparently wrote about the branch of mathematics in 1665 and 1666, but only shared his work with a few colleagues. As the battle between the two intellectuals heated up, Newton accused Leibniz of plagiarizing one of these early circulating drafts. But Leibniz died in 1716 before anything was settled. Today, however, historians accept that Newton and Leibniz were co-inventors, having come to the idea independently of each other.

6. Conclusion :

Intellectual Property Rights is important to stimulate and promote research and development. If the inventions and ideas of individuals and organizations are not protected then the concerned people or organizations will not reap the benefits of their hard work and naturally it will lead to discontent and reduce the efforts in the field of research and development, which is extremely important for the growth and development of humanity.

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# 9.

# Intellectual Property Rights and their Importance in Indian Context

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**Abstract:-**

The intellectual property rights (IPR) are intangible in nature and gives exclusive rights to inventor or creator for theirvaluable invention or creation. In present scenario of globalisation, IPR is the focal point in global trade practices andlivelihood across the world. These rights boost the innovative environment by giving recognition and economic benefits tocreator or inventor whereas the lack of IPR awareness and its ineffective implementation may hamper the economic,technical and societal developments of nation. Hence dissemination of IPR knowledge and its appropriate implementation isutmost requirement for any nation. The present paper highlights various terms of IPR such as patents, trademarks, industrialdesigns, geographic indications, copyright, etc with their corresponding rules, regulations, their need and role especiallypertaining to Indian context. Further, status of India's participation in IPR related activities across the world has beendiscussed in brief.

**Introduction:-**

In wake of globalisation, it is utmost important to beahead in innovations and creativeness to compete thestiff competitions in technology and trade. India iswell recognised for its intellectual skills in the fieldsof software

engineering, missile technology, Moon orJupiter mission and other technological areas.However, India lags in generation of IPR assets interms of registered patents, industrial design,trademarks, etc. In a recent report by the US Chamber

of Commerce, India stood at 29th position amongst 30countries in IP index around the globe. It is veryalarming condition for policy makers as well as forthe nation as a whole.1The development of any society directly dependson IPR and it policy frame work.2 Lack of IPRawareness resulted in the death of inventions, highrisk of infringement, economic loss and decline of anintellectual era in the country. Thus, there is a direneed for dissemination of IPR information so as toboost indigenous inventions and developments in thefield of research and technology. In foregoing section of this paper an effort is madeto highlight various intellectual property rights incontext to India with their related corresponding rules,regulations, their need and role in society.

**Intellectual Property Rights and their Classification**

The term Intellectual property is related to humanbrain applied for creativity and invention. Variousefforts in terms of inputs of manpower, time, energy,skill, money, etc are required to invent or createsomething new. The ultimate idea by which inventionor creation took place is an intangible property of theperson, who took pains for the invention or creation.Therefore, as per law, legal rights or monopoly rightsare given to creator or innovator to harvest theeconomic benefits on their invention or creation.5, 6The Intellectual property rights (IPR) are territorialrights by which owner can sell, buy or license hisIntellectual Property (IP) similar to physicalproperty.7 Although one has to register IPR at legalauthority in some presentableor

tangible form toclaim their benefits. Each type of IPR gives especialrights to its inventor and or creator to sustain andharvest economic benefits which further motivatesskill and societal developments.8-11On the basis of type of invention and creation ofhuman mind and their applications the intellectualproperty rights are classified as follows: i) patents, ii)trademarks, iii) industrial designs, iv) layout design ofsemiconductor integrated circuit, v)geographicindications of source, vi) copyright and related rights(literary and artistic works, musical work, artisticworks, photographic work, motion pictures, computerprogrammes and performing arts and broadcastingwork).

**WIPO**

The World Intellectual Property Organization(WIPO) was incepted in 1967 at Stockholm to protectthe IPR throughout the world. Later it becomes oneof the agency of United Nation in 1974. WIPO frameworks as well as regulate various policies concernedto IPR across the globe. The economic, social andsustainable cultural development with preservation ofbio diversities, traditional knowledge through abalance and effective international IP system is mainobjective of WIPO. Besides this, it is responsible toharmonise differences amongst various countriesespecially between the developed and developingnations by amending international regulation so thateach of them get a equal opportunity in emergingworld.

**Patent**

Patent is an intellectual property right granted toinventor by concerned government office for hisnovel technical invention. The term invention meanssolution of any problem in terms of development of aproduct or a process. Among the different types ofIPR, patents are considered

the most valuable andrightly so.The patentability of any invention needs to fulfil

Following criteria:1. Usefulness: invention must have industrialapplicability or applied for practical purpose.2. Novelty: invention must be new technologywhich has not been published or available inprior art of the country or elsewhere in theworld before the date of patent filing.3. Non obviousness: Invention which can be doneby any ordinary skilled person is obvious andcannot be patentable. Hence invention must notbe obvious for patentability.

As per Section 3 of the Patent Act, 1970 the followingare not patentable:

- Frivolous invention
- Invention against the natural laws
- Inventions which are not fair to health ofhuman, animal, plant life, environment as wellas contrary to public order or morality
- Discovery of any living thing; discovery of anynon-living substances occurring in nature;formulation of any abstract theory; discoveryof any scientific principle
- Substance or chemical obtained by mereadmixture resulting in the aggregation of theproperties; mere arrangement or rearrangement of known devices
- Invention relating to atomic energy and relatedto security of India.In patenting process at one hand inventor is grantedexclusive rights which give recognition as well asfinancial benefits but at the other hand inventor has todisclose all the relevant information in descriptive way to the patent office at the time of filing patentapplication. The information available in patentdocument can be seen by anybody and no doubt itgives direction to other researchers to

innovate furtherin the relevant field. In India, office of ControllerGeneral of Patents Designs and Trademarks governthe patent registration process. This office comesunder the Department of Industrial Policy andPromotion, Ministry of Commerce and Industry.18 Thepatent filing steps are as follows:

**Step 1: Filing of Patent Application or Priority Application**

There are four patent offices at Chennai, Mumbai,New Delhi and Kolkata (Head office). The applicanthas to file patent application in appropriate form withall relevant information concerned to invention suchas description, claims, drawing, abstract, etc.Applicant has option to file provisional specificationto establish priority of the invention when disclosedinvention is only at a conceptual stage. Thereafter,with in 12 month applicant have to file completespecification in prescribed format.

**Step 2: Publication of Application**

The patent application is published in the officejournal after expiry of 18 months. The applicant canalso put up request for early publication by payingadditional prescribed fee.

**Step 3: Opposition of Patent**

The pre grant patent opposition, if any may be filedwithin three months of patent publication. This typeof opposition representation is entertained bycontroller of patent office if patent filing applicant has put up a request for patent examination. There arealso provisions for post grant patent opposition.

**Step 4: Request for Examination**

The applicant has to apply separately for patentexamination within 48 months of filing of patentapplication with prescribed fees.

**Step 5: Examination and Clarification of RaisedObjections, if any**

The patent examiner check all aspect ofpatentability i.e. Novelty, inventiveness, non-obviousness and industrial applicability and issueFirst Examiner Report (FER) to the applicant. Ifobjections are there in examination report thanapplicant has to clarify the objections within one year.

**Step 6: Grant of Patent**

The patent is granted to applicant by Controllerafter overcoming the objections raised in examinationprocess. As per Patent Amendment Act 2002, theapplicant has to pay renewal fee time to time to keeppatent in force. The full details pertaining to Indianpatent can be referred to DIP&P website. The patentcan be also filed since 2007.After getting the rights, the owner can explorethese rights by industrial production or can sell,distribute or licensing the rights as per his will. Therights of patent are granted for 20 years. Once a patentexpires then the invention enters in to public domainand anybody can use that knowledge.

**Compulsory Licences**

The Patent Act gives monopoly to inventor toharvest financial gains for invention but contrary incase of national emergency as per Section 92 ofPatent Act, 1970 government can issue compulsorylicences to third party for non-commercial use ofpublic. Beside these when authorised patent owner isnot fulfilling the demand of society by will or unableto produce the patentable product or service such as incase of drugs, food, medical equipment, vaccination,lifesaving equipment, etc. the government is fullyauthorised to allow somebody else to produce patentable product by giving compulsory licence.

Inthis case government is liable to pay fair justifiableeconomic benefits to patent owner.

**Patent Cooperation Treaty (PCT)**

The patents are territorial rights; therefore applicanthas to apply patent application to patent offices ofdifferent countries individually. This practice requireshuge amount of investment, time and energy. In thesame concern Patent Cooperation Treaty (PCT) concluded in 1970 which provides a facility to file asingle international patent application instead of filingseveral separate national or regional patentapplications. Although granting of patent remainsunder the national or regional patent authorities ofvarious PCT member nations but applicant get the

Priority date of first filing applicable in all membercountries which is more than 145 in number with this single patent application.

**Industrial Design**

The creative activity of achieving an ornamental oraesthetic appearance of mass produced products orarticles is covered under industrial design. The designcan be expressed either by two dimensional or by threedimensional forms. The Design Act 1949 of the UnitedKingdom refers to feature of shape, configuration, pattern or ornament. Broadly, shape, surface, pattern,lines, colour, etc appearance related features ofindustrial products such as watches, vehicles, mobiles, laptops, different home appliances, buildings, textiledesigns or handicraft products are covered underindustrial design. The aesthetic value or how a productappeals is the main concern in selling besides itstechnical quality and other aspects.

To be protected under most national laws, an industrial design must be new or original and onfunctional.Hence

industrial design is only concernedwith aesthetic features and any technical features oraspects of the product to which it is applied are notprotected by the design registration. Although thetechnical features, if are novel could be protected bygetting the patent.8 Beside these, design which isliterary or artistic in character such as cartoon, label, leaflet, map, dressmaking pattern, etc is protectedunder copyrights instead of industrial design.

The term of industrial design rights vary fromcountry to country from 10 to 25 years. In India as perDesign Act, 2000 duration of protection of industrialdesign is for 10 years. This duration can be extendedfurther for 5 years.An industrial design encourages creativity and skilldevelopment amongst the individual andmanufacturing sector by promoting more aestheticallypleasing products for the society. The design andshape of the product not only create aesthetic

appearance but in case of machine, furniture,automobile, etc design is also indirectly associatedwith ergonomics and plays a major role in customers ‘comfort.

**Trademark**

Trademarks already existed in the ancient world.The Indian crafts men used to engrave their signatureon their jewellery or artistic creation around 3000 yearsago. With industrialisation the trademark become keyfactor in modern world of international trade. A trademark is a distinctive sign or logo that denotes about theparticular item is produced or provided by a specificperson or industry or enterprise. Similar to trademark,service mark distinguish service providing enterpriseswith their competitors. A company may have differenttypes of trademarks for their various products but todistinguish themselves from other company orenterprise trade name is being used. Trade mark

or trade name helps companies to maketheir recognition, reputation and trust amongst thecustomers. In most of the cases, consumers rely ontrademarks where it is difficult to inspect a product orservice quickly to determine its quality. 21-22 Aparticular segment of customers is very muchconcerned about the brand and pay heavily for brandsprestige even for similar sort of quality to distinguishthemselves from the crowd.

A trademark/ service mark comprises of words(name, surname, geographical name, slogan, etc),letters and numerals, drawing, logo, symbol, phrase,image, design or a combination of these elements todistinguish a business or service from the other. Besidethese, there are certain other ‘non-traditional’trademarks as follows:Smell or olfactory marks: the smell of fresh cut grass for tennis balls, the odour of beer for dart flightsand roses for tyres have been registered in the UK. Similarly, fresh floral fragrance reminiscent ofPlumeria blossoms was registered in US for sewingthread and embroidery yarn. Audible sign or Sound Marks: the distinguishedsound marks in form of musical note can be registeredas sound mark. The NBC successfully registered themusical notes as a trademark in 1950 for its radiobroadcasting services. The lion’s roar is also registered sound trademark for MGM. Coloured marks: this category includes words,devices with their colour combination or colour assuch. Similarly few taste and shapes (threedimensional signs such as the three pointed Mercedesstar) as non-traditional trademarks can be alsoregistered in some specific cases.

**Important Criteria of Trademark Registration**

As per UK Trademarks Act, 1994, the three mainrequirements for registering a trademark are asfollows:

a) The trademark should be a sign or anythingthat can convey information.

b) The sign should be capable of distinguishingproducts or services of one undertaking from

that of another. This is clearly a requirement ofdistinctiveness of trademarks.

c) The trademark is capable of graphicalrepresentation to provide precise identificationin the trademark registry.

**Broadly Followed Rules of Trademark Registration**

- The word “apple” or an apple device can not beregistered for apple as in this case it is notdistinguishable. But it is registered being highly distinctive in case of computers.Similarly Camel trademark is registered forcigarettes. The generic term like “furniture”cannot be registered as trademark for chair,table, or similar type of items.
- In case of use of letters or numerals, in certaincountries registration is allowed only when at
  least few numbers of letters and/or numeralsare combined or in case of letters thecombination of word is pronounceable.
- Similarly, common surnames are not registeredin some countries as they are not distinctive innature.
- Beside these, deceptive sign or trademarkwhich is misleading or violates the public orderor morality is not qualified for registration.
- The signs which are reserved for state, publicinstitution, organisation or international body cannot be registered as trademark.

**Indian Trademarks Act**

The Indian trademarks act specifies that any markwhich is distinctive i.e. capable of distinguishinggoods and services

of one undertaking from anotherand capable of being represented graphically can betrademarks. Since trademarks do not grant exclusive right that could be exploited, there is no need to limit theirvalidity. But without time limit, trademark.

