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IMPACT OF INNOVATION AND CREATIVITY IN BUSINESS ORGANIZATION

Introduction:-

The companies that have done the best over the long haul are those who are the most creative and innovative. These organizations don't copy what others do; instead, they may use innovative ideas from others as a spring board to come up with a unique application, product, or service for themselves.

They tend to distance themselves from the competition rather than compete with them. If they see another company copying what they do, they create something new and better. In other words, they are able to leverage their creativity and their innovative capabilities to attain long-term success.. Hence forth, creativity and innovation becomes the driving force for the growth of business.

Meaning of Creativity and Innovation:-

Creativity and innovation are interdependent on each other. However, it is different from each other. It can be understood from the following meanings.

Creativity:

Creativity is the ability to produce new and unique ideas, innovation is the implementation of that creativity – Creativity is the driving force behind innovation and the incorporation of looking at things from a different perspective.

Innovation:

Innovation is the transformation of creative ideas into useful applications by combining resources in new or unusual ways to provide value to society through improved products, technology or services.

Creating, using the thing (inventions) in different dimensions. A better way of doing things or an improvement.

Example: Telephone is an invention. Every innovation gave it a new dimension like **Touch Tone Phone (old landline model), Cordless Phone and Mobile Phones.**

Where do innovations come from:

- **Shocks to the system**-events which change the world and the way we think about it and force us to innovate in new directions.
- **Accidents**- unexpected and surprising things which h offer new directions to innovation.
- **Watching others**-innovation arising from imitating or extending what others do- benchmarking, reverse engineering, copying.

- **Recombinant Innovation-** Ideas and applications in one world transferred to a new context.
- **Regulation-** changing rules of the game push or pull innovations in new directions.
- **Advertising-** uncovering and amplifying latent needs.
- **Inspiration-** the Archimedes moment
- **Knowledge push-** creating opportunity by pushing the frontiers of science forward
- **Need pull-** necessity as the mother of invention, innovation
- **Users as innovators**
- Exploring alternative future and opening up different possibilities.

Types of Creativity

Creativity is defined as the tendency to generate or recognize ideas, alternatives, or possibilities that may be useful in solving problems. Example:-"Creative" refers to novel products of value, as in "The airplane was a creative invention.

There are different types of creativity which are narrated below;

I. Divergent thinking

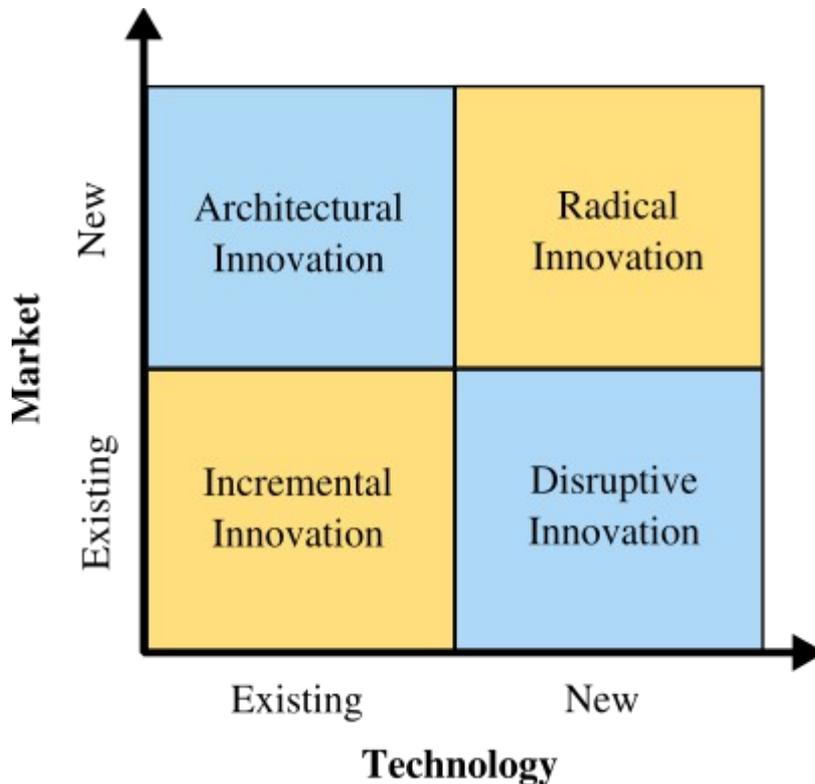
Divergent thinking is a type of creativity which is nonlinear and spontaneous. Rather than finding a single correct answer, the divergent thinker discovers multiple options for addressing problems. Brainstorming, predicting, and imagination activities are all examples of divergent thinking

II. Problem Solving

It is another approach of creativity which improves the problem-solving process by implementing creativity. This requires looking at each problem as a unique situation rather than applying the same principles to every similar problem.

