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INNOVATION LEADING THE WAY TO REVOLUTION.

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Abstract
New technological innovations have been developed to prevent loss, to save time, to work easiness, to avoid unethical practice, to faster and smoother work at organisation, to prevent risk of theft and loss, to increase efficiency and effectiveness, to improve the performance and upgrade the system. New Technological advancement brought Revolutions, but we know remarkably little about how and why certain innovations are adopted through revolution, and the consequences both intended and unintended of technology driven solutions to the problems. This article provides an examination of a wide range of new technological innovations that have applications in the areas of daily life. New innovations brought Revolutions in India. We provide a description of recent technological Revolution which brought innovations; summarize the available research on the extent of adoption in the India, and then review the available research on the impact both intended and unintended of each form of new Innovation which brought Revolution in India. This paper explain concept of Innovation and Revolution and how Innovation brings Revolution in India.

Keywords: - Innovation, Revolution, Technology, Efficiency, Effectiveness.

INTRODUCTION

Innovation is a new idea, more effective device or process. Innovation can be viewed as the application of better solutions that meet new requirements, in articulated needs, or existing market needs. This is accomplished through more effective products, processes, services, technologies, or ideas that are readily available to markets, governments and society. The term innovation can be defined as something original and more effective and, as a consequence, new, that "breaks into" the market or society. While a novel device is often described as an innovation, in economics, management science, and other fields of practice and analysis innovation is generally considered to be a process that brings together various novel ideas in a way that they have an impact on society.

Revolution (Latin Turn around) is a fundamental change in power or organizational structures that takes place in a relatively short period of time. Complete change from one constitution to another Modification of an existing constitution.

Revolutions have occurred through human history and vary widely in terms of methods, duration, and motivating ideology. Their results include major changes in culture, economy, and socio-political institutions.

Scholarly debates about what does and does not constitute a revolution center on several issues. Early studies of revolutions primarily analyzed events in European history from a psychological perspective, but more modern examinations include global events and incorporate perspectives from several social sciences, including sociology and political science. Several generations of scholarly thought on revolutions have generated many competing theories and contributed much to the current understanding of this complex phenomenon.

To succeed a business has to reinvent itself again and again otherwise it becomes commercially irrelevant. In fact, In the new economy, sustainable competitive advantage is derived from just one source the ability to develop innovative and radical new business concepts that revolutionised industries. The company that manage to reinvent themselves and the way they do the business regularly always prosper and grow usually the expenses of less flexible competitors.

Therefore, tune your organisation to become adept at developing and growing radical new business concept. You want to have portfolio of new business concepts in the various stages development at any one time. To achieve that, Innovation must become both the capability and a process within the organisation that will only happen if everyone in the organisation understands:

- Radical and bold new innovation are needed, not incremental improvements what worked in the past
- The future will exploited by dramatically different business model
- Every one in every level of the organisation can be an activist, driving innovation forwards
- Bold, new radical business concepts follow established, well defined design rule every should know

In total, the fundamental challenge of business is to be continually reinventing the organisation and the industries it serves. It really comes down to a very simple maxim. Develop new revolutionary new business concepts and models, or die. That the real competitive advantage of the new millennium.

In the 1960 Academy Award winning movie "Spartacus" the Roman commander, Crassus, attempts to identify Spartacus, a former slave and gladiator, who became the legendary leader of a genuine social revolution. The prisoners, even at the risk of their own deaths by crucifixion, would not reveal the identity of their revolutionary leader. Instead many cried out, "I am Spartacus!" to protect their hero at any cost.

While Hollywood took significant liberties with the story of Spartacus, His courage, tenacity, and ability to hold Roman forces at bay for two years by building a handful of followers into a formidable army and revolutionary force can only inspire admiration. Do you think many business or government leaders today could inspire such a commitment from their followers both internal and external stakeholders? If innovation is the new price of admission to market leadership as quality was in the 1980s and 1990s, how can we ensure that leadership is effectively focused on advancing an innovation agenda for organizational health and success? Here we lay out a framework for building innovation leadership capacity and highlight some examples of leading the innovation revolution in action. Let's first look briefly at some trends that are influencing the challenge of leading innovation.