**Collective and Certificate Marks**

In certain countries collective marks and certificatemarks are used to indicate that enterprises' productpossesses particular standards. For example in case oftextile chemical processing (dyeing and printing), agroup of companies which strictly uses herbal or eco-friendly chemicals can think of some collective marksbeside their individual trademarks. The ISO, hallmark,wool mark, etc are few example of thecollective/certificate mark. Thus, certificate marks;safeguard the customer's interest by helping them tochoose the quality product amongst the misleadingproducts.

**Layout Design of Semiconductor Integrated Circuit**

In present era, life cannot be thought of withoutelectronic gadgets ie. mobile or smart phone, laptops,computer, watches, cameras, safety or health caredevices, home appliances, etc. All appliances are verycompact now a day due to their integrated circuits.Beside these, most of the instruments havingmicroprocessor base control or operating systemmade up of integrated circuits or layout designs.These designs of circuit are creations of human mindas a consequence of enormous investments and effortsof highly qualified experts. Whereas copying of thesedesigns by some other party is lethal setback forelectronic research organisations/ industries.'Layout-design means three-dimensionaldisposition of the elements in which at least oneelement is active, and or some of all havinginterconnections as an integrated circuit, or such

athree-dimensional disposition prepared for anintegrated circuit planned for industrial

Manufacturing. The treaty on Intellectual Property of IntegratedCircuit (IPIC) was carried out at Washington DC in1989, which is open for all WIPO members. As pertreaty the protection is provided to layout design up to10 years from the date of filing an application, butmember country may provide protection up to 15years from the creation of layout design. In India, Semiconductor Integrated Circuits Layout-Design (SICLD) Act, 2000 was passed to protect therequirements of electronic industry in compliance withTRIPS agreement.The act was implemented byDepartment of Information Technology under Ministryof Information Technology. Any original andinherently distinctive lay out design can be registeredas per the Indian SICLD Act, 2000 for 10 years

**Copyrights and Related Rights**

Copyrights protect expression of idea of author,artist and other creators which is concerned with masscommunication. It protects only form of expression ofidea, not the idea as such. Development of anycountry or society depends upon creativity of their people. Thus copyright encourage such type ofactivities. The following literary and artistic works are covered under copyrights:

**Literary and scientific works:** novels, poemsreference works, newspapers, plays, books, pamphlet,magazine, journals, etc.

**Musical work:** songs, instrument musical, choruses,solos, bands, orchestras, etc

**Artistic works**: such as painting, drawings, sculpture,architecture, advertisements, etc.

**Photographic work**: portraits, landscape, fashion orevent photography, etc

**Motion pictures:** it includes the cinematographyworks such as film, drama, documentary, newsreels,theatrical exhibition, television broadcasting, cartoons,video tape, DVDs, etc

**Computer programes**: computer programmes,softwares and their related databases,Maps and technical drawings

**Right of Reproduction and Related Rights**

A closely associated field is "related rights" orright related to copy right that encompass rights

similar to those of copyright. The rights coveredunder related rights are performer's rights (such asactors and or musicians) in their performance;producers of phonograms (for example, compact discsof films or sound or compositions) their recording andbroadcasting in radio and television programs.The WIPO Performance and Phonograms Treaty(WPPT) which was adopted in Dec 1996 and cameinto force on May 20, 2002, provides that definitionof performer for purposes of treaty includes performerof an expression of folklore.

One gets copyright automatically after completionof work by virtue of creation, hence it is not

mandatory to register copyright. However,registration of copyright provides evidence thatcopyright exist in work and creator is genuineowner.

**IPR in Context to Traditional Knowledge and Biodiversity**

"Traditional knowledge (TK) means innovation andpractices of indigenous and local communitiesembodying traditional life styles; wisdom developedover many generations of holistic traditional

scientificutilisation of lands, natural resources, and environment.The use of turmeric, neem, tulsi, etc herbs in day to daylife as per ritual is very well known example oftraditional knowledge existing in India."The US patent was granted to University ofMississippi for use of turmeric in wound healing;European patent was granted to W. R. Grace andCompany for its discovery of fungicidal effects ofneem oil; the agro-biotech giant, Syngenta, attemptedto take rights of thousands of rice variety which alreadyexisted in India. These all are few examples ofbiopiracy in which rights have been cancelled afterwards in favour of genuine owner of TraditionalKnowledge. The rights related to TK such ascultivation practises, medicinal uses of plants or herbsand plant varieties as well as their genetic resources arecovered under the Sui generic means unique systems ofland of law or region as they are not covered or fit under standard IPR systems. WIPO Convention on Biological Diversity (CBD)took place in 1992 with a prime goal of conservation ofbiodiversity, sustainable use of its components andequitable sharing of the benefits occurring due toutilisation of traditional genetic resources. India being amember of this convention passed following legislationin the parliament to protect traditional knowledge and farmer's rights:

**The Protection of Plant Variety and Farmers'Right Act 2001 (PPVFR Act)**

This act recognises the individual and communityroles played by farmers and their interests inimprovement and conservation of varieties. This suigeneris law has a blend of IPR savvy and publicinterests provisions hence harmonise the balancebetween farmers and giant seeds manufacturing orgenetically advance research labs and marketingcompanies.

## The Biological Diversity Act 2002

Biodiversity includes millions of races, localvariants of species and sub-species, mainly recognisedas genetic, species and ecosystem. As per estimation,global biodiversity has 1.75 million identified species. The convention on biological diversity(CBD) states that a member country should facilitateaccess to its genetic resources by other parties onmutually agreed terms, but the access requires priorinformation consent (PIC) of country providing theresources. It also has provision to provide an equitablesharing of any profit on commercialisation oftraditional knowledge to local people subjected todomestic legislation.

## IPR Status of India

The World Bank carried out survey concerned toKnowledge Economy Index (KEI) of 140 countriesacross the world on the basis of their knowledgebased initiative, policy frame work, economyincentive and institutional regime, information andcommunication technologies (ICT) infrastructure in2007. India ranked at 101st position due to lack in aforesaid parameters.Similarly, India ranked at 14th, 9th and 13th positionin patents, marks and designs respectively based ontotal (resident and abroad) IP filing activity by originin 2014.50 Rankings are based on the total numbers ofapplications filed by origin.

## Conclusion

In knowledge based economy, intellectual propertyrights are very much essential forprogressive societaldevelopment. The IPR is basic necessity to be a partof local as well as global competitive trade as withoutdissemination of IPR knowledge and implementation,creating the innovative environment is

reallyimpossible. It is essential for policy makers to includeIPR in basic educational system and promote IPRregistration by encouraging the innovators andcreators. India is having all the resources in terms ofavailable raw material, cheap labour, innovative andcreative dedicated manpower. No doubt that India andother developing countries will definitely harness itsproportionate share in global trade by exploration inIntellectual Property Rights.

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**10.**

# Startup India – Opportunities And Challenges

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**1. Abstract:**

This article has understand Startup India – Opportunities And Challenges. The economy of every country depends on its countrymen. Larger the number of employed or working people, better the economy. The Indian Government realized that Indian people have a potential to work hardly, all they need is a promising start up. Many people dream of starting up their own business but due to financial or other similar issues are unable to do so. So, Indian Government in the leadership of NarendraModi has decided to offer a gift as a nation wise programme – "Startup India". "Startup India is a revolutionary scheme that has been started to help the people who wish to start their own business. These people have ideas & capabilities, so the Government will give them support to make sure they can implement their ideas and grow. Success of this scheme will eventually make India a better economy and a strong Nation." Startup India is an initiative of the Government of India. The event was inaugurated on 16 January 2016 by finance minister ArunJaitley.

**2. Keywords:**Innovation Society, Startup India, Make in India,Mudra.

**3. Introduction:**

"We have a million problems, but at the same time we have over a billion minds" - Narendra Modi (PM)

This programme is a big start to enable Startups through financial support so that they can use their innovativeideas in right direction. There are tremendous opportunities for Startup entrepreneurs in India. The key areasare Like Textile, Media, Health Sector, Event Planner, Tourism, Automobile etc. So there are various opportunities where entrepreneurs can start their Startups. But along with opportunities there are some challenges also that Start up entrepreneurs may have to face like Infrastructure Deficit in India, Risk Factor and Right Talent Acquisition etc. Despite of these challenges, Government as well Start up entrepreneurs should have to work together to face these challenges & make this programme effective.This research study, analyzes the entrepreneurship environment through specifically focusing on startups and innovation infrastructure in India.It will try to investigate the main challenges that startups and entrepreneurs face while trying to asses innovative technological advancements in order to build a prosperous societyIn the contemporary landscape of global business, defining innovation is rather ambiguous. Framing the society needs accurately, and critically assessing them is integral when it comes to defining innovation.A startup, as such, represents a newly emerged business venture that has the intention of developing a feasible business model in order to meet the needs of a society by creating a virtuous cycle that derives constant improvement through innovative solutions

**4. Conditions for Start Ups:**

It must be an entity registered/incorporated as a: Private Limited Company under the Companies Act, 2013; or Registered Partnership firm under the Indian Partnership Act, 1932; or Limited Liability Partnership under the Limited Liability Partnership Act, 2008. Five years must

not have elapsed from the date incorporation/registration. Annual turnover (as defined in the Companies Act, 2013) in any preceding financial year must not exceed Rs. 25 crore. Startup must be working towards innovation, development, deployment or commercialization of new products, processes or services driven by technology or intellectual property. The Startup must aim to develop and commercialize: a new product or service or process; or A significantly improved existing product or service or process that will create or add value for customers or workflow. The Startup must not merely be engaged in: developing products or services or processes which do not have potential for commercialization; or undifferentiated products or services or processes.

**5. Opportunities for Startups:**

**5.1 Large Population:** The population of India is a huge asset for the country. By 2020, it is expected that the working age population would surpass the non-working population. This unique demographic advantage will offer a great opportunity to any startup. Various infrastructure issues and the bottom- of- the- pyramid market would provide huge opportunities for the startups.

**5.2Connectivity:** Indian telecom industry has nearly 100 crore subscribers, mobile connectivity has made inroads in the rural and urban population. Government of India's digital push is going to improve connectivity and data to the next level. The race to cheapest data has started and disruption is certain. The cheap data has helps everyone to get their hands on it, start-ups will have an easier time to tap into markets, territories and even traditional businesses.

**5.3 Change of Mind Set of Working Class:** Traditional career paths will be giving way to Indian startup space.

Challenging assignments, good compensation packages would attract talented people to startups. Also, it is seen that several high profile executives are quitting their jobs to start or work for startups. To reinforce the trend being seen, a surveyconducted by Economic Times also confirmed that the number of Students joining startups and e-commerce companies have grown considerably in the recent years.

**5.4 Innovation Society:** India has the largest youth population, which is the largest driver for innovation, workforce, talent and future leaders. India has its own challenges of education, health, infrastructure and the rising gap between India and Bharat. This presents big opportunity for start-ups to solve a variety of problems. India has the population of 1.3 billion people; the country's middle class is growing along with the consumers. The large diversity in the India's population makes a strong case for a rich services and products economy. Start-ups should look at banks; our banking system has reaped the maximum benefit of our population size.

## 6. Challenges for Startups:

The followings are challenges for startups discussed below:

### 6.1 Revenue Generation:

Several startups fail due to poor revenue generation as the business grows. As the operations increase, expenses grow with reduced revenues forcing startups to concentrate on the funding aspect, thus, diluting the focus on the fundamentals of business. Hence, revenue generation is critical, warranting efficient management of burn rate which in common parlance is the rate at which startups spend money in the initial stages. The challenge is not to generate enough capital but also to expand and sustain the growth.

### 6.2 Supporting Infrastructure:

There are a number of support mechanisms that play a significant role in the lifecycle of startups which include incubators, science and technology parks, business development centers etc. Lack of access to such support mechanisms increases the risk of failure.

### 6.3 Financial Resources:

Availability of finance is critical for the startups and is always a problem to get sufficient amounts. A number of finance options ranging from family members, friends, loans, grants, angel funding, venture capitalists, crowd funding etc. are available. The requirement starts increasing as the business progresses. Scaling of business requires timely infusion of capital. Proper cash management is critical for the success of the startups.

### 6.4 Creating Awareness in Markets:

Startups fail due to lack of attention to limitations in the markets. The environment for a startup is usually more difficult than for an established firm due to uniqueness of the product. The situation is more difficult for a new product as the startup has to build everything from scratch.

### 6.5 Government Policies:

If entrepreneurs are the planets in the solar system, then the government is the sun, the single largest facilitator. The government policies are slowly and steadily increasing, although, it must be noted that India still maintains a dismal ease of doing business raking as per the World Bank report. Due to a maze of laws and regulations, it takes more of an effort for an entrepreneur to start a business in India than most of the other places in the world, and after he /she succeeds in setting up a business, it takes even a greater

effort to comply with sector, department, state and center laws.

### 6.6 Lack of Knowledge Regarding Market Demand:

In India, every state has a unique taste, culture, food habit, language and outfit. So, what is selling in Maharashtra like hot cakes might remain untouched in Tamilnadu. A thorough knowledge of region-wise need and a practical market survey is of utmost importance before venturing into the perilous sea of startups. Location thus plays a key factor in the success. In this particular case, it's better not to stick to Steve Job's suggestion of not asking the customers, for people don't know what they want until you show them. One should remember, every startup doesn't produce something as revolutionary as iPods. Marketing strategy comes under this same section

### 6.7Talent:

In start-ups employment is uncertain due to companies reaching scale and then downsizing for better efficiencies, the industry is saturated with such examples. However, this is a small problem as compared to finding the right skilled talent, and retaining the talent. Skilled talent is hesitant to join start-ups, as they have witnessed in the past mass firing and downsizing. Also, early stage or pre series-start-ups have lesser pay than their corporate peers. Most start-ups in a bid to outgrow, hire inadequate talent without processes, and finally end up on the losing side.

