

BROADBAND Bits & Bytes

A BIF Communiqué



Volume 2 | Issue 4 | June 2019

www.broadbandindiaforum.com

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Mr. Vipin Tyagi

Executive Director, CDOT

Foreword

The technological advances are now redefining every aspect of life. The impact of technology is changing economic landscape and the digital divide is becoming global economic challenge. There are countries striving taking a dominant position as suppliers of high tech communication equipment & services and there are countries striving to provide basic minimal broadband connectivity.

There is clear need for India to use its demographic advantage to create high tech industry as provider of technologies as the vast size of our economy and geography cannot be sustained as only consumer of high tech especially in medium to long term.

Considering Artificial Intelligence (AI), deep learning, autonomous systems, Machine to Machine (M2M) Communication, increasing use of sensor networks, quantum computing and increased use of encryptions are both opportunity and challenge.

Safety, security, regulation, ethical behavior of AI, M2M communication have become very relevant as large number of humans are going to be dependent on networks and machines.

I would call it “Big excitement of big change”. The key is to use it for progress and economic well-being of everyone.



**BIG EXCITEMENT
OF BIG CHANGE.”**



TV Ramachandran
President,
Broadband India Forum

From the President's Desk

Dear Readers,

Welcome to the Fourth Edition of our Quarterly Newsletter for FY19 – Broadband Bits & Bytes on trends and perspectives related to Broadband sector in India. The Newsletter focusses on all the key areas such as 5G, spectrum and licensing, content and applications, SatCom, infrastructure, security, new technologies and innovations, which could lead to proliferation of Broadband in India.

BIF is dedicated to enhance the potential of the entire ecosystem to deliver broadband across the whole of India. BIF's mission is to support and enhance all policy, regulatory & standards initiatives for the proliferation of high quality broadband in the country in a technology-neutral and all-inclusive manner. We have, in a very short time-frame, contributed to several regulatory and policy consultations and been working closely with all concerned Government agencies providing credible inputs on Broadband to assist and facilitate the process of policy making.

The Newsletter is divided into several sections. In the “Spotlight” section, the focus for this Edition is New Technologies and Innovations for Digital India. Digital India will have little meaning without 5G in place. We have views on, “What are the New Technologies and Innovations in your view, that would benefit the Indian economy most?” in the “Industry Speak” section, and I would like to thank the industry experts personally for sharing their valuable thoughts. In our “Newsflash” section, we have summarized the significant happenings in the Broadband sector over the last quarter. In the “Events” section, we give you a glimpse of the past and proposed BIF Events.

In an effort to make this newsletter more useful to you, we would appreciate your comments and suggestions that you may have on this issue as well as topics that you would like us to feature in the forthcoming issues.

Happy reading!



**DIGITAL INDIA
AND 5G GO
HAND IN HAND.”**

A handwritten signature in black ink, which appears to read 'Ramachandran' followed by a flourish.

SPOTLIGHT:

Digital India will have little meaning without 5G

Globally, 5G rollout has begun. As many as 211 operators in 87 countries have invested in 5G technology. As of March 2019, 15 operators around the world have been offering commercial 5G services.

By KV Seshasayee & TV Ramachandran

The new-age 5G technology has the potential for a major societal transformation in India.” This visionary statement was presented two years ago at the Government High Level 5G India 2020 Forum. Since then, there has been much hype about bringing 5G to the country. At the forum, it was emphasised that this time India would not miss the boat on implementing advancements in communications, like the country did with 3G and 4G. This filled us with ebullient hopes of a truly Digital India at the forefront of the 5G revolution. However, the ground reality, as it relates to implementation, has been a different story—one fraught with conflicting stakeholder positions, and inability to trigger the huge investments required for 5G implementation.