Types of Innovation

There are four types of innovation which are described below;



Incremental Innovation

Incremental Innovation is the most common form of innovation. It utilizes your existing technology and increases value to the customer (features, design changes, etc.) within your existing market. Almost all companies engage in incremental innovation in one form or another.

Examples include adding new features to existing products or services or even removing features (value through simplification).



Disruptive Innovation

Disruptive innovation, also known as stealth innovation, involves applying new technology or processes to your company's current market

For example: In order to disrupt the mobile phone market, Apple had to cobble together an amazing touch screen that had a simple to use interface, and provide users access to a large assortment of built-in and third-party mobile applications.

Architectural Innovation

Architectural innovation is simply taking the lessons, skills and overall technology and applying them within a different market.

In 1966, NASA's Ames Research Center attempted to improve the safety of aircraft cushions. They succeeded by creating a new type of foam, which reacts to the pressure applied to it, yet magically forms back to its original shape. Originally it was commercially marketed as medical equipment table pads and sports equipment, before having larger success as use in mattresses. This "slow spring back foam" technology falls under architectural innovation. It is commonly known as memory foam.

2. Comparison chart between Creativity and Innovation

BASIS FOR COMPARISON	CREATIVITY	INNOVATION
Meaning	Creativity is an act of creating new ideas, imaginations and possibilities.	Innovation is the introduction of something new and effective into the market
Process	Imaginative	Productive
Quantifiable	No	Yes
Related to	Thinking something new	Introducing something new
Money consumption	No	Yes
Risk	No	Yes

Some important Innovations are;

Before 20th century	20th century	21st century onwards
Mariners compass, wheel,	Electrification, telephone	Global communication,
Printing, radio,	Airplane, automobile,	Waste management, GPS,
Telegraph, bicycle,	Space flight, computer,	Genetics and cloning,
Steam engine etc	Ac, Refrigeration, Health technologies,	E commerce, Wi-Fi, touch screen devices,
	Laser, fiber optics, nuclear technologies etc	Satellites, robots, assembly line etc.

3. INNOVATION AND CREATIVITY IN BUSINESSES UNDER VARIOUS INDUSTRIES.

I. INNOVATION AND CREATIVITY IN I.T INDUSTRY

i. Apple's Systemic Approach to Innovation

The company created game-changing innovations such as the iPod, iTunes, iPhone, and iPad.



ii. Dell is uniquely positioned to impact industry trends

Since the first Dell PC was introduced in 1986, Dell has continued to shape the industry by breaking new ground and pioneering critical developments in home, small business and enterprise computing. Dell spurred innovation that delivers value to customers.

Intel announces development around autonomous cars of the future

As driverless cars are inching towards reality, it has become a new consumer space to tap for opportunities. Brian Krzanich, chief executive officer of Intel Corporation, stated that autonomous driving is today's biggest game changer, offering a new platform for innovation from in-cabin design and entertainment to life-saving safety systems. The company believes that AV industry is going to create one of the greatest expansions of consumer time available for entertainment, including video-viewing time.

Safety of consumers

Intel is also collaborating with the industry and policymakers on how safety performance is measured and interpreted for autonomous cars. It believes that setting rules for fault in advance will boost public confidence and clarify liability risks for consumers and the automotive and insurance industries.

RSS (Responsibility-Sensitive Safety)

Intel and Mobileye, facilitating advanced driver assistance system, have proposed a formal mathematical model called Responsibility-Sensitive Safety (RSS) to ensure, from a planning and decision-making perspective, the autonomous vehicle system will not issue a command leading to an accident. Safety systems of the future will rely on technologies with maximum efficiencies to handle the enormous amount of data processing required for [artificial intelligence](#).

II. INNOVATION AND CREATIVITY IN BANKING AND INSURANCE

Over the years, the banking sector in India has seen a number of changes. Most of the banks have begun to take an innovative approach towards banking with the objective of creating more value for customers, and consequently, the banks.

Information Technology

- Information technology is one of the most important facilitators for the transformation of the Indian banking industry in terms of its transactions processing as well as for various other internal systems and process.
- Banks sit on mountains of data. But, to date, few have assembled and analyzed that data in order to understand and predict their customers' needs. With some bank products becoming commoditized, and competition from fin techs, banks need to create new personalized products fueled by insight into their customers.
- This may include engaging and/or buying fin techs and other third parties that can contribute to new value propositions. Product innovation is required to retain demanding customers – especially digital-first millennial. If not, they'll walk - and take their data with them.

Example:- Banking KIOSKS (passbook updating machine), Net banking, Credit Card Facilities.



Role of Internet

- The Internet of Things will enable insurance companies to deliver new personalized products based on real-time customer behavior that they track through devices: e.g. wearable for health insurance, telemetric for vehicles; sensors for property insurance.
- This will generate huge amounts of data that insurers can use to gain new insights into customers; It will also help manage risks in real time – e.g. for house fires or automobile crashes.