THE INNOVATION MANTRA

The world has always needed innovation. From the invention of the wheel to the personal computer, to the Internet that truly makes this a global village, we have always been surrounded by day-to-day evidence of the innovative spirit. So why is the need for innovation different today? Three key factors: technology; global marketplace, and personal power. *Technology* is moving faster than at any time in the last 100 years and forcing business and government into uncharted territory faster than ever. We both applaud and fear the effects of changing technology. The harsh reality is that machines can and do replace people. Technology also paved the way for the *global marketplace*, where organizations no longer need to rely on local sources of supply. As geographic boundaries come down, the level of competition goes up. The final, and possibly the most significant factor affecting life in today's organizations is the rising expectation of *personal power*. We are seeing less and less respect for formal authority and a rapid rise in expectations of personal rights. Formality and protocol are fast being replaced by a more outspoken, aggressive, and impatient style. People have naturally come to expect to voice their opinions, be heard, be treated well, and have the opportunity to participate in decisions that affect their work and workplace. Effective innovation leaders understand these factors and help others see the broader picture, so that they too can distinguish these important influences and anticipate how their work may evolve in the near future. As many leaders recognize the need to strengthen their competitive and collaborative abilities, they turn to innovation as a new corporate mantra. Unfortunately, many fail to follow with the appropriate support systems and culture change that might ensure innovation does, indeed, become a rallying cry throughout the organization. The most common approaches to "innovation" include: 1) *Cost cutting programs in search of greater efficiency*. These programs focus employees' efforts on getting better at what they already do. The assumption is the environment is relatively stable and any efficiencies identified will still be relevant. Unfortunately, many of these programs simply lead to downsizing. And, all too often, project lists and processes are not adjusted to reflect the new, leaner organization, leading to increased frustration and, paradoxically, more in efficiencies. 2) *Innovation is assigned to a special team or department*. Unfortunately, this approach often narrows the view of innovation to only new products or technological breakthroughs and misses other innovations that might be as or more effective. 3) *An organization-wide approach to innovation*. If innovation is truly to become the corporate objective, it should be embraced at all levels, departments, and functions. But how do we move beyond simply stating innovation is the corporate mantra to making it central to all organizational activities?

THE BUILDING BLOCKS OF LEADING INNOVATION

We've developed an empirically based model called Innovation Systems Architecture, (ISA) to outfit any organizational entity from teams to entire organizations with a systematic way to create and sustain an organization wide environment for innovation. The word architecture is especially important since the model is based on the building blocks needed for a strong organizational innovation foundation. The model is based on extensive field research and practice. It identifies eight dimensions or pillars that support architecture for sustained innovation. The eight pillars are:

1. Shared innovation vision and strategy.
2. Innovation environment supports.
3. Innovation resource allocation.
4. Innovation process networks.
5. Innovation programs.

6. Innovation skills development.
7. Innovation rewards and recognition.
8. External stakeholder innovation.

UNEARTHING THE PILLARS OF INNOVATION

To see how the infrastructure for organizational innovation is related to innovation leadership, let's take a look at three of these pillars in an applied context.

INNOVATION VISION AND STRATEGY

Anita Roddick, the founder of The Body Shop, identified a strong innovation vision for her organization based on a set of core principles: fair trade, environmental awareness, animal protection, respect for human rights, and social campaigning, including support for local economies where the company's product ingredients were sourced. She then developed a strategy to integrate this vision into all business operations and products. Not only did The Body Shop leapfrog the competition in being people and Earth friendly, it also became well known for these guiding principles. The Body Shop is a strong example of an organization whose leader clearly communicated that innovation was, indeed, a corporate goal, developed an innovation vision, and then focused the company's energies on becoming an innovation centric organization. The evidence from the last 25 years certainly suggests The Body Shop team united behind Roddick's innovation vision and strategy, especially before the company went public. Employees want to work for organizations that have a strong vision and the passion to achieve that vision. In “Business as Unusual” Roddick underscores her revolutionary perspective on business. Looking back over the years since the company’s founding, Roddick asked herself, “Should I be a renegade, anarchic, loose cannon to stir them up? Or am I simply getting in the way?” She concluded that her role in the future should be that of agitator, “an irritant, a gadfly, infusing creativity and creating an edge to everything The Body Shop does.” Again, by relying on the core principles and values upon which her company was conceived, she is now seeking to transform her own leadership role, in effect, by looking back to the future. Above all, Roddick believes her legacy in the world of business is meant to be revolutionary, for she wants to nurture a revolution in kindness. In many ways Anita Roddick authentically embodies the spirit of Spartacus. Like a gladiator and revolutionary leader in ancient Rome, she entered the arena of organizational innovation with vision, courage, and conviction, seeking to create entirely new ways of doing business and therefore willing to openly engage in face-to face combat with those who would oppose her.