Globally, 5G rollout has begun. As many as 211 operators in 87 countries have invested in 5G technology. As of March 2019, 15 operators around the world have been offering commercial 5G services. In India, not a single large live trial has been initiated, and the guidelines for the release of experimental or trial spectrum are still work in process. With a minimum of 6-12 months of intensive 5G live trials required prior to release, we are already over a year behind other nations. The Department of Telecommunications (DoT) has laid out a 100-day 5G action plan that includes the commencement of 5G trials and policy surrounding this technology. While this is a welcome start, even if spectrum is provided readily and trials are completed rapidly, are we ready to introduce 5G? I’m afraid we are not, particularly with regards to critical infrastructure comprising of optical fibre, thousands of small cells and street furniture in a dense network, millions of public WiFi hotspots, as these have to be created. And what about investments? Deloitte estimates that India needs a massive Rs 5 lakh crore (\$70 billion) investment to bring in 5G. Where will this investment come from?

Let’s look at one of the most important stakeholders—the telecommunications service providers (TSPs) who constitute the backbone of the sector. They are fighting to keep their heads above water. The collective debt of TSPs stands at Rs 4.2 lakh crore (according to ICRA). Once at the forefront of global innovation, TSPs are now focused on survival in the face of challenges like the extremely high duties and levies they are subject to, astronomical spectrum pricing, outmoded regulatory framework and a fierce marketplace



resulting in one of the lowest user tariffs globally. The will may be strong, but where would they find the business case for huge 5G investments?

So, what can be done to facilitate a more attractive business environment? Spectrum allocation and pricing play the most significant role—Indian spectrum prices are some of the highest in the world and the allocated quantity well below global best practices, while 40% of the spectrum is lying unsold. There is an urgent need to review the auction design and the setting of the reserve prices, as pointed out by expert research agency ICRIER. The spectrum issue needs to be immediately resolved, else our foray into 5G will continue to be very challenging.

Here the government might also like to take a page from Singapore, which decided not to levy any spectrum fees in order to free operators and bring in advanced technologies. This is an excellent strategy to foster an ecosystem for innovation and, in the end, consumers, TSPs and the government will benefit.

The next major issue to discuss is infrastructure. To realise the potential of 5G, we require a dense, high-quality, bend- and pressure-resistant optical fibre network. This enables much faster and reliable speeds that empower 5G technology. Only one operator in India currently has a 4G network that can be upgraded to 5G fairly quickly. The rest, having started operations in 1995, run on legacy networks of 2G, 3G and 4G.



While we pleasantly dream of a homogeneous Digital India, the unfortunate fact is that much of our infrastructure is an amorphous mix of technologies with much of it analogue, and cannot support the speeds that 5G needs. It is evident that the road to 5G is laden with some obstacles. The good news is that we do not have to embark on a voyage of discovery to figure our way out. The solutions are clearly defined in the world-class National Digital Communications Policy 2018. To reiterate—the first step towards 5G implementation in India is raising the investments. Recently, two global bodies have strongly advised this and commented on the need for a 5G investment-friendly environment prior to its implementation.

The first, the esteemed International Telecommunication Union (ITU) recently released a report (Setting the Scene for 5G: Opportunities and Challenges) that, among other things, states, “5G is expected to play a key role in digital economies, improving economic growth, enhancing citizens’ experiences, and creating new business opportunities. Despite such benefits, care must be taken in establishing the commercial case, and whether 5G is a real priority for the economy. Until the investment case is compelling, the industry and policymakers should approach investment with caution while enhancing the quality and availability of 4G networks.” ITU further stresses that 5G is likely to increase the global digital divide—since viability is likely to be in dense urban areas.

The second authority, the GSMA, the apex world body for mobile communications, released recommendations in its report ‘India: Becoming 5G-ready’. It emphasises the need for a supportive investment and taxation policy and the necessity to move away from legacy regulatory structures and towards a whole new government paradigm. Indeed, here’s one example of how arbitrary taxes and levies affect TSPs today. Mobile devices are taxed at 12% while the telecom service, which is the key driving technology, is subject to 18%. Both need to be aligned to an even 12%. GSMA also points

out “the current state of mobile coverage in India does not warrant the 5% USOF levy, particularly compared to universal service levies in other countries.” It recommends that the current levy be reduced or phased out gradually.

