

# Healthcare in the Era of Digital Convergence

*By Arindam Majumdar and Rajat Bansal*

*Digital convergence promises to re-define  
the way healthcare sector operates today*

Digital transformation over the past decade has resulted in a major overhaul in healthcare industry. Care delivery and system performance are the areas that have best reflected transformation aided by innovation and integration. Today, as digital convergence enables the seamless integration of data, audio and video, the next generation of revolution in healthcare is already setting the stage for a consumer-driven business set up. This paper discusses the need for innovation in healthcare sector as digital convergence promises to usher in a better life for everyone and not just a better lifestyle for the affluent.

Though healthcare sector has seen a lot of progress in the last few years, healthcare solutions are yet to reach the common man in significant terms. Many a times, rapidly booming innovations have been delivered to medical practices in a disorganized and chaotic fashion that defy the very purpose of innovation. Additionally, diffusion of IT into different stakeholders/parties has not achieved the same level of significance. While the payer

has made maximum investment in managing the vast pool of administrative and financial information, the patients and healthcare providers lag far behind.

So what is the most effective way to reach out through innovation in healthcare sector? There are three primary driving forces that can change the way of innovation – consumer focus, technology and new business models [1]. Though technology is the enabler and efficient business models are as much important to ensure a sustainable platform, consumer leads business. It is imperative to engage the consumer to address soaring costs of healthcare – a malaise that has paralyzed the entire sector. In the next stage, knowledge empowered consumers will define the demand for a seamless collaboration and information sharing – quite similar to the way their participation has transformed social media.

The power of today's internet is a small glimpse of what is in store for the future. The real possibility exists in the renaissance of human potential not just in developed countries but across the globe. Convergence

can be a stimulus within the information society ecosystem for creativity, better productivity, economic growth, societal benefit and a wider spread across all stakeholders like business organizations, government and individuals.

### **DIGITAL CONVERGENCE**

Digital convergence is a certainty of future. Among hoards of other benefits that it offers one of the striking features of this technology is lower storage cost of digital data. Also, it offers enhanced quality of digital content and an assurance of quality improvements in future along with low cost and high bandwidth transmission of digital content between any two places.

home will be delivered at the office of her designated medical provider. The providers will then do an intelligent data mining of the patient's health record in a remote database server and send the prescription back to the patient's smart phone (e.g., iPhone, BlackBerry, Google Nexus). Such solutions promise a new age world without the hassles of transport or endless loops of multiple interactions with the medical service providers.

### **ADDRESSING NEEDS OF HEALTHCARE BENEFICIARIES**

When it comes to choosing the right benefit coverage or even basic knowledge of how to

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*More than any other industry, healthcare sector gets to see immediate and tangible benefits of digital convergence as care givers are able to reach out to patients in a faster and better way*

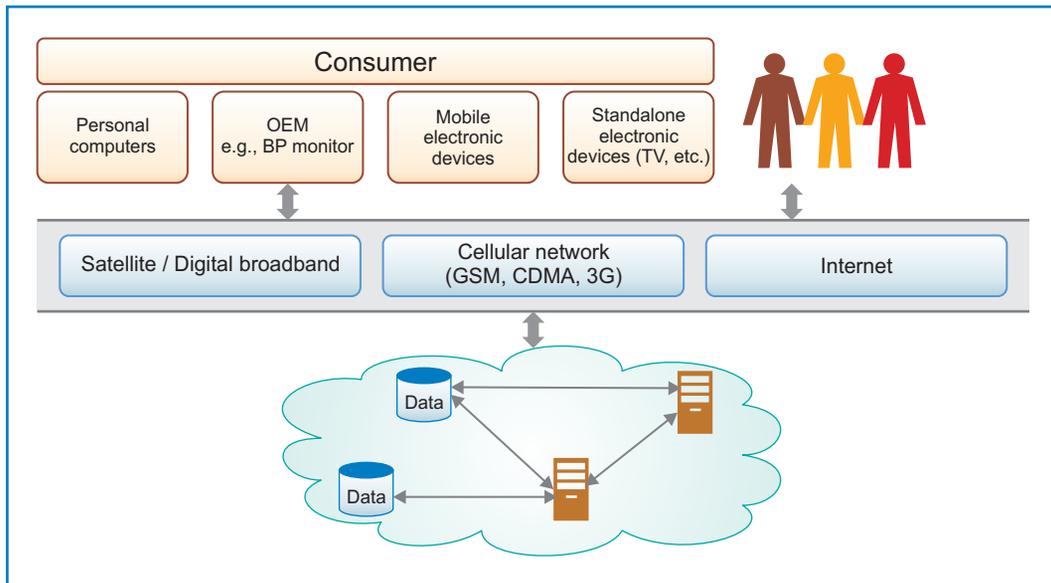
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The information highway in the intensely connected world has been rightly termed as the digital fabric. This has given rise to the ubiquitous growth of real time fast communication [2]. This digital fabric in the era of digital convergence will hold the key to bring the complementary industries together. The meta value of digital convergence is something more than just merging the pieces together – it is to create a better experience at the next level.

Telehealthcare, an envisioned solution will have a far reaching impact on the lives of the common man [2]. For instance, the vital indicators captured by OEM at patient's

take care of personal health, the consumers are often not prepared and give way to ill-informed financial decisions. Much like financial advices that can guide consumers through the intricacies of Wall Street they also need personalized support to make informed decisions to choose the right benefit coverage.