Innovation Environment Supports Today, as we have read, organizations not only have to compete for customers and financial resources, they have to compete for staff. Organizations that treat their employees with respect and provide a culture of support for personal and collaborative innovation will win in the coming years. Innovation leaders need to create a secure environment in which employees can take harbour and relax long enough to contribute their best ideas for strengthening the organization. Herb Kelleher, co-founder of Southwest Airlines, is a good example of an innovation leader who created such a climate. Kelleher has always treated every employee as an important contributor to the airline's success. Since he became chairman and CEO, he has made a sincere commitment to know Southwest employees in a personal way. Eventually, this commitment became part of the company's philosophy whereby the employee is positioned as the number one priority. This philosophy is grounded in the belief that if the employee is inspired, inspiration will rub off on the customer who, in turn, will generate profits for the company and shareholders. Other organizations seem to put shareholders first, customers second, and employees third. Kelleher knows employees want to be treated as important members of the team. At Southwest Airlines, listening authentically to employees is a core value and a critical environmental support for continuous innovation. Kelleher says, “…if somebody has an idea, you read it quickly and you respond instantaneously. You may say no, but you give a lot of reasons why you're saying no, or you may say we're going to experiment with it in the field, see if it works. But I think showing respect for people's ideas is very, very important because as soon as you stop doing that, you stop getting ideas. We tell people that if you need a suggestion box, then you're not doing what you should be doing. You shouldn't have to interpose the box between you and the people with the ideas. You ought to be talking to them on a regular basis. You ought to be with your people enough that they are comfortable to just pop on in and give you their ideas.” Kelleher is certainly unique in many respects and his perspective on the employee worth ethic can even be termed revolutionary.

EXTERNAL STAKEHOLDER INNOVATION

All too often organizations rely primarily on ideas generated from within, instead of capitalizing on ideas from inside and outside the organization. Strengthening connections with external stakeholders (i.e., customers, partners, suppliers, regulatory agencies, and even competitors) can provide new sources of innovation to leverage for the firm's competitive advantage. Engaging external stakeholders to advance an organization's innovation agenda does not have to be as charismatic or flamboyant as the Virgin Group's Richard Branson to be effective. Some of the best examples of leading external stakeholder innovation come from individuals who are much more subtle in their approach. Ryuzaburo Kaku, the honorary chairman of

the board of Canon in Tokyo, Japan, is an excellent example of a more quiet innovation leader and a revolutionary. He served as president of Canon from 1977 to 1989 and was largely responsible for transforming it from a competent, but little-known, manufacturer of cameras into one of the world's leading technology companies. Kaku was instrumental in putting "kyosei" at the heart of the company's business credo, which ultimately became its most cherished principle. Kyosei can best be defined as a spirit of cooperation in which individuals and organizations live and work together for the common good. According to Kaku, a company that is practicing kyosei establishes harmonious relations with its customers, suppliers, competitors, the governments with which it deals, and the natural environment. Kyosei, in this context, can become a powerful force for social, political, and economic transformation, and a source of continuous innovation for all individuals and entities that work together. Among other things, kyosei helped Canon break through an important management taboo: working with competitors. Kaku says, "By looking for ways to cooperate with our competitors, we have found opportunities that we might otherwise have missed....When we first tried to form a partnership with Hewlett-Packard, the company gave us a cold shoulder. But when we presented our patents and demonstrated our technological abilities, Hewlett-Packard saw the advantages in buying laser-printer engines from us. As a result, Canon developed a long-standing and very profitable relationship with Hewlett-Packard even though the two companies remain fierce competitors." Another example of this pillar of Innovation Systems Architecture is Aliant, a major telecommunications company in Atlantic Canada. Aliant's excellence in innovation has come largely from novel ways of interacting with customers and partners. Gerry Pond, an Aliant senior executive and recognized innovation champion, established a LivingLAB™ innovations environment, which has enabled the company to move ideas from concept to market quickly while providing continuous learning, opportunity, and innovation. This concept generates live market learning in new services and products by drawing customers, employees, and partners into a holistic "incubator" environment focused on what the company calls "electronic services integration." In addition to being named 1997 Information Innovator of the Year, Pond maintains his commitment to tapping into broad-based sources of innovation by leveraging the knowledge, skills, and ideas of external stakeholders for the company's—and broader community's benefit. Within his organization, region, and industry, Pond has established himself not only as a leader of innovation, but also as a revolutionary who, like Spartacus, is not afraid to break ranks from the status quo and unleash his creative spirit. Long live the innovation revolution! Peter Drucker said, "Innovation will be the core competency of the next (21st) century." Companies that want to be 21st century leaders need organizational structures and processes that will evolve to accommodate this shift to innovation at the core of a company. To meet the employees' desire for participation and involvement in decision making, companies must have more flexible operating structures. Open and adaptive systems are needed to allow ideas and work to flow quickly and seamlessly though the organization and into the marketplace. A strong innovation leader needs to: 1. Share the innovation vision and strategy with all stakeholders. 2. Create an innovation climate that welcomes and supports new ideas and encourages participation from all employees. 3. Expand and open organizational boundaries so that ideas can flow in from external sources. In this article, we shared some examples of how innovation leaders, especially those who seem to operate at the fringe of their enterprise, industry, or sector, can and have put into practice these particular attributes and concepts. Obviously, there are more illustrations that could be presented. We will leave the task of determining who else could or should be included to the readers with the hope that the message that we have tried to convey is clear. Before closing, let's return to our role model, Spartacus. In real life and in the movie, Spartacus exemplified the leadership traits of an authentic revolutionary in body, mind, and spirit. He persevered through times of conflict and hardship, sometimes employing very radical techniques to express and achieve his objectives. You might now ask—does one have to be a Spartacus to lead the innovation revolution? Our answer? It depends.