So, does India have a choice whether to adopt 5G or wait it out? We believe not. As the High Level 5G India 2020 Forum pointed out, there are huge economic benefits to be realised across various verticals that we cannot afford to let float away. Illustratively, a recent study modelling Pune as a ‘smart city’ estimated that it can unlock an incremental value of 30% GDP valued at Rs 80,000 crore over six years. This is for an area of 331 sq km and a population of 3.5 million. This study enabled the city to drive numerous digital service initiatives to capture the resulting growth potential of 15% CAGR (Purushottam Kaushik, L&T). And this is about just one city—imagine this evaluation across the country. We can reap mind-boggling benefits!

Since the setting-up, in the fourth quarter of 2017, of the High Level 5G India 2020 Forum, much was accomplished by the group, but far more could have been done in creating awareness as well as infrastructure and issuing the required policies. Even large-scale trials that were planned from December 2018 onwards could have been completed by now, and India could well be auctioning spectrum after correcting the pricing and getting ready to launch 5G services shortly—at least in some locations with requisite infrastructure. Unfortunately, we have missed that bus and will have to race at double speed to try and ensure that the gap already created between us and other nations does not widen further. Moreover, Digital India will have little meaning without 5G. (Chandana Bala assisted with research inputs)



Industry Speak: What are the New Technologies and Innovations in your view, that would benefit the Indian economy most?

*“Indian Youthful society is now driven by Digital Era and a true Digital Democracy is an aspirational goal. Govt acting as a catalyst with a Focus on the Path to Gbps as part of enhanced Mobile BroadBand(eMBB) for Quantum leap in User experience at n*10 mbps to n*100Mbps. Technologies for Carrier Grade WiFi (5th Gen WiFi), State Fiber Grids evolution, Smart Cities technologies and 5G for Digital India should be the focus. 5 technologies such as 5G/Mobile Edge Computing Machine Learning/Deep Learning with AI and AR/VR are redefining the old paradigm of 3Cs to go towards Commns,Commerce and Civilisation.”*



C S Rao
Co-Founder & Chairman,
Quadgen Wireless

“The year 2019-20 is going to be the year of Carrier Grade Wifi, fuelled by Wifi.6 and Local Cloud using Edge Computing bring the Content to the Tower, ie. Near to the Users. This deadly combination of innovative technologies will facilitate the Govt. vision of Connecting the Unconnected masses of Rural India (Bharat 2.0) and help in changing the lifestyle of rural folks.”



Satya N Gupta
Chairman, Bluetown India
and BIMSTEC

“In my opinion, we should be focussed on enabling startup echo system to take benefits of proliferation of internet over past few years. This will help in realising new business models and revenue stream which will help raise employment in country and also help economy. Many more unicorns are expected to take off in next few years as we are able to take the benefit of economy of scale in internet space similar to China.”



Pankaj Sharma
Country Manager,
Telenor India



Newsflash:

Updates and Achievements

AI & IOT:

- BIF submitted its recommendation on 'Mainstreaming AI & IoT' to DoT, MeitY, Min of Finance, DIPP and NITI Aayog.
- BIF took part in DoT's NTIPRIT in-service course on 5G & Emerging Technologies conducted in Ghaziabad where Mr. Debashish Bhattacharya - Sr. Director-Technology & Policy and Mr. Krishna Sirohi - Sr. Technology Advisor, made presentations on the importance of AI in 5G Networks & Smart Cities respectively. The presentations were very well received by the audience which mostly comprised of technical staff of DOT, TEC, NTIPRIT & Circles (incl. TERM Cells)
- A meeting of the BIF AI & IoT Committee was held on May 10th 2019.