III. Innovation And Creativity In Automobile And Manufacturing Industry

Innovation plays the key role in all levels of manufacturing and even the economy itself. The key to success is therefore to make the products stand out on the market which can be achieved only through innovative and creative approach in manufacturing.

i. Google's Driverless Cars

On the onset of winter break, on December 23, Google announced its first fully functional driverless car, which is ready for testing on public roads. Prior to this, the Internet giant developed various prototypes that lacked on different fundamental and functional aspects.

The latest prototype has all the important elements like headlights, steering and brakes. The company has also created a self-driving system with sensors and computers that can be fitted to SUVs like Lexus. This new technology will not only be a breakthrough in tough traffic congestion but sensing technology can also increase road safety. Countries such as the UK and US are working on laws to allow driverless cars.



ii. Automated Manual Transmission (AMT)

In the 2014 Delhi Auto Expo, where more than 70 vehicles were launched, one that pundits hailed as the most important was Maruti Suzuki's Celerio, the first affordable mass segment gearless hatchback. Celerio comes with AMT (automate manual transmission) sourced from MagnetiMarelli, component arm of Fiat. AMT is an electro-hydraulic mechanism for automating manual transmission which derives from Formula

IV. Creativity And Innovation In Pharmaceutical Industry

i. CIPLA

Cipla is an Indian multinational pharmaceutical and biotechnology company, headquartered in Mumbai, India. Cipla primarily develops medicines to treat cardiovascular disease, arthritis, diabetes, weight control and depression: other medical conditions:

1. Entrepreneurships in this DICE economy looks at everyday problems and finds design driven by solutions backed by disruptive in technology as well as innovation across operations and customer service.
2. It launches mass media campaign berokzindagi, this will educate and encourages patients suffering from obstructive airway disease (OAD) to smartly manage and control the disease.
3. Immuno boosters a unique nutritional supplement for kids that helps builds their immunity.
4. Cipla was pioneer in offering the \$1 a day treatment for HIV affected patients in Africa.
5. Cipla introduced WHO approved astesunaterecto caps/rectal astesunatesuppositories (RAS) for severe malaria in young children.

ii. BIOCON

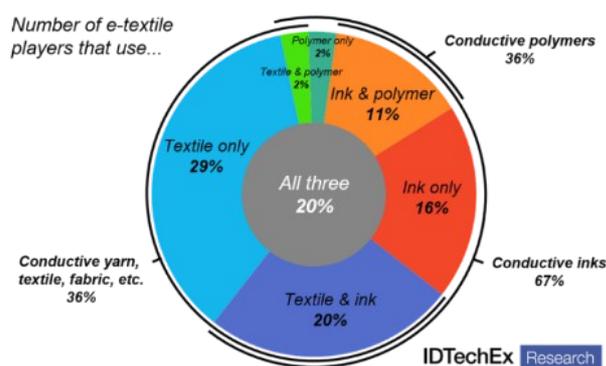
The 1st Indian company to manufacture and export enzyme to USA and Europe. Biocon ranks no.6 among top 20 global biotech employers by the science magazine for safe, effective and affordable bio therapeutics.

1. The collaboration strengthens for the ability to deliver next generation bio similar medicines to patients.
2. Innovation matrix is mostly the four dimensional endeavor which extends into the realms of the known and unknown.
3. The organization is developing conjugated antibodies to potentially deliver therapeutic cancer vaccines.

4. It is pursuing a path of breakthrough innovation through global phase 11 human clinical trials to develop the world's first oral insulin.

v. INNOVATION AT TEXTILE INDUSTRY

Modern computer-aided design methods in combination with sophisticated technology can deliver a diverse range of textiles for a number of various applications which include clothing, domestic, medical and technical textiles, and composite materials. The areas in which this industry is concentrating more are better merchandising, better inventory management, consolidating sources and more involvement in sourcing the country. The only target behind all these is reaching the market in a better way and that to with a wide range of products.



i. Scientists create stretchable battery made of fabric

The faculty at Binghamton University, State University of New York, has developed a textile-based, bacteria-powered bio battery that could one day be integrated into wearable electronics, these textile-based bio-batteries are said to exhibit stable electricity-generating capability when tested under repeated stretching and twisting cycles.

