



VIDHYAYANA

**ISSN 2454-8596**

[www.vidhyayanaejournal.org](http://www.vidhyayanaejournal.org)

**An International Multidisciplinary Research E-Journal**

---

**Development through Innovations Potentials Issues in Brazil, Russia, India, China and  
South Africa (BRICS)**



Rasida Bharmal  
Research scholar (Ph.D.) Commerce  
Saurashtra University  
Rajkot  
Email: [r.bharmal@yahoo.com](mailto:r.bharmal@yahoo.com)

DR.RAMESH A DANGER  
Associate Professor  
J.H.Bhalodiya Women's  
College. Rajkot

VIDHYAYANA



VIDHYAYANA

ISSN 2454-8596

www.vidhyayanaejournal.org

## An International Multidisciplinary Research E-Journal

### **Abstract :**

Development process globally in general and emerging economies in particular has undergone significant changes since last quarter of 20th century. Alwin Toffler in his "The Third Wave" (1981) had exposed in detail likely hood of greater changes to take place across countries of world. In the first decade of 21st century much debate has taken place about 4th Industrial revolution taking shape across human society. On the other hand process of globalization brought for the major changes in the pace and nature of development in many countries. Post globalization period yielded significant impact induced by multidimensional changes. Global major institutions and rating agencies which examining and analyzing the growth and development processes and strategies clearly observed a new set of emerging markets gradually dominating global frame. Initially in 1998-1999, "Brazil, Russia, India and China - names as "BRIC" was coined as distinct group of emerging markets. Later on South Africa was added and then named as "BRICS".

"BRICS" as group has come up with formidable challenges to the co traditional front runners in the economy. "BRICS" if examined separates holds greater differences within in aspect of demographic map besides social and economic infrastructure. However the most striking element observed in common in "BRICS" is to have focus on integrated growth of economy induced by technology in the development process. This changed outlook on approach towards development has raised much aspiration among the nations to bring about grass root changes in development to empower the nation.

Post globalization period has posed serious challenges before the nations to sustain and strengthen individual countries respectively. It is in this context that "Innovations has assumed greater sight finances as engine of economics growth". Countries in general have resorted to the innovations in development. There is found considerable variations in the pace and nature of innovations applied in emerging markets. An attempt is made in this paper to understand examine and analyse relevance of conceptual foundation and challenges appearing before countries with respect to innovations.

### **Introduction to the concept :**

Evolutionary history of mankind beginning from ape age to digital age provides an illustrious account of social journey towards achieving higher and faster growth development. It is categorically highlighted by Alwin Toffler who contributed richly to the mankind through his classic presentations titled as, "The Future Shock" (1977), "The Third Wave" (1989) and "The power Shift" (1991). The third wave is a classical historical account how did mankind in general behave towards accomplishment of desired goals. It



VIDHYAYANA

ISSN 2454-8596

www.vidhyayanaejournal.org

## An International Multidisciplinary Research E-Journal

is in this volume that he pointed out the fact that days are not far away when the society in general is to bring about dimensional changes towards better life. It is in this context that he could foresee updated technology to replace the traditional approach of development.

Innovation has assumed greater significance in terms driving force for growth and development. It is regarded as a systematic change in the thinking process, policy planning and or action strategy. Innovation is both a novel approach to look at planning and development besides applied mechanism.

Any innovation if it is original, new and unique one it is called "Inventions". In the modern age cutting competitive environment "Invention" is called a buzzword. Champions of market technology often consider "Innovation to excel", Innovate and excel and Excel or exit is the working approach largely applied in the professional field.

Technological innovation system can be defined as "a dynamic network of agents interacting in a specific economic/industrial area under a particular institutional infrastructure and involved in generation, operation and diffusion of technology.

Innovation plays key role in research and development. It is not strictly restricted to manufacturers and machines only. It's scope is extended beyond physical technology. It adds to operational strategies of planning to achieve defined and predetermined goals. Besides institutions it serves people and enterprises. Innovations has gained the strength and momentum since the last decade of 20th century and among major developing countries.

Economic and political institutions have undergone remarkable changes because of innovations apprise in practice.