SPECTRUM:

- A meeting of the BIF Spectrum, Regulatory Framework & Standardisation Committee was held on March 15th & May 29th, 2019.
- BIF submitted a letter to TRAI & DoT on the TRAI recommendation on Auction of Spectrum in 700 MHz, 800 MHz, 900 MHz, 1800 MHz, 2100 MHz, 2300 MHz, 2500 MHz, 3300-3400 MHz and 3400-3600 MHz Bands asking for a review & fresh look at the methodology of valuation of spectrum.
- BIF is organizing a one-day Workshop on 'Future Spectrum Roadmap for Satellite Broadband Services in India on 11th June 2019 at Hotel Taj Mahal, New Delhi.
- BIF has been actively participating in all DOT meetings pertaining to preparation, drafting & finalisation of Proposals to be submitted for upcoming APG 19-5 & WP5D meetings in preparation for WRC-19.

5G:

- As a member of DOT's 5G Experimental License & Spectrum Policy Committee, BIF has participated in the meetings and contributed significantly to the Final Recommendations of the Committee which are awaiting approval of the Digital Communications Commission. Majority of the contributions pertain to addressing provisions and simplification of the process for identification & allocation of spectrum and license for conducting Trials for indigenously developed new technology products so that they can possibly attain desired product maturity for global competitiveness.
- BIF also provided its inputs to the Standing Committee on Spectrum for 5G.
- BIF was nominated as a member of the DoT's Inter Ministerial Working Group to develop a White Paper on 5G procurement, market access, etc. Mr. Debashish Bhattacharya, Sr. Director- Technology & Policy was nominated from BIF to be part of this Working Group.
- BIF and TSDSI are knowledge partners to the 3rd edition of the International Conference on 5G India 2019 being organised by Bharat Exhibitions on 26th & 27th June 2019 in Mumbai.

NDCP/NEW TECHNOLOGIES:

- BIF submitted its recommendation on various NDCCP goals related to taxes/levies & Local Manufacturing to FICCI.
- A meeting of the BIF Working Group on General Policy & Regulations (GPR) was held on 29th March 2019.
- A meeting of the BIF New Technologies & Innovation Committee was held on 9th May 2019.
- BIF submitted the NDCCP implementation Plan-Immediate (w.r.t DoT's 100-day program) and Long term to DoT.
- A meeting of the BIF Content & Application Committee was held on May 21, 2019 wherein the outcome of the TRAI OHD on OTT was discussed. It was also decided to prepare a WP on the relevance of Data Centre in the economy and also join hands with agencies for spread of Digital Literacy across the country
- A meeting of BIF PWD Committee was held on May 22 2019 to implement the NDCCP strategies on PWD and to submit a White Paper to FICCI.
- BIF submitted letter to DoT seeking amendment in the current guidelines of the IP-1 Infrastructure Providers in light of the NDCCP clauses for Infrastructure Providers.