BUSINESS AND ECONOMICS

In business and economics, innovation is the catalyst to growth. With rapid advancements in transportation and communications over the past few decades, the old world concepts of factor endowments and comparative advantage which focused on an area's unique inputs are outmoded for today's global economy. Economist Joseph Schumpeter, who contributed greatly to the study of innovation economics, argued that industries must incessantly revolutionize the economic structure from within, that is innovate with better or more effective processes and products, as well as market distribution, such as the connection from the craft shop to factory. He famously asserted that "creative destruction is the essential fact about capitalism". In addition, entrepreneurs continuously look for better ways to satisfy their consumer base with improved quality, durability, service, and price which come to fruition in innovation with advanced technologies and organizational strategies.

One prime example is the explosive boom of Silicon Valley startups out of the Stanford Industrial Park. In 1957, dissatisfied employees of Shockley Semiconductor, the company of Nobel laureate and co-inventor of the transistor William Shockley, left to form an independent firm, Fairchild Semiconductor. After several years, Fairchild developed into a formidable presence in the sector. Eventually, these founders left to start their own companies based on their own, unique, latest ideas, and then leading employees started their own firms. Over the next 20 years, this snowball process launched the

momentous startup company explosion of information technology firms. Essentially, Silicon Valley began as 65 new enterprises born out of Shockley's eight former employees.

ORGANIZATIONS

In the organizational context, innovation may be linked to positive changes in efficiency, productivity, quality, competitiveness , and market share. However, recent research findings highlight the complementary role of organizational culture in enabling organizations to translate innovative activity into tangible performance improvements. Organizations can also improve profits and performance by providing work groups opportunities and resources to innovate, in addition to employee's core job tasks. Peter Drucker wrote that "Innovation is the specific function of entrepreneurship, whether in an existing business, a public service institution, or a new venture started by a lone individual in the family kitchen. It is the means by which the entrepreneur either creates new wealth-producing resources or endows existing resources with enhanced potential for creating wealth."

According to Clayton Christensen "Disruptive Innovation" is the key to future success in business. The organisation requires a proper structure in order to retain competitive advantage. It is necessary to create and nurture an environment of innovation. Executives and managers need to break away from traditional ways of thinking and use change to their advantage. It is a time of risk but even greater opportunity. The world of work is changing with the increase in the use of technology and both companies and businesses are becoming increasingly competitive. Companies will have to downsize and re-engineer their operations to remain competitive. This will impact on employment as businesses will be forced to reduce the number of people employed while accomplishing the same amount of work if not more.

All organizations can innovate, including for example hospitals, universities, and local governments. For instance, former Mayor Martin O'Malley pushed the City of Baltimore to use CitiStat, a performance-measurement data and management system that allows city officials to maintain statistics on crime trends to condition of potholes. This system aids in better evaluation of policies and procedures with accountability and efficiency in terms of time and money. In its first year, CitiStat saved the city $13.2 million. Even mass transit systems have innovated with hybrid bus fleets to real-time tracking at bus stands. In addition, the growing use of mobile data terminals in vehicles that serves as communication hubs between vehicles and control center automatically send data on location, passenger counts, engine performance, mileage and other information. This tool helps to deliver and manage transportation systems.

Still other innovative strategies include hospitals digitizing medical information in electronic medical records. For example, the U.S. Department of Housing and Urban Development's HOPE VI initiatives turned severely distressed public housing in urban areas into revitalized, mixed-income environments; the Harlem Children's Zone used a community-based approach to educate local area children; and the Environmental Protection Agency's brownfield grants facilitates turning over brown fields for environmental protection, green spaces, community and commercial development.

SOURCES OF INNOVATION

There are several sources of innovation. It can occur as a result of a focus effort by a range of different agents, by chance, or as a result of a major system failure.

According to Peter F. Drucker the general sources of innovations are different changes in industry structure, in market structure, in local and global demographics, in human perception, mood and meaning, in the amount of already available scientific knowledge, etc.