### **Review of Studies:**

Since the dawn of 21st century globalization lead development processes have brought with considerable changes in the dynamics of global development. Different countries' experiences with respect to technological changes in trade and services have drawn attention of scholars with respect to possibilities, issues and impact of innovations with respect to development. It is in this context that studies pertaining to the theme of innovations and allied subjects have been conducted. Few of such studies summarized picture is presented below.



VIDHYAYANA

ISSN 2454-8596

www.vidhyayanaejournal.org

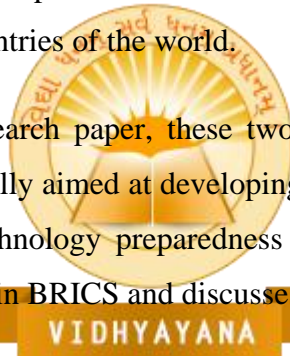
## An International Multidisciplinary Research E-Journal

I. Fredrick Nikson. This scholar provides an in depth look at the role of global value chain in development. While explaining and examining the importance of GVCS he has highlighted empirical instances of several countries particularly of BRICS where post WTO mechanism has generated many opportunities. He has also discussed in detail development implications of GVCS and the significance of strategic innovations.

II. Ghaitzen, Vnies, Timnter & Henry : Scholars have jointly provided a detailed account of structural transformation and aggregate productivity growth observed during first decade of 21st century in BRICS. This paper provides various decomposition methods while looking critically at the structural transformation process observed in BRICS, scholars have also pointed to earlier literature in relation to innovation induced transformation.

III. Prof. Khedkar A noted academician in the field of management from pure discussion in brief role and relevance of management being found across the globe in recent times. While beginning with historical journey of innovational approaches - scholar provided a classified account of management innovations being applied in the recent period across the countries of the world.

IV. Maslova and Popova. In a joint research paper, these two have tried to look into innovation value creation in BRICS. This article was basically aimed at developing a methodology of value added accounting of innovative products in relation to technology preparedness levels for commercialization. This article briefly looks into potential of innovations in BRICS and discusses the limitations of the same.



VIDHYAYANA

### **Types of Innovations :**

Innovations in operational mechanism are classified into different categories in accordance with pace and nature of innovations.

Historically innovations are found to have taken place since the second half on 19th century. However it is found gaining gradual space and strength since second half of 20th century. In the earlier days in 1990 was found much restricted to physical machines bringing about acceleration in work and diversification in product. But with growing awareness for better living and better governance innovations began to take place in management operations.

Several scholars since 1960s have made successful attempts to throw right on the approaches to innovation. Clayton Christensen one of the few early thinkers who succeeded in bringing various innovations on different platforms.



VIDHYAYANA

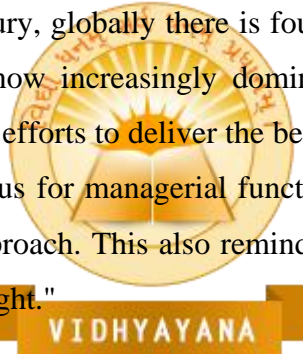
Broadly innovations can be classified as under.

**Type of Innovations :**

Type	Brief Explanation	Examples
Disruptive Innovation	Concept/Product or service that creates new value network	STD system, Mobile, Android
Radical Innovation	Complete disruption through technology	Introduction of multiple apps
Incremental Innovation	Series of small gradual in built improvement to existing product processing or methods	Integrational approach to service seem "JAM" model

Theodor Lewitt has rightly said that, "People do not want a quarter inch drill - they want a quarter inch whole."

Since the last quarter of 20th century, globally there is found strong perceptions for change in work process. This inclination for change is now increasingly dominating the management processes. Major governments in the world have put in best efforts to deliver the best through optimum effective utilization of resources. There is now growing consensus for managerial functions among administration at large which emphasize on action oriented planned approach. This also reminds us of a beautiful statement of Emerson "An ounce of action is worth a ton of thought."