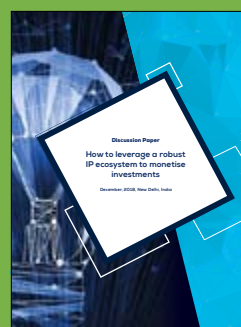
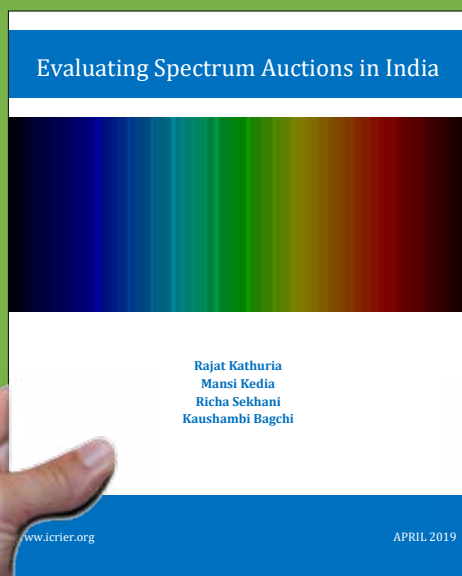
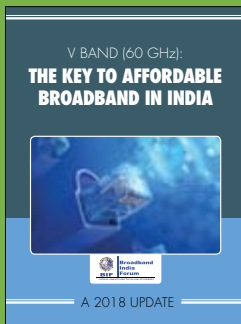
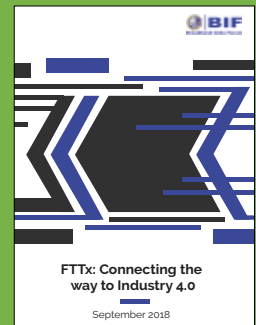
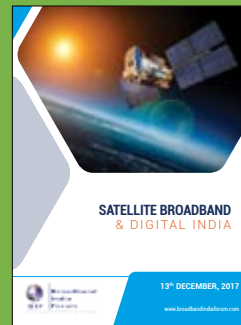
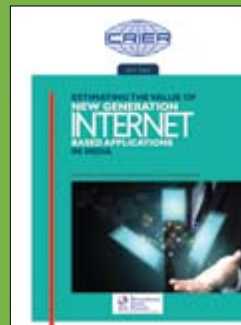
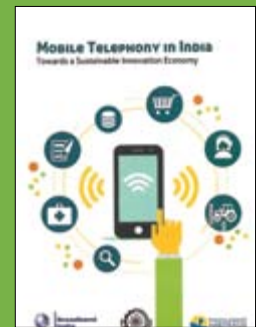
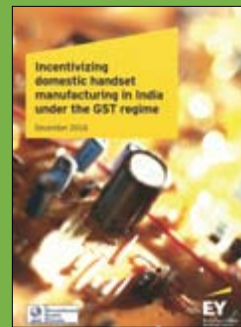
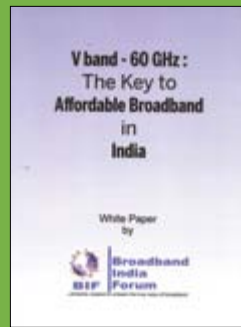
OTT:

- BIF organised a Conference on 'OTT-Win win for all' on April 5 2019 at Taj Mahal Hotel. The event was presided over by the Chief Guest, Mr. Yaduvendra Mathur, Special Secretary, NITI Aayog and other industry luminaries including Mr. Rajat Kathuria, Director and Chief Executive, ICRIER and Mr. Ashwinder Sethi, Principal, Analysis Mason.
- BIF participated in the TRAI OHDs on OTT in Bangalore & Delhi on 24th April & 20th May 2019 respectively. Subsequently, BIF submitted its written contributions to TRAI providing a summary of the key points

OTHERS:

- BIF submitted its inputs on the draft E Commerce Policy to DPIIT.
- BIF jointly with the PHDCCI celebrated the World Telecommunication and Information Society Day-19 (WTISD-19): Bridging the Standardisation Gap on Friday, 17th May, 2019 at the Le Meridien.
- BIF celebrated International Girls in ICT Day - 25th April 2019.
- BIF submitted its inputs and Counter-Comments to TRAI on the Consultation Paper on Review of Terms & Conditions for Registration of OSPs.
- A meeting of the BIF Broadband Infrastructure Committee was held on 4th June 2019 to emphasise on the importance of the Digital Infrastructure in India.
- BIF has taken few initiatives on creating a systematic approach for supporting Startups in India, Establishing a framework of collaboration between Academia and Industry for Research-Innovation-Standardization, enabling encouragement of Standardisation culture amongst academia & industry, bridging the Standardisation Gap, developing a standardization portal and providing strategic inputs to DoT for timely regulatory & policy interventions to achieve desired results.