In the simplest linear model of innovation the traditionally recognized source is *manufacturer innovation*. This is where an agent (person or business) innovates in order to sell the innovation.

Another source of innovation, only now becoming widely recognized, is *end-user innovation*. This is where an agent (person or company) develops an innovation for their own (personal or in-house) use because existing products do not meet their needs. MIT economist Eric von Hippel has identified end-user innovation as, by far, the most important and critical in his classic book on the subject, *Sources of Innovation*.

The robotics engineer Joseph F. Engelberger asserts that innovations require only three things:

1. A recognized need,
2. Competent people with relevant technology, and
3. Financial support.

However, innovation processes usually involve: identifying customer needs, macro and meso trends, developing competences, and finding financial support.

The Kline chain-linked model of innovation places emphasis on potential market needs as drivers of the innovation process, and describes the complex and often iterative feedback loops between marketing, design, manufacturing,and R&D.Innovation by businesses is achieved in many ways, with much attention now given to formal research and development (R&D) for "breakthrough innovations". R&D help spur on patents and other scientific innovations that leads to productive growth in such areas as industry, medicine, engineering, and government. Yet, innovations can be developed by less formal on-the-job modifications of practice, through exchange and combination of professional experience and by many other routes. The more radical and revolutionary innovations tend to emerge from R&D, while more incremental innovations may emerge from practice – but there are many exceptions to each of these trends.

Information technology and changing business processes and management style can produce a work climate favorable to innovation. For example, the software tool company Atlassian conducts quarterly "ShipIt Days" in which employees may work on anything related to the company's products. Google employees work on their own projects for 20% of their time (known as Innovation Time Off). Both companies cite these bottom-up processes as major sources for new products and features.

An important innovation factor includes customers buying products or using services. As a result, firms may incorporate users in focus groups (user centred approach), work closely with so called lead users (lead user approach) or users might adapt their products themselves. The lead user method focuses on idea generation based on leading users to develop breakthrough innovations. U-STIR, a project to innovate Europe's surface transportation system, employs such workshops. Regarding this user innovation, a great deal of innovation is done by those actually implementing and using technologies and products as part of their normal activities. In most of the times user innovators have some personal record motivating them. Sometimes user-innovators may become entrepreneurs, selling their product, they may choose to trade their innovation in exchange for other innovations, or they may be adopted by their suppliers. Nowadays, they may also choose to freely reveal their innovations, using methods like open source. In such networks of innovation the users or communities of users can further develop technologies and reinvent their social meaning.

GOALS/FAILURES

Programs of organizational innovation are typically tightly linked to organizational goals and objectives, to the business plan, and to market competitive positioning. One driver for innovation programs in corporations is to achieve growth objectives. As Davila et al. (2006) notes, "Companies cannot grow through cost reduction and reengineering alone... Innovation is the key element in providing aggressive top-line growth and for increasing bottom-line results".

One survey across a large number of manufacturing and services organizations found, ranked in decreasing order of popularity, that systematic programs of organizational innovation are most frequently driven by: Improved quality, Creation of new markets, Extension of the product range, Reduced labor costs, Improved production processes, Reduced materials, Reduced environmental damage, Replacement of products/services, Reduced energy consumption, Conformance to regulations.

These goals vary between improvements to products, processes and services and dispel a popular myth that innovation deals mainly with new product development. Most of the goals could apply to any organization be it a manufacturing facility, marketing firm, hospital or local government. Whether innovation goals are successfully achieved or otherwise depend greatly on the environment prevailing in the firm. Conversely, failure can develop in programs of innovations. The causes of failure have been widely researched and can vary considerably. Some causes will be external to the organization and outside its influence of control. Others will be internal and ultimately within the control of the organization. Internal causes of failure can be divided into causes associated with the cultural infrastructure and causes associated with the innovation process itself. Common causes of failure within the innovation process in most organizations can be distilled into five types: Poor goal definition, Poor alignment of actions to goals, Poor participation in teams, Poor monitoring of results, Poor communication and access to information.

DIFFUSION OF INNOVATION

Diffusion of innovation research was first started in 1903 by seminal researcher Gabriel Tarde, who first plotted the S-shaped diffusion curve. Tarde (1903) defined the innovation-decision process as a series of steps that includes:

1. First knowledge.
2. Forming an attitude
3. A decision to adopt or reject
4. Implementation and use
5. Confirmation of the decision

Once innovation occurs, innovations may be spread from the innovator to other individuals and groups. This process has been proposed that the life cycle of innovations can be described using the 's-curve' or diffusion curve. The s-curve maps growth of revenue or productivity against time. In the early stage of a particular innovation, growth is relatively slow as the new product establishes itself. At some point customers begin to demand and the product growth increases more rapidly. New incremental innovations or changes to the product allow growth to continue. Towards the end of its lifecycle, growth slows and may even begin to decline. In the later stages, no amount of new investment in that product will yield a normal rate of returnThe s-curve derives from an assumption that new products are likely to have "product life"—i.e., a start-up phase, a rapid increase in revenue and eventual decline. In fact the great majority of innovations never get off the bottom of the curve, and never produce normal returns.