### 6.8 Funding:

Raising the capital has been a long drawn challenge for start-ups. Angel investment and seed investment is easier to find, as the amounts are smaller, it has gotten much tougher to go for later stage rounds, as companies burn too fast and do not look at unit economics. Raising funds has become

more of a celebration; rather it should be of an entrepreneur making it to the start line of the race. Very limited funding is available in forms of larger cheques in India. In our eco system (India) we patronize the founder, and not the company, and sometimes the founder can be caught up in glamour of funding. Entrepreneurs should set the goals for the next 5 years and should not be obsessed with raising the funds. Apart from this above, there are top 10 challenges which are too faced by startups India scheme.

**7. Conclusions:**

The current economic scenario in India is on expansion mode. The Indian government is increasingly showing greater enthusiasm to increase the GDP rate of growth from grass root levels with introduction of liberal policies and initiatives for entrepreneurs like “Make in India”, “Startup India”, MUDRA etc. “Make in India” is great opportunity for the Indian start-ups. The startup area has lot of challenges ranging from finance to human resources and from launch to sustaining the growth with tenacity. Being a country with large population, the plethora of opportunities available are many for startups offering products and services ranging from food, retail and hygiene to solar and IT applications for day to day problems which could be delivered at affordable prices. It is not out of place to mention that some of these startups would become unicorns and may become world renowned businesses by expanding into other developing and underdeveloped countries. In India, the opportunities for the start-ups are immense, but so are the challenges. It will take combined efforts from the government and the start-ups to overcome these challenges

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## 11.

# Start-up Opportunities in English Language

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## Abstract

In today's global society with the help of modern technology English has become the most dominant language at national and international levels. It has been playing a key role in the sectors as medicine, engineering, politics, economics, international relations and higher education inparticular. The most important area where English is needed. It has also raised as the most used medium of instruction of universities in a large number of countries a basic means of learning and teaching, an accessing source of modern knowledge. Scientific research and means of global communication and earn living.

The importance and need of English at the level of higher Education is realised allover the world. In many non-native English countries recognised the significance of providing education in English side by side with their natives. Hence efforts are being made to improve the quality of instruction in English at the administrative, academic, publications, and research levels. And in order to prove English language international power, it has gone beyond its territory. Many English language proficiency, training courses and degree programmes are managed inside and abroad for globalization of higher education to keep it up to date

The present paper underlines the role of English in modern education, particularly in higher education sector and the role of modern technology in promoting use of English in learning/teaching to meet the standards, communication needs in business and corporate sector across the world.

**Key words:** English language, higher education, globalisation, modern technology

## Introduction

As a British colony, India came in contact with English as the language of rulers. In 1947, Britain left India leaving behind their language which was the headache for Indians then. Ever since we have been arguing over the place of English in our lives. Though the constitution of India accepted and authorised it as the language for administration, it was still the alien language for the majority of Indians. But in 1990's India's mind set changed. The constant whining against this language died and English become India language. A middle class of aspires came up after the economic reforms, confident in its own skin it regarded English as a skill to navigate the global economy. With IT revolution parents began to move their children from government to private schools that taught English. Nowadays, Indian children need English as language of instruction. It is also important to note that Indian parents also want this for their children. According to a survey 42.3 per cent of private unaided schools offer English as a language of instruction compared to 10.4% government schools.

After the IT revolution the world has become the global society and the people have to maintain good relationships with the others. Moreover business trade and commerce have become international and most of the business

organisations have their offices in most of the countries. In order to maintain international relationship in science, technology, business, education, travel tourism etc. English serves the purpose as a common language and a global language. As it plays a dominant role in almost all the fields of global society, there is a need to recognise its role as a global language.

With the growing levels of inter connectivity and globalisation, significant of modes of communication has been increased. This need of communication with the people all over the world made English as the language of communication as it is only one internationally recognised language. English is the language that is almost used between an agent and on international company. English being the first world language is side to be the first global *lingua franca* and the most widely used language in the world.

As English is a lingua franca, most of the native and non-native speakers of English are using English as the mode of communication in business matters and organisation. It has become the fastest increasing language and occupies status of commercial language by connecting the people globally. English is spread all over the world into almost all fields of humanlife. English occupies a unique place as it is the language that is so extensively used and so firmly established as dominant language in the fields of human being.

As English has assumed such a major role several researcher have tried to coin a tern by considering the variously aspects of the use of English in diverse settings. Ahulu (1977) as coins it ‘General English’, Mc. Arthur (1987) as ‘World standard English’, David Crystal (1997) phrases it ‘English as a global language. House (1999)

Gnutzmann(2000), Seidlhofer(2001), Jerkins (2007) calls it 'English as a Lingua Franca'. Widdowson Modiano and Jenkis phrases 'English as an international language.

The most commonly used terms of these is English as a global language. As a global language it has impressed all the society including formal and informal field of life. Due to importance of English as an international language whereby education and cultures are exchanged at all levels.

**Education:**

Education in its general sense is a form of learning in which the knowledge, skills, values, beliefs, and habits of a group of people are transferred from one generational to the next through discussion, teaching, training and/or research (Wikipedia). After IT revolution English has become an important tool for obtaining global education. It is the most important means of global communication which prevent s isolation from rest of the world and opens a window to the progress and development. As it is the international language it is widely used for cultural and educational exchange. The use of English language is a must at the level of local and global education. Many countries long ago have started making use of English as the medium of teaching and learning. It is now beneficial for the students who are getting global opportunities learning as well as in employment.

The students from English language medium are getting employment as most of the job providers ask for communication skills in English as most of the companies are dealing with the international companies. Nowadays content knowledge is supposed as secondary requirement whereas communication skill has become primary requirement for better jobs. English has impressed ad

influenced the whole world, even the chines and Japanese the staunch mother tongue lovers changed their business languages so can operate globally. “The chines owned computer firm Lenovo and the Swiss-Swedish engineering company as EA, Brown Boveri. Officially chose English as their language for internal communication” (C. Gopinath)

**Business**

In the modern corporate world English is widely used, as it serves the purposes of multi-nationalcompany’s needs. Use of e-technologies in business the mode of communication such as e-mails, letters, documentations, e-meetings are mainly arranged in English. Graddol (1997) says “About 80% people use English are in Europe. It is also used in global business which happens under the control of World Trade Organisation.

**Internet**

The rapid and revolutionary development, the world has witnessed huge and over controlled changes in all aspects of life and education cannot be an exception. Internet is playing a vital role in this development. Post COVID-19 world is becomingnarrower than before due to the internet. It has become the fourth fundamental need of developed society. It has brought the drastic changes in the ways of communication, this e-communication united the world Internet has accessed variety of devices such as Google classroom, G-meet, 200 m, WebEx for live interaction of the students and teachers,. It also has provided many apps. Tools for business and commerce. As a global language, English has attained the same status in the case of internet usage also. Majority of the internet sites are in English.

**Travel and Tourism**

As the world has become the global society and internet is providing the global information in the drawing rooms, everyone is interested to give and take new information about the past and present of the human civilisation and want to be a part of its chronology or to study or witness the happenings in the world. Even the personal and private moments of life are supposed as the previous and moments so to make these moments' historical people are travelling more than before. The traditional concept of travelling is changed and people who want to enjoy the holidays or see the historical and archeologically places to travel but the new concepts of destination weddings or celebrations are quite familiar nowadays.

As travel and tourism is related to the national and international levels English is the language commonly used by the international travel and tourism departments, agencies and companies.The international travel agencies also aim at recruiting people who can communicate well with international tourist in English.

**Press and Media**

English is the primary language in the field of press and media, due to its majority of speakers. Most of the world leading newspapers, magazines, news channels such as discovery, Animal planet, National Geographic, History, Travellers helps the viewers to improve their English with infotainment.

There is a lot of impact of media and social media on the young generation learners of English. BBC TV, Tweeters, blogs are helpful to improve language skills, Audio books, e-books, Cartoons are entertaining teachers for children. They can pick up English language by using it.

**Entertainment**

The world of entertain has no boundaries. It can reach anywhere and anytime. It is influential than any other medium to teach or learn English. The main purpose of Hollywood using English as their primary language is to promote their programmes or movies to all the world to make it understood by most people in the world to make it understood by most people in the world. Movies or entertainment programmes are made in English to free the people form day-to-day stress and strain, and to entertain them. Children learn English language, develop their vocabulary with the knowledge about the subject shown in the movie.

**Science and Technology**

In the field of science and technology English is the mostly used language. As it is adopted as the de facto universal language. It has a great impact on scientific communication, scientists can make use of the available scientific literature and communication with the scientists of other nations. Today the knowledge of English has become a minimum requirement in research, medicine and computer fields.

In the scientific publication, English plays a dominant role as more than 80 per cent of all are in English, 90 per cent of the publications in humanities are in English.

As most of the literature available in science and technology is in English, there is a need to learn English language by all the students as well as researchers around the world.

**Entrepreneur**

In this rapidly changing world young generation is required to have lot of skills. Among these, two skills play a vital

role in successful careers. The first is having command of the global language, and the second is having entrepreneurialmind set.

English is the language of the world and has numerous benefits of learning it at an earlyage. As well as entrepreneurship is getting more important. Policy makers and economists labelled it is one of key factors to increase economic growth. In thisback drop entrepreneurship education programmes have been proliferating all over the world.

Many international organisations including UNESCO are promoting early entrepreneurial education to reduce poverty and uplift the young generation. As UNESCO states that "Fostering entrepreneurship attitudes and skills to be taught in secondary schools raises awareness of career opportunitiesas well as of ways young people can contribute to the development and prosperity of their communities. It helps reduce youth vulnerability, social marginalisation and poverty" (UNESCO, 2014)

**Start-ups and English**

For many people the ability to communicate in English means a better chance of employability. Enthused by the aspiration of millions of Indians a handful of tech start-ups in India such as English. English Bolo, Multibhashi, Kings learning, Utterand Hello English, are fulfilling the need of non-English speakers with the help of technology. The online learning market in India is set to grow rapidly by 2021. Sanjay Gupta global CEO of English helper says "English is the language or aspiration. It equips students for higher education, enhances their job opportunities and empower people socially".

These start-ups have recognised the aspirations of Indian young generation who believe mastery of English is the way to a better life. These start-ups are giving solution to the problem and wings to the dreams.

These handful of start-ups are empowering Indians to aspire for more. India taking into consideration it population and literacy ratio need more start-ups in this domain of English language.

Conclusion

In this paper need of English language in start-ups has been discussed. The importance and need of English in the education. Business has been discussed. The opportunities of start-ups in the field of internet, travel and tourism, press and media, entertainment has been highlighted. The importance of English and opportunities in the field of science and technology has been discussed. The need of entrepreneurship education and communication skills are also stated in this paper. The efforts and opportunities in the field of start-ups in English language in India are elaborated.

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## 12.

# Role of Agriculture Higher Education in Start-up India

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## Abstract

Agriculture is the backbone of India and Indian economy largely depends on the rich resources of traditional agricultural practices, knowledge, biodiversity and human capital. Agriculture has huge potential for promoting Agriculture based innovations those will bring different solutions of various current problems faced by this sector. The National Agricultural Research and Education System is one of the most important and major investor in research with the intention to bring in new age technologies in Agriculture and provide it to the farmers, farming communities, farmer producer companies and societies. The present need in the country is that through all the institutes which are working in Agriculture sector shall transform Agriculture Education System with innovative approach for students.

Entrepreneurship always plays an important role to boost the Indian economy. Agriculture is the only sector which can provide new business to thousands of people at a time. It will provide economic growth, create jobs, prosperity in the society and will enhance the capacity of upcoming graduates. Indian Council of Agricultural Research, New Delhi is a central institute which controls the Agriculture Higher Education in India. ICAR has developed new

syllabus recently which largely based on training and skills, entrepreneurship, incubation, profit sharing and so on. As a result, there is an immense increase in the skilled and trained students who are will to enter in entrepreneurship. The several institutes and colleges are also providing necessary facilities for students to run such projects where profit sharing can be done. Through this a lot of students are being attracted towards Agriculture sector. The main purpose of review paper is to show the importance of Agriculture Higher Education in stimulating entrepreneurship.

**Keywords*:*** Higher education, entrepreneurship, Agriculture, technology, profit etc..

## Introduction

Agriculture sector in India is the only sector which ensures food and nutritional security and sustainable development for upliftment of poor. It is one of the most important sector which generates the employment opportunities for our vast population which is increasing every year. Since independence Agriculture sector has been facing numerous challenges related to standard research as per the need however, the research which has been done has definitely increased the life style of farmers and all stakeholders. However, there is huge problem before farming community that they have to face new problems every year which needs immediate attention from scientists. The Agriculture Higher Education plays a vital role in creating entrepreneurship skills.

It has already been realized that this sector may have to face the number of challenges and threats in view of opportunities which will be sorted out through education. The effective agriculture higher education would play a crucial role in creating skills and entrepreneurs which will create startups. Agriculture educations is going to provide

substantial base to all students enter in any business which they would like to enter. Accordingly, the new syllabus has been designed and the result of new syllabus are making impact on the minds of the new researchers, young graduating students and even faculties. As combined efforts of all, students are getting exposure of industry. They are getting enough time to go and learn in actual industry and do the likely projects there.