Reports & White Papers from BIF



Topical Articles

BELOW ARE THE ARTICLES AUTHORED BY BIF PRESIDENT, MR. TV RAMACHANDRAN WHICH HAVE BEEN PUBLISHED IN LEADING BUSINESS DAILIES:

- ❖ Digital India will have little meaning without 5G [\[LINK\]](#)
- ❖ Blockchain is the best vehicle for IoT [\[LINK\]](#)
- ❖ India's digital pathway: Not roses all the way, thorns aplenty, too [\[LINK\]](#)
- ❖ OTT streaming explodes in rural India thanks to Jio [\[LINK\]](#)
- ❖ The Hyper-Connected Enterprise [\[LINK\]](#)

OTHER UPDATES:

- ❖ Signal Chip joined BIF as Startup Member
- ❖ Lavelle networks joined BIF as Startup Member
- ❖ JV International joined BIF as Startup Member
- ❖ Dr. SM Sharma, Former Joint Wireless Adviser-WPC joined as Sr. Adviser (Radio Regulation)
- ❖ Mr. Krishna Sirohi joined BIF as Sr. Technology Advisor



Events:

Upcoming Events

Workshop on “Future Spectrum Roadmap for Satellite Broadband Services in India” - 11th June, 2019

ORGANISER

BIF
BROADBAND INDIA FORUM
"Think Tank for Digital Transformation"

SUPPORTED BY

GSC
GLOBAL SATELLITE COALITION

Workshop on
**"Future Spectrum Roadmap for
Satellite Broadband Services in India"**

Tuesday, 11th June, 2019
Taj Mahal Hotel, Number One, Mansingh Road, New Delhi

The poster features a dark blue background with a glowing globe and binary code patterns. The text is white and yellow, providing clear information about the event.

World Wi-Fi Day 2019

BIF
BROADBAND INDIA FORUM
"Think Tank for Digital Transformation"

**CELEBRATING
WORLDTM
Wi-Fi Day**
20th June 2019, New Delhi

Connecting the unconnected

The poster has a light blue and purple color scheme. It includes the BIF logo, the World Wi-Fi Day logo, and a photograph of a hand holding a tablet with Wi-Fi signal icons. The tagline 'Connecting the unconnected' is prominently displayed at the bottom.

5G India 2019: 3rd International Conference



AI & IoT Impact on Jobs in Rural India “Special focus on Agriculture and Healthcare” - 3rd July, 2019



Announcement - India Satcom 2019: 27-28th November, 2019



Events: Past Events

Celebrating World Telecommunication and Information Society Day 2019

A detailed event poster for 'Celebrating 50 years of World Telecommunication and Information Society Day 2019'. The background is a dark blue world map with white lines connecting various global locations. At the top, it lists 'SUPPORTED BY' with logos for the Department of Telecommunications, Ministry of Communications, Government of India; the Ministry of Science and Technology; the Ministry of Electronics and Information Technology; and the Ministry of Information and Public Relations. It also lists 'ORGANISED BY' with logos for the Broadband India Forum (BIF) and the National Apex Chamber (PHD Chamber). The main text reads 'Celebrating 50 years of World Telecommunication and Information Society Day 2019' and 'Bridging the Standardisation Gap'. The date and location are '17 May, 2019, Hotel Le Méridien, New Delhi'. At the bottom, it lists 'EVENT PARTNERS' (Paramount Cables, TCL) and 'LOGISTICS PARTNER' (Be Bhakti Exhibitions).



