

MAPPING NEW FRONTIERS IN DIGITAL HEALTH

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A Focus group initiative by swissnex and industry experts

Digital health has taken firm root in Public health services due to many factors:

- Democratisation of data by rapid growth in telecommunications.
- Increased awareness of health initiatives by the general public, thanks to digitisation.
- Aspiration and upward mobility in all fields, including healthcare.
- Shift towards participative and preventive medicine.
- Increasing investment and entrepreneurship in digital health.

Healthcare initiatives have taken a quantum leap by incorporating many disruptive technologies that seek to aid and empower the patient base by improving access to existing and novel services at lower costs.

Harnessing the data engine

The ubiquity of cellphones and smartphones in India has given rise to a tech savvy generation, aware of healthcare challenges, and willing to research and explore all possible health provider outcomes. In the past 10 years, an entire economy outside the purview of institutional healthcare has risen, driven by disruptive technologies, digital outreach and direct to consumer marketing.

India is particularly well-placed to harvest the benefits of this new data revolution: it has a large user base which is a well-tested market for implementation of

new technologies and generates huge amounts of varied data.

A vast pool of digital data is now available, and data mining is now the new gold rush. However, data mining can yield mixed results at best: asking the right questions, sifting through answers and making insightful observations is the best way to derive meaningful conclusions. This leads to better machine learning (ML) and artificial intelligence (AI) models, and the building of reliable learning experiences that translate into product.

From data to products to markets

Once a reliable data interpretation process has been established for a problem area, where does this lead to? While it is easy to be swept away by novelty value, it is reasonable to assume that one is more likely to fail than succeed the first time. Identifying most pressing needs, areas that offer buffer space in case of failure and

initiatives likely to yield early success are best selected for engagement. Indeed, this pragmatic approach has led to the first successes in the Indian digital health market: online pharmacies and physician aggregator tools. Enterprises like Practo, Lybrate and 1mg have sensitized the market to healthcare innovations, and

provided value to customers by increasing convenience and reassurance. These enterprises leveraged the success of earlier direct-to-consumer businesses like BigBasket, Amazon and Flipkart. These are typically the lowest hanging fruit, catering to the broadest customer base, but also have a fragmented market. Nevertheless, success breeds success and these have spearheaded the next wave of digital health ventures.

The next round is undoubtedly more challenging. Before rushing into riskier ventures and newer markets, it is

important to identify potential issues, opportunity areas and to analyze the startup landscape from different aspects to devise strategies enabling success. For this, a focus group comprising experts from varied fields including entrepreneurs, policy experts, healthcare providers and thought leaders was convened.

The focus group provided meaningful insights on various aspects of data acquisition, usage and future trends in healthcare.

The data conundrum: Whose data is it anyway?

The foundation for all digital initiatives is quality data. Acquisition of data from hospitals or healthcare providers to devise quality training sets for robust and reliable outcomes is vital to digital product development. Standards in India regarding data security thus far have been lax; however, healthcare and governmental systems are now cognizant of patient/customer privacy and are adopting stringent standards like HL7 or HIPAA that makes it mandatory for data to be completely protected with penalties for non-compliance. This is the basic requirement for electronic health records (Storage online, offline and within the country of data origin). However, innovation requires free flow of data: therefore the patient, who is the ultimate owner of the data, is now the focal point of data acquisition. This has been clearly delineated by three policies – the Srikrishna committee [1], DISHA [2] and the IT act [3].

The focus group stressed that patient engagement is the “billion dollar drug”. There are concerns if patient consent can be obtained and if healthcare managements part with data. However, there are pioneering systems that are in the process of data collection, collation and

integration. These are linked to public data collection systems: data flows into this when an individual accesses these for benefits, banking, insurance and payments. Such data aggregates form Health Stacks. One such Health Stack is well underway and is expected to be operational by 2020. This is also expected to include population genetics data, valuable for identifying disease predisposition and outcomes. As a corollary, robust policies for data management are also expected to evolve at this point. Taken together, Health Stack is expected to facilitate health records, analytics and insurance claims [4]. Anonymised data from such sources are expected in the near future and will be pivotal to many innovations. Indeed, experts opine that technology and legal issues are not big hurdles, as long as both patient and doctor are agreeable – opportunities do exist.

Based on the current limitations for data acquisition, initiatives in the market and the current requirements in healthcare, the following areas are identified as potential growth sectors.

Focus area 1

AI, ML leading to software as a diagnostic

The introduction of AI and ML applications, combined with high quality data and images has yielded great results in pulmonology [5], radiology [6] and diagnosis of breast and cervical cancer [7, 8]. These early initiatives have led to more advanced applications like customized cancer treatments and innovative point-of-

care devices that have the potential for affordable and timely healthcare diagnoses [9]. A notable point for the success of these enterprises is that quality data has been available for a long time, particularly in the field of radiology.

Cancer diagnoses are catching up too, with AI being leveraged to produce treatment options through telemedicine [10]. These may be assumed to be the low hanging fruit of the medical world in terms of ubiquity of data and market size (glucose monitoring for example) – more advanced applications will require very high volumes of data and considerable data mining.

The immediate focus for India in the eHealth domain is thus easy-to-deploy and relevant technologies. This can drive low cost innovations that serve populations in the developing world instead of importing technologies.