**What is entrepreneurship?**

The term 'Entrepreneurship 'comes from the French word 'enterprendre' and German word 'unternehmen' both meaning ' to undertake' or to do something. The entrepreneurship process starts when an individual recognizes an opportunity in the environment. Entrepreneurship, value chains and market linkages are terms that are being used more and more when talking about agriculture and farming. Many small-scale farmers and extension organizations understand that there is little future for farmers unless they become more entrepreneurial in the way they run their farms.

**What is an entrepreneur?**

An entrepreneur is someone who produces for the market. An entrepreneur is a determined and creative leader, always looking for opportunities to improve and expand his business. An entrepreneur likes to take calculated risks, and assumes responsibility for both profits and losses. An entrepreneur is passionate about growing his business and is constantly looking for new opportunities.

**Characteristics of an entrepreneur**

The entrepreneur is known for his or her special characteristics which make them entrepreneur. An entrepreneur may not possess all the characteristics but shall possess own set which will make him or her different than the others. The qualities like taking imitative, creative

and innovative, energy and confidence, research and study the market, management and deals with failure and such other qualities make an entrepreneur successful. Some of the skills are in born and most of them can be learnt at colleges where practical exposure is provided.

**Entrepreneurship and Start-up**

Entrepreneurship and start-up activities in India have not only grown significantly in numbers and geographic spread, but also in terms of creating a dynamic support system to foster entrepreneurship, enhanced levels of innovation and employment creation, according to a new analysis. The most important trend is that education institutions in India are beginning to play a vital role in developing entrepreneurial competencies and include entrepreneurship as a core course in business education, according to a new report.

**Agro-Industrial Exposure in Agriculture Higher Education**

The recent developments in Agriculture Higher Education in India will definitely enhance the quality of human resource which is a requirement of all research programmes, technologies and agro-industries. Proper integration of agricultural education is crucial to improve the human resource. Efforts are being made all the institutes which are providing agricultural education to create state of the art infrastructure facilities to improve the higher education in agriculture and allied disciplines.

To enhance the excellence of students and faculty in agri-supply which is the manpower shall be given prominence and accordingly all the things are being planned in education. Over the years the standards in quality of higher education in Agriculture have been increased a lot to enhance the basic abilities of stakeholders for development in all departments to overcome the new and strange challenges. The young minds should look and think that yes there is a huge scope and future in all sectors

of agriculture. Higher education in agriculture with its power will create a sense of trust among all stakeholders across the country. Accordingly, Agro-Industrial Attachment this new concept has been introduced in the higher education in agriculture. Where final year students would be attached/placed with/in the agro-industries including cottage industries and commodities boards for a period of three weeks to get exposure and an experience of the industrial environment and working. This will develop confidence and competence among students. The students will learn the actual working of industry which will help them to get the industry exposure. Along with this ICAR, New Delhi has introduced Experiential Learning (EL) with a view of business which will help all the students to increase their competence, capacity, training and skills, confidence and knowledge to start their own business or company. The aim of this type of course is to make students job givers instead of job seekers. This is definitely a way forward step towards 'Swayampurna", 'Atmanirbhar' and the 'Earn while learn'. The new age RAWE, In plant Training and experiential learning module offered in VII and VIII semester will develop a high quality professional capability and hands-on experience of real life circumstances to all graduates. The students of these modules will become job providers in future. It provides all students an opportunity to develop their analytical and training skills, knowledge through hands on training and experience and responsibility to handle the real life projects. Through this students will acquire the management skills also. All in all this higher education courses will definitely make the students market ready. As in the final year students have to stay in the villages for two and half months and get the rural work awareness along with 2 weeks plant clinic activities. This programme is called RAWE. They have to do all the required farming activities which a farmer does daily. In this way all students

get the practical exposure for two months then they have work in Agro – Industry for one month after getting experience they must attend any unit or institute of agriculture for 4 Weeks which gives great knowledge experience.

Recent developments and research in agricultural engineering has opened up new avenues in the new era. The need for smart technology is great. To increase the practical knowledge of all the students, industrial training is compulsory. During the training, all the students have to study a project or industry related problem and prepare a report accordingly. This training shall provide real industrial exposure along with their all-round personality development as per the industrial requirements. Industrial training in the final year shall associate theory and actual working in the industry. Number of students are interested in higher education in agriculture and study abroad. Considering the future needs project work of students provides an opportunity to students to acquire knowledge of various aspects of industry, learn observation and documentation.

**Future of innovative practical exposure:**

As discussed above, the RAWE, AIA, ELP and In Plant Training all these components designed in such a way that they build the skills of final year students along with decision making, accounting, marketing, industrial presentations, technical knowledge of agriculture graduates. The future of this type of innovative practical exposure is tremendous. All the students who will undergo such type of trainings are going to get enormous benefits. They will get different ideas about agriculture business and will come to know how to sustain in the competitive situation. The future of industrial exposure is great. Even Art's, Commerce and Science colleges should think about this type of innovative exposures and start such type of course and make the students market ready. As we know

that all cannot become entrepreneurs, the human resource being developed in different disciplines shall be that much skilled and efficient to support industry. Universities and Colleges shall be more critical of entrepreneurship as agriculture sector has huge potential to impact positively on the GDP of our country. It will make an impact on the minds of the entrepreneur which has great future. The stage of learning should strive to make these students business orient. Teachers should explore the facilities and motivate the students and provide them initial startup amount which will give them a boost. The role of higher education in agriculture is clearly to see the economic developments of common and poor. The universities will serve as torch bearers of knowledge and will create skilled human resource. Entrepreneurship is fast growing area and agriculture is one of the sector where immense opportunities are available. The need of training and development of skills is being fulfilled by universities and colleges. Therefore, higher education in agriculture has a great demand in future in respect to startups. Very broad knowledge base of agriculture students is being developed which is based on research throughout the country. The final year students will almost be in the controlled educational environment of entrepreneurship which will develop the mind. Students will be developed individually.

**Role of Universities:**

Agriculture Universities are being provided funds by state and national government to create incubation centres. Accordingly, incubators are increasing in India. Some the universities have opened their doors to external entrepreneurs also on minimum charges to use the incubation facilities. Universities have started short term training on startups where incubation cell is a catalyst. Lots of Alumni coming ahead and helping colleges and universities to set up the incubation centres and providing scholarships also. Faculties are also taking interest and

setting up the startups along with students which is a great sign. A lot of faculty members of IIT's and IIM's have started the start-up collaborative projects which are great asset for students. These start-ups are showing the capacity that they can make or create new technologies and set up service industries. The Government of India is taking up the responsibility and helping out all those who are willing to become entrepreneur. The role of agriculture universities in creating environment for students to start their own business or start-up is immense.

**Conclusion**

Entrepreneurship in all sectors always contributes to the financial growth of all nations and India is not an exception to it. Like Engineering, Medicine and other branches Agriculture is one of the most significant sector where entrepreneurship can be developed through incubating entrepreneurial young spirits of graduate students through effective syllabus, programmes and courses. Here, the role of colleges and Universities is very important and decisive. Even institutes like AICTE and several school boards are also planning to stimulate the innovative thinking skills of children. ICAR, New Delhi is also providing initiatives to the Agriculture Universities to startup incubation centres where young minds will be shaped and they will be enough confident to go into the market with their products. Similarly, the new syllabus of Agriculture Universities across the India is promoting final year students take up projects on profit sharing with institutes. All the Agriculture colleges are providing facilities to all final year students to have small projects and earn money through that which will foster the entrepreneurship skills and contribute towards the startup India. Agriculture sector is never ending sector and all other financial services depend

on the progress this sector. Hence, this paper largely supports the new syllabus patterns which are likely to create entrepreneurship.

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## 13.

# Startup India : Hurdles and Potentialities

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Startup India is a Government of India flagship initiative to build startups and nurture innovation. Through this initiative, the Government plans to empower startup ventures to boost entrepreneurship, economic growth and employment across India. India's startup eco-system has become a talking point for the entire world. With hundreds of innovative youngsters choosing to pursue the path of entrepreneurship instead of joining the multinational corporations and government ventures, the business world has witnessed an explosion of ground-breaking startups providing solutions to the real problems at a mass level in the past years. A startup venture could be defined as, a new business that is in the initial stages of operation, beginning to grow and is typically financed by an individual or small group of individuals. It is a young entrepreneurial, scalable business model built on technology and innovation wherein the founders develop a product or service for which they foresee demand through disruption of existing or by creating entirely new markets. Startups are nothing but an idea that manifests into a commercial undertaking. *Startup India* will help boost entrepreneurship and economic development – by ensuring that people who have the potential to innovate and start their own business are encouraged – with proactive support and incentives at multiple levels (Dr G Suresh Babu & Sridevi, 2019).

Narendra Modi (2016) stated that, the Startup India is a revolutionary scheme that has been started to help the people who wish to start their own business. These people

have ideas and capability, so the government will give them support to make sure they can implement their ideas and grow. Success of this scheme will eventually make India, a better economy and a strong nation.

Grant Thornton (2016) define, the startup business as an organization which is an entrepreneurial venture/a partnership or a temporary business organization engages in development, production or distribution of new products/services or processes.

Institute for Business Value (IBV) (2018), India is booming with young entrepreneurs and start-ups but more than 90 per cent of start-ups in the country are failed because of, lack of innovation, non-availability of skilled workforce and insufficient funding are the main reasons for the high rate of failure.

**Hurdles in Startup India**

Entrepreneurship and startups are only a recent phenomenon in the country. It is only in the last decade and half that people in the country have moved from being job seekers to job creators. Doing a startup is tough and every country sees more failures than success (Economic Times)

**Mindset –** In India, most of the parents are providing good education to their kids for good job or service. Most of the people want to secure life and don't want to leave the comfort zone. They fear about the failure in selected business and the thing which is most hurdles is, "what will people say?"

**Mentor –** Doing a startup is an unsafe and often a lonely journey. Having a brilliant idea is different from making that idea a business success. For a startup, it is very important to have mentors. A great mentor is often what separates success from failure by providing valuable inputs.

However, there is no formal mechanism to mentor startups in the country. For startups finding a good mentor is often an uphill task.

**Policies –** Government is the single largest enabler for the entrepreneurial ecosystem. Government's role in ease of doing business and helping companies start is vital to ensuring success. In fact, Government launched several good policies regarding financial assistance for startup, the thing is we have to find it.

**Hiring –** For a startup, it is particularly difficult to make correct estimates on the number of employees needed. It is somewhat more difficult to attract and hire talent and skilled workers. A startup often cannot match the salaries drawn at larger companies nor is a job at a startup seen as a steady one. This means startups face severe hiring challenges and at times have to settle for the next best option.

**Management –** Usually, new entrepreneurs does most of the tasks at its own level, just to save money. But due to this he failed to concentrate on horizontal growth of the firm. So lack of management is another hurdle in startup India.

**Potentialities in Startup India**

**Continuous source of happiness and money –** After setting of business, the owner can get continuous happiness as the chosen business idea is its passion, and as the business get properly set, it becomes continuous source of money.

**Large population –** For startups in the country, it is not essential to go overseas. India, with over a billion people, presents a very large home market for any goods or services. A rising disposable income and growing

aspirations of a mushrooming middle class have meant there is a large appetite for brands. The large population has also led to a consumer expenditure growth, which has in turn has propped up supply and production. Startups that look to service and cater to the large population in solving a pain point or providing a utility in one of the world's most important consumer markets, stand to do well.

**Creative and confident life –** As an entrepreneur has to keep itself updated, it always moves with the world and makes necessary timely changes. This attitude keeps it creative and gives a good boost of confidence.

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## 14.

# Agritech Startup : A Boon for Indian Agriculture

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## Introduction

The startups are an exemplar that great things are done by a series of small things brought together. Taking one small step at a time, moving from one problem to another and solving the issues by disruptive innovation is what these startups are trying to achieve. The startups are not only creating new jobs which mean more employment but are also leaving a ripple effect on the socio-economic fabric of the demography in which they are operating. The world has become a playfield for these young entrepreneurs as the global startup revolution continues to grow. Underneath this continued growth, fundamental shifts are occurring. The fuel that incited the first and second generation startup revolution have started to decline and a new third wave is taking over the world stage. With this rise, India has become the third largest startup ecosystem hub. India is home to highest number of unicorn startups after US and China with 26 unicorns out of 250+ total unicorns globally. At a time where with the increasing population and demand for better quality and higher quantity of food is required, the performance pressure on farms are increasing. Agritech startups are such a relevant solution across the agricultural value chain and they can be in the form of a product, a service or an application. There is a decent growth of startups in the country which needs a strong push if we want the agri sector to flourish. India has already built a strong name for itself in the global startup community. It's

time to make agritech startups successful and propel India forward as a leader in the agri technology sector too.