**Emerging Economies/Markets :**

The emergence of BRICS - Brazil, Russia, India, China and South Africa reflects a change in the international economic order. BRICS now contributes significantly to global gross domestic product (GDP), global manufacturing value added and global manufacture exports. BRICS even set up their own development bank based at Shanghai. This is primarily aimed at competing with World bank.

Since the dawn of 21st century, many small and middle income nations have come forward to strengthen their capability through bringing about structural changes in operations. It is in this context that need for innovation is strongly recognized and realized in major countries of the world. Innovation is now accepted as a need to bring about phenomenal changes in operational mechanism in "BRICS" appear to be dominating all nations other than such recognized as global empires. There appear considerable differences within BRICS itself. The difference however is regarding pace and nature of development.



It is now largely accepted at least among BRICS that acceptance to innovation changes in respect of manufacturing and service is must. In a systematic way "BRICS" appears to have tighten up the shoulders and beat sinews to the task. It is in this consent that "BRICS" is looked at differently by global leaders.

Rising demographics couple with increasingly youth population is driven for growth for all these countries. These five markets have large population raging from 1367.8 million people in China to 54 million in South Africa. Most of this population is either semiskilled or skilled with South Africa increase at the highest rate of 7.44 percent till 2020 compared to developed markets regular household sizes are lрге in all of these countries. However little change in the size is observed among these countries due to urbanization.

Changing behaviors and general outlook, rise in disp income is shaping future of these markets. In 2013 South Africa records highest per capita income among BRICS \$ 5916 while India being the lower with average per capita income of US \$ 1165. A leading financial and economic daily "Mint" publishes from India is conducting a "Emerging market survey track since Sept. 2019. In this survey 10 emerging markets are covered. This of course does not include South Africa. Latest report of October 2020 if examined it refers to the following important facts.

	Brazil	Russia	India	China
Indicator Composite Score/Rank	70 [2]	34 [9]	62 [3]	77 [1]
Real GDP growth (YOY in )	-11.4	-23.9	-08.0	3.2
PMI (Manufacturing)	64.9	56.8	48.9	51.5
Export growth (YOY in )	-9.1	5.9	-29.6	9.1
Consumer Price Index (YOY )	3.1	7.3	3.7	1.7
Import cover total markets	28.1	19	12.8	18.6
Exchange Rate (MoM)	1	1.5	3.2	1.7
Stock Market Capitalization	-1.5	2.5	-5.9	-0.5

(Source : Nikita Kwatra (Plain fact) Mint 22nd October 2020)

Apart from BRICS, this survey examines status of Mexico, Turkey, Philippines, Malaysia, Thailand. As reported in the table - this last EMI ledger shows much better strength of China, Brazil, India and relative much less that of Russia.



VIDHYAYANA

**Innovation in BRICS :**

Recognizing and realizing felt need for research and development to inject growth in the economy, BRICS appears to have concentration all efforts and energy towards the same. A striking element in the process of development observed among BRICS is to focus-emphasizing more on research and development through allocation of budgeting in resources. It is important to note that all members i.e. Brazil, Russia, India, China and South Africa tend to experience significant budgetary constraints looking the size of domestic economic need. However considering implicit impacts of research and development towards production and productivity member countries of BRICS despite financial limitations continue to promote research and development. Giant countries like India and China also realize the need for innovative approaches to apply quicker, cheaper and efficient delivery mechanism.

As presented in OECD 2018 report on Main Science & Technology Indicators, three members of BRICS - i.e. China, Russia, South Africa besides Korea, USA show GERD as a percentage of GDP as under.

Year	Country				
	Korea	U.S.A.	China	Russia	South Africa
2003	2.35	2.55	1.12	1.19	0.26
2004	2.53	2.49	1.21	1.07	0.81
2005	2.63	2.51	1.31	0.99	0.86
2006	2.83	2.55	1.37	1.00	0.90
2007	3.00	2.63	1.37	1.04	0.88
2008	3.12	2.77	1.44	0.97	0.89
2009	3.29	2.82	1.66	1.16	0.84
2010	3.47	2.74	1.71	1.05	0.74
2011	3.74	2.74	1.78	1.01	0.73
2012	4.03	2.78	1.97	1.03	0.73
2013	4.15	2.69	1.99	1.03	0.72
2014	4.29	2.92	2.02	1.07	0.77
2015	4.22	2.79	2.07	1.10	0.80
2016	4.24	2.79	2.12	1.10	

(Source : Main Science & Technology Indicators OECD 2018)



It is evidently clear from the table that among the countries referred to in the table Korea reported at the bottom and South Africa at the bottom most. Among BRICS, Russia is reported to have spent maximum followed by China and South Africa.