In the age of digital convergence, integrated media will be useful to engage consumers with ample opportunities to strengthen their know-how of healthcare and create awareness about risk, cost and benefits of specific procedures. The current cultural phenomenon of social networking is changing



**Figure 1:** Logical Layers for Digitally Converged Nodes

**Source:** Infosys Research

the way we perceive media. Consumers are becoming more socially active (blogging, chatting, etc.) from a passive couch potato role. Some call this a transition from push to pull selling strategy. This behavioral pattern will help facilitate the right healthcare solutions using a giant network of digitally connected electronic devices, servers and databases. Figure 1 illustrates one such schematic diagram of different components connected in digital convergence network.

Apart from a readily available and customized knowledge base for each individual, the following advantages will be realized.

**Reduced Cost:** The example of reducing transport cost is just one fraction of reduced cost. Prevention of chronic diseases and optimal use of healthcare resources will be easy and prompt when proactive customers and physicians act on real time data. The wellness program will tap into the wide use of interoperable and dynamic communication

materials and ensure a superior consumer engagement. This can address the burgeoning cost of healthcare expenditure that is projected to grow as much as 20 percent of the GDP by 2050 [3].

**Centralized Electronic Medical Record (EMR) Accessible on Demand:** Centralized EMR is at the core of decision making business intelligence process. It will be shared across physicians, hospitals and health concierge services and will not just be limited to cost and risk management programs developed in silos of different health insurers. Integration of cloud computing with a digitally converged network will unleash the power of seamless collaboration in accessing shareable health information. The shareable personal health record (PHR) of patients will lead to more accurate prescriptions.

**Benchmarking with Industrial Best Practices:** A comparative study of doctors and hospitals

will provide enough data based facts and transparency to consumers so that they stay well-informed about industry best practices. This competitiveness will lead to better quality of service and reduce medical errors.

Additionally, innumerable case studies available across the world will be used to build a centralized knowledge database and will be referred by local practitioners. Developing countries and underprivileged people will have access to the information and can create tailor-made best practices.

**Accessibility Redefined:** This will be the defining element of digital convergence as mobility of consumers will not thwart the

According to a McKinsey survey, 90% of the type 2 diabetes cases are linked to poor body mass index (BMI) [3]. The alert mechanism will create dynamic reports about this type of population statistics in general and the projected health related costs for an individual in particular.

### CHALLENGES AHEAD

The road to digital convergence in healthcare industry is relatively new and has been explored very little till now. Due to this, there may be many foreseen and unforeseen challenges ahead. A few key challenges have been discussed briefly:

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*Technology aided healthcare comes with its own set of unique challenges, most prominent among them being regulatory implications and security threats*

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care giving process. The patient will receive the caregiver's newly generated prescription on her handheld device, find the nearest drug store and order drugs to be delivered to her next destination – all within a few minutes and clicks on her personal device.

**Changing Consumer Behavioral Pattern:** Better education and encouraging initiatives are not the only areas where digital convergence will contribute. By devising a tactful mix of support and monetary incentives, real-time communication material will further enlighten consumers about financial implications of their choices.

**Security:** The most significant of all challenges on the road to digital convergence is security. Convergence of a wide array of business and technical entities over heterogeneous networks following multiple protocols, poses a big threat to secure access of patient's data. Huge amount of effort and money will be spent toward this.

**Legal and Regulatory Challenges:** Healthcare industry is regulated by legislative policies including acts like HIPAA that may be refined for the digitally converged healthcare world. Challenges of this refinement process will be uncovered as the digitally converged industry matures.

**Universally Recognizable Consumer/Patient**

**ID:** A common universally recognized consumer/patient id (e.g., SSN in United States) may be required that can uniquely identify the same individual as a consumer (cellular, cable etc., services) and as a patient (healthcare services), regardless of product, plan and service, and geographical location. Different business domains will need to come forward and reach a common agreement on implementing this as a strategic solution.

**Political Boundaries around Data:** The challenges faced by data transfer across today's internet will be multiplied when this mammoth digital network spreads across countries. Security around

**CONCLUSION**

De-escalating the rocketing costs of healthcare is not just the responsibility of government agencies or private payers. Consumers should also bear this responsibility as they need to follow healthier lifestyles and use resources wisely. In the past it has been very difficult to bring all consumers from different demographics under the same roof, as the technology available was not enough to engage them meaningfully. Single digital network with compatible personal and commercial gadgets connected as nodes to this network will appeal more to the tech-savvy next generation. But it is up to the corporate behemoths and government powerhouses to

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*Care giving has immense possibility to be enhanced through digital convergence, but not before it breaks through the roadblocks of technical integration, pricing and security issues, etc.*

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confidential patient data and conflicting laws of different countries will cut heavily into the efforts of technology companies and hold back digitally converging media to reach its full potential.

**Pricing:** New technologies have mostly provided excellent opportunities to deliver better services. But in this case, basic infrastructure cost may be soaring too high for companies to equip themselves for a digitally converged healthcare world. In such circumstances, the initial cost will put a lot of pressure on healthcare companies to keep prices reasonable for consumers, although the long term goal is to reduce growing healthcare costs.

take advantage of necessary tools, encourage interoperability and put an effective strategy in place to bring forth spontaneous response of healthcare consumers.

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## *Authors' Profile*

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### ARINDAM MAJUMDAR

Arindam Majumdar is a Senior Business Analyst at Infosys. He has worked in different medical management and business intelligence projects and has more than seven years of experience in Healthcare insurance industry. He can be reached at [Arindam\\_Majumdar@infosys.com](mailto:Arindam_Majumdar@infosys.com).

### RAJAT BANSAL

Rajat Bansal is an Associate Consultant with Infosys Consulting. He has several years of experience working with a wide array of Infosys clients in the Healthcare and Life Sciences industry. He can be contacted at [rajat\\_bansal@infosys.com](mailto:rajat_bansal@infosys.com).

*For information on obtaining additional copies, reprinting or translating articles, and all other correspondence, please contact:*

Telephone: +91-40-67048455

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