Focus area 2

Engaging the patient - eHealth tools for patient reported trials

India has a large pool of patients who are drug naïve and increasingly, tech savvy. While India has always been a focus of drug trials, increased scrutiny on drug trials has taken the sheen off clinical trials. Instead, the success of digital B2C endeavours has opened up a new avenue: patient reported trials for eHealth tools. eHealth adoption, particularly for medical devices is currently low. However, there is openness towards using tools for patient reported outcomes. This removes the hurdle of data acquisition since the patient is the data generator and reporter. This also gives the patient greater autonomy over his treatment and enables him to become a partner rather than a recipient of healthcare.

Success in this domain has been reported for EHR tools with excellent rural uptake [11], eliminating the misconception that ehealth initiatives have a market only in urban areas. There is a very positive outlook from physicians since these innovations target practical problems in care giving. One potential issue may be the

availability of backup teams of technicians to support software-intensive applications and adaptability to local concerns. However, a well-structured application with clear usage instructions can overcome these issues. Peer acceptance is another hurdle, but a definitive clinical trial can address this as well. Market acceptance is good, with increased awareness and willingness from healthcare systems. Incentives to the patients include easier access to telemedicine and faster physician response times to emergencies.

The experts at the Focus group emphasized that the Indian healthcare industry is increasingly open to innovative startups in eHealth tools. Leading corporate hospitals and government are working on several new initiatives to use technology in healthcare, either as monitoring systems or electronic health reporting systems. The eHealth sector is clearly on an upward trend.

Focus area 3

Digital Healthcare for the payers-providers-patient axis

Health coverage in India is segmented between government health schemes, private insurance and for the vast majority that has no insurance, funded out-of-pocket. Increasing lifespan, increased awareness and income, unmet needs in healthcare, a vast uninsured population and increasing healthcare costs have created a huge market for insurance providers.

Insurance is primarily Risk sharing between Insurance, Hospitals and Patients. Alignment of interests between

stakeholders – payer, provider and patient – is a challenge although opportunity areas exist. The pain points for payers include the lack of transparency in payouts and unevenness in medical costs/services from providers while the providers' grouse is administrative costs, reports and documentation, delays in reimbursement and potential litigation. However, both have patient welfare as their end goal, and hence present many opportunity areas to increase value to the customer.

Outcome vs. Procedure as the quality index for incentivisation

Key services from insurers are a potential point for digital health initiatives to make a difference. This could be either a mechanism to enable easier disbursement, better stratification of patients to enable lower premiums or being a key link to enable participative and preventive medicine. The vast majority of current insurance schemes focus on procedural costs, which may not guarantee patient wellness. In other words, experts opine that outcomes and not procedures should be rewarded. However, the Focus group noted that outcome determination is still a grey area: outcomes for Stage 2 vs. Stage 4 are very different for the same cancer. Likewise, variability factors (geographies,

genetics, economic status and patient compliance) that affect outcomes of even easily manageable conditions should be considered during validation studies. Outcome monitoring and costing cannot be monolithic in this scenario.

It is also suggested by experts that market validation for innovations should zone on which conditions respond positively to the innovation model (i.e. Cancer vs. Diabetes vs. Cardiac care). Clearly one size cannot fit all. In addition, it is better to identify the precise stage of startup engagement as a single unit and drive a user case study for the particular block rather than the entire chain for better clarity and immediate insights.

Assessing risk appetite and uptake capacity

Another potential checkpoint is the healthcare provider's scale and means to implement innovation uptake. Healthcare in India has both government and private establishments: of these, private providers may be classified into small, medium and large enterprises. Incentivising factors driving better uptake of a new technology may be best suited for large Enterprise Hospitals rather than Government organisations. A trickle down effect is obvious – governmental organisations have mass outreach programs that can be

accessed for late stage rollouts. Finally, it is also important to identify partners or enterprises that share the startup's vision – alignment and risk appetite of the potential partner decides idea uptake. This is crucial since traditional healthcare providers are risk averse and are likely to take up models that have succeeded elsewhere. Products that are either in the deployment phase or have very strong incentives can only be pushed in this case.

Focus area 4

In the end, nothing succeeds like success

Financial success, i.e. monetisation of the product, is what sustains a startup and helps it rollout superior support products. Given that the market is very volatile with frequent technology disruptions and competition, startups are literally in a do-or-die mode. The Focus group experts note that start-ups find it problematic to monetise from providers, especially for insurance products, unless they can specifically link the patient's payment with service provided through the technology/product. Indirect methods of impact are unlikely to be accepted. A clear roadmap towards reward needs to be formulated since failure to translate an innovation into a financial success spells doom for further endeavours.

Expanding on this aspect, it is obvious that B2C ventures have had the best run thus far in the digital health market. While certain products clearly fall into the B2C purview (patient reporting tools, online pharma and consultancies, physician aggregators), products dealing with insurance are best targeted at major payers who then pass on the benefits to patients, which makes it a B2B2C model. Positioning startups and their products strategically enables early best-fit partner selection, better funding in some cases and overall product uptake.

The Key Takeaways

For these reasons, the focus group meeting at Swissnex with Industry experts has highlighted three broad areas of development in eHealth initiatives: B2C initiatives, Software as a diagnostic, and patient monitoring tools in

eHealth. All three have different scales and have the potential to impact healthcare at the macro and micro levels of patient care. These are the next sunrise sectors, with growth and market capture potential.

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