In a bid to double the farmer's income by 2022, the Government of India is continuously looking for ways to boost agricultural production, food processing and marketing avenues through the integration of latest technologies and innovations; thus creating a huge scope for food and agritech startups in the country (Balaji, 2018). India has made a strong name for itself in the global startup community. India ranks amongst the top five countries in the world in terms of number of startups founded. It is estimated that India houses around 7200-7700 start-ups, creating more than 85,000 employment opportunities. It is projected that the number of startups in India will increase to more than 11,500 by 2020, with job creation from these entrepreneurs reaching 250-300K by 2020 (NASSCOM, 2018; FICCI 2018). Agriculture is one of the important pillars of the Indian economy. According to a report from FICCI, about 54 percent of Indian population depends directly on agriculture and it accounts for around 17.3 percent of GDP (FICCI, 2018). Although, agriculture in India has majorly seen a steady growth in the last few years, not much has been done in encouraging young, fresh and unique innovative ideas in the sector. It was only in 2007, when the era of start-ups saw a boost and things started to change. Young entrepreneurs are now quitting their jobs in IT sectors and MNCs to establish their own start-ups. These young entrepreneurs are now beginning to realize the fact that investing in agriculture is one of the very few safe and profitable businesses (MahyCo, 2018). Agriculture is a crucial sector of our economy and the demand for agricultural products is never expected to reduce. There is a new wave of budding entrepreneurs and

emerging startups in the country that are leading the way to disrupting the agriculture sector in the country. They want to deploy technology in this sector and reform it for good. because the sector holds tremendous potential for technology adoption considering the sheer size of population involved. Many agritech startups in India are mainly in marketplace segment where e-commerce companies provide fresh and organic fruits and vegetables procured directly from farmers. Very recently many startups have come up providing innovative and sustainable solutions for farmer's problems. Startups have provided solutions such as biogas plants, solar powered cold storage, fencing and water pumping, weather prediction, spraying machines, seed drills, vertical farming, etc (Sachitanand, 2018). Agritech has the potential to address a number of challenges faced by the sector and, subsequently, change the face of the Indian agriculture. Upsurge in the internet usage, increase in smartphone penetration, emergence of startups and various government initiatives in rural areas are facilitating technology adoption in the farm sector (Ganguly, 2018) The technology solutions for most issues in agriculture are present but the challenge is for these solutions to reach every farmer in a larger scale and not just only one farmer.

**Startup Scenario in India**

With 350+ Agritech startups in India, many startups are now targeting for breakeven point as the investors show continuous interest for further rounds of funding. According to NASSCOM, more than half (59%) of the investor funding rounds that took place from 2013-17 was focused on startups in38 seed stage. It was followed by early stage which occupied 32 percent of the investor funding rounds. A small percentage of 9 percent of the

funding rounds was covered by the startups in the growth stage. It was concluded that more than 90 percent of funding was focused on seed stage and early stage startups which increases focus on quality and scale up.

## Key Indian States Focusing on Agritech Startups

Looking at the geographical distribution, Karnataka and Maharashtra together account for almost 50 percent of the total agritech start-ups opened in the past 5 years. As we have learned earlier from 39 the analysis of Indian Startup Ecosystem Bengaluru (Karnataka) is one of the established startup ecosystem hub in India along with Mumbai and Delhi & NCR. Same trends can be noticed in the area of agritech startups where the three established ecosystem hubs are leading the charts with more than 50 percent of startups established in India. The major three states are followed by Haryana (8%), Tamil Nadu (7%) and Gujarat (7%). It is interesting to note that although Gujarat has only 7 percent of share in agritech startups, it is the "best performing state" in Indian startup ecosystem according to State Startup Ranking Report 2018 published by The Department of Industrial Policy & Promotion (DIPP), Ministry of Commerce, GoI.

## Agriculture Grand Challenge

Ministry of Agriculture in partnership with Startup India launched the Agriculture Grand Challenge on 15th December, 2017. The challenge is a unique opportunity for Agri-tech start-ups with a commercially viable solution to solve for innovative challenges in the sector. The objective is to support the technology base by funding/ providing incubation support to the best fundamental concepts while helping talented and creative innovations to pursue promising avenues at the frontier of the technology. It will

provide start-ups with access to priority infrastructure, and make Agriculture an attractive sector for the country's best brains. Under this challenge, 10 problem statements were issued in the following areas

1. Development of simplified, sensor based quick testing method to test nutrients & micronutrients in soil The 11th five-year plan [2007-2012] acknowledged the importance of proper soil management in agriculture for the first time. For this, Soil Health Management (SHM) scheme was devised to assist State Governments to set up new static Soil Testing Laboratories (STLs) and Mini Soil testing Labs (MSTLs). However, it is found necessary to further reduce the collection, testing time required for the sample to ensure on the spot results to the farmers. In addition, simplification of soil testing protocols needs to be done. For this, the challenge is seeking development of simplified, senor based and quick soil testing methods to test the nutrients and micronutrients. A proven technology will be supported under Soil Health Management scheme so that states can procure directly from the developer at fixed price (as has already been done for mini soil health labs).

2. Real time assaying and quick grading solution for eNAM to effectively handle huge lots of agricultural commodities Electronic National Agriculture Market ( eNAM) is a virtual market with a physical market (mandi) at the back end, which networks the existing APMC/mandis to create a unified national market for agricultural commodities for pan-India electronic trading. The assaying of agricultural produce at the market level is of utmost importance to enhance the marketability of the produce and to enable the farmers to realize price commensurate to the quality of their agricultural produce. Mandis handles huge volumes

(lots) of arrival and smaller lots, hence it is essential to provide quick quality assaying solutions (preferably within a minute/ parameter) to promote online trading. For this, the challenge is seeking development of quick grading & assaying solution for eNAM which can also be connected to the internet to increase the efficiency of the agricultural chain.

3. Development of e-marketplaces to connect food processors with agripreneur/farmers to bridge the value gap – Farm to Fork model While self-sufficiency in agriculture has been a priority for the Government and several policy initiatives weave around this objective, the post-harvest management including agricultural marketing has not kept pace with the changes in economy, particularly relating to setting up of an efficient supply chain. The need to unify market both at State and National level is, therefore, important to provide better price to farmers, improve supply chain, reduce wastages and create a unified national market for agricultural produce. In such a scenario, National Agriculture Market (NAM) would create a win-win situation for both i.e. agripreneurs and processors.

4. Price forecast system for Pulses /Oilseeds /Potato /Onion / Tomatoat the time of sowing In India, price of commodity is dependent on various external factors suchas area, yield, production, Household food demand, feed demand, etc. In this regard, a mechanism may be developed by startups who can use the data of past trends and other mentioned factors and bring up the prices forecast of the particular crop depending upon sowing, taken intoconsideration the sowing patterns, weather and other factor mentioned.

5. Dissemination of information to the last mile - Agriculture Extension, Scheme information, processes, hand holding support for benefit under different

Government schemes In India, farmers may not be aware of all the schemes that are implemented by Central Government and State Governments for their welfare. In this regard, the challenge seeks development of an online platform at the Panchayat / Common Service Center / KVK level which will provide information to farmers regarding schemes and benefits that they are entitled to thereunder. Linking with Aadhar, Soil Health Cards and crop as well as health insurance etc. may be considered on this platform for the welfare of farmers.

6. Use of technology to test adulteration of fresh produce Food is essential for nourishment & sustenance of life. Adulteration of food cheats the consumer and can pose serious risk to health. Food is adulterated if its quality is lowered or affected by the addition.

7. Availability of small agricultural implements/ micronutrients/certified quality seeds through online/call center interface – Custom Hiring Centres Creation of regional Agri-Kiosk by the respective department to provide a kind of a one-stop shop for all agricultural needs providing services such as soil testing, seed selection, appropriate pesticides, herbicides, and fungicides. Agri-kiosks can also provide the latest agricultural equipment on rent which make it easily accessible for women farmers. The challenge is looking for solutions to improve the avaliability of agricultural inputs through Custom Hiring Centres.

8. Alternate usage of paddy straw (left in field after harvesting of paddy) to discourage farmers from burning the same especially in Haryana and Punjab. Burning of agricultural biomass residue, or Crop Residue Burning (CRB) has been identified as a major health hazard. In addition to causing exposure to extremely high levels of

Particulate Matter concentration to people in the immediate vicinity, it is also a major regional source of pollution, contributing between 12 and 60 per cent of PM concentrations as per various source apportionment studies. In addition, it causes loss of vital components such as nitrogen, phosphorus, sulphur and potassium from the topsoil layer, making the land less fertile and unviable for agriculture in the long run. The challenge is seeking for technological solutions for alernative usage of paddy straw to discourage Crop Residue Burning.

9. Technology to substitute the use of pesticides & insecticides to prevent pre-harvest losses Insect, plant pathogen, and weed pests destroy more than 40% of all potential food production each year. This loss occurs despite the application of approximately 3 million tons of pesticide per year plus the use of a wide array of non-chemical controls, like crop rotations and biological controls. Due to lack of effective, affordable and eco-friendly technologies to control pests, farmers are left with no choice but to continue spraying harmful and toxic pesticides on crops. The challenge is looking for technology solutions to substitute the use of pesticides & insecticides to prevent pre-harvest losses.

10. Seeking affordable, accessible, easy-to-use technologies, products or services to enhance agricultural productivity in India One of the biggest issues facing the agricultural sector in India is low yield: India's farm yield is 30-50% lower than that of developed nations. Average farm size, poor infrastructure, low use of farm technologies and best farming techniques, decrease of soil fertility due to over fertilization and sustained pesticide use, are leading contributors to low agricultural productivity. Indian farms are small (70% are less than 1 hectare, the national average

is less than 2 hectares) and therefore have limited access to resources such as financial services, credit (or lenders), support expertise, educational services or irrigation solutions. In the short-term, yield directly impacts a farmer's cash flow and the ability to respond to fluctuations in the market. Long-term, yield limits a farmer's ability to invest into their farm's future to increase productivity and decrease risks associated with their crops (via inputs such as seeds, fertilizer, crop insurance, market/weather info, livestock health support, etc.) but also to invest into their families in areas such as education, healthcare, training, etc. The challenge is seeking affordable, accessible, easy-to-use technologies, products or services to enhance agricultural productivity in India.

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## 15.

# Intellectual Property Rights: Copyright

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**Abstract**:

Intellectual property rights include inventions, literary or artistic work, images, symbols, etc. It protect creations of the mind that creation of a product, publishing a book, or finding a new drug, intellectual property rights ensure the benefit from the work. These rights protect creation or work from unfair use by others. This paper deals with the Introduction of IPR, It's Types, need, importance of IPR with special emphasis on Copyright.

**Keywords:** Intellectual Property Rights, IPR, Copyrights

## Introduction

Development of any society depends on information that they access. Information is creation of human minds. When someone creates information, he has the owner of information and having some rights on his creation. Any rights over creations of the mind or products of the intellect are known as intellectual property rights. Intellectual property (IP) pertains to any original creation of the human intellect such as artistic, literary, technical, or scientific creation. Intellectual property rights (IPR) refers to the legal rights given to the inventor or creator to protect his invention or creation for a certain period of time (Singh, 2004)

The Intellectual property rights (IPR) are territorial rights by which owner can sell, buy or license his Intellectual

Property (IP) similar to physical property (Saha & Bhattacharya, 2011).

Intellectual property rights refer to rights granted to a person or business over the creations of their minds. They give the creator exclusive rights over the use of the creation for a designated period of time. These legal rights grant an exclusive right to the inventor/creator or his assignee to fully utilize his invention/creation for a given period of time. IP play a vital role in the modern economy. The stakes of the developers of technology have become very high, and hence, the need to protect the knowledge from unlawful use has become expedient, at least for a period, that would ensure recovery of the R&D and other associated costs and adequate profits for continuous investments in R&D (India,2002). IPR is a strong tool, to protect investments, time, money, effort invested by the inventor/creator of an IP, since it grants the inventor/creator an exclusive right for a certain period of time for use of his invention/creation. Thus IPR, in this way aids the economic development of a country by promoting healthy competition and encouraging industrial development and economic growth.

**Intellectual property rights are usually divided into two main areas:**

**(i) Rights related to copyright:**

- The rights of authors of literary and artistic works (such as books and other writings, musical compositions, paintings, sculpture, computer programs and films) are protected by copyright, for a minimum period of 60 years after the death of the author.

**(ii) Industrial property:** Industrial property can be divided into two main areas:

- **Protection of distinctive signs,** in particular **trademarks and geographical indications**.
  **Trademarks** distinguish the goods or services of one undertaking from those of other undertakings.
- **Geographical Indications (GIs)** identify a good as originating in a place where a given characteristic of the good is essentially attributable to its geographical origin.
- The protection of such distinctive signs aims to **stimulate and ensure fair competition and to protect consumers,** by enabling them to make informed choices between various goods and services.
- The protection **may last indefinitely,** provided the sign in question continues to be distinctive.
- **Industrial designs and trade secrets:** Other types of industrial property are protected primarily to **stimulate innovation, design and the creation of technology**. In this category fall inventions (protected by **patents**), **industrial designs** and **trade secrets**.

## What is the need of IPR?

The progress and well-being of humanity rest on its capacity to create and invent new works in the areas of technology and culture.

- **Encourages innovation:** The legal protection of new creations encourages the commitment of additional resources for further innovation.
- **Economic growth:** The promotion and protection of intellectual property spurs economic growth, creates new jobs and industries, and enhances the quality and enjoyment of life.
- **Safeguard the rights of creators:** IPR is required to safeguard creators and other producers of their intellectual commodity, goods and services by

granting them certain time-limited rights to control the use made of the manufactured goods.

- It promotes innovation and creativity and **ensures ease of doing business**.
- It **facilitates the transfer of technology** in the form of foreign direct investment, joint ventures and licensing.

**Importance of Intellectual Property Rights**

Intellectual property rights are accepted all over the world due to some important reasons. They were essentially recognized for the acceptations of these rights are:-

- Provides incentive to the individual for new creations.
- Providing due recognition to the creators and inventors.
- Ensuring the material reward for intellectual property.
- Ensuring the availability of the original products.
- For economic growth and advancement in technology sector protection of Intellectual property protection is important.
- They are benefited for the growth of the business in the field of technology (UKEssays,2018)

**IP protection can be sought for a variety of intellectual efforts including**

(i) Patents

(ii) Industrial designs relates to features of any shape, configuration, surface pattern, composition of lines and colors applied to an article whether 2-D, e.g., textile, or 3-D, e.g., toothbrush.