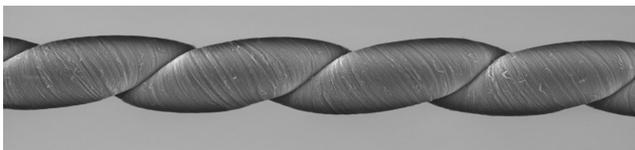


ii. Illuminated pyjamas treat new-borns

Empa researchers have developed illuminated pyjamas that replace the treatment with shortwave light in an incubator for babies who suffer from jaundice after birth. New-borns being treated for jaundice lie in incubators alone, naked, and with their eyes covered for protection. Irradiation with blue light in an incubator is necessary because toxic decomposition products of the blood pigment haemoglobin are deposited in the skin in new-borns with jaundice.

iii. Energy harvesting yarns generate electricity

- An international research team led by scientists at The University of Texas at Dallas and Han-yang University in South Korea has developed high-tech yarns that generate electricity when they are stretched or twisted.
- In a study published in the August issue of the journal *Science*, researchers describe *twist-Ron* yarns and their possible applications, such as harvesting energy from the motion of ocean waves or from temperature fluctuations. When sewn into a shirt, these yarns served as a self-powered breathing monitor.



V. Innovation and creativity in agricultural industries

1.BIOSAT:

BIOSAT is a soil additive, is made of biochar mixed with different organic nutrients. The product preserves soil fertility, traps carbon emissions, maintains the topsoil strength and increases crop production, thus reducing dependency on chemical fertilizers.

2.Air blast sprayers:

Developed for fruits and vegetables in general, and grapes and pomegranates in particular, the sprayers, used to add hormones that help the growth of crops, reduce the expenditure on manual labour and are less time-consuming.



3.Cropin Technology:

Cropin offers information on a cloud-based platform, integrated with a mobile app for Android, called Smart Farms, it allows large food companies to track the growth of crops on farms around the country with details about what the crop is and the conditions it is grown in to help companies remotely monitor farms, interact with farmers and make every crop transparent and traceable. It also aids farmers in adopting global agricultural practices and improves productivity insights and harvest forecasts.

4. Drones:

Drones are applied to farming to increase crop production, monitor crop growth and make timely decisions to avoid yield losses. There are currently three different types of view provided to the farmer through a drone.

- a. The first is seeing the crop from a bird's eye view; this view can reveal many issues such as irrigation problems, soil variation, and pest and fungal infestations.
- b. The second view that is able to be received from the drones is known as multispectral images; these images are used to show an infrared view as well as a visual spectrum view. When these views are combined, the farmer is able to see the differences between healthy and unhealthy plants.
- c. The drone can survey the crops for the farmer periodically to their liking. From a choice of weekly, daily or to each hour.



5. Sensors:

A number of sensing technologies are used in precision agriculture, providing data that helps farmers monitor and optimize crops, as well as adapt to changing environmental factors. The different types of sensors are-

- a. **Location sensors** use signals from GPS satellites to determine latitude, longitude and altitude.
- b. **Optical sensors** use light to measure soil properties.
- c. **Airflow sensors** measure soil air permeability.

- d. **Dielectric soil moisture sensors** assess moisture levels in the soil.

Business Profit through Creativity and Innovation:

It sounds intuitive that creativity and innovation are important to company success,

- **Survey Results**

In 2008, the Boston Consulting Group conducted a survey of 3,000 executives to find that 66% of them considered innovation as one of their top three strategic priorities. In 2012, the UK-based research firm StrategyOne conducted a five-country survey of 5,000 people, in which it discovered that 85% of the US participants believed that creativity is key to driving economic growth.

- **Innovative Companies Enjoy higher Profits;**

Innovative companies enjoy higher profits when they introduce new products and services before competition occurs, experience higher market share, and sustain consistently high profits over time because they continue to deliver new products and services ahead of their competitors. Geroski et al. managed to quantify the relationships and found that the market shares of innovative companies were 3 times higher than the average.

- **Higher Sales profit**

The average sales of innovators was 6 times higher than the average, and EBIT (Earnings Before Income Taxes) Margins of innovative companies were 10% better than average. Given that this is a lagging indicator, they looked longer into the future and found that over a period of 8 years, the overall profit margins of innovative companies were 3 times higher than the average.

- **Profit during recession**

It has been found that based on a 20 year study based on different business cycles that during recession, the innovative companies margins could be 50% better than average, and thus innovative firms are less sensitive to cyclical downturns.

- **Faces lower competition**

In a research article published by Peter Roberts in a 1999 issue of the Strategy Management Journal, he stated that “an innovative new product tends to face low competition at the point of introduction and therefore earns relatively high profits. These high profits attract imitators, which increase the level of competition faced by the product as time passes.

Conclusion:

There is always a dispute between creativity and innovation as both are important for an organization to last longer. The existence of both can lead to success. When a company introduces an innovative product, service, or process not offered by any competitor, they immediately redefine the market, and create the type of “creative destruction” that Schumpeter and Christensen described in their books, and gain a very significant market share as a result of the inability of their competitors to offer anything comparable. Sometimes the newness of those products or services could elevate a company to become a monopoly. This is the time when profits are at their highest.

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