Innovative companies will typically be working on new innovations that will eventually replace older ones. Successive s-curves will come along to replace older ones and continue to drive growth upwards. In the figure above the first curve shows a current technology. The second shows an emerging technology that currently yields lower growth but will eventually overtake current technology and lead to even greater levels of growth. The length of life will depend on many factors.

ROLE OF INNOVATION

Several indexes exist that attempt to measure innovation includes:

- The **Innovation Index**, developed by the Indiana Business Research Center, to measure innovation capacity at the county or regional level in the United States.
- The **State Technology and Science Index**, developed by the Milken Institute is a U.S.-wide benchmark to measure the science and technology capabilities that furnish high paying jobs based around key components.
- The **Oslo Manual** is focused on North America, Europe, and other rich economies.
- The **Bogota Manual**, similar to the above, focuses on Latin America and the Caribbean countries.
- The **Creative Class** developed by Richard Florida
- The **Innovation Capacity Index (ICI)** published by a large number of international professors working in a collaborative fashion. The top scorers of ICI 2009–2010 being: 1. Sweden 82.2; 2. Finland 77.8; and 3. United States 77.5.
- The **Global Innovation Index** is a global index measuring the level of innovation of a country, produced jointly by The Boston Consulting Group (BCG), the National Association of Manufacturers (NAM), and The Manufacturing Institute (MI), the NAM's nonpartisan research affiliate. NAM describes it as the "largest and most comprehensive global index of its kind".
- The INSEAD Global Innovation Index
- The INSEAD Innovation Efficacy Index
- The NYCEDC Innovation Index

The Management Innovation Index - Model for Managing Intangibility of Organizational Creativity: Management Innovation Index A peer reviewed article can be found on the Management Innovation Index in Model for Managing Intangibility of Organizational Creativity: Management Innovation Index.

INNOVATION RANKINGS

The International Innovation Index is one of many research studies that try to build a ranking of countries related to innovation. Other indexes are the Innovations Indikator,Innovation Union Scoreboard, Global Innovation Index, EIU Innovation Ranking, BCG International Innovation Index, Global Competitiveness Report, World Competitiveness Scoreboard, ITIF Index.

Published in 2015, the most recent and up-to-date research was conducted by Bloomberg in their Bloomberg Innovation Index. The six focused areas making up the index areresearch and development, manufacturing, high-tech companies, post secondary education and research personnel and patents.

The following is a ranking of the top ten countries in the 2015 Bloomberg Innovation Index:

1. South Korea
2. Japan
3. Germany
4. Finland
5. United State
6. Sweden
7. Singapore
8. France
9. United Kingdom

FUTURE OF INNOVATION

Jonathan Huebner, a physicist working at the Pentagon's Naval Air Warfare Center, argued on the basis of both U.S. patents and world technological breakthroughs, per capita, that the rate of human technological innovation peaked in 1873 and has been slowing ever since. In his article, he asked "Will the level of technology reach a maximum and then decline as in the Dark Ages?" In later comments to *New Scientist* magazine, Huebner clarified that while he believed that we will reach a rate of innovation in 2024 equivalent to that of the Dark Ages, he was not predicting the reoccurrence of the Dark Ages themselves. His paper received some mainstream news coverage at the time. The claim has been met with criticism by John Smart, founder of the Acceleration Studies Foundation, who asserted that research by technological singularity researcher Ray Kurzweil and others showed a "clear trend of acceleration, not deceleration" when it came to innovations.[The foundation issued a reply to Huebner in the pages of the journal his article was published in, citing the existence of Second Life and eHarmony as proof of accelerating innovation; Huebner also replied to this. However, in 2010, Joseph A. Tainter, Deborah Strumsky, and José Lobo confirmed Huebner's findings using U.S. Patent Office data. Additional verification was provided in a 2012 paper by Robert J. Gordon.

INNOVATION AND INTERNATIONAL DEVELOPMENT

The theme of innovation as a tool to disrupting patterns of poverty has gained momentum since the mid-2000s among major international development actors such as DFID,[47]Gates Foundation's use of the Grand Challenge funding model, and USAID's Global Development Lab. Networks have been established to support innovation in development, such as D-Lab at MIT. Investment funds have been established to identify and catalyze innovations in developing countries, such as DFID's Global Innovation Fund, Human Development Innovation Fund, and (in partnership with USAID) the Global Development Innovation Ventures.