(iii) Trademarks relate to any mark, name, or logo under which trade is conducted for any product or service and by which the manufacturer or the service provider is identified. Trademarks can be bought, sold, and licensed. Trademark has no existence apart from the goodwill of the product or service it symbolizes.

(iv) Copyright relates to expression of ideas in material form and includes literary, musical, dramatic, artistic, cinematography work, audio tapes, and computer software.
(v) Geographical indications are indications, which identify as good as originating in the territory of a country or a region or locality in that territory where a given quality, reputation, or other characteristic of the goods is essentially attributable to its geographical origin(Saha & Bhattacharya, 2011).

Indian copyright law provides exceptions to libraries for use of copyrighted works under the statutory fair dealing provisions of the copyright Act (section 52) as well as under the judicially created fair use exception. Broadly the law permits use of copyrighted works by libraries for the following purposes:

- Research and education;
- Instructions, teaching and training;
- Private study;
- Enabling access to the disabled;
- Activities of education institution;
- Review and criticism;
- Searching and data mining;
- Storage and preservation; and
- Access to knowledge.

**Coverage provided by copyright**

- Literary, dramatic and musical work. Computer programs/software are covered within the definition of literary work.
- Artistic work
- Cinematographic films, which include sound track and video films.

- Recording on any disc, tape, perforated roll or other device.

**Infringement of copyright**

Copyright gives the creator of the work the right to reproduce the work, make copies, translate, adapt, sell or give on hire and communicate the work to the public. Any of these activities done without the consent of the author or his assignee is considered infringement of the copyright. There is a provision of "fair use" in the law, which allows copyrighted work to be used for teaching and research and development. In other words, making one photocopy of a book for teaching students may not be considered an infringement, but making many photocopies for commercial purposes would be considered an infringement. There is one associated right with copyright, which is known as the "moral right," which cannot be transferred and is not limited by the term. This right is enjoyed by the creator for avoiding obscene representation of his/her works (Tiwari & Tiwari,2011).

**The following acts are considered infringement of copyrights:**

a. In the case of literary, dramatic or musical work, not being a computer program

(i) To reproduce the work in any material form, including storing it in any medium by electronic means.

(ii) To issue copies of the work to the public not being copies already in circulation.

(iii) To perform the work in public or communicate it to the public.

(iv) To make any cinematography film or sound recording in respect of the work.

(v) To make any translation of the work or to make any adaptation of the work.

(vi) To do, in relation to a translation or an adaptation of the work, any of the acts specifi ed in relation to the work in sub-clauses (i) to (vi).

**b. In the case of computer program**

(i) To do any acts specified in clauses (a).

(ii) To sell or give on hire or offer for sale or hire any copy of the computer program, regardless of whether such copy has been sold or given on hire on earlier occasions.

**c. In the case of an artistic work**

(i) To reproduce the work in any material form, including depiction in three dimensions of a two-dimensional work or in two dimensions of a three-dimensional work.

(ii) To communicate the work to the public.

(iii) To issue copies of the work to the public not being copies already in circulation.

(iv) To include the work in any cinematography film.

(v) To make any adaptation of the work.

(vi) To do, in relation to a translation or an adaptation of the work, any of the acts specified in relation to the work in sub-clauses (i) to (vi).

d. **In the case of a cinematography fi lm**

(i) To make a copy of the film, including a photograph of any image forming a part thereof.

(ii) To sell or give on hire or offer for sale or hire any copy of the fi lm, regardless of whether such copy has been sold or given on hire on earlier occasions.

(iii) To communicate the fi lm to the public.

**e. In the case of sound recording**

(i) To make any other sound recording embodying it.

(ii) To sell or give on hire or offer for sale or hire any copy of the sound recording, regardless of whether such copy has been sold or given on hire on earlier occasions.

(iii) To communicate the sound recording to the public.

**Transfer of copyright**

The owner of the copyright in an existing work or prospective owner of the copyright in a future work may assign to any person the copyright, either wholly or partially, in the following manner:

1. For the entire world or for a specific country or territory or
2. For the full term of copyright or part thereof or
3. Relating to all the rights comprising the copyright or only a part of such rights.

**Conclusion**

The Intellectual Property Rights (IPR) has social, economic, technological and political impacts. Rapid technology, globalization and fierce competitions leading to protect the innovations from violations by the help of IPR such as patents, trademarks, service marks, industrial design registration, copy rights and trade secrets. But still there is infringement of Intellectual Property Rights. The Government is also taking measures to prevent them. There are laws regarding the prevention of Intellectual Property Rights Infringement.

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## 16.

# Intellectual Property Rights: Status in India

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**Introduction:-**

Man gives birth to many kinds of inventions and new creations with his intellect. He has full authority over those special inventions but the protection of this right has always been a matter of concern. This is where the debate on intellectual property and intellectual property rights begins. If we make a work fundamentally and this work is used illegally by another person for their own benefit then it is a clear violation of the rights of the creator.

The World Intellectual Property Organization (WIPO), an agency of the United Nations, was established when the debate in the world intensified on how to protect intellectual property rights. The importance of intellectual property rights gained prominence only through the efforts of this organization.

This article will attempt to discuss India's intellectual property rights, its types, India's views on intellectual property and the World Intellectual Property Organization.

**Meaning :-**

The rights granted to individuals in the context of their intellectual creation are called intellectual property rights. In fact, it is understood that if a person does some kind of intellectual creation (such as creation of a literary work, research, invention, etc.), then first of all the same person should have exclusive right over it. Since this right is given only for intellectual creation, it is termed as intellectual property right.

Intellectual property means - morally and commercially valuable intellectual creation. The granting of intellectual property rights should not be taken to mean that the sole and exclusive creator will have the right to such and such intellectual creation forever and ever. It is important to point out here that intellectual property rights are granted in view of a fixed time period and a fixed geographical area.

The basic purpose of granting intellectual property rights is to promote human intellectual creativity. Due to the wide scope of intellectual property rights, it was deemed necessary to make provision for its respective rights and related rules etc. for a particular area.

**Objectives** :-

- To create awareness in all sections of the society about the socio-economic and cultural benefits of intellectual property rights.
- Promoting the creation of intellectual property rights.
- Adopt strong and effective intellectual property rights rules to strike a balance between intellectual property rights and public interest.
- To modernize and strengthen service based intellectual property rights administration.
- Valuation of intellectual property rights through commercialization.
- Strengthen enforcement and judicial system to combat intellectual property rights violations.
- Strengthen the teaching, training, research capabilities of human resource institutes and build skills in intellectual property rights.

**Background :-**

It is one of the oldest agencies of the United Nations.It was formed in the year 1967 to encourage creative activities and

promote intellectual property protection in the world, headquartered in Geneva, Switzerland.

All member states of the United Nations may become members, but it is not binding.

Currently 193 countries are members of this organization.

India became a member of this organization in the year 1975.

**Types of Intellectual Property Rights :-**

Following are the types of intellectual property rights.

**Copyright**

- Copyright rights include books, paintings, sculptures, movies, music, computer programs, databases, advertisements, maps and technical illustrations.
- Two types of rights are granted under copyright: (a) Financial rights: Under this, a person is given a financial reward for using his work by another person. (B) Moral Rights: Under this the non-economic interests of the author / creator are protected.
- Copylift: Under this, the work is allowed to be re-created, adopted or distributed and the work is licensed by the author / creator.

**Patents**

- The exclusive right granted to an inventor when an invention occurs is called a patent. Once the patent is granted, it is valid for 20 years from the date of registration of the patent.
- The invention has not been made public anywhere in the world, the invention does not indicate progress in an already available product or process and the invention must be fit for practical application, all these criteria are required for patent .

- Inventions (which incite aggressive, immoral or antisocial image and inventions that are used to detect disease symptoms in humans or animals) will not get patent status.

**Trademark**

- A mark that distinguishes the goods and services of one enterprise from the goods and services of another enterprise is called a trademark.
- Trademark can be a word or a group of words, a group of letters or numbers. It can be in the form of a musical sound like a picture, a symbol, a three-dimensional symbol or a specific type of color.

**Industrial design**

- According to the Design Act, 2000 in India, ‘design’ means - the shape, sequence, configuration, format or ornament, the composition of lines or characters to be applied to an object that is either in a secondary or three-dimensional form. Or be in both.

**Geographical Indicators**

- Geographic indicator means the mark used on the products. These products have a specific geographical location and they are unique because of their affiliation with that location.
- Various agricultural products, foods, beverages, handicrafts are given the status of geographical indicators. Tirupati's Laddu, Kashmiri Kesar, Kashmiri Pashmina etc. are some examples of geographical indicators.
- The Geographical Indicators of Goods Act, 1999 has been framed in India. This Act came into force from the year 2003. Based on this Act, the Geographic Indicator

tag ensures that no one other than the registered user can use the name of that prevalent product.

- The traditional skills of craftsmen will be upgraded through 'Ustad Yojana' launched by the Government of India in the year 2015. For example Banarasi sari is a geographical indicator. Therefore, socio-economic empowerment of Banarasi sari craftsmen associated with Ustad Yojana can be expected.

**Efforts of Indian Government to protect intellectual property :-**

The Patents Act 1970 and the Patents (Amendment) Act, 2005:- The Indian Patents and Designs Act was first enacted in India in the year 1911. After independence, the Patent Act was enacted in the year 1970 and it was implemented from the year 1972. This Act was amended by the Patents (Amendment) Act, 2002 and the Patents (Amendment) Act, 2005. According to this amendment, 'product patents' were extended to all areas of technology. For example- it was expanded in the field of food items, pharmaceutical ingredients etc.

Trademark Act, 1999: The Trademark Act, 1999 has been framed for trademarks in India. The Trademark Act covers words, symbols, sounds, colors, objects, etc.

Copyright Act,: By enacting the Copyright Act in, this law was implemented across the country to protect intellectual property rights.

Geographical Indicators of Goods (Registration and Protection) Act, 1999: This law ensures that no one other than the registered user can use the name of that prevalent product.

Design Act, 2000: Provides protection to all types of industrial design.

National Intellectual Property Rights Policy, 2016: On May 12, 2016, the Government of India approved the National Intellectual Property Rights Policy. Intellectual property is protected and encouraged in India through this rights policy.

**Disadvantages of the Indian intellectual property rights system :-**

In general, many experts believe that the flaws in India's intellectual property rights system are responsible for the lack of expected progress in Indo-US trade. Although there is not enough truth in this matter, but under this pretext we have a suitable opportunity to see the intellectual property rights system of India.

Due to lack of adequate information, farmers in rural areas do not know which variety comes under patent and which does not. In such cases, confrontation is often seen between farmers and corporates.

Getting a patent in India is a complex task. Our patent offices lack research information.Before patenting a research, it is very important to know whether the research is better than the existing one. In this regard, getting the patent approved on time is a challenging task. The current time is of Artificial Intelligence. Now machines have started thinking like humans. In this case, if we make art or technical skills the basis for acquiring intellectual property rights, then in the time to come, these machines will get patents in their own name.

Not being able to attract the private sector to promote research is also a big challenge.

**India's position in protection of intellectual property :-**

In the Global Intellectual Property Index-2020, India was ranked 40th in the list of 53 countries with a score of

38.46%, while in the year 2019, India was ranked 36th in the list of 50 countries with a score of 36.04%.

The scores of the two new countries included in the index, Greece and the Dominican Republic, are better than India. Significantly, countries like Philippines and Ukraine are also ahead of India.

However, at a slower pace, India has registered an overall increase in its ranking as compared to any other country.

**The way forward :-**

To sustain this growth of India, India needs to do more to bring about a transformative change in its overall intellectual property structure. Not only this, serious steps need to be taken to continuously implement strong intellectual property standards.

The United Nations Industrial Development Organization (UNIDO) has proved through a study that countries with well-organized intellectual property rights have seen rapid economic growth. Therefore, there is an urgent need for improvement.

India needs to streamline the 'Comptroller General of Patents, Designs, Trademarks and Geographical Indications'.

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# 17.
# Basic concept of Intellectual Property Rights (IPR)

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Related Rights or Neighboring Rights are rights that during sure respects resemble copyright. The motive of associated rights is to shield the prison pursuits of sure individuals, particularly performers, manufacturers and broadcasters, and to assist them supply their message to the public.

## What is imply through IPR

Intellectual belongings is an concept, the fabricated from the human mind inclusive of creativity concepts, innovations, commercial models, emblems, songs, literature, symbols, names, brands, etc. which could in the end provide to a beneficial product and software. Intellectual Property Rights do now no longer fluctuate from different belongings rights. They permit their proprietor to absolutely gain from his/her product which changed into first of all an concept that evolved and crystallized. They additionally entitle him/her to save you others from the usage of, dealing or tampering with his/her product with out previous permission from him/her.

## Intellectual Property Right

Right of an inventor to derive monetary blessings from highbrow belongings, proper is referred to as as Intellectual Property Right (IPR).

## History of IPR

IPR is a antique concept. It is thought that IPR first of all commenced in North Italy at some point of the Renaissance era. In 1474, Venice issued a regulation regulating patents safety that granted an different proper for the proprietor. The copyright dates lower back to 1440 A.D. whilst Johannes Gutenberg invented the printing press with replaceable/transportable timber or metallic letters. Late withinside the nineteenth century, some of international locations felt the need of laying down legal guidelines regulating IPR. Globally, conventions constituting the premise for IPR device international were signed; Paris Convention for the Protection of Industrial Property (1883) Berne Convention for the Protection of Literary and Artistic Works (1886).