Global Innovation index is an annual cross country performance assessment intended to update and improve the way innovation is measured. The GII was established in 2003 and is co published by CORNELL University, INSEAD The World Intellectual Property Organization (WIPO). Latest GII is published recently under post pandemic period (2020). This has covered in all 131 countries of the world.

Following table provides specific picture of rank and GII of BRICS for the year 2016 and 2020.

Country	Rank in 2016	Score 2016	Rank in 2020	Score 2020
China	25	50.6	14	53.24
Russia	43	38.5	47	35.63
South Africa	54	35.8	60	35
India	66	33.6	48	35.59
Brazil	69	33.2	62	31.94

(Source : GII 2010 and 2020)

As shown in the table, in relation to countries of world all members of BRICS have improved their ranking over the period of time. In ranking South Africa is lowerer in 2020 against 2016. India showed maximum improvement in rank turn 66 to 48. China 25th to 14th. Russia also went down little from 43 to 47. Brazil improved a little from 69 to 62.

**Financing Innovation; A major issue :**

GII 2020 has focused sharply on the crucial issue of financing innovation given budgetary constraints experienced at large by major countries of the world innovational development has become a stiff challenge contributors to this report have sharply observed that under pandemic scenario it is both a challenge and opportunity to initiative for innovations. Financing the process of innovations is a challenge but on the other hand, pandemic has brought forth significant opportunity in several fields particularly in social sector.

Understanding the gravity of health emergency induced by covid-19 countries have general to initiate towards innovative approaches which in turn would ease the way of life conducive to aggregate





VIDHYAYANA

**An International Multidisciplinary Research E-Journal**

**ISSN 2454-8596**

[www.vidhyayanaejournal.org](http://www.vidhyayanaejournal.org)

living norms. It is in this respect GII 2020 has while expressing concern over the issue has also pointed to reshape international economic order.

Burnard Charles in his brief note draws attention to built virtual infrastructure. The scholar write expressing limits of collaborative strength, refers strong to the need for leveraging power of the tremendous power of virtual universes, special to improve the strength of the workforce given the changed complexities induced by covid-19 investing in virtual universe is the most valuable way to the path of create sustainable path for the future.

Robson Andrew in his summarized look at Brazilian approach towards innovation explains firmly the need for and the services of financing innovations in Brazil. Apart from conventional issues Brazil has very recently undergone stiff challenge of covid-19 virus given the pitfalls of development linkages ventilated under the crisis scholar prudently calls for investing duly and adequately for innovations. It is rightly said that Brazil has diverse and uneven economy to reinforce the strength to add capability of accelerate pace of development. During global financial debacle (2008) Brazil had to mee4t with challenges for creation of entrepreneurial mobilization for innovation. Looking at the demographic roadmap and strength and looking into wide diverse course of development in Brazil it is found most imperative in the government to invest considers to generate an appropriate ecosystem to bring above innovations largely in the field of social infrastructure GII - 2020's theme frame is "Who will finance innovation" is largely exploring strength, weaknesses, opportunities and challenges for innovations in the entire globe in emerging markets in particular.

GIIs broad conclusions are most important and noteworthy to rebuild framework for "Likely new international economic order". These can be put as under.

- (A) The covid-19 crisis will impact innovation - leaders need to act as they move from containment to recovery.
- (B) The global innovation landscape is shifting; China, Vietnam, India and the Philippines are consistently on the rise.
- (C) Innovation finance declines in the current crisis but there is hope .

As exposed in GII - 2020, innovation economics by income group is divided as under.



Top 3 innovation economies by income group.