Types

A Watt steam engine in Madrid. The development of the engine propelled the Industrial Revolution in Britain and the world. The steam engine was created to pump water from coal, enabling them to be deepened beyond ground water levels.

There are many different typologies of revolutions in social science and literature. For example, classical scholar Alexis de Tocquevilledifferentiated between political revolutions, sudden and violent revolutions that seek not only to establish a new political system but to transform an entire society, and slow but sweeping transformations of the entire society that take several generations to bring about (e.g.,religion). One of several different Marxist typologies divides revolutions into pre-capitalist, early bourgeois, bourgeois, bourgeois-democratic, early proletarian and socialist revolutions.

Charles Tilly, a modern scholar of revolutions, differentiated between a coup, a top-down seizure of power, a civil war, a revolt and a "great revolution" (revolutions that transform economic and social structures as well as political institutions, such as the French Revolutionof 1789, Russian Revolution of 1917, or Islamic Revolution of Iran).

POLITICAL AND SOCIOECONOMIC REVOLUTIONS

Perhaps most often, the word "revolution" is employed to denote a change in socio-political institutions. Jeff Goodwin gives two definitions of a revolution. A broad one, where revolution is any and all instances in which a state or a political regime is overthrown and thereby transformed by a popular movement in an irregular, extra constitutional and/or violent fashion and a narrow one, in which revolutions entail not only mass mobilization and regime change, but also more or less rapid and fundamental social, economic and/or cultural change, during or soon after the struggle for state power. Jack Goldstone defines them as an effort to transform the political institutions and the justifications for political authority in society, accompanied by formal or informal mass mobilization and non-institutionalized actions that undermine authorities. The storming of the Bastille, 14 July 1789 during the French Revolution. George Washington, leader of the American Revolution. Vladimir Lenin, leader of the Bolshevik Revolution of 1917. Sun Yat-sen, leader of the Chinese Xinhai

Revolution in 1911. Political and socioeconomic revolutions have been studied in many social sciences, particularly sociology, political and history. Among the leading scholars in that area have been or are Brinton, Charles, Farideh Farhi, John Foran, John Mason Hart, Samuel Huntington, Jack Goldstone, Jeff Goodwin, Ted Roberts Gurr, Fred Halliday, Chalmers Johnson, Tim McDaniel, Barrington Moore, Jeffery Paige, Vilfredo Pareto, Terence Ranger, Eugen Rosenstock-Huessy, Theda Skocpol, James Scott, Eric Selbin, Charles Tilly, Ellen Kay Trimberger, Carlos Vistas, John Walton, Timothy Wickham-Crowley andEric Wolf.

Scholars of revolutions, like Jack Goldstone, differentiate four current 'generations' of scholarly research dealing with revolutions. The scholars of the first generation such as Gustave Le Bon, Charles A. Ellwood or Pitirim Sorokin, were mainly descriptive in their approach, and their explanations of the phenomena of revolutions was usually related to social psychology, such as Le Bon's psychology theory. Second generation theorists sought to develop detailed theories of why and when revolutions arise, grounded in more complex behavior theories. They can be divided into three major approaches: psychological, sociological and political.

The second group, composed of academics such as Chalmers Johnson, Neil Smelser, Bob Jessop, Mark Hart, Edward A. Tiryakian, Mark Hagopian, followed in the footsteps of Talcott Parsons and the structural-functionalist theory in sociology; they saw society as a system in equilibrium between various resources, demands and subsystems (political, cultural, etc.). As in the psychological school, they differed in their definitions of what causes disequilibrium, but agreed that it is a state of a severe disequilibrium that is responsible for revolutions.

Finally, the third group, which included writers such as Charles Tilly, Samuel P. Huntington, Peter Ammann and Arthur L. Stinchcombe followed the path of political sciences and looked at pluralist theory and interest group conflict theory. Those theories see events as outcomes of a power struggle between competing interest groups. In such a model, revolutions happen when two or more groups cannot come to terms within a normal decision process traditional for a given political system, and simultaneously have enough resources to employ force in pursuing their goals.

The second generation theorists saw the development of the revolutions as a two-step process; first, some change results in the present situation being different from the past; second, the new situation creates an opportunity for a revolution to occur. In that situation, an event that in the past would not be sufficient to cause a revolution (e.g., a war, a riot, a bad harvest), now is sufficient; however, if authorities are aware of the danger, they can still prevent a revolution through reform or repression.