Celebrating International Girls in ICT Day



Conference on "OTT: A win-win for all"



De-Licensing of 5Ghz for Public WiFi



India-EU Stakeholders' Workshop on 5G Technology Landscape



Digital Infrastructure



Smart Phone & Customer Experience



India Satcom 2018



2nd Edition FTTH India Summit 2018



My India Wifi India



White Paper on V Band



V band (60 GHz) is the Key to Affordable Broadband in India



5G India 2018 – International Conference & Exhibition

BIF Eminent Members

Corporate Patron Members



Corporate Members



Startup & Professional Members



BIF Hi Level Committees

5G

**AI & IoT (Big Data,
Data Analytics, MTC)**

Broadband Infrastructure

Content & Application

**ICT for Inclusive Ability
(PwDs)**

**Industry-Academia
Cooperation for Capacity
Building**

**Manufacturing -
Mobile Devices**

**New Technologies &
Innovation (Robotics &
Cloud Computing)**

Rural Digital Initiatives

Satcom

**Spectrum Regulatory
Framework &
Standardisation**

**Technology, Media &
Telecom (TMT)**

Working Group on GPR

Panel of Principal Advisers



Abhishek Malhotra



Air Cdre S.S. Motial



A.K Bhatnagar



B K Syngal



D P Singh



Dr. B M Baveja



Dr. Kuldip Singh



Dr. Mahesh Uppal



Rajesh Mehrotra



J. V. Ramamurthy



K V Seshasayee



P K Garg



Pranjal Sharma



Sudhir Gupta



Valsa Williams

About Broadband India Forum



Mr. Anil Prakash
Director General
Broadband India Forum

Broadband India Forum (BIF) functions as a policy forum and think-tank that works for the development & enhancement of the entire broadband ecosystem in a holistic technology-neutral and service-neutral manner. BIF seeks to be a thought leader and a credible

and effective voice to help propel the nation to achieve the country's ambitious vision of creating a Digital India. To achieve this, BIF works to promote the rapid development of policies to promote affordable and high speed ubiquitous broadband throughout the country.

Registered as IPTV Society, its brand - BIF was formed in October 2015 and is a fairly nascent but dedicated Forum with participation from all stake holders, including Technology Providers, Telecom Operators, Internet Service Providers, Value-Added Service Providers, Satellite Operators and service providers, MSO, Broadcasters, startups and professional entities as well as seasoned Industry professionals who are familiar with different technologies, operations, regulations and policies.

The Forum's senior leadership team includes renowned and respected professionals from background of Industry, Regulator and Government.

1. Mr. Shyamal Ghosh, Former Secretary-Telecom and co-founder of IPTV Society, is the Chairman Emeritus.
2. Mr. M. F. Farooqui, IAS (Retd.), former Secretary-Telecom, is the current Chairman
3. Mr. T. V. Ramachandran, Hon. Fellow of the IET (London), former Resident Director-Regulatory Affairs and Government Relations, Vodafone, and first Director General of COAI, is the President of the Forum.

4. Mr. Parag Kar, Sr. VP Govt. Affairs, India and South Asia-Qualcomm and Mr. Ashwani Rana, Head Connectivity Policy-Facebook are current Vice Presidents.
5. Mr Anil Prakash is the Director General.
6. Mr. S. N. Gupta, seasoned technocrat and senior luminary who has worked in DoT and as a Principal Adviser to TRAI (Regulator) is the Treasurer.

BIF functions through many specialist committees for the advocacy, coordination, facilitation and promotion of all activities with the objective of furthering the goals of the National Telecom Policy in Spectrum, Licensing and Standardisation, Broadband Infrastructure, Manufacturing Rural Digital Initiatives, Content & Applications, SatCom & Broadcasting, 5G, New Technology & Innovations, IoT and ICT for Inclusive Ability.

The activities of the Forum broadly relate to coordination, promotion and formulation of expert opinion on topical subjects related to Broadband. To act as a bridge between Industry on one side and Government and the Regulatory Bodies on the other, front ending several issues related to policy & regulation.

"In this last Edition for the financial year 2019 of the Newsletter, Broadband – Bits and Bytes, we have made efforts to highlight the growing importance of new technologies and innovations. Our endeavor is to keep you updated with latest technology, standards, innovation, policy and regulation, which embark on and facilitate speedy and affordable broadband proliferation in the country."

- Anil Prakash



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Garima Kapoor, Arun Mukarji and Abhijit Panicker

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