## Introduction

Intellectual Property (IP) offers with any fundamental creation of human intelligence inclusive of artistic, literary, technical or clinical constructions. Intellectual Property Rights (IPR) refers back to the prison rights granted to the VVVinventor or producer to shield their invention or manufacture product. These prison rights confer an different proper at the inventor/producer or its operator who makes complete use of it's his invention/product for a constrained time frame.

In different words, we will say that the prison rights limit all others from the usage of the Intellectual Property for business functions with out the previous consent of the IP rights holder. IP rights encompass alternate secrets, application models, patents, emblems, geographical indications, commercial layout, format layout of incorporated circuits, copyright and associated rights, and

new kinds of plants. It may be very nicely settled that IP performs an essential position withinside the cutting-edge economy.

There are many styles of highbrow belongings safety. A patent is a popularity for an invention that satisfies the standards of world innovation, and commercial software. IPR is crucial for higher identification, planning, commercialization, rendering, and therefore the upkeep of innovations or creativity. Each enterprise must broaden its speciality primarily based totally on its IPR policies, control style, strategies, and so on. Currently, the pharmaceutical enterprise has an rising IPR strategy, which desires higher consciousness and outlook with inside the coming era.

IPR is a robust tool, to shield the investment, time, money, and attempt invested through the inventor/writer of the IP, because it offers the inventor/writer an different proper for a sure time frame for using its invention/introduction. Thus, IPR impacts the monetary improvement of a rustic through selling wholesome opposition and inspiring commercial boom and monetary boom. The gift assessment provides a quick description of IPR with specific emphasis on pharmaceuticals.

**Kinds of highbrow Property**

IPR commonly divided into  foremost categories :

Industrial Property and copyright:- commercial belongings includes rights regarding innovations emblems commercial designs and appellation of foundation copyright protects rights associated with introduction of human thoughts withinside the fields of literature song artwork and audio visible works the TRIPS Agreements of the WTO acknowledges.

The problem of highbrow belongings may be very broad. There are many distinctive kinds of rights that collectively make up highbrow belongings. IP may be essentially divided into categories, that is, commercial Property and highbrow belongings. Traditionally, many IPRs have been together called commercial assets.

It specially consisted of patents, emblems, and designs. Now, the safety of commercial belongings extends to application models, provider marks, alternate names, passes, symptoms and symptoms of supply or foundation, inclusive of geographical indications, and the suppression of unfair opposition. It may be stated that the term ‘commercial belongings” is the predecessor of ‘highbrow belongings”.

**Types of highbrow belongings rights**

Copyright and associated rights for literary works ,Trade marks, Trade secrets , alternate names and provider marks ,Geographical indication,Patents for invention ,Industrial layout, Plant variety, Layout Designs of Integrated Circuts

**Copyright**

Copyright regulation offers with the safety and exploitation of the expression of thoughts in a tangible shape. Copyright has developed over many centuries with appreciate to converting thoughts approximately creativity and new approach of conversation and media. In the cutting-edge world, the regulation of copyright affords now no longer simplest a prison framework for the safety of the conventional beneficiaries of copyright, the character writer, composer or artist, however additionally the guide required for the introduction of labor through important cultural industries, film; Broadcast and recording enterprise; And pc and software program industries.

It is living in literary, dramatic, musical and inventive works in ”authentic’ cinematic films, and in sound recordings set in a concrete medium. To be covered because the copyright, the concept ought to be expressed in authentic shape. Copyright recognizes each the monetary and ethical rights of the proprietor. The proper to copyright is, through the precept of honest use, a privilege for others, without the copyright proprietor’s permission to apply copyrighted material. By the software of the doctrine of honest use, the regulation of copyright balances non-public and public pursuits.

**Patent**

Patent regulation acknowledges the different proper of a patent holder to derive business blessings from his invention. A patent is a unique proper granted to the proprietor of an invention to the manufacture, use, and marketplace the discovery, furnished that the discovery meets sure situations laid down in regulation. Exclusive proper approach that no man or woman can manufacture, use, or marketplace an invention with out the consent of the patent holder. This different proper to patent is for a constrained time simplest.

To qualify for patent safety, an invention ought to fall in the scope of the patentable problem and fulfill the 3 statutory necessities of innovation, resourceful step, and commercial software. As lengthy because the patent applicant is the primary to invent the claimed invention, the newness and necessity are through and huge satisfied. Novelty may be inferred through previous guide or previous use. Mere discovery ‘can’t be taken into consideration as an invention. Patents aren't allowed for any concept or precept.

The motive of patent regulation is to inspire clinical research, new technology, and commercial progress. The monetary cost of patent statistics is that it affords technical statistics to the enterprise that may be used for business functions. If there's no safety, then there can be sufficient incentive to take a loose experience at any other man or woman’s investment. This cappotential of loose-driving reduces the inducement to invent some thing new due to the fact the inventor might not sense inspired to invent because of loss of incentives.

**Trademark or Trade Secret**

A trademark is a signal of foundation. It is a particular signal used to make the supply of products and offerings public on the subject of items and offerings and to differentiate items and offerings from different entities. This establishes a hyperlink among the owner and the product. It portrays the character and first-class of a product. The crucial feature of a hallmark is to signify the foundation of the products to which it's miles connected or on the subject of which it's miles used. It identifies the product, ensures first-class and facilitates promote it the product. The trademark is likewise the goal image of goodwill that a commercial enterprise has created.

Any signal or any aggregate thereof, able to distinguishing the products or offerings of any other undertaking, is able to developing a hallmark. It may be a aggregate of a call, word, phrase, logo, image, layout, image, form, colour, private call, letter, number, figurative detail and colour, in addition to any aggregate representing a graph. Trademark registration can be indefinitely renewable.

**Geographical indication**

It is a call or signal used on sure merchandise which corresponds to a geographic region or foundation of the product, using geographical region might also additionally act as a certification that the product possesses sure traits as in keeping with the conventional method. Darjeeling tea and basmati rice are a not unusualplace instance of geographical indication. The dating among items and region turns into so widely known that any connection with that region is harking back to items originating there and vice versa.

It plays 3 functions. First, they pick out the products as foundation of a specific area or that area or locality; Secondly, they recommend to customers that items come from a area in which a given first-class, recognition, or different traits of the products are basically attributed to their geographic foundation, and third, they sell the products of manufacturers of a specific area. They recommend the patron that the products come from this region in which a given first-class, recognition or different traits of products are basically because of the geographic area.

It is important that the product obtains its traits and recognition from that region. Since the ones houses depend upon the geographic region of production, a particular hyperlink exists among the goods and the region of foundation. Geographical Indications are covered beneathneath the Geographical Indication of Goods (Registration and Protection) Act, 1999.

**Industrial layout**

It is one of the kinds of IPR that protects the visible layout of the item which isn't always simply utilized. It includes

the introduction of capabilities of form, configuration, pattern, ornamentation or composition of traces or colors implemented to any article in  or 3-dimensional shape or aggregate of 1 or greater capabilities. Design safety offers with the outer look of an editorial, inclusive of decoration, traces, colors, form, texture and materials. It might also additionally encompass 3-dimensional capabilities inclusive of colors, shapes and form of an editorial or -dimensional capabilities inclusive of shapes or floor textures or different combinations.

**Plant variety**

A new sort of plant breeder is covered through the State. To be eligible for plant variety safety, variety ought to be novel, awesome and much like present types and its crucial traits beneathneath the Plant Protection and Protection Act, 2001 must be uniform and stable. A plant breeder is given a license or unique proper to do the subsequent on the subject of distinctive styles of promotional material

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## 18.

# Importance of the Intellectual Property Right

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It is necessary to protect the Intellectual property of every one. It is a property of nation also. The sustainable development of society is depend upon the technical development and scientific development Scientific and Technical development took place with the Intellectual property. Now it is possible to protect the intellectual property. Intellectual property is a base of future development. To prevent the copying of the research work the Intellectual Property right is must. The economic development of a country is essential for the societal development. The efforts to protect the Intellectual property regarding the trade are implemented worldwide.

**Intellectual Property Right :**

This right gives wide protection for the intellectual activities within the country and worldwide. In India the copyright Act was passed and enforced. This Right also protects the individual property Rights. The IPR also gives the healthy atmosphere to do the research work. The innovations discoveries and explorations are the areas where this Right works effectively. To establish and protect one's ownership on his own achievements in the field of research and innovations is the main objective of Intellectual Property Right.

**Importance of the Intellectual Property Right :**

The significance of the Intellectual Property Right is explained as follows.

1. It is essential for the scientific growth of an individual and society.
2. It also encourages the research activities in the highly equipped laboratories.
3. IPR is a secure platform for the highly intellectual individuals to create new ideas.
4. IPR also makes a sure and healthy technical growth of a nation.
5. To protect the patents of the intellectual researchers IPR is must.
6. The copyright protects the imitating the knowledge and research contribution of an individual.
7. It also protects the hidden use of a trademark which is established by an individual or firm.
8. IPR makes favorable atmosphere to the researchers and producers within a framework.
9. IPR enables the economic growth in society and industries.
10. IPR deals to motivate the creativeness within the human and society.
11. IPR also creates a platform for the quality research and application of it in science and industry sectors.

**The National Scenario and IPR :**

In India Intellectual Property Rights are protected with some acts which are passed in the course of time. The Patents Act. The Trade Mark Act, The Design Act. The Copyright Act, are the major steps towards the establishment of IPR. These acts are useful for the fair activities in the field of research and innovation.

Considering above discussion the IPR is essential for the academic and scientific growth. IPR is a protection system for the intellectual people. The societal and economic growth will be a rapid process with the IPR. The

property of intellectual contribution is rewarded with these acts. IPR also makes easy to avail the benefits of the healthy intellectual atmosphere in the World. It protects imitation and hiding the intellectual property and achievements. IPR enables the new creations in the field of research. IPR is most effective in the development of Medical Science. IPR also strengthens the relations of nations with the valid transformation of knowledge. The day by day the importance of IPR is going high. The concern elements are investing their Money in the field of research and innovation Worldwide.

So IPR is definitely useful and fruitful for the future regarding the Research and Innovation.

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**19.**

# Intellectual Property Rights Issues in Digital Libraries

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**Abstract -** In the present scenario, Intellectual Property Rights awareness is the key to technological innovations and in the emerging knowledge-based economy. The importance of Intellectual Property Rights is likely to go further. The awareness among the creators of information and knowledge about IPR has become essential in the digital environment because in the digital environment it is becoming difficult to prove rights violation whenever they occur. This paper gives an overview of Intellectual Property Rights in the Digital Libraries.

**Keywords-** Intellectual Property Rights, Digital Libraries, Importance of copyright, Role of Librarians in Copyright Protection etc.

## Introduction –

Intellectual property rights are rights given to people to protect commercially valuable products of human intellect, similar to the rights in the forms of physical property are necessary to protect product or services from being copied or stolen by others. Intellectual Property Rights cover human intellect creations, such as inventions, designs, trademarks or artistic works, such as music, books, films, dances, sculptures or photographs. This resource guide provides a useful starting point for research on Intellectual Property Rights to the law students as well as research scholars. It paves ways to access both print and e-resources available in different formats.

Today is the age of information and technology. Libraries and their role in society has evolved in pace with technological development and copyright law. Originally a repository for published works which could be borrowed or physically accessed by the public. Anybody could use and copy these creations and inventions without any restriction, reservation, or payment. However, with the passage of time, the importance and value of these creations was realized. By end of Twentieth century, the things created and invented by the human mind were recognized as an intellectual property of the owner. The owner's right over these properties was accepted and is known as an Intellectual Property Right. A new set of laws called Intellectual Property Right Laws were enacted to protect these property rights. These Intellectual Property Rights laws provided a protection to the owners under different categories and names like Copyrights, Patients, Trade Marks, Industrial designs, etc.

**Concept of Intellectual Property Rights-**

Intellectual property is an intangible creation of the human mind, usually expressed or translated into a tangible form that is assigned certain rights of property. Every human being is endowed with certain but varying degree of intellect. Each individual is uniquely gifted. The word intellect originates from the root 'intellects' in Latin which means the power of knowing as distinguished from the power to feel. Man has the capacity to acquire knowledge and increase his knowledge bank by gathering more and utilizing it as and when required throughout his life time. An intellectual makes his living by selling the product intellect, which is nothing but the brain child of his original idea, creative thought, which forms a special kind of property known as intellectual property. A right as we know is legally protected interest and object of the right is the thing in which the owner has this interest. The object in intellectual property right is immaterial property.

**Research of the Objectives –**

1. To study Importance of Copyright in Digital Libraries.
2. To study Legal issues related to protection of Digital resources.
3. To study Role of Librarians in Copyright protection

**Research Methodology-**

The current study 'Intellectual Property Rights Issues in Digital Libraries' is based on secondary data collected from different sources. The secondary sources are concerned they were accumulated from online databases, articles and books. The research method applied to the present study is descriptive research method.

**Digital Libraries-**

Digital Libraries are now emerging as a crucial component of global information infrastructure, adopting the latest information and communication technology. Digital Libraries are networked collections of digital texts, documents, images, sounds, data, software, and many more that are the core of today's Internet and tomorrow's universally accessible digital repositories of all human knowledge.

According to the Digital Library Federation (DLF, USA-http://www.dlf.org), "Digital libraries are organizations that provide the resources, including the specialized staff, to select, structure, offer intellectual access to, interpret, distribute, preserve the integrity of, and ensure the persistence over time of collections of digital works so that they are readily and economically available for use by a defined community or set of communities".