Many such early studies of revolutions tended to concentrate on four classic cases—famous and uncontroversial examples that fit virtually all definitions of revolutions, such as the Glorious Revolution (1688), the French Revolution (1789–1799), the Russian Revolution of 1917 and the Chinese Revolution (also known as the Chinese Civil War) (1927–1949). In his *The Anatomy of Revolution*, however, the Harvard historian Crane Brinton focused on the English Civil War, the American Revolution, the French Revolution, and the Russian Revolution. In time, scholars began to analyze hundreds of other events as revolutions (see list of revolutions and rebellions), and differences in definitions and approaches gave rise to new definitions and explanations. The theories of the second generation have been criticized for their limited geographical scope, difficulty in empirical verification, as well as that while they may explain some particular revolutions; they did not explain why revolutions did not occur in other societies in very similar situations.

The criticism of the second generation led to the rise of a third generation of theories, with writers such as Theda Skocpol, Moore, Jeffrey and others expanding on the old Marxist class conflict approach, turning their attention to rural agrarian-state conflicts, state conflicts with autonomous elites and the impact of interstate economic and military competition on domestic political change. Particularly Skocpol's *States and Social Revolutions* became one of the most widely recognized works of the third generation; Skocpol defined revolution as "rapid, basic transformations of society's state and class structures...accompanied and in part carried through by class-based revolts from below", attributing revolutions to a conjunction of multiple conflicts involving state, elites and the lower classes. The fall of the Berlin Wall and most of the events of the Autumn of Nationsin Europe, 1989, were sudden and peaceful. From the late 1980s a new body of scholarly work began questioning the dominance of the third generation's theories. The old theories were also dealt a significant blow by new revolutionary events that could not be easily explained by them. The Iranian and Nicaraguan Revolutions of 1979, the 1986 People Power Revolution in the Philippines and the 1989 Autumn of Nations in Europe saw multi-class coalitions topple seemingly powerful regimes amidst popular demonstrations and mass strikes in nonviolent revolutions.Defining revolutions as mostly European violent state versus people and class struggles conflicts was no longer sufficient. The study of revolutions thus evolved in three directions, firstly, some researchers were applying previous or updated structura list theories

of revolutions to events beyond the previously analyzed, mostly European conflicts. Secondly, scholars called for greater attention to conscious agency in the form of ideology and culture in shaping revolutionary mobilization and objectives. Third, analysts of both revolutions and social movements realized that those phenomena have much in common, and a new 'fourth generation' literature on contentious has developed that attempts to combine insights from the study of social movements and revolutions in hopes of understanding both phenomena. Revolutions have also been approached from anthropological perspectives. Drawing on Victor Turner's writings on ritual and performance, Bjorn Thomassen has argued that revolutions

can be understood as "liminal" moments: Modern political revolutions very much resemble rituals and can therefore be studied within a process approach. This would imply not only a focus on political behaviour "from below", but also to recognize moments where "high and low" are relativized, made irrelevant or subverted, and where the micro and macro levels fuse together in critical conjunctions.

While revolutions encompass events ranging from the relatively peaceful revolutions that overthrew communist regimes to the violent Islamic revolution in Afghanistan, they exclude coups d'états, civil wars, revolts and rebellions that make no effort to transform institutions or the justification for authority (such as Józef Piłsudski's May Coup of 1926 or the American Civil War), as well as peaceful transitions to democracy through institutional arrangements such as plebiscites and free elections, as in Spain after the death of Francisco Franco.

CONCLUSION

It's no secret that fierce competition is the driving force behind the need for exceptional innovation. The inability to innovate can stifle growth, make you late to market with the right service or product, or on time but with the wrong service/product.

REFERENCES

1. Cohen, H. Floris 2004. "Inside Newcomen's Fire Engine: the Scientific Revolution and the Rise of the Modern World."
2. History of Technology 25 , pp. 111-132. Cohen, H. Floris 2004. "Inside Newcomen's Fire Engine: the Scientific Revolution and the Rise of the Modern World."
3. History of Technology 25 , pp. 111-132.Burke, Peter. 2000. A Social History of Knowledge. Cambridge: Polity Press.
4. Gebelein, Susan. Successful Manager's Handbook: Development Suggestions for Today's Managers, 1997
5. Hamel, Gary. Leading the Revolution, Boston: Harvard Business School Press, 2000
6. Hamel, G. and Stewart, Today's Companies Won't Make It and Gary Hamel Knows Why, Fortune, Monday, September 4, 2000
7. Hamel, Gary. Reinvent Your Company, Fortune, Monday, June 12, 2000
8. Hamel, Gary. E-Corp: Inside the Revolution, Fortune, Monday, April 2, 2001
9. Gebelein, Susan. Successful Manager's Handbook: Development Suggestions for Today's Managers, 1997
10. Hamel, Gary. E-Corp: Inside the Revolution, Fortune, Monday, April 2, 2001.