High Income Countries	Middle Income Countries	Low Income Countries
1. Switzerland	1. China	1. Tanzania
2. Sweden	2. Malaysia	2. Rwanda
3. U.S.A.	3. Bulgaria	3. Nepal

Scholars having studied the process of development of major countries and looking at the magnitude of pandemic ongoing across the borders, it is very appropriately remarked that innovation induced growth momentum and nature which was prevalent before covid-19 is seriously under crisis. Considering major swift of most economy countries towards basic source of life and lively hood innovational exercises are sidelined. It is also found that startups having a definite goal to build up entrepreneurial strength particularly in middle income and low income countries have met with severe challenges government in most of the countries particularly in BRICS have considering sifted their focus towards sustenance of startups. This is the most emerge need essential and inevitable but such initiatives have led to the crisis of funds, seed capital regarded for bringing about innovations since last 3 decades major countries of the world have diverted towards reforms, private sector is provided with a greater space. However venture capital, private players have also undergone crisis of sustainability. The ongoing process the system at large while focusing on India's crisis under covid-19, global financial institutions and several rating agencies have warned of likely vulnerability to come up in the future, scholars have expressed concern over sustenance of inbuilt foundations of Indian economy. It is in this context that Deepanwira Chattopadhyay in a brief note in GII 2020 has provided us with likely changes in macroeconomic sector and its impact on innovations. Looking at already slowing down of economy even under pre covid and increased complexities of federal financial structure, wide gap between two state's finances - central's initiative towards research and development is going to weaken in the near future. However a motivational input refusal in the form of "Atmanirbhar Bharat" strategic efforts is underway to invoke indigenous strength of people's initiatives and thereby to reverse the course of innovations as planned exercise.

It is of crucial significance to understand that South Africa among BRICS is much less affected by covid-19. However in built limitations of South Africa is yet to work is hindrance to the path of innovations to rebuild economy.



VIDHYAYANA

An International Multidisciplinary Research E-Journal

ISSN 2454-8596

www.vidhyayanaejournal.org

### Conclusion :

Global economic trends in general and business operations in particular have undergone significant changes since the dawn of 21st century. An overview of decadal growth development has clearly shown the relevance and reorganization of "BRICS" as emerging markets of the world. It is largely found that BRICS while trying to develop new strategic roadmap has focused more on innovations. Innovations in BRICS are now no more confined to manufacturing only. It has proved its remarkable presence in service sector and mainly in delivery and distribution.

However initiatives are hit hard under pandemic period sudden economic stop induced by covid-19 has posed both challenges and opportunities for innovations. This is presented as central idea of global innovation index (GII 2020) published recently. This report also hints at likely changes in international economic order in the near future. Countries of the world need to be prepared financially and physically to generate an appropriate ecosystem most conducive to innovation.

### References

1. Fredric Nixson : "The Dynamic of global value chain development - A BRICS perspective." Published in Naude, Seizmai and Haraguchi (ed) Structural change and Industrial Development in BRICS. (2015) Oxford University Press.
2. Ghaitzen, Virs, Abdul, Tinmer and Hans: "Deconstructing the BRIC structural transformation and aggregate productivity growth published in Nauda, Seizmai and Harry (ed) Structural change and Industrial Development in BRICS. (2015) Oxford University Press.
3. Khedkar E. B. : "Innovation management and recent trends globally. Key note address delivered at 2nd international conference on "Global Business and Innovation Management." 22nd-23rd February 2016. Christ Institute of Management and Christ College, Rajkot. (India)
4. Purohit, M. S. (2012). Resource Management in the Desert Ecosystem of Nagaur District: An Ecological Study of Land (Agriculture), Water and Human Resources (Doctoral dissertation, Maharaja Ganga Singh University).
5. Maslova & Popova : "Innovation value creation in BRICS". Published in European Research Studies Journal Vol. XXI. Special issue 2018.
6. O E C D (2018) : Report on main Science and Technology Indicators.
7. Saumitra Duta, B. Lenwin & S. Weinsia (ed) : "Global Innovation Index (2020) - Cornell University Confederation of Indian Industry and World Intellectual Property Organization (WIPO).