In India currently the concept- Digital Library is being practiced by and large loosely or even confused by many information systems. It is therefore imperative that the concept is properly understood so that there is no ambiguity

while we progress with the work of designing or developing a digital library which is fully justified in the technical sense of the word. It is important that embarking on a digital library project is something which will take away substantial amount of time, energy, manpower and of course the hard earned money being pumped into it – be it for system development or towards development and maintenance of the collection, in a meaningful way. There is consensus all over that there exists a very large quantum of digital information, scholarly as well as trade, which are scattered and distributed throughout the Net and also being stored in numerous other databases and repositories spread across the world. Also there is an unprecedented technology support and availability of infrastructure for digital libraries.

**Intellectual Property Rights in Digital Context-**

The advent of digital technology has greatly accelerated the dissemination and distribution of information with great speed and accuracy never seen before. It is much easier to disseminate literary, artistic and scientific work to a very large community of Internet users and users of electronic media. At the same time poses some problems and issues for consideration which make the study significant in the present digital environment. The major issues are as follows-

1. Is digitization to be considered as similar to reproduction, for example using Xerox machine?
2. Is digitization a deductive activity such as translation from one language to another?
3. Can transmission of digitized documents through Internet be considered as commercial distribution or public communication similar to broadcasting?
4. Is the principle of exhaustion of the distribution right still effective in the digital age?

5. Can we consider a database as a special collected work that should be protected by the copyright law or it can be considered as a special work requiring specific legislation for its protection?
6. What can be considered as Faire use in the Internet environment?
7. What are the concerns of the library community?
8. In the digital context if access could be technologically restricted by the copyright owner, how could the public exercise fair use with regard to those works?
9. Whether libraries should be prevented from employing digital technology to preserve work by making three copies-an archival copy, a master copy and a use copy?
10. Whether Internet Service Providers (including libraries and educational institutions) should be liable for copyright infringement merely because they facilitated the transmission of digital data (Zeroes and Ones) that translated into another party's copyrighted work?

The issues mentioned above are specific to the library community. The libraries as a service have allowed their users to read a document, to browse through the whole collection; to search through the library catalogue; to supply Xerox copy for specific individual research and education purpose; to procure photocopies of articles from other libraries or clearing centres; to widely distribute the re-produced copies of documents requiring public awareness and to provide inter library loan service. Whether all these activities will continue in the digital age? If digitization is considered as reproduction, it is clear that in digitization the initial work is merely changed into the digital form and the process of changing is accomplished by a machine, without any creativity. At the same time if it is considered as a translation from one language to another,

the digitization is also a change from natural language of humans in to binary language of machine. In digitization however, there is no creativity involved and it could be considered as an activity similar to reprography. The copyright protects creative works. Simply transformation in to the digital form of an original document cannot be considered as creative.

**Importance of Copyright-**

Copyright stands for the legal right exclusively given for a definite period of time to the originator (authors or creators) of intellectual work such as a publication, or an artistic or literary work for sale or any other use. Copyright provides the creators (like writers, poets, composers, etc.) of literary or artistic works, the right of ownership for their work, and legal protection against unlawful reproduction of such works. Although copyright is generally understood as a right or license to free copying of an existing work, in reality it is not so; infect it is a legal right to prevent others from copying. By providing protection, copyright law assures and encourages the authors in pursuit of artistic, scientific or literary work. The law also recognizes their right to the benefits accrued by usage of their creative work by others. This obviates an agreement between the author and the publisher or users. India has a very strong and comprehensive copyright law based on Indian copyright act 1957, which was amended in 1984,1992,1994 and 1999.The copyright has its origin from Indian copyright act 1847 enacted during East India Company. Further the copyright act of 1914 was modified version of British copyright act of 1911. As per the Indian law copyright falls into public domain 60 years after the death of the author. This means the author during his lifetime and his successor

for 60 years after his death can enjoy the benefit of income from the writings of the deceased author.

**Role of Librarians in Copyright Protection -**

In any educational institute librarian plays a key role in many spheres, including copyright. The main role of librarian is to make available of library collections to students and faculty in support of teaching, learning, research and scholarship. Libraries are creatures of the historical and statutory balance in copyright law. Libraries lend materials based on the First Sale doctrine. Libraries share materials and preserve works under specific provisions for libraries in the Act. Libraries are often the only entities that provide access to the vast majority of copyrighted works that lose market vitality long before the expiration of the copyrights, and are often the only entities that preserve public domain materials. From the above perspective, it is clear and reasonable that the role of librarians is very important for the following reasons:

1. To enable users to access copyrighted and public domain works and to exercise their rights under the exceptions and limitations to creators rights in the law. The creation of new intellectual property building on the old is stimulated as a result of the existence of libraries. Libraries are places where public and the proprietary meet.

2. To work for library as social organizations address the balance in the law and are shaped by it. The institutional role of libraries, librarians and their associations necessitate paying close attention to that balance and promote users' rights as well as creators' rights. Libraries are a small but significant market for published works. The vast majority of copyrighted works in library collections were purchased or acquired through license agreements. Often libraries pay more for copyrighted works than works of an individual.

Hence, there is the need for library staff and users to know about copyright, their limitations and benefits, when making use of any of the materials on the library shelves, either in open or closed access in order to safeguard anti-piracy legislation. Libraries have an important role to play in caring for and providing access to other people's copyrighted work.

3. To recognize about copyrighted materials to the library users who are not aware of their dependence on balanced law and policy for access to information and for gaining knowledge.

4. To play a role as advocates for individual users of copyrighted materials. Librarians need to ensure that the rights and privileges of their customers are safeguarded i.e. they must assure the library users of uninhibited access to available collection in aid of research. Any user that is unsure if the material to be copied is protected by copyright needs to seek advice from the library staff.

5. To give the knowledge to the library users regarding "fair use legislation". This means that they can copy a very small amount of a work for educational purposes and not for commercial purposes. It may be possible to get permission to copy or use copyright material by contacting the copyright owner. Any copying now carried out for a commercial purpose requires prior permission from the copyright owner or payment of a copyright fee.

6. To give the orientation about rule of copyright infringement is the concept known as fair use. Under this principle, the law permits the use of portions of copyrighted works for such purposes as criticism, comment, teaching, and research, even without permission of the copyright owner.

7. There is a need for all the librarians in India to have copyright education in order to familiarize with the basic principles and concept of copyright laws in India. This will enable them to render their services without violating copyright laws. With adequate education in copyright, librarians will be able to know the risk involved in copying from copyright-protected material and operate within the laws. There is no doubt that libraries and Librarians in India have a lot of functions, very vital ones indeed, to play in the protection of author's rights. Firstly, they must provide the right guidance to their library users on how to make use of the library stock without infringing on the copyright of the authors of such works. The librarians can provide the following assistance to library users in order to properly enforce the copyright laws in the library. Research projects in the library should be made available to researchers for consultation only. Photocopying the entire work should not be allowed, and if there is the need to photocopy, the principle of fair use should be strictly adhered to. Also, the librarians should ensure that precise citation is done by any researcher for any piece of information collected from a given source in the Library.

**Conclusion –**

This Paper we found the Conclusion that, It is important to develop effective strategies to protect Intellectual Property Rights. Protecting Intellectual Property can be a great help to others to avoid scams and fake or copied literature, although many of the legal principles governing Intellectual Property Rights have evolved over centuries. Different Intellectual Property rights very in the protective they provide and it is necessary to fully protect once creation. The various policies: negotiating bodies, IP and other policy topics, raising

awareness, security across multiple platform and protection at network system, password regulation protect, authentication of users & limits to their access. However it is said that it will become harder to enforce rights. New Intellectual Property databases, legal resources are to be developed for reward to the innovation, effort & skills as well as for user's beneficiary policy. The Intellectual Property Rights recognizes the changes in its own external environment this place new demands in the organization. It needs to have the services to help to protect their intellectual property in today's environment. Today's digital environment it is required to make some special Intellectual Property Rights to protect craters intellectual woks.

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## 20.

# Overview on Basic of Intellectual Property Rights

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## Introduction

India stood at 29th position amongst 30 countries in IP index around the globe. It is very alarming condition for policy makers as well as for the nation as a whole[1]**.** The development of any society directly depends on IPR and it policy frame work[2]**.** Lack of IPR awareness resulted in the death of inventions, high risk of infringement, economic loss and decline of an intellectual era in the country. Thus, there is a dire need for dissemination of IPR information so as to boost indigenous inventions and developments in the field of research and technology [3-5]**.** In foregoing section of this paper an effort is made to highlight various intellectual property rights in context to India with their related corresponding rules, regulations, their need and role in society.

Anything made by human intervention requires intellectual efforts and all human made things are a result of intellectual creations. However individual persons do not own most of these creations or organizations but human race as a whole is the collective owner of these creations. Some specific creations made by individuals / organizations are owned by them subject to the conditions laid down by certain laws for recognizing and rewarding the intellectual activity of the creator. Intellectual property refers to such creations. These include Inventions, Symbols, names, images; literary and artistic work. Intellectual property rights are the rights given to persons over the creations of their minds. They usually give the

creator an exclusive right over the use of his/her creation for a certain period of time.

**Intellectual property rights in India**

India is one of the UKs priority overseas markets. If you plan to do business in India, or if you are already trading there, it is essential to know how to use, guard and enforce the rights you have over the intellectual property (IP) that you or your business own. This guide explains about IP in general, and gives guidance on how to apply these principles in the Indian market. It describes the issues you may face with IP infringement in India, offers advice on how you can effectively tackle these, and provides links to sources of further help.

**What are intellectual property rights?**

Intellectual property (IP) is a term referring to a brand, invention, design or other kind of creation, which a person or business has legal rights over. Almost all businesses own some form of IP, which could be a business asset. Common types of IP include: Copyright – this protects written or published works such as books, songs, films, web content and artistic works; Patents – this protects commercial inventions, for example, a new business product or process; Designs – this protects designs, such as drawings or computer models; Trademarks – this protects signs, symbols, logos, words or sounds that distinguish your products and services from those of your competitors.

**International considerations**

India has been a World Trade Organization (WTO) member since 1995. WTO member nations must include some IP protection in their national laws. This means that if you are doing business with India, you will find some similarity between local IP law and enforcement procedures, and those in force in the UK.

**Intellectual property rights – systems in India**

**Copyright:** India is a signatory to the Berne Convention on copyright. However, it may be a good idea to register your

copyright as doing so may help to prove ownership if there are criminal proceedings against infringers. In most cases though, registration is not necessary to maintain a copyright infringement claim in India. Registration is made, in person or via a representative, with the Copyright Office. Since 2016, copyright policy was moved to India's Ministry of Commerce and Industry. All IPRs are now administered by the Department for Industrial Property and Promotion (DIPP). Internet piracy of films, music, games and software is an issue in India, as is unauthorized copying of physical books.

**Patents:** India's Patents Act of 1970, 2003 Patent Rules and the 2016 Patent Amendment Rules set out the law concerning patents. As in the UK, there is no provision for utility model patents. The regulatory authority for patents is the Patent Registrar under the office of the Controller General of Patents, Designs and Trade Marks, which is part of India's Ministry of Commerce and Industry. Patents are valid for 20 years from the date of filing an application, subject to an annual renewal fee. India's patent law operates under the 'first to file' principle – that is, if two people apply for a patent on an identical invention, the first one to file the application will be awarded the patent.

**Designs:** The laws governing designs are the Designs Act 2000 and the Designs Rules 2001. Designs are valid for a maximum of ten years, renewable for a further five years.

**Trademarks:** India's trade mark laws consist of the 1999 Trade Marks Act and the Trade Marks Rules of 2002 and 2017. The regulatory authority for patents is the Controller General of Patents, Designs and Trade Marks under the Department of Industrial Policy and Promotion. The police now have more robust powers in enforcing trade mark law, include the ability to search premises and seize goods suspected of being counterfeit without a warrant. But these powers are tempered by the requirement for the police to seek the Trade Mark Registrar's opinion on the registration

of the mark before taking action. This adds to the delay and may result in counterfeit goods being removed or sold.

**Potential problems faced in India and how to deal with them**

India's intellectual property (IP) legislation covers every significant aspect of the protection of IP. The regulations relating to all forms of IP have been amended or reissued in recent years, mainly in response to India's accession to the World Trade Organization in 1995. Although Indian IP law is thorough and generally comparable with European IP laws, there are still significant concerns over IP enforcement. A major cause for concern in enforcement is bureaucratic delay, with a backlog of cases at both the civil and criminal courts. This means that cases can run for five years or more. There is also a lack of transparency, particularly at a local level. A significant feature of the IP environment in India is the large number of small players infringing IP rights. This means that seizures tend to be small, which requires a sustained and financially draining effort in order to make an impact.

**Who should take responsibility for your IP protection?**

You should make sure that everyone in your business takes some responsibility for IP protection. Many businesses depend on the integrity of their IP, and it can often be one of their most valuable assets. So it should be given proper attention by management and employees, as well as other businesses that you have relationships with. It may be sensible to nominate a manager to have particular responsibility for understanding and protecting your IP rights. In businesses with legal departments, a legally-trained manager would be a good choice.

**Time Taken for the grant of IPRs in India IPRs Time Taken for the grant Validity Period**

| IPRS | Time taken for grant | Validity Period | Renewal Period |
|---|---|---|---|
| Patent | 2-3 year | 20 Years | Annual |
| Trade mark | 1-2 year | Perpetual on renewal & the use of mark in Trade | 10 Years |
| Geographical Indication | | Perpetual on renewal | 10 Years |
| Design | | 10 Years | 05 Years |
| Copyright | 1-12 Months | Life time of author +60 yrs after his death from its publication date | |

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