Sattva Knowledge Institute SKI perspective

# DIGITAL HEALTHCARE FINANCING TO ACCELERATE DIGITAL HEALTH EQUITY

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# Acknowledgements


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# Glossary

| | | |
|---|---|---|
| **ABDM** | : | Ayushman Bharat Digital Mission |
| **AFD** | : | Agence Française de Développement |
| **AI** | : | Artificial Intelligence |
| **BMGF** | : | Bill and Melinda Gates Foundation |
| **CapEx** | : | Capital Expenditure |
| **CHAI** | : | Clinton Health Access Initiative |
| **DFI** | : | Development Finance Institutions |
| **EBITDA** | : | Earnings Before Interest, Taxes, Depreciation, and Amortisation |
| **EHR** | : | Electronic Health Records |
| **HIV** | : | Human Immunodeficiency Virus |
| **HPV** | : | Human Papillomavirus |
| **HMIS** | : | Health Management Information Systems |
| **ICT** | : | Information and Communications Technology |
| **ICU** | : | Intensive Care Unit |
| **IoT** | : | Internet of Things |
| **IVRS** | : | Interactive Voice Response System |
| **MDG** | : | Millennium Development Goals |
| **ML** | : | Machine Learning |
| **NBFC** | : | Non-Banking Financial Company |
| **NGO** | : | Non-Government Organisations |
| **OOPE** | : | Out-of-Pocket Expenditure |
| **USAID** | : | The United States Agency for International Development |
| **UHC** | : | Universal Health Coverage |
| **UN** | : | United Nations |
| **UNICEF** | : | United Nations Children's Fund |
| **WHO** | : | World Health Organization |

# Executive Summary

The use of digital technologies has enabled greater access to quality healthcare across the continuum of care and demonstrated high potential in advancing universal health coverage. India is witnessing a rise in the number of digital health startups as well as in their funding. The healthtech sector received $2.2 billion in funding across 131 deals in 2021, accounting for 8.9% of all funds received by the startup world. India's digital health market is poised to grow at a CAGR of 27.41% and is estimated to reach $485.43 billion by 2024. Similar to other sectors such as finance and education, digital technologies have shown great potential in improving health outcomes.

In spite of its promising growth, the number of digital health solutions for the underserved market remains limited. Barriers such as the prevalent digital divide, lack of clear understanding of the value proposition on the citizen side, coupled with the higher change management cost involved to digitise health facilities serving the underserved communities, have resulted in limited willingness and ability to pay for these solutions, slowing down their adoption in these markets. On the supply side, owing to the unfavourable market dynamics that increase financial risks and costs, there have been limited enablers for solution providers that cater to these markets. This provides a unique opportunity for appropriate and context-specific financing mechanisms to address the unfavourable market conditions and drive both the availability and uptake of digital health solutions for citizens as well as healthcare providers.

While the concept of innovation in financing is not novel, there has been limited experimentation with it to encourage digital health adoption in India. Given the high potential of both digital health and innovative financing, there is a need for concerted action by ecosystem stakeholders with varying risk appetites to come together and support digital health solution providers through different stages of their product and service life cycles and increase the demand of such solutions among healthcare providers and citizens. Government and philanthropy have spearheaded the innovative finance space traditionally. Social impact investors, equity investors and venture capital investors can also contribute to the ecosystem, without having to bear the high risk of returns by themselves. Such partnerships can help in pooling funds and resources across philanthropy, public and market capital and channelise them towards solving problems on the demand and supply sides of digital health adoption.

This perspective explores four key areas where financing has the potential to play a catalytic role in driving digital health solution adoption in the underserved markets through the right partnerships and pooled financial resources. On the supply side, different financing instruments can make digital health solutions available to the underserved by providing **upfront capital, supporting providers with risk capital during the trial phase, and returnable grants or result-based financing** to demonstrate the value of such solutions. **Low-cost or concessional debts** can enable the digitisation of low-cost private healthcare facilities, while citizen demand can be accelerated through social or development impact bonds.

# Background

## Digital health: A key enabler for universal health coverage

The potential of digital health in advancing Universal Health Coverage (UHC) has been gaining prominence and validation by the global health community. The World Health Organization (WHO) has agreed on a mandate for digital health as a tool for advancing UHC. The United Nations Children's Fund (UNICEF) too has included the use of digital health in its Strategy for Health, 2016-30, and has been designing, enhancing, and scaling digital health interventions globally to enhance the quality and reach of vital health information and services, especially for underserved populations (Walcott et al. 2020; UNICEF 2014).

Digital Health is also seeing increased acceptance among both citizens and providers. In terms of acceptance of digital health platforms by healthcare professionals, India, along with Italy, stands second with a score of 88%, after China at 94% (Philips 2019). Even among citizens, digital solutions such as telemedicine have seen considerable traction. 50 million Indians accessed teleconsultation services between March and May 2020 and there was a 300-500% increase in patient traffic on leading healthtech platforms during the pandemic (Boston Consulting Group [BCG] and Federation of Indian Chambers of Commerce & Industry [FICCI] 2020). Innovations in health technology are empowering citizens to understand diseases better, leading to a greater demand for quality healthcare services.

During the course of the pandemic, many healthcare services rapidly pivoted towards remote and digital care. From accessing credible health information, booking doctor appointments and having virtual consultations, to home diagnostics and online pharmacy services, digital technology played a crucial role in providing information, improving access and enhancing convenience for consumers. On the healthcare providers' side, the power of data and technology helped analyse the patient and disease patterns and track various public health metrics, leading to faster decision-making and optimisation of the overburdened health systems. Healthcare service providers have started to leverage technology and have begun to augment their traditional service delivery channels to include digital solutions.

India has a thriving digital health ecosystem, supported by a strong policy environment that is focused on building the infrastructure for digital health proliferation. Government initiatives such as the rollout of the National Health Stack in 2018 to create a nationally shared digital infrastructure, Ayushman Bharat Digital Mission (ABDM) to bridge the gaps amongst different stakeholders in the healthcare ecosystem through digital highways, teleconsulting guidelines issued by the Medical Council of India in March 2020, and the national tele-mental health programme announced in the FY-23 budget among others, have provided a much-needed impetus for the growth and uptake of digital health in the country.

Additionally, there is enthusiastic market interest in supporting digital health solutions. As of September 2022, US $5.01 billion of digital health venture capital has been raised across 599 funding deals (HealthTech Alpha 2022). With the current trend of healthcare digitisation, 15-20% of healthcare is expected to shift to virtual care, across triaging, consults, remote monitoring and home health (EY-IPA 2020). By 2025, the Indian healthcare app market and the telemedicine market is expected to reach $2.43 billion and $5.5 billion respectively (HTF Market Intelligence 2020; EY-IPA 2020).

Digital health solutions can be an important catalyst in achieving health objectives and making quality healthcare accessible for the Indian population, 72% of whom reside in rural areas with access to only about 25% of the country's healthcare infrastructure (KPMG 2016). An ecosystem of health solutions enabled by Artificial Intelligence (AI), Machine Learning (ML), Internet Of Things (IoT), blockchain, big data analytics, digital therapeutics, smart wearables, and virtual care among others, if implemented correctly, promises to enhance health outcomes by improving medical diagnosis, data-based treatment decisions, self-management of care, evidence of knowledge and overall continuum of care for citizens (WHO 2021). Digital solutions such as IVRS-targeted messaging, telemedicine, mobile care units, point-of-care devices, and hub-and-spoke models have enabled a greater level of doctor-patient engagement, especially in non-emergency cases and follow-up consultations regardless of location. This has not only increased the geographical reach of healthcare providers significantly, but also addressed the skewed healthcare provider-to-citizen ratio and shortage of specialists in the country.

Digitally facilitated primary consultations held in the comfort of patients' homes and communities can improve early diagnosis and triaging, thereby reducing the burden of out-patient care in tertiary care facilities. Digitisation of patient data can enable greater insurance coverage and easy cashless insurance by reducing the out-of-pocket expenditure (OOPE) for patients. Healthcare data collected at various levels can help analyse disease patterns, predict future outbreaks and formulate targeted interventions to cater to specific segments of the population. The aforementioned use cases of digital health can protect citizens against health emergencies, improve their overall health and well-being and ultimately lead to the achievement of universal health coverage.

## Challenges in Scaling Digital Health Adoption in Underserved Markets

The true potential of digital health, however, can only be realised when it can foster inclusion across age, gender, geography, and socio-economic factors and can drive greater productivity and efficiency at an affordable cost for healthcare providers by freeing them from repetitive tasks and enabling them to harness the tools, data, and analytics to deliver more patient-centric care (Kamineni 2022). Today, regardless of the boom in digital health

and the increasing penetration of internet and mobile devices, around half (49%) of Indians claim to be unaware of the benefits of digital health technology or mobile apps in healthcare (Philips 2019).

Through the Ayushman Bharat Digital Mission, the government is trying to develop the backbone necessary to support the integrated digital health infrastructure of the country. However, there are still a variety of challenges in the adoption of digital health solutions among the citizens as well as the healthcare providers in underserved markets. Low demand among the citizens and healthcare providers, coupled with the scarcity of relevant digital health solutions that cater to underserved markets are resulting in poor uptake.

**As compared to the other digital services, the uptake of digital health services among the citizens is low.**

According to an Arthur D. Little survey, the penetration of healthcare applications (online pharmacies, physician consultations, fitness and wellness applications) stands at about 35