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INTEGRANT TECHNOLOGY AND INTEGRANT BRANDING: A COLLABORATIVE MODEL

Prafulla Kumar Padhi
Independent Researcher
The Founder, Global Governance LLC
GGLLC2009@GMAIL.COM

ABSTRACT

The aim is to analyze the literature to-date thoroughly and conceptualize a collaborative model on "Integrant Technology" and "Integrant Branding".A comprehensive analysis and perspective of integrant technological developmental endeavors in the field of intelligent cloud, 5G mobile communication, and blockchain are discussed to ensure collective thinkingrelated to a marketing strategy called "Integrant Branding". The collaborative culture of integrant technology development and integrant branding speed up the entire value chain process of a company enriching brand value acceleration. The methodology comprises of exhaustive literature review, and a case study on Nike, Inc,world's the mostvaluable brand in thefootwear/apparel industry,focusing on the perspective on "Integrant Technology" design applicationsand "Integrant Branding" for brand value creation (BVC). The contribution of this research provides a "holistic and interdisciplinary" approach with regards to "Integrant Technology" and "Integrant Branding" for the transformation of companies value chain making theproducts/services superior to its competitorsand stakeholder satisfaction for sustainability. This research provides dogma to brand practitioners, marketers, non-government organizations (NGOs), academia, entrepreneurs, investors, and policymakers to assuage composite thinking and economic benefit.Future researchers can build on "Integrant Technology" and "Integrant Branding" collaborative thinking to examine the limitations of this model by using empirical researches.

Keywords

Integrant Technology, Integrant Branding, Fashion, Brand Value, Sustainability

INTRODUCTION

This conceptual research explains concerning "Integrant Technology" [1] and "Integrant Branding (IB)" through various perspectives including a case study on Nike Inc, worlds the most valuable brands of footwear/apparel industry. It highlights the importance of the holistic view and interdisciplinary research in the area of integrant technology development and integrant branding as a collaborative model accelerating the brand value creation.

Integrant Technologies (IT) such as intelligent cloud, 5G [2] wireless communications, and blockchain are poised to impact all four Ps' (Product, Process, Price and Promotion) of the marketing mix across the entire marketing ecosystem and unleash another wave of disruption on all aspects of business globally creating paradigm shift across consumer behavior in the contemporary society.

The concept and history of the "Cloud" date to 1970s. The buzzword "cloud-computing [3]" is a late 20th-century creation. In the last 50 years, cloud computing has gained significant growth and its value towards individuals and enterprises alike. The managerial perspective of cloud computing is imperative to provide the infrastructure and/or tools for company's decision making and substantially lowering computing costs and increasing the abilities for market offerings to focus more on business model execution. The cloud computing paradigm has achieved considerable traction owing to the commercial success of many cloud service providers providing its customers with resources using a pay-as-you-go model enabling cost savings.

The "Intelligent Cloud" [4] is ubiquitous computing enabled by artificial intelligence technology and the Internet for intelligent applications. The "Intelligent Edge" (alternatively called - intelligent cloud) is unceasingly expanding with connected devices that collect and analyze data close to consumers to attain real-time insights delivering contextually aware apps. Combining cloud's virtually limitless computing power with

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intelligence and perceptive devices at the edge of 5G wireless network creates a framework for building impactful business solutions.

5G wireless communication (the fifth-generation mobile technology) is the latest version of mobile network technology that provides enhanced coverage, speed, and response time that will transform industries from all business sectors creating the impact to spur market growth and the global economy. 5G is waiting to happen ubiquitously and is not only about a speedy internet connection but also aims to give developing countries the chance to connect to the Internet and enjoy everything the world wide web has to offer. Based on author's 3 decades of experience in tele/data communication and information technology business, the 5G wireless network technology will be part of the mass worldwide surveillance/mind control grid combining cloud computing with AI and the internet of things (IoT).

Blockchain [5] is a shared, immutable ledger that facilitates the process of recording transactions and tracking assets in a business network. An asset can be tangible (a house, a car, cash, land) or intangible (intellectual property, patents, copyrights, branding). Virtually anything of value can be tracked and traded on a blockchain network, reducing risk and cutting costs for all involved. The blockchain is essentially a new filing system for digital information, which stores data in an encrypted, distributed ledger format. The integration of Artificial Intelligence and Blockchain (BC) is still an undiscovered discipline. The safest approach to create superintelligence is AI to be decentralized, designed and controlled by a network through open-source programming.

In this research, the value is described in two ways. In the ethical sense, value denotes something of significance and contribution to society to make a positive difference in humanity. From an economic point of view, the value is defined as the utility of goods and services as well as the benefits arising from ownership. Sustainable value denotes the approach to sustainable management, calibration of environmental and socio-cultural resource-based impact assessments on the enterprise valuable contribution to the society. Also, sustainable value - a business strategy focused on inscribing social issues by recognizing competitive advantage sources that bring about community benefit. Sustainable brands are, generally, established on the conviction that unleashing the best of human ingenuity and innovation can change the shape of business connecting with professionals from different perspectives and disciplines in a collaborative and optimistic way to create a shared vision.

The author introduces three principles to lead integrant technology-driven strategic innovation: (i) take a holistic, out of the box view (ii) explore and model future scenarios, (iii) distinguish enhancements from disruptions. Application of the above three principles to the emerging needs across the four P's (Product, Process, Promotion & Price) of the marketing mix to emerging technologies will have a transformational effect on business.

"Integrant" is defined as converting intangible to tangible. Given the synergetic relationship between technology and branding, the author has coined and defines the following terms ("Integrant Technology" & "Integrant Branding") and contends that a collaborative model is one where brands cooperate with other businesses or jointly execute expertise to achieve economies of scale or better market share:

(i)   "Integrant Technology" such as intelligent cloud, 5G wireless communication, and blockchain herald new data age as unsung heroes setting the stage for exciting new devices and services in the years ahead and are pulled into the spotlight with its own identity,

(ii)   "Integrant Branding" is a digital marketing strategy where an element of the business is branded as a separate entity helping to add more value to the company making product/service superior to its competitors.

PURPOSE OF THE STUDY
The aim is to conceptualize a collaborative model composed of "Integrant Technology" (intelligent cloud, 5G wireless communications, and blockchain) and "Integrant Branding" – digital marketing strategy influencing brand value creation to transform industries from all business sectors creating the impact to spur market growth.

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JUSTIFICATION OF THE STUDY

The collaborative business culture of "Integrant Technology" (Intelligent cloud, 5G wireless communication, and blockchain) and "Integrant Branding" is still largely unexplored topics. The convergence of the above technologies and digital marketing strategy has not received scholarly attention yet. Projects in practice devoted to the above groundbreaking collaborative business culture are rare. Hence, the author has endeavored to develop a collaborative model of "Integrant Technologies" and "Integrant Branding" to show the academia and practitioners that the potential opportunity is immense with enormous benefits for all industries to spur business growth in the years ahead.

RESEARCH BACKGROUND

Integrant Technology (IT) Era

The innovation ecosystem of the integrant technology development will be the envy of the world for generations to come. Imagine a world, when an interactive 3D video can be downloaded in a few seconds, smart watches offering a myriad of health-related data on the fingertip, weather-related data in Nanoseconds, a smart building anticipates one's need, and an autonomous vehicle reaches the destination safely. This is the world of 5G wireless technology handles data very efficiently. The era of intelligent cloud, 5G, blockchain is ready to usher in with improved connectivity, cloud-based storage, and an array of connected devices and services with the virtual system architecture of mobile Internet of things (mIoT).

Intelligent Cloud (IC)

The cloud is a metaphor for the Internet. Cloud Computing uses the Internet and central remote servers to maintain data and applications offering many benefits and extremely effective for backing up files. Cloud App is a software program and has its applications in almost all the fields such as business, entertainment, data storage, social networking, management, entertainment, education, art, fashion, and global positioning system, etc.
Cloud computing can help in the following ways:

(i)   Reduce manual Errors.
(ii)   Schedules are tracked and synced.
(iii)   Users are notified of activities due.

Building blocks of Cloud Computing
•   Compute: is the heart of the cloud offering.
•   Storage: cloud providers offer storage.
•   Networking: networking encompasses many products including domain name systems (DNS).

Cloud computing major offerings are Software as a Service (SaaS), Platform as a Service (PaaS), and Infrastructure as a Service (IaaS). Cloud computing is represented as a pyramid with IaaS at the bottom, PaaS at the middle and SaaS at the top.

SaaS - Software as a service is accessed through the internet eliminating the need to download, install and run applications on local computers. Example of SaaS is Google Docs.

SaaS Characteristics
•   A 'one to many' models is used for software delivery.
•   Software management is done from a centralized location.
•   Access to the commercial application is gained via the internet.
•   The end users need not worry about software patches and upgrades.
•   Application Programming Interfaces (APIs) enable integration with other application.

SaaS Benefits

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- Dynamic Scalability
- Device independence
- No fixed costs
- Collaborative- allows multiple sharing of information
- Constant Updates

PaaS is a software environment used to develop and run applications. PaaS enables the creation, implementation, and testing of software. Example: PaaS include Google App Engine and MS Azure.

PaaS Characteristics
- Allow development, deployment, testing, hosting and maintenance of applications.
- Web-based UI design tools that enable the development, modification, testing, and deployment of different User Interface (UX) scenarios.
- Can be accessed and utilized by multiple users.
- Integration with databases and web services.
- Development support.
- Tools that handle subscription and billing management.

PaaS Benefits
- Cost reduction
- Streamlined application development and management
- Increased mobility
- Reduced technical maintenance

IaaS
The most fundamental building block of cloud computing is Infrastructure as a Service (IaaS); Instead of capital investment in buying servers, network equipment and data center maintenance; a company can buy these services on demand. Example: Amazon Web Services.

IaaS characteristics
- Resources and infrastructure are distributed as a service
- Enables dynamic scaling
- Multiple users utilize a single piece of hardware.

Cloud-based data is stored in servers located on premises or in a data center managed by a third-party cloud provider. The five trends in cloud computing:
1. Exponential growth in cloud services solutions
Software as a Service (SaaS) is a flexible and financially attractive for businesses and consumers to try cloud services. The growth of infrastructure as a service has increased the number of cloud solutions and organizations taking advantage of the simplicity and high-performance the cloud guarantees. At present, SaaS solutions as the most highly deployed cloud services globally.
2. Increased cloud storage capacity
As cloud services become a de facto aspect of doing business, data storage is going to grow exponentially. Hence, service providers will establish more data centers online with larger-storage capacity equipment's.
 3. The Internet of Everything (IoE) will take center stage
 The IoT) and artificial intelligence playing a stellar role in the technology community with continuous innovations in real-time data analytics and cloud computing to push the internet of everything (IoE). Cloud computing plays an important role as the IoE becomes complex systems aimed at simplifying all interactions.
4. Enhanced Internet quality and the rise of 5G

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As the amount of data generated and stored globally growing, consumers expect better and quicker connections from network service providers. The author contends that strong movement from gigabyte LTE speeds to 5G networks, helping to reach 5G capabilities in record time.
5.Security challenges and the cloud.

Cyber-attacks and the Equifax data breach are reminders are a reality of the 21st century aimed at undermining the security of cloud infrastructures. Businesses will invest in tools like security information and event management (SIEM) and malware detection systems as fundamental defense mechanisms for cybersecurity. Cloud services can play a key role here with managed security service providers offering robust services to business.

Artificial intelligence (AI) technology is already augmenting the cloud computing platform. It can create a new generation of cloud computing technologies. Cloud computing makes AI more accessible because the hardware (laptops, smartphones) can be used without computing power to run various AI applications proficiently. AI enables machines to learn, think, act, and react like humans leading to process automation which will eliminate the possibility of human errors. The integration of CC and AI has created a major change in many industries including the world of information technology changing the way the data used to get stored and processed across various geographies.

Intelligent Cloud (IC), the integration of cloud computing and artificial intelligence, the biggest advantage to users and companies is no location parameters, therefore can access data ubiquitously in the world.Companies select IT capabilities to the cloud to save cost and increase profits, so that reinvestment can be done into the business to increase boost wages and drive innovation.Intelligent cloud computing reduces head count of an organization to maintain infrastructure, offering time to focus on strategy and innovation. The applications and services to the cloud are largely dependent on company size and industry. Example, storage is the primary service for 35 to 40 percent of small medium enterprises (SME) whereas large firms going to the cloud for conferencing and collaboration applications. Also, organizations turning to the cloud for productivity, messaging, and business process apps and performance. Cloud ROI can calibrate to factors that are relevant to enterprise application portfolio and specific computing needs.

A framework for achieving amazing things happens, when intelligent cloud and intelligent edge experiences are infused with mixed reality. Microsoft's Azure, HoloLens, Dynamics 365 and Microsoft Devices — where the sum is greater than the parts. From cutting-edge hardware design to mixed reality-infused cloud services provides tremendous opportunities for community of customers, partners and developers. Nike's Jordan brand is using a collection of Microsoft technologies -- including the Microsoft's Windows Azure intelligent cloud platform, as shown in figure 1 by letting fans upload photos of themselves and their Air Jordan shoes and clothes.Built on Azure, the site Microsoft's Silverlight Deep Zoom technology promoting the Jordan site in a bid to bring more attention to Azure. Intelligent cloud computing can create substantialreturn on investment (ROI) and frees up capital to innovate on new ideas unceasingly.

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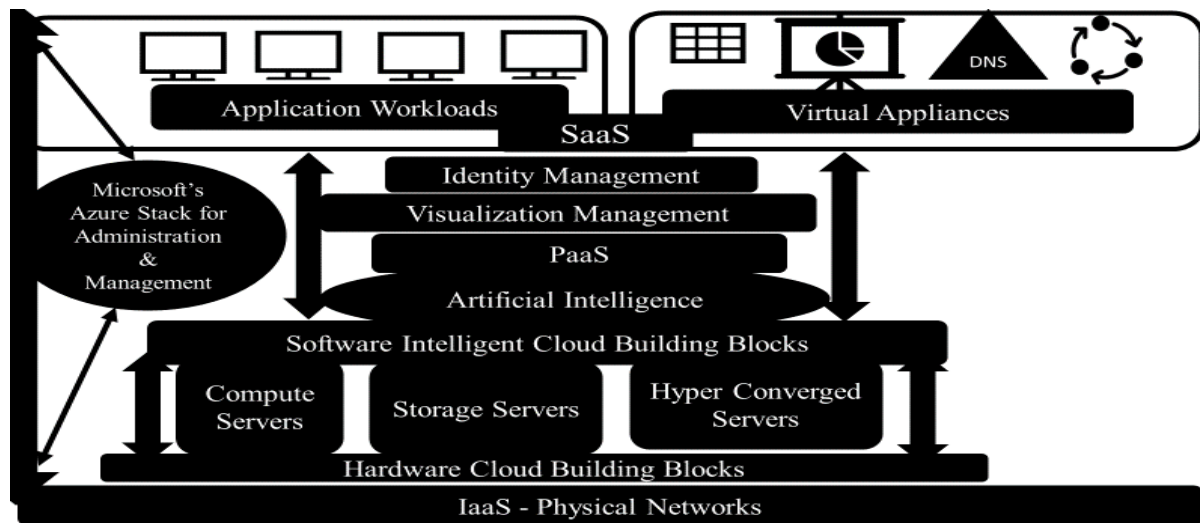
Fig. 1 The Intelligent Cloud Building Blocks

Customers can have mobile access to data via user-friendly web-based interface ubiquitously for various data analytics and reporting. The intelligent cloud (cloud computing plus artificial intelligence) is to gain some of the benefits of a truly cloud-based system within on-premise system.
https://www.networkworld.com/article/3233134/5-cloud-computing-trends-to-prepare-for-in-2018.html

Evolution of Mobile Networks is as shown in figure 2: (i) 1G- First Generation, (ii)2G-Second Generation (iii) 3G-Third Generation, (iv) 4G-Fourth Generation, (v)5G-Fifth Generation, (vi) 6G- Sixth Generation, and (vii) 7G-Seventh Generation.
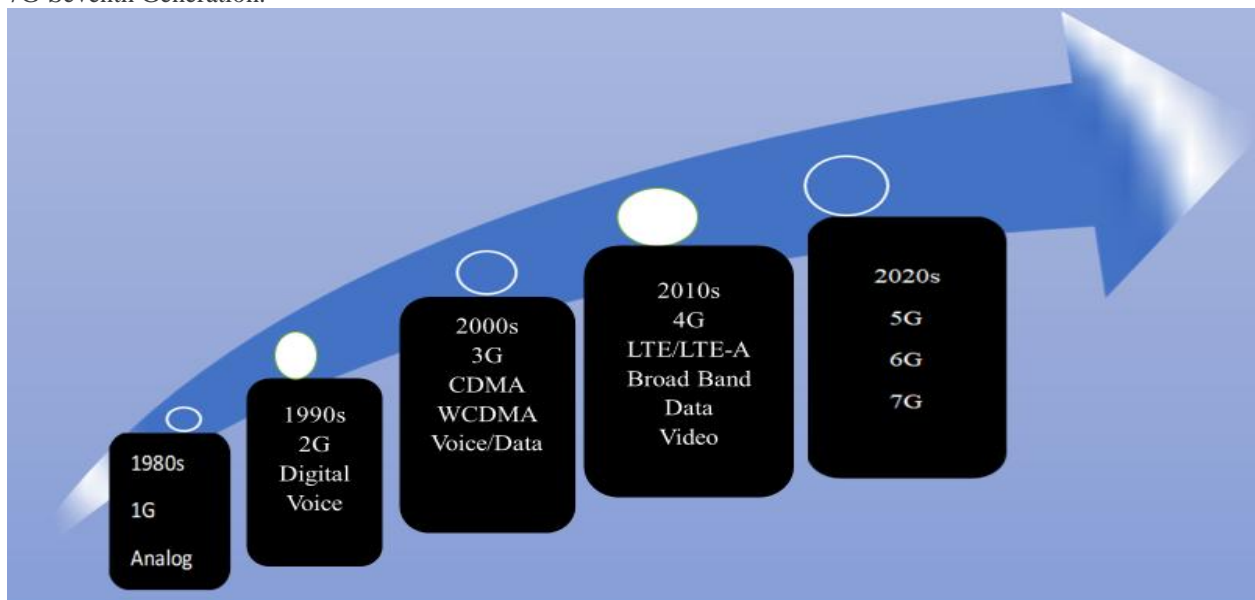

Fig. 2 Evolution of Mobile Networks

Unlike previous generations (1G to 4G) of mobile networks, the fifth generation (5G) technology will transform the role that telecommunications technology plays in contemporary society. It should be noted that 5G will aim to provide 20 times the peak data rate (speed), 10 times lower latency (responsiveness) and 3 times more spectral efficiency than 4G long term evolution (LTE). The development and deployment of 5G will spur innovation, enable cutting - edge technological advancements bringing the benefits of connectivity globally.

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5G network is expected, by 2020, to support 50 billion connected devices and 212 billion connected sensors ranging from smartphones and tablets to smartwatches, cars, machinery, appliances, and remote monitoring devices generating a massive amount of "useful data" that can be analyzed. Researchers estimate that the 5G connected ecosystem will utilize a higher percentage of digital data (35%) than before (5%). The 5G wireless communication services will transform the way people live, work, travel, and play and will dramatically reduce costs per gigabit per second of service. 5G will unleash new ideas and applications in areas like mobile virtual reality, supercharging the Internet of Things.

The following are five mobile industry goals in the 5G era, as shown in figure 3:
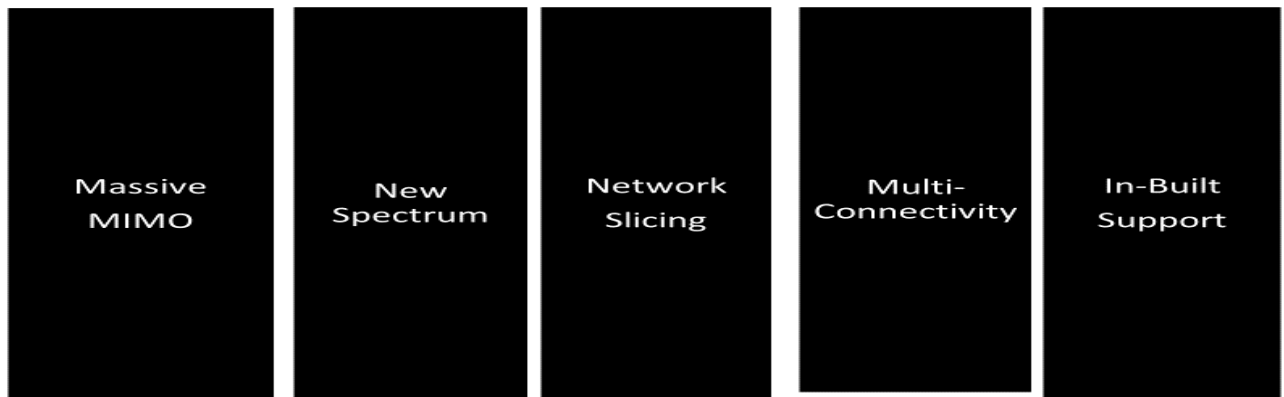• Boundless connectivity
• Innovation networks with optimal economics
• The digital transformation of industry verticals
• Transform the mobile broadband experience
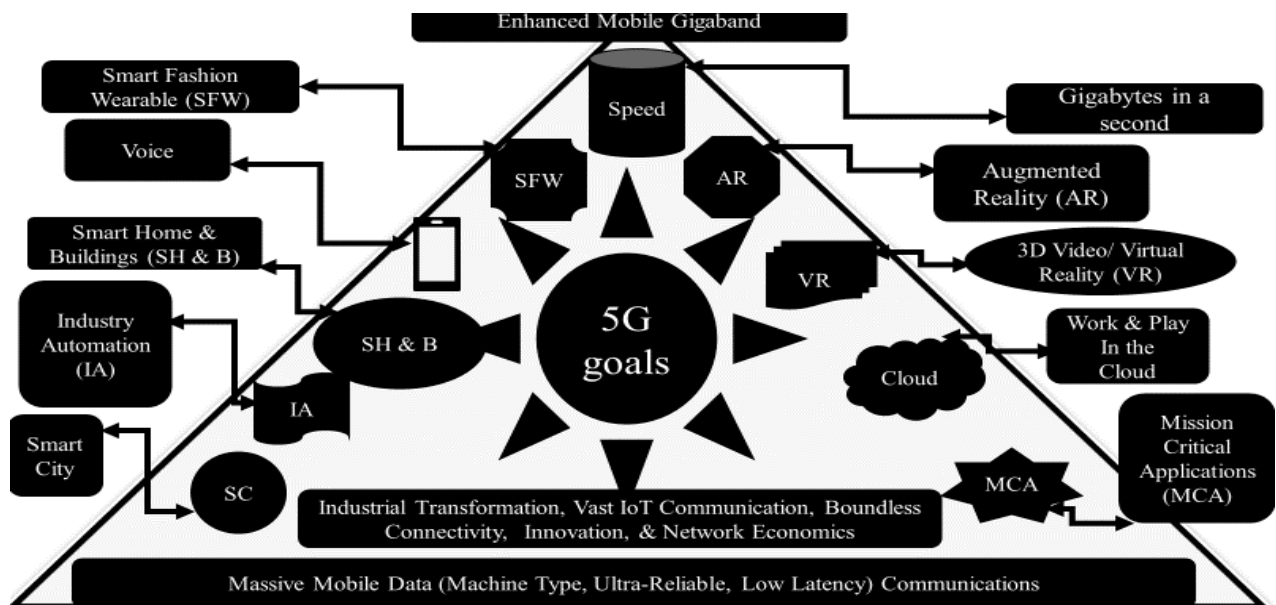
Fig.3 Five goals of 5G Era

The 5G technology primary components are the following, as shown in figure 4:

(i)   New spectrum - The very high data rates of up to 20 Gbps require bandwidth up to 1-2 GHz.

(ii)   Control channels beamforming can increase the spectral efficiency and network coverage substantially.

(iii)   Network slicing - The physical and protocol layers in 5G need a flexible design to support the different use cases, vertical segments, and different frequency bands and to maximize energy and spectral efficiency. Network slicing will create virtual network segments for the different use cases within the same 5G network.

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Massive MIMO	New Spectrum	Network Slicing	Multi-Connectivity	In-Built Support

Fig 4. 5G Primary components

(iv)   Multi-connectivity - 5G can be deployed as a standalone system and the 5G device can be connected simultaneously to both 5G and LTE, offering a higher user data rate and a more reliable connection.

(v)   In-built support for cloud implementation and edge computing. The current architecture in LTE networks is fully distributed in the radio and fully centralized in the core network. The demand for low latency in 5G requires the content to be brought closer to the radio, which necessitates local break out and Multi-Access Edge Computing (MEC). Massive MIMO is part of 5G from the beginning.

There is no doubt that 5G communication technology is an important factor affecting the socio-economic development of worldwide in the future.5G Communication technology development is the key part of China's 2025 plan which has made the country a leader in a range of industries. China is leading the way ahead of the U.S. in the global 5G competition and has built 350,000 new cell sites to support 5G communications. The society of 2025 will be a connected society with intelligent and integrated sensor systems that will change the way people lead their lives. "Smart living" people will require constant and ubiquitous mobile connectivity to the network to upload their activity data and Internet of Things control commands.

The following few pros and cons of 5G technology:
Pros
- Increased bandwidth
- Enhanced speed for data connectivity
- Reduced latency

Cons
- Costly
- More bandwidth means less coverage
- Possible occurrence of radio frequency problems

Pillars of 5G, as shown in figure 5:
(i) Evolution of Radio Access Technologies (RATs): 5G RAT= Enhanced LTE RAT + New RAT. New RATs considered for IoT, mm WAVE, Massive MIMO and for Better Broadband Access? New RAT is also to exploit higher frequency band for 5G. 5G will hardly be a specific RAT, rather it is likely that it will be a collection of RATs including the evolution of the existing ones complemented with novel revolutionary designs. As such, the first and the most economical solution to address the 1000x capacity crunch is the improvement of the existing RATs in terms of SE, EE and latency, as well as supporting flexible RAN sharing among multiple vendor
(ii) Hyperdense small- cell deployment is another promising solution to meet the 1000x capacity crunch, while bringing additional EE to the system as well.

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(iii) Self- Organizing Network (SON) capability is another key component of 5G. As the population of the small cells increases and SON capability to intelligently adapt themselves to the neighboring small cells to minimize inter- cell interference.

(iv) Machine Type Communication (MTC) apart from people, connecting mobile machines is another fundamental aspect of 5G. The machine type communication (MTC) is an emerging application where either one or both end users of the communication session involve machines.

(v) mm-WAVE - The sub- 3 GHz spectrum is increasingly congested. The RATs are approaching Shannon's capacity limit. Hence mm-Wave bands for mobile communications has already started and the results look promising. A vast amount of spectrum is available in the mm-Wave band.

(vi) Backhaul links are the next critical issue of 5G. In parallel to improving the RAN, backhaul links also need to be re-engineered to carry the tremendous amount of user traffic generated in the cells.

(vii)Energy Efficiency (EE) will remain an important design issue of 5G development. To reduce the carbon emissions, it is necessary to pursue energy- efficient design approaches from RAN and backhaul links to the UEs.

(viii)New Spectrum allocation for 5G is a critical issue of 5G is the allocation of new spectrum to fuel wireless communications in the next decade. Besides technology innovations, 10 times more spectrum is needed to meet the demand.

(ix) Spectrum Sharing Regulatory process for new spectrum allocation is often very time-consuming. Innovative spectrum allocation models should be adopted to overcome the existing regulatory limitations.
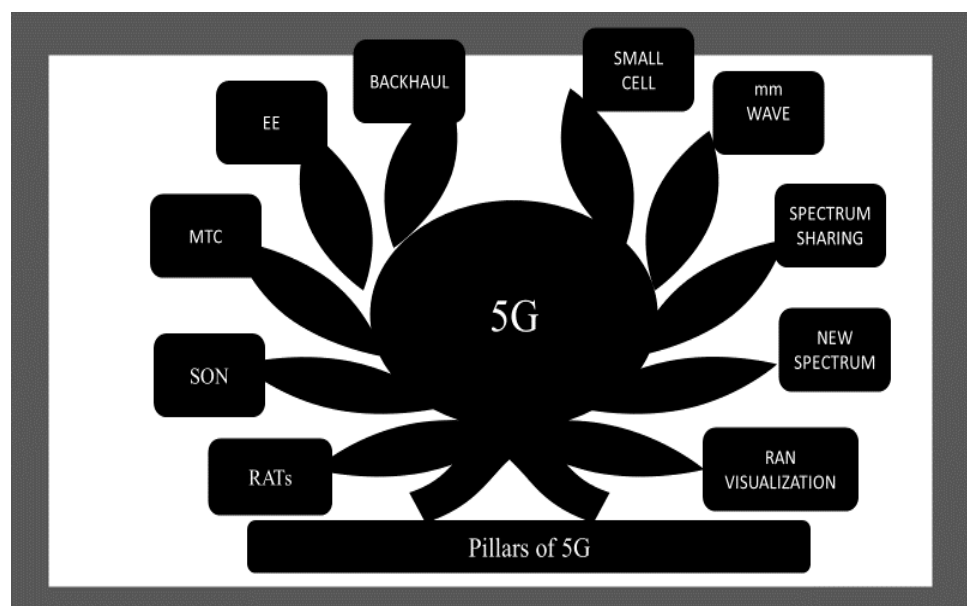
Fig.5 Pillars of 5G

(x) RAN Virtualization is a critical enabler of 5G allowing sharing of wireless infrastructure among multiple operators.

China, EU, Japan, Korea, and the USA are accelerating the introduction of 5G technology in their respective markets. It is expected that by 2025, China will be covering 40 percent of global 5G networks. Huawei (China) is the only non-Five Eyes company that has gained significant market share in 5G chipset, operating system, and network protocol area, and is poised to be a peer competitor to the United States in leading the 5G revolution.

https://www.cisco.com/c/en/us/solutions/collateral/service-provider/visual-networking-index-vni/white-paper-c11-738429.html,

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https://www.itproportal.com/2015/03/23/uk-government-already-investing-6g-networks-5g-exists/

5G technology benefits & applications
(i)   High Speed, High Capacity with almost no limitations.
(ii)   5G technology providing large broadcasting of data in Gbps.
(iii)   Multi-media newspapers watch T.V programs with clarity ☐ as to that of an HD Quality.
(iv)   Faster data transmission that of the previous generations.
(v)   Large Phone Memory, Dialing Speed,
(vi)   Clarity in Audio/Video. ☐ Support interactive multimedia, voice,
(vii)   Streaming video, Internet and other ☐ 5G is More Effective and More Attractive
(viii)   Able to charge your mobile using your own heartbeat.
(ix)   Provides to perceive your grandmother sugar level with your mobile.
(x)   Know the exact time of your childbirth that too In Nanoseconds.
(xi)   Mobile rings according to your mood.
(xii)   Highly supportable to WWWW (Wireless World Wide Web)

5G- the internet of things – connecting everything, as shown in figure 5
A new model for modern Internet usage builds on the latest "Future-Internet" architecture research New networking paradigm:
•Mobility – eliminate the need for special mobility overlays
 •Security – guarantee the integrity of every data object
•Storage – dynamic placement of information anywhere in the network.
Companies like OPPO (China) will deliver an integrated supply chain and take advantage of their expertise in order to strengthen technical capacity and benefit from the application of artificial intelligence with the aim of developing a range of smart devices such as smart watches to explore and to meet the growing requirements of consumers in the era of the Internet of Things (IoT), as shown in figure 6. In the future, the quest is to become a company that manufactures smart fashion wearables (smart watches) and smartphones that match with the 5G wireless networks to provide applications to innovate in the 5G era that ultimately determines the value of the networks with the best experiences of the revolutionary quality and growth of the business.
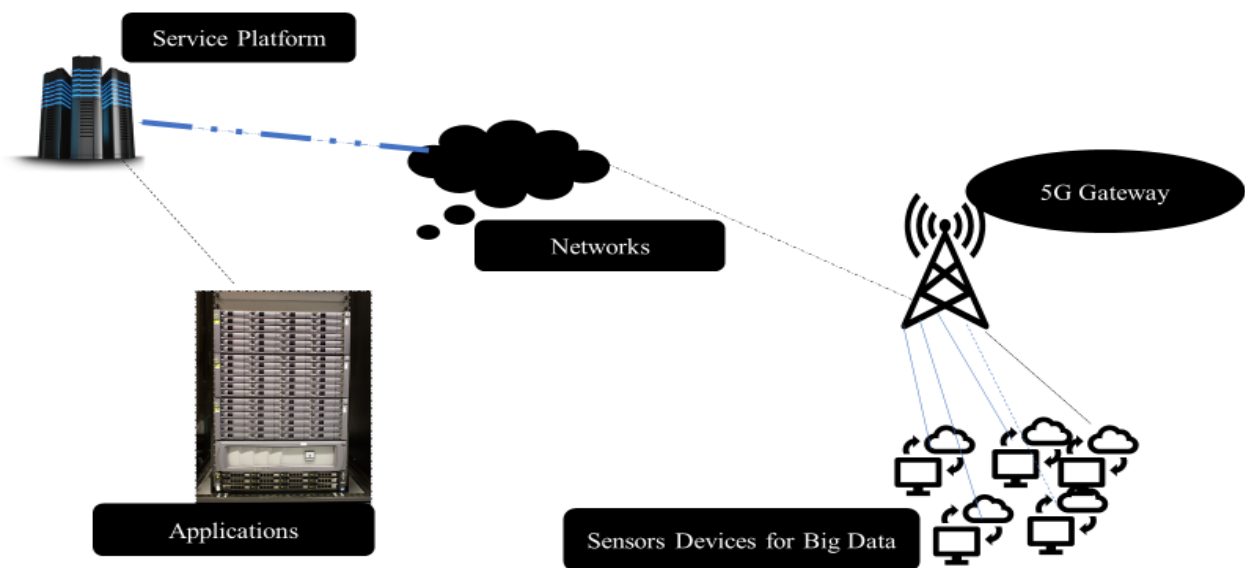
Fig 6. the Role of 5G wireless communications in the development of IoT

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New Data Age: Integration of Artificial Intelligence, and 5G Wireless Communication
5G wireless communication boasts fiber-like data speeds, low latency and the ability to support unlimited data plans that shall fuel new services and technologies such as the Internet of Things (IoT), augmented reality, smart fashion wearables, autonomous vehicles, smart cities and mission critical applications. With 4G wireless networks (100 megabits per second) consumers download a two-hour movie in 6 minutes. 5G wireless will download the 2hour movie in 3.6 seconds delivering at speeds of 10 gigabits per second.

China, EU, Japan, Korea and USA are accelerating the introduction of 5G technology in their respective markets. It is expected that by 2025, China will be covering 40 percent of global 5G networks. Huawei (China) is the only non-Five Eyes company that has gained significant market share in 5G chipset, operating system and network protocol area, and is poised to be a peer competitor to the United States in leading the 5G revolution.The 5G network The 5G network transmits data from car sensors, roadside sensors, and video cameras installed above the road to a local data center, which analyzes the information and sends it back to the vehicles to help them navigate.
https://www.cisco.com/c/en/us/solutions/collateral/service-provider/visual-networking-index-vni/white-paper-c11-738429.html, https://www.itproportal.com/2015/03/23/uk-government-already-investing-6g-networks-5g-exists/

Key concepts of 5G communications are:
 A. Dynamic ad-hoc Wireless Network (DAWN), essentially identical to Mobile ad-hoc network (MANET), Wireless mesh network (WMN) or Wireless grids, combined with smart antennas and flexible modulation.
B. Internet Protocol Version6 (IPv6), where a visiting Care of mobile IP address is assigned according to location and connected network.
C. High altitude stratospheric platform station (HAPS) systems.
D. A real wireless world with no more limitation with access and zone issues.
E. User-centric network concept instead of operator-centric (as in 3G) or service-centric (as in 4G) Worldwide wireless web (WWWW), i.e. comprehensive wireless-based web applications that include full multimedia capability beyond 4G speeds.

5G - ultra-reliable wireless has the potential to profoundly change systems and devices essential:
- short packet transmission
- communication-theoretic attention to the control information
- every step in the protocol needs a careful reliability design
- careful use of diversity
- many steps in real protocols impair reliability and latency
- lean protocol design

Table 1. Basic Features of 5G

Wireless Communication/ Mobile Network Technology	5G
Generation	Fifth
World Wide Web (WWW) Support	Wireless WWW (WWWW)
Architecture	Open Wireless Architecture (OWA)
Speed	Up to 1Giga bits per second (Gbps)
Connectivity Speed	25Mbps
Useable Format	Mobile Internet Packet (IP)
Multiple Mobile and Network Access	Yes
Smart Antenna	Yes
Applications	Futuristic – 3D Internet, Network Virtual Reality
Remote Management & Diagnostics	Yes
Encryption	Yes (Flexible and Anti-Virus)
Memory Capacity	Large
Clarity/Quality (Audio & Video)	Yes

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Promise of 5G: Data Analytics and Artificial Intelligence

Trusted data analytics offer advantages for almost every business and industry. The opportunity to mine data will grow as digital infrastructure becomes more powerful and will help to get the information needed to make informed decisions. To assess data in real time will enable quick learning on various applications and the use of this information will uncover "actionable insights," in real time. Machine learning (ML) is a valuable aspect of the emerging landscape. Artificial intelligence helps make sense of complex databases. Example: Medical records combine structured data such as heart rates, blood pressure readings, and vital signs with unstructured text that needs to be analyzed via natural language processing (NLP) and machine learning (ML) can"analyze unstructured data and keep the context" and provide "far-reaching implications for health care. Wearable devices are helpful in treatment and heart attack victims can receive assistance with smartphones or wearable devices such as smart watches.

There is an enormous opportunity for data analytics in almost every industry. Example: Health information is complex and varied. With big data analytics endowed by 5G wireless communication technology researchers will be able to garner more insight as to the drugs taken by patients. With the 5G system, we will see systems that are closer to the edge and an opportunity to have more intelligence to determine what information to send back and when to send it. In a world of connected devices, a 5G system will allow us to move from algorithms based on static information to those that can be optimized in real-time using data from the user.

Mobile edge quantum computing or networks are essential to deliver on the 5G promises to provide the potential benefits of data analytics to support data collection and distributed processing.The author contends "big data" as a broad topic is something of an understatement.

Telephone companies tend to look at data analytics (improving service offers), network data (improving network operations) and the vast amounts of sensor-based and IoT data likely to operate over their networks. From various industry perspective, myriad data sources are collected and analyzed in support of myriad benefits. Prior to starting data analytics in 5G, for example, it's essential to frame the following conversation with a description of analytics:

(i) Enhanced Mobile Broadband rather than just delivering giga bandwidth, it is all about delivering enhanced experiences. Data analytics plays the role of identifying the bandwidth required to deliver that experience, based on application or customer profiles.

(ii) Vast Internet of Things (IoTs) - a key difference between IoT and machine-to-machine (M2M) usage is the role of data. M2M is all about connecting and transactions between things. IoT is all about connectivity in the name of control and/or capturing data to analyze things. 5G wireless communication support massive connectivity across diverse devices to gain insights from data in real-time.

(iii) Critical Communications use cases to generate data requirements on when and where the analysis takes place constrained by bandwidth. Mobile edge computing is based on local analytics or the latency improvements promised by 5G interface, making possible the real-time and automated intelligence that can seamlessly propagate from the cloud to a plethora of end points.

China Mobile has been paying attention to artificial intelligence(AI) making effort to build an open and collaborative 5G+AI ecosystem of big data and machine learning technologies to enhance the intelligence of 5G network, reduce the complexity, and explore the new capabilities of network to help customers unlock the potential within their 5G networks using open interfaces and toolkits. The use of AI and machine learning will enable myriad new services opportunities and leverage the capabilities of our 5G architecture to support China Mobile's AI research to optimize future networks and the delivery of many innovative new services.

5G standard that is already defined promises to revolutionize wireless communications remotely. Companies like *Intel, Samsung, Nokia, and Qualcomm*, recently moving through the integration of two of the technologies

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(5G and AI) that come treading morestrongly. Taking advantage of its experience in the telecommunications sector, Nokia has presented its next generation of connectivity chips "Reef Shark" a clear competitive advantage with combination of power, intelligence, and efficiency make it ideal to be at the heart of 5G networks not only promise to meet the 5G standards but also offer smaller size, lower manufacturing cost and, therefore, sale and also reduced consumption during its operations. "Reef Sharks", the new radio frequency chips from Nokia also improve the performance of the radio to cover longer territories.Apple and Huawei, Qualcomm, Samsung and Nokia already implementing artificial intelligence in the mobile processors, semiconductors.The AI of the Reef Shark will be put to work in tasks of monitoring and optimization of the radio in real time to operate in the different layers of the 5G network to monitor and optimize the network to offer service to the different actors connected to their networks, from cars connected to smartphones or IoT devices.
https://www.gismotrends.com/nokia/2018/01/30/nokia-artificial-intelligence-5g-reefshark/

Blockchain
The blockchain considered one of the most important financial services innovations of the twenty-first century. This technology is not employed by fashion companies yet is the blockchain and could be used by every brand accessible to any retailer, editor or consumer, feeding new digital tools that would massively democratize the curation of fashion. In a connected supply chain, there is information available across the entire value chain. RFID tag inventory provides opportunities for instant traceability, improved inventory management, and automated recycling. A connected supply chain creates digital information, where analytics can be used to establish circular insights. Automated sorting of clothing enables more efficient recycling and reduces waste. Improved logistics, inventory management, and planning of collections contributing to less waste, and greenhouse gas emissions. Also enables transparency and instant tracking of material sources.

Blockchain, ICT, and IoT create opportunities for an end-to-end connected and transparent fashion supply chain. With distributed database protocols, blockchain enables a complete audit trail throughout the entire fashion value chain. IoT enables connected clothes across the very same value chain. Until now, manual intervention is required to recycle apparel.

The combination of the two technologies (AI & BC) has the potential to use data in ways never thought before. Data is a vital ingredient for the development and enhancement of AI algorithms. Blockchain secures this data and allows to audit. AI takes to draw conclusions from the data and allows individuals to monetize. AI is incredibly revolutionary. It must be designed with the utmost precautions. Blockchain can greatly assist in the design endeavor. The author contends that the interplay between the two technologies has the potential for true disruption. The following ways in which AI and blockchain are made for each other: (i) Artificial Intelligence (AI) and encryption work very well together (ii) Blockchain can help to track, understand and explain decisions made by Artificial Intelligence. (iii) Artificial Intelligence (AI) can manage blockchains more efficiently than humans, (iv) better security, (v) open market for data.

Blockchain could have widespread ramifications across the insurance value chain, increasing market reach and customer personalization while also cutting costs in these ways:
Insurance products, pricing, and distribution may be wildly altered as blockchain proliferation and its associated smart contracts spawn new products, like parametric insurance and insurance implanted in transactional purchases, and realize efficiencies in the insurance process, thereby lowering prices and allowing for broader reach into emerging markets.

The blockchain may end up being considered one of the most important financial services innovations of the twenty-first century. But what exactly is a blockchain and why does this technology seem to have such extraordinary capabilities —lending it to seemingly limitless opportunities? This paper aims to illuminate just that by explaining the blockchain's significance and implications for the insurance industry, as well as outlining the rich and fascinating history behind it.

The blockchain is significant in that it combines a distributed database and decentralized ledger, completely removing the need for verification by a central authority. For example, through its underlying blockchain technology, bitcoin solved the double-spending problem, which stymied digital currencies before it. It also

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reinvented the concept of monetary networks by providing a true peer-to-peer payment system and eliminating the need for intermediary banks, including central banks.

Many companies already dabbling in blockchain technology, the author outlines the following real-world applications across a wide variety of industries: (i) Banking, (ii) Fashion, (iii) Smart Contracts, (iv) Connected Car, (v) Healthcare, (vi) Internet of Things, , (vii) Identity, (viii) Marriage and Divorce Certificates, (ix) Insurance, (x) Wills, (xi) Food Safety

The list below highlights just the far-reaching blockchain applications for various industries:
(a)The American Institute of CPAs, Deloitte, Ernst & Young, KPMG, and PwC consortia triple-entry accounting on the blockchain.
(b)   Banking R3 (a consortium of more than 70 major banks) synchronizes financial agreements among members using BC
(c)   Cybersecurity companies using blockchains to fight cyber-attacks.
(d)   Sony Global Education recording students' results on the blockchain.
(e)   Energy LO3 energy trade using blockchain. \
(f)   Finance—stocks Nasdaq Opening blockchain services to global exchange partners.
(g)   Japanese government sends blockchain start-ups abroad as part of an innovation program.
(h)   Mass media entertainment Disney develops its own blockchain
(i)   Money transfers SWIFT testing blockchain technology.
(j)   Social media companies use blockchain to create new social media network that pays for content.
(k)   Microsoft Azure develops first sports blockchain.
(l)   Walmart tests supply chain management using blockchain.

Integrant branding (IB)
A brand is the set of expectations, memories, stories, and relationships cumulatively account for a consumer's decision to select one product or service over another and the meaning the customer attaches to a product or service based on perception. perceives. The following are the building blocks of a brand:
1. Founders belief. - Vision, Mission, Values.
2. Voice - The words and tone one use to communicate the message. Tone at the top matters.
3. How one acts.
4. How consumers feel (user experience)
5. Image - Logo, design choices, colors, etc.

Branding is about facilitating the creation of meaning for the customers. Brand equity is the holy grail of branding. The objective of a branding team is to increase the brand equity of an organization. Brand equity and brand value measure how much a brand is worth. Brand value refers to the financial asset that the company records on its balance sheet. Brand equity refers to the importance of the brand to a customer of the company. Brand equity is a multidimensional concept that allows consumers to evaluate a brand and determine its perceived benefits. Nike has successfully created a strong brand by fulfilling the pillars of brand equity, which includes brand loyalty, brand awareness, brand associations, and perceived quality.

IB is a marketing strategy where a component of the business is branded as a separate entity. This helps to add more value to the parent company and make their product/service seem superior to its competitors. Various marketing strategies are employed to increase the value and name recognition of a brand. The digital marketing strategies, such as consumer and community engagement, pricing and promotional marketing are key strategies for getting a business name in the spotlight generating advantages with new leads and customers for increasing brand recognition and brand value. Such a marketing strategy, the author has coined the term "Ingredient Branding." Example: Nike - In July 2014 Nike began to raise its prices on sneakers while the rest of the market was dropping them. Nike took a new approach to its pricing model, using a consumer value model. Since Nike offers a substantial consumer value proposition, its strength is in the brand and innovation. Based on the brand value, and consumer value equation, Nike was able to single-handedly drive growth in the U.S. sneaker market, helping the company to carve out a new "value-added" competitive advantage against its competitors. NIKE is

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credited with the conception of integrant branding back in 2014 and was the first success story of having an ingredient helping to promote their business.

There are various marketing strategies including traditional promotional marketing (commercials, billboards, tradeshows, events) strategies to execute to increase the value and name recognition of a brand. The digital marketing strategies, such as contests/giveaways, community engagement, and social media advertising, also create the value of a brand and prudent strategy for getting a brand name in the spotlight. If an enterprise has been established for a while with name recognition, then it has some potential advantages potential to increase business value and brand recognition. One of these advantages is a marketing strategy called integrant branding. Hence, the author defines integrant branding is a marketing strategy where an element of the business is branded as a separate entity making the product/service superior to its competitors enabling to add more value to the brand. Integrant Branding and commodities Integrant branding are a fundamental point of differentiation for commodity products or services.

Example of "Intel Inside" is shown in figure 7 is credited with the conception of integrant branding during the 1990s and was the first success story of having an integrant helping to promote Intel's business. Intel owes its corporate success to their "Intel Inside" campaign. In the early '80s however, when they created the ingredient branding concept, it seemed like a gamble. At the time they had a mere $500 million in sales, and yet they invested $110 million in their ingredient branding campaign over a period of three years and drove their concept and the business forward.

Intel Inside
During Intel's marketing of "Intel Inside" they taught consumers to look for the Intel Inside logo as an assurance of quality. Consumers eventually came to see "Intel Inside" as a standard and began asking the question: "Why doesn't your product use Intel processors?" This standard became so important that today it is one of the world's largest co-operative marketing programs, where hundreds of computer companies license the use of the Intel Inside® logos.

Fig. 7 "Intel Inside" credited with the conception of Integrant Branding

    (i)   Oreo is a very popular cookie sometimes used as an integrant in other products, like cookies and cream ice cream, McDonald's McFlurries.

    (ii)   Arm & Hammer is a popular integrant brand. Products like cat litter, toothpaste contain Arm & Hammer baking soda

    (iii)   Splenda Sweetener is another integrant brand that consumers commonly see promoted among other products.

    (iv)

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If a venture isn't prominent enough to be branded as an integrant, perhaps the business can benefit from including an integrant in its product or service. By executing a well-known integrant in the business model, a company can promise a level of quality that is already well-known to consumers. Example of an integrant in the digital marketing is social media scheduling tool Buffer. Many SaaS (Intelligent cloud) companies in the digital marketing offer Buffer integration with their service because they know how popular Buffer is. Offering a popular integrant in a product or service is a great way to promote product or service to consumers who already use that integrant in other products. Integrant branding is a great way to provide additional value and marketability to a brand. When a product or service willing to compromise its own brand building to add the integrant brand on the package as well as in social media advertising?

The following are the conditions:
- The integrant provides decidedly differentiated supported by intellectual property protection adding an aura of quality to the overall product.
- The integrant should be central to the functional performance of the final product like Monsanto's NutraSweet, added to Equal sweetener.
- The product is not well-branded itself because there is low perceived differentiation like Dupont's integrant brands for clothing, from Rayon through Lycra.
- The product is complex, assembled from components supplied by multiple manufacturers who may sell the "integrant" separately in an aftermarket like Michelin tires, and Champion spark plugs.

Nike's name and logo carry an inspirational connotation. The brand takes even further with its promotional (digital) marketing strategies through social media advertising, giveaways/gifts and sports community engagement, as shown in figure 8. The 'Just Do It' campaign was launched in 1988. The campaign has a serious but motivational approach to sports, giving it universal appeal.

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Fig. 8Integrant Branding through Social Media, Endorsements & Stakeholder Engagement

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METHODOLOGY

In this study, the research methodology [6] includes the following:

1. Exhaustive literature review focuses on the following:

   (a) explores various terms broadly and the search keywords include explanation sections mentioned above: (i)introduction, (ii)research background that includes the perspective on the "Integrant Technologies" (Intelligent Cloud, 5G, BC) and "Integrant Branding".

   (b) Nine principal constituents that are co-related to each other to drive brand value creation (BVC) , as shown in figure 9 : (i)integrant technology (IT), (ii)eco system & efficiency (ESE), (iii)technology & innovation (TI), (iv) resource integration (RI), (v) technology& branding (T&D), (vi)sustainable competitive advantage (SCA), (vii)customer based brand value (CBBV), (viii)brand value determination (BVD), and (ix)brand value creation (BVC)& sustainability.

Integrant Technology (IT)

Recent years the development of strategies in which new integrant, technologies, and designs are used in branded end products. Defining such products as integrant-branded, this study explains the processes and effects of integrant branding strategies. By organizing the key integrant branded (IB) feature, the author classifies them into IB categories functionality, manufacturing, processing, packaging and analysis on various types of intellectual property related to ingredient-branded products. IBs based on integrant technologies have been popular approaches with new packaging designs such as Nike and Intel products. In technology domain, Intel, perhaps the best-known VLSI chips and processor makers found in devices from Hewlett Packard (HP), Dell, Lenovo, Acer, and others, rarely get recognition for the key role in powering other companies' technologies. However, by integrating its brand into events such as Olympics, and in conjunction with a honing focus on emerging technology areas like virtual reality and drones, Intel has amplified its brand voice to attract more customers, specifically millennials and businesses globally.

Eco-system & efficiency (ESE)

For the integrant market ecosystems, human emotion factors become an integral part of the creation and design approach in products and a pivotal determinant for the communication of the IB with the stakeholders. Encircling IT ecosystems design thinkingwith design tools are a path to generate systems value creation. The introduction of ecosystems originates from the social sphere in the analysis of the system's organization dynamics and to introduce a system view on value creation. An ecosystem can be explored from a macro-standpoint to generate value creation and new knowledge that continuously implement enhanced points of view. The ecosystem is created by a collaboration between brand ecosystem owners and other stakeholders. If one wants to build real ecosystems, then one needs to focus on: generation of context where intercommunication and consanguinity can quirk. Combining intercommunications with the products and services one provides, in specific moments.

The salient features of ecosystems are: (i) institutions; (ii) value propositions; (iii) resource integration. The two perspectives emphasize the need to interpret ecosystems as: (i) systems composed of people and organization actively engaged in resource integration, and (ii) sharing information through digital technologies producing new social rules to enhance value creation and innovation.Eco – efficiency services is defined as a product – service mix at the World Business Council for Sustainable Development as a higher added value and a lesser environmental impact.

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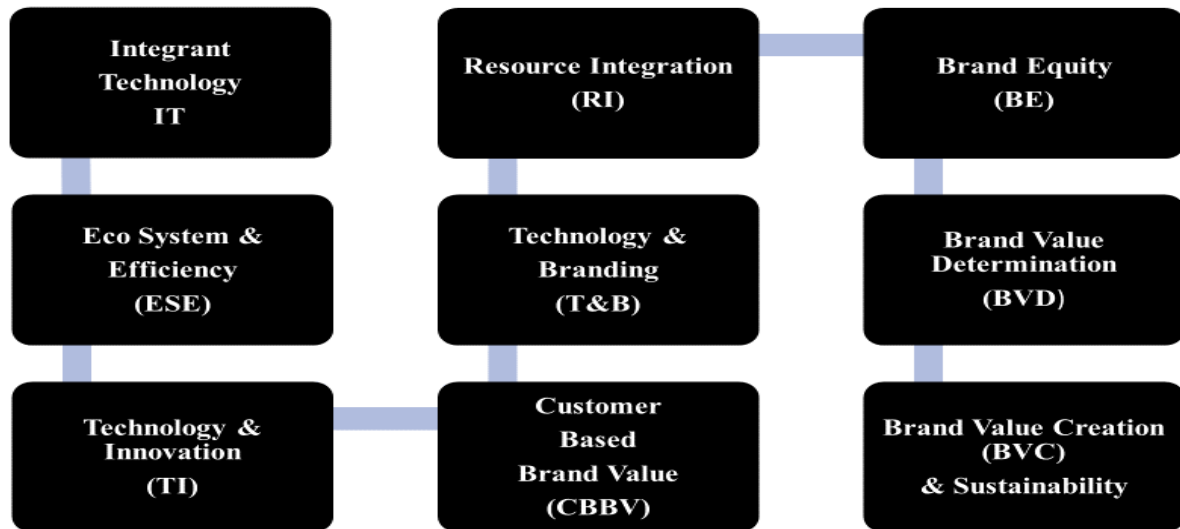
Fig. 9 Correlations of Constituents to attain BVC & Sustainability

Technology & innovation (TI)

Technology is viewed as one of the major dimensions of ecosystems. No 'one thing' is responsible for making a brand become more innovative. Most of the time a combination of vital ingredients delivers innovative thinking and behavior. The following ingredients are essential for continuous innovation:

(i) Learn to celebrate- What one celebrates plays a vital part in defining a company's culture by encouraging stakeholders to explore their passions, specifically give employees the opportunity to showcase their innovative work and celebrate their accomplishments.

(ii) Reframe problems – People need to reflect on problems to open the opportunity space to spring to mind a solution.

(iii) Co-develop with market dynamics - Think about the balance between technical and market development making sure growth should always be at a similar stage for both.

(iv) Flexibility - Can the technology be executed in other ways to produce the product for other useful applications.

Resources sharing highlight the potential role of technology for leveraging knowledge exchange to communicate with stakeholders and promote continual innovation systematically.

Resource integration (RI)

Various institutions play a vital role in resource integration between technology and organizations for encouraging value creation. The resources exchanged between brand owners and stakeholders can be divided into operand and operant resources. Stakeholders information exchange are not just about comments, criticisms or suggestions on a brand experience but also an exchange of information concerning the differences between diverse cultures and the acquisition and learning of new practices. The relevance of resources integration, specifically the role of experience in the exchange of operand and operant resources occur in all the phases of the brand operational journey. By confirming the relationship between value creation and sustainability, the mechanisms of resources integration bring advantages in terms of (i) economic advantage to brands, (ii) enhancing social well-being of stakeholders; and (iii) environmental benefits.

Technology & Branding

New technological developments are transforming and changing all aspects of the business. From AI to how new advancements on the Internet, social media and smartphones modifying the sensitive relationship between customer and brands. Many of the brands from various sectors do care about sustaining a good brand image mostly through social media instead of direct contact with customers. That gives a clue about their marketing strategy. A company should really focus on communicating with their customers and

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provide them the best experience possible and, provide them experience through technology. The branding and advertising industry are affected by the influence of technology. Competition to position a brand in the customer's mindset is getting tougher. The integrant technology age is promoting the way brands, customers and technology interact. The brand must follow technological trends to produce and present exciting content to augment its identity. The technology employed by a company for branding is just as important as the brand name itself. Using cutting edge technology such as intelligent cloud, 5G wireless communications, blockchain can help a brand stand out and can help a relationship with customers.

Sustainable competitive advantage (SCA)

Customer care and trendsetting is at the core of the sustainable competitive advantage. Maintaining quality is also one of the fundamental differentiations to attain sustainable competitive advantage (SCA). No brand alone can fully satisfy stakeholder needs. Sustainable value creation is a way of managing and calibrating sustainability performance. So, the ecosystems can be the creation of technology promoted experiences for improving competitiveness to acquire a sustainable competitive advantage.

Customer-based brand value (CBBV)

Branding is important in retailing. A successful brand, like Nike, can capture the market share and maintain a positive relationship with its customers creating product differentiation from the competitors. It takes the following to create customer brand value:
• Sustaining vision while integrating stakeholders in all aspects of value chain and operations.
• Communication with stakeholders that integrates technology, platforms, images, and words to connect humans across geographical divides.

Brand equity (BE)

The value of a brand name generating more revenue simply from brand recognition can be described as brand equity. Research literature shows brand equity has been studied from two different perspectives: information economics and cognitive psychology and information economics. As per information economics, a brand name works as a credible signal of quality generating price premiums. According to cognitive psychology, brand equity is a consumer's awareness of brand features and associations driving perception. The author contends that brands are one of the most valuable assets a company and brand equity can increase the financial value of a brand. Elements included in the valuation of brand equity: consumer recognition of logos such as Nike, profit margins, changing market share and consumers' perceptions of quality.

Brand value determination (BVD)

The topic of "brand value determination" is an important topic between financiers, marketers, entrepreneurs, and executives of a brand. Intangible assets (copyrights, patents, trademarks, and customers) play a fundamental role in brand value determination. There are several ways to determine the value of a brand. It is paramount to engage stakeholders through online and offline experiences. Alliances can enhance build and enhance brand value. Companies those who are brand-centric have greater brand success enabling higher value determination. Brand economics uses an "economic value added (EVA)" framework to determine brand value. Also, the "Young & Rubicam Inc.'s brand asset valuator (BAV®) can be used to value determination. Both EVA and BAV sometimes is used to compare the brand value determination(https://www.yr.com).

Brand value creation (BVC) & Sustainability

Brand value creation (BVC) starts when the company targets customers through a marketing program to develop the brand. Brand value is a vital performance metric. Value creation underpins marketing and brand management. In a super-charged digital-techno environment such as intelligent cloud, 5G, blockchain, the concept of value creation tends to fen by the glory of the innovation, the designer, the algorithm, and the device. BVC means creating a brand promise of a relevant, trustworthy, differentiated, and valued experience that is delivered unceasingly in a consistent manner. Creating and delivering a trustworthy value proposition is the source of brand value creation (BVC).

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Sustainability is not an asset that can be bought and sold, but a philosophy of doing business. Brand practices influence business value, so do sustainability initiatives. Hence, the question is: How does a brand create value? Moral motivations to invest in sustainability are not in dispute. There are some direct benefits, such as cost savings derived from the optimization of production lines and supply chains to reduce energy consumption; desire for ethical products for customers. Executing sustainability as a practice will not only increase firms' brand value but may guarantee a long life for the business.

Case Study – Nike, Inc – The world's most valuable brand in the footware/apparel industry.
Nike, Inc an American corporation, headquartered in Beaverton, Oregon (USA) – the world's most valuable brand, engaged in the design, development, manufacturing, and worldwide marketing and sales of footwear, apparel, accessories, and services. The company was founded on 25th Jan 1964, as BlueRibbon Sports, and officially became Nike, Inc. on 30th May 1971 and takes its name from Nike - the Greek goddess of victory. Nike's swoosh logo, as shown in figure10, stepped on the scene in 1971. Research shows that brands with an "exotic" letter, such as K, tended to be more successful. Therefore, Nike and the swoosh logo came together and are inseparable with the highly recognized trademarks of "Just Do It" and the Swoosh logo making Nike a paragon. Nike's mission: To bring inspiration and innovation to every athlete in the world. The Swoosh in Niketown is considered a heroic symbol; it defines honor, courage, athleticism, victory, teamwork, and all other aspects correlated with sports. When it comes to brand visibility, no one does it better than Nike
https://sportsmanagement.adelphi.edu/blog/nike-brand-value/

Fig. 10 Nike's Swoosh Logo

Nike is facing competition from Adidas, Under Armour, Lululemon & New Balance and led to innovation rush. Thus, innovation and competition have both led to success for Nike's products. Its most successful shoe launch (in 2016) was for the Space Jam XI which retailed for US$220. Professional athletes love Nike products and millennials value of exercise for health to stay fit. Although the brand has had its challenges, it has proven to be a solid business that can attract and retain consumers.

Nike's free cash flow has been an upward trend growing at an annual rate of 6% for the last decade, and revenues and net income have been consistently growing for the last decade also confirming Nike's reinvestment earnings to drive growth. The following outlines Nike's competitive advantages:
1.	Branding - The valuable (intangible) assets of Nike is its brand and the current brand value is estimated to be US$32 Billion (Approx.)
2.	Bargaining power - Nike contracts the manufacturing of its products in Asia enabling the company good bargaining power and provides leverage to Nike to attain 45% gross margin.
3.	Pricing power - Nike charges a premium for its products because of its celebrity/sports star endorsements.

One of the marketing mixes of the four "P's" is the price. In July 2014 Nike started to raise its prices on sneakers while the other competitors were lowering the price. Nike took a new aggressive approach to the pricing model based on consumer value and offered a substantial consumer value proposition. Nike was able to grow in the sneaker market, driving the company to position a new "value-added" competitive advantage based on the brand value and consumer value equation. Raising sneaker prices increased the consumer's perception appealing as a "premium product" and viewed as a technologically innovative company. Value-added equation model is viewed as "Cool" and the "cool factor" allows to raise prices and consumers willing to pay more for the next big thing. http://www.just-style.com/analysis/new-pricing-strategy-pays-off-for-nike_id122400.aspx

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Nike's global position brand value is in 16th place.
Nike is the top-ranked footwear/apparel brand.
Twenty top brands in the world.

- 258th in Sales Revenue
- 132nd in Profits
- 88th overall among America's Top Publicly Traded Companies.
- 155th among America's Best Employers.
- Nike is the No.1 spot overall in Forbes' Sports Money Index.

Nike management is targeting a $50 billion revenue goal by 2020.
https://www.forbes.com/sites/prestonpysh/2017/10/21/intrinsic-value-of-nike/#67258f066271
https://expandedramblings.com/index.php/nike-statistics/2/

Revenue, Past 12 Months	$37.28 billion 2018 – 36.4 BILLION
1-Year Revenue Growth	8.5%
Net Income, Past 12 Months	$2.08 billion 392 STORES
1-Year Net Income Growth	(47%)
Total Employees Total Number of Retail Partners	73100 30000

Overall, Nike has done well in 2018 and positioned to do a solid performance in 2019 as well. Financially, the company's revenue has grown from $16 billion to $24 billion over the past five years, and its market share in the retail footwear market has grown from 14 to 19% over the same period. et Nike's market capitalization of $120 billion is based on the following: (i) Nike is one of the most innovative firm, (ii) Nike is well positioned to take advantage of the quickly expanding global "middle class" in countries such as China, India, Brazil, and other East Asian countries and Africa, (iii) the importance of physical activity is gaining. With a shift towards increased physical activity, Nike is perhaps the main benefactor of such a behavioral change, (iv) Nike is on the cutting edge when it comes to the digital transformation of the physical world, (v) Nike has the mindset and nimbleness to expand beyond its own core competency, (vi) Nike's financial balance sheet is healthy, (vii) Nike has differentiated itself from another footwear company to an athletic and fitness lifestyle brand.

Branding is one of the most important aspects to define a company's identity. Nike has created marketing supremacy through celebrity endorsers to represent the brand making the brand more desirable and valuable. Nike's future looks favorable if it can maintain its dominant position in the footwear and sports clothing market.

Nike's brand equity, as shown in figure 11, comprises the following elements: (i) awareness, (ii) associations, (iii) Resonance - loyalty, (iv) Intangible assets, (v) Feelings – sense of achievement, (vi) Performance – high technical performance, (vii) Imagery – symbol of status, (viii) Judgement – Perceived quality

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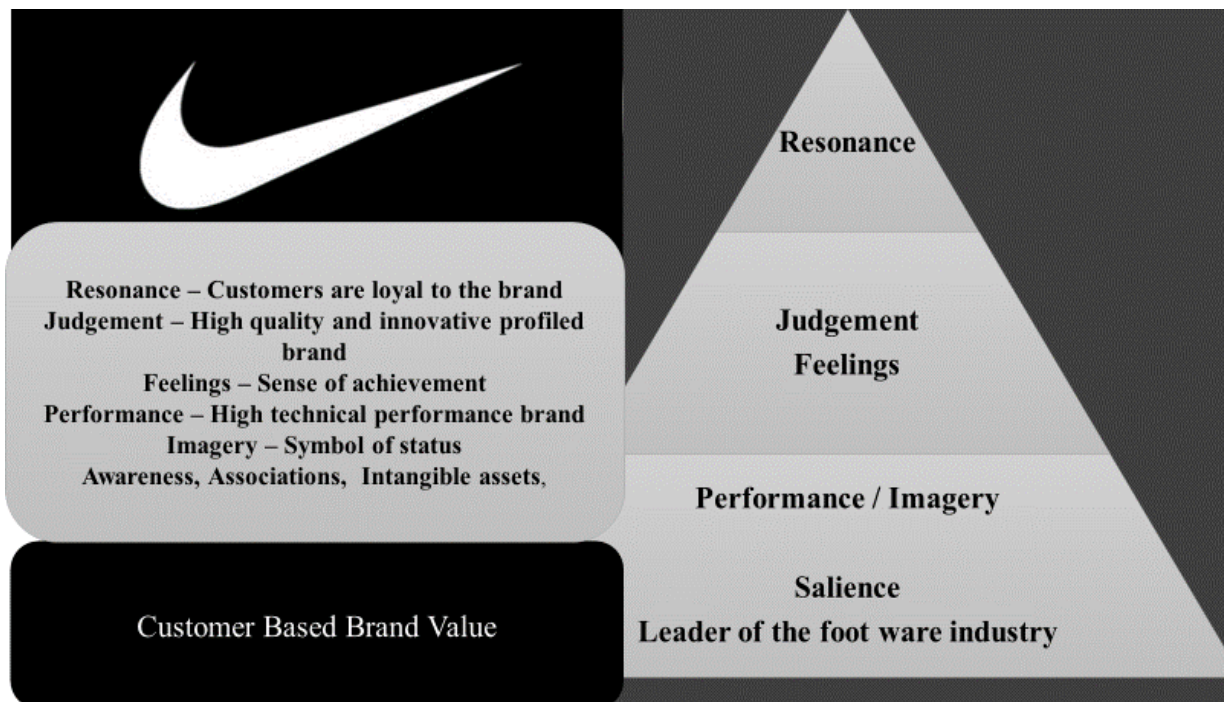
Fig. 11 Application of CBBV model to Nike's Brand Equity

Emerging cutting-edge technology, such as IT, creates new challenges to branding. Internet has become a strong tool through which product information proliferate and consumers have more access to information than ever before. Brands cope with such challenge by exploring new avenues to showcase their products such as sponsorship of sports teams or communityengagement.The development of identity driven by domain, personality, values, assets, reflection and heritage for product and services through marketing strategies is referred to as brand and aphase has arrived where brand become synonymous with product e.g. sporty foot ware- Nike, coffee-Starbucks, donut-Dunkin Donuts, etc. This process is called strategic brand management, as shown in figure 12 in the Nike case.
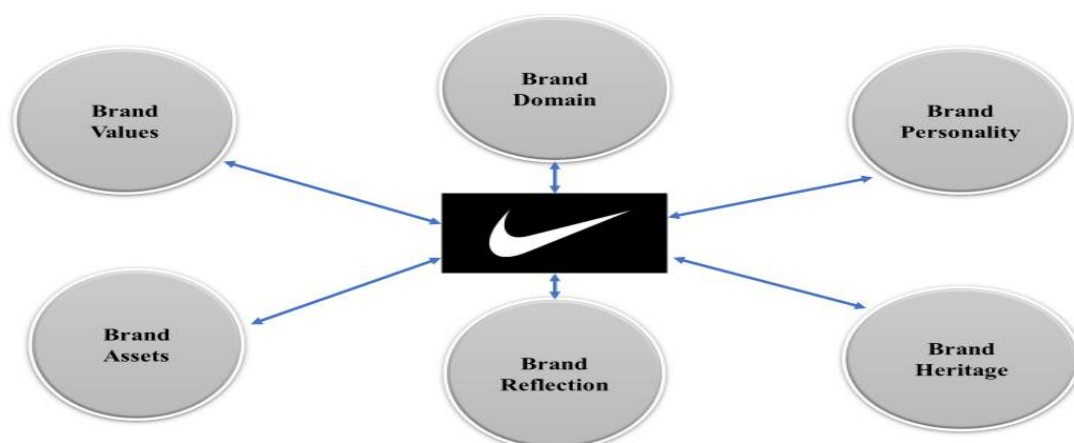
Fig. 12 Nike's Strategic Brand Management

**Nike's "Integrant Technology & "Integrant Branding Strategy:**
Nike has accelerated its digital strategy (as a vital accelerator for the business) to attain $50 billion in sales revenue by fiscal 2020. Nike's e-commerce platform projected to grow by US$6 (billion) in 2020. Nike is

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poised to enter new online markets and launched e-commerce websites for Canada, Switzerland, and Norway, and to include the "sports-obsessed cultures" in Mexico, Turkey and Chile. The digital strategy allows Nike to interact with consumers to meet their specific needs. Nike plus is an ecosystem to offer athletes access to their fitness history, and training programs with their favorite gear. 2016 was a huge year of success for Nike digital. https://www.investors.com/news/nike-is-ramping-up-its-digital-strategy-what-does-that-mean/

Nike's push into software domain comes at just the right time and on the cusp of a possible Fuel Band software on the iWatch could instantly mean millions of new potential customers for Nike through a partnership between with Apple. This is a perfect partnership for users to track their physical activity and monitor their fitness levels. This opens a new revenue stream for Nike. Nike uses "Integrant Technology" such as intelligent cloud to quickly match creative projects with their community of best-fit freelancers. The company is using 3D printing technology for design and large-scale manufacturing. Globally, Nike has approx. 20000 patents and patent applications.

Application of collaborative (IT & IB) model to the Nike'sdigital strategy as shown in figure 13:
Nike's cost savings applying the collaborative (IT & IB) model: minimum 25% (750 Million US$). The following specific benefits, productivity performance and brand value creation through the integrated technology platform with the application of collaborative model:

1. Intelligent Cloud enables designers to develop new catalysts and materials, new wearables (sporty footwear) for Nike offering substantial cost savings, competitive edge to stay ahead of the curve in the market.

2. 5G- internet of things connecting everything Nike can provide a networking paradigm with the following benefits: (a) Mobility – eliminate need for special mobility overlays: (b) Security – guarantee the integrity of every data object (c) Storage – dynamic placement of information anywhere in the network (d) Trusted data analytics.

3. Nike through blockchain, a distributed ledger technology (DLT), can maintain continually growing list of transactions or records called blocks containing a timestamp linking each blockto provide transactions in a fraction of second to attain better financial services innovations streamlining the process to enhance transparency and security.
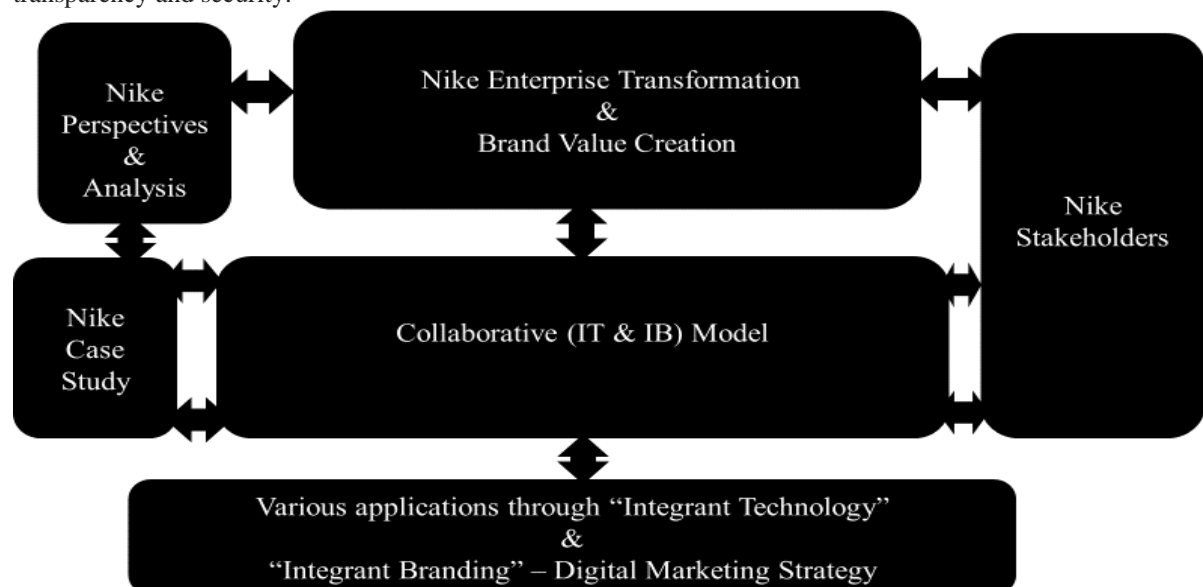
Fig. 13 The Applications of collaborative (IT & IB) model to Nike Digital Strategy

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4. The web development team at Nike chose to get the Jumpman into the cloud for the 20th anniversary of the Air Jordan brand, utilizing Windows Azure - Microsoft's Cloud Platform. Windows Azure is an open and flexible cloud platform that enables you to quickly build, deploy and manage applications across a global network of Microsoft-managed datacenters and supercomputers. Nike is utilizing huge data centers located globally to deliver an online application to users at lightning speeds. Through the innovations of intelligent cloud and globally distributed content delivery, Nike can distribute their innovative applications to Billions of users globally. Nike is focused on elevating and accelerating innovation products, services, and digital ecosystem. Advancements in automation technology may help retailers widen their margins. These personalized online experiences are powered by artificial intelligence (AI). Nike is adopting an "integrated market place" strategy which provides consumers easy access to its products (in the form they want, online and in its stores), integrating the overall shopping experience. Focusing on digital initiatives such as social media marketing and fitness apps, which Nike has already successfully implemented to drive sales in future and becoming a leader in "Integrant Brand". Nike's sustainability program that is consistent with a brand's positioning by creating more value.

TOWARDS A COLLABORATIVE MODEL

Still, to date, the most top leadership team of a firm consider sustainable development as a one-dimensional opportunity. Such a one-dimensional approach provides firms shortcomings to deal with the challenges in a strategic way. The global challenges have ramifications for every aspect of a company's business model and marketing strategy. Hence, brand value creation requires a multi-dimensional approach by firms to achieve optimum performance. The following marketing strategy is essential to strengthen a brand:

1. Work from the inside out.
2. Target brand message precisely.
3. Maintain high standards for design.
4. Give your brand meaning.

Technology is transforming the way brands and customers interact.A brand evokes the ideals and emotions in customers. Using innovative technology, and having a consistent marketing strategy a brand's vision, mission and personality remains intact. The key is to utilize technology to make communication with customers more natural. Social media making brands more personal. The Internet widens the gap between brands who tell stories and build community vs brands who merely push products.Brand equity is the perception customers have of products and services based on what they think of a brand.

In this study, the development of a collaborative model is focused on the brand value creation that involves the collective relationship of integrant technologies, marketing strategy, brands stakeholders and the relevant value chain in a multidimensional opportunity. The building blocks and practices of brand value creation (BVC) framework, as shown in figure 14, are: (i) application of integrant technologies (intelligent cloud (IC), 5G wireless communication, blockchain (BC), (ii) marketing strategy where an element of the business is branded as a separate entity helping to add more value to the company making product/service superior to its competitors, (iii) cooperation between the stakeholders of a brand, (iv) stakeholders' participation in the entire value chain, (v) products, process and services interactive actions with the application of four integrant technology.

Using a case study on Nike brand the author examines the application of integrant technologies on the concept of brand value creation. Such a proposition enables brands to achieve benefits increasing performance, substantial cost savings or to integrate sustainability into their supply chain. For each of the stakeholder, there is a different focus. For example, brand integrators together with suppliers focus on the system integration, synchronization, and convergence of their products, process, and services. Customers and end users add their inputs to receive the functional, emotional and social satisfaction through dialogue with brand providers. All these activities will inevitably be linked to the surrounding society that empowers communities and promotes joint efforts to achieve both economic growth and sustainability.

Based on the discussion above, a collective model is constructed, as shown in figure 14, for the brands to use integrant technologies (such as intelligent cloud, 5G, blockchain), and the model embraces the brand

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stakeholders in which it operates. At the core of the model stands the stakeholders' interactive work to create brand value that is connected and enabled by the integrant technologies. Acollaborative model is presented that connects the challenges to the creation of stakeholder value by the brands such as Nike as a case study mentioned below. This collaborative model can be used as an educational framework and guide for all stakeholders including suppliers, providers, customers, decision makers and other industries who are seeking for brand value creation for sustainable development.
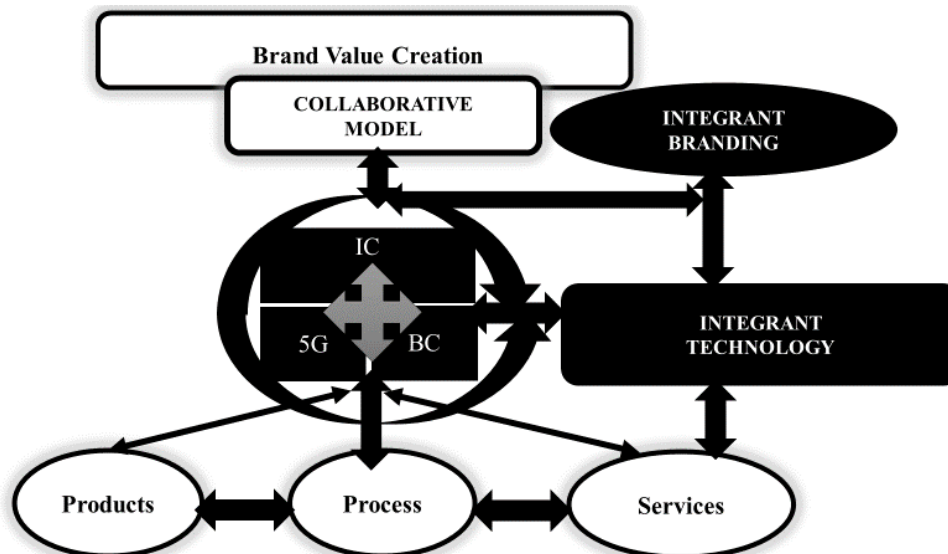
Fig.14 A Collaborative Model Influencing Brand Value Creation

CONTRIBUTION

This research makes several contributions to "Integrant Technologies" management, "Integrant Branding", brand value creation, and sustainability literature. A comprehensive perspective of recent integrant technological developmental endeavors in the field of intelligent cloud, 5G (fifth generation) mobile communication, and blockchain are offered to ensure the futuristiccollective thinkingthat provides applicationsin the years to come.Integrant Technologiesis an emerging perspective in the academic research and contributes worthwhile application insights on specifically in the footwear/apparel industry.A case study on Nike, Inc (the world's most valuable brand in the footware/apparel industry) provides analysis and a perspective on the application of "Integrant Technologies" and "Integrant Branding" creates acceleration inbrand value using the collaborative model. A "holistic and interdisciplinary" approach is presented forthe transformation of value chain making the products/services superior to its competitors and stakeholder satisfaction for sustainability. The relevant insights described in this paper are useful lessons to marketers, brand practitioners, entrepreneurs, technologists, and academia.

CONCLUSION

The objective of this conceptual paper has been to analyze the literature to-dateto conceptualize a collaborative model to understand the applications and benefits of "Ingredient Technology" and a marketing strategy called "Integrant Branding". So far,the current literature does not provide any comprehensive model on the holistic perspective of "Integrant Technology" (IC, 5G, BC) and "Integrant Branding". This new model requires a mix of technical, entrepreneurial, international managerial experience, brand value creation business model, and knowledge to transform an embryonic cutting-edge technology venture or an established enterprise to continually execute innovation to match the market need to attain success.

The intelligent cloud (IC), a combination of cloud computing and artificial intelligence, presents an indispensable opportunity for technology professionals across various industries to explore the endless possibilities of the future. There are tremendous opportunities through 5G wireless communication across a variety of sectors to connect the world in creative ways. The use of mobile devices, sensors, and remote monitoring equipment is going to grow and there will be a dramatic advancement for various applications in

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industries such as fashion, energy, healthcare etc. The big data era of consumer and enterprise technology has emerged as "heralds of the data age" bridging between the data era and the connected era, where integrant technologies like 5G wireless facilitate the growth of always-on low-latency connectivity. When one experience 5G wireless communication, the operating speed will be at the speed of light and will bring intelligent cloud to everyone promising low-cost, low-latency high-speed internet for all in a ubiquitous manner.

In the future, the industry stakeholders need to think the seamless integration of "Integrant Technology" (IC, 5G,&BC) that will give immense benefits with regards to productivity, performance and cost savings with sustainable value creation.

Technology continues to improve significantly enabling companies to continuously review the way to do business. The marketing strategy such as branding is also affected by the influence of technology to position a brand in the customer's mindset. The integrant technology age is promoting the way brands, customers and technology interacts.

Branding has evolved over time and there have been numerous theories to describe the underlying nuances. Brands, like Nike, evolution is driven bottom-up by consumer aspirations. The brand identity gives marketers a vital tool to pay attention to work with a company with regards to evolving marketing strategy. Branding creates loyal stakeholders. A quality brand, like Nike, provides stakeholders to feel that they're a part of something significant and not just a cog in a wheel.

In the traditional market concept of product- process - service oriented economy, value is created inside the firm and consumers outside the firm. However, technical advancements make value creation a synchronic and interactive process. Suppliers and customers are no longer on opposite sides but interact with each other for new business opportunities.The stakeholders of an industry need to understand the importance of the brand value creation (BVC) concept. Empowerment of stakeholders and rise of "Integrant Technologies" need the acceptance of stakeholders' value-creating process.

To sustain the brand, Nike's phenomenal digital marketing strategy adapts to technology. The Nike brand follows technological trends to produce content to augment its identity. Using cutting edge technology, Nike's brand stands out providing a platform for developing and maintaining a relationship with customers to ensure that the brand maintain transparency. A brand conscious organization, like Nike, fuse younger and older talent within its marketing organization exploring the possibilities to vigorously embrace technology to take advantage of a fast-changing array of marketing channels. There have been many big brands that created the logo design, butNikehas redefined itself from just another shoe company. It is an athletic and fitness lifestyle brand that has focused on "Integrant Branding" through social media advertising, and community engagement.The future of "Integrant branding" is a future of change in the digital marketing strategy.

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BIOGRAPHY

Prafulla Kumar Padhi, a serial entrepreneur, has over 42 years of global business experience and held the Founder, CEO and Chairman of the Board positions for more than 25years and managed up to US$1.2 Billion revenue operations. His education qualification includes a Master of Science degree from the prestigious Massachusetts Institute of Technology (MIT), Cambridge, USA and a graduate of the Ivy League Wharton School of Business, University of Pennsylvania (USA) and holds seven diplomas from the Ivy League Columbia University (USA), the Ivy League Dartmouth College (USA), and Kellogg School of Management (USA). For more than 40 years, as a pioneer, Mr. Padhi has been involved in entrepreneurial venture endeavors in disruptive technologies and smart fashion wearable ventures globally. So far, he has done business in 46 countries and travelled to 142 countries. He is an author, independent researcher, teacher, innovator, pioneer, product marketing architect (patent/copyright holder) in the creation, design, marketing disruptive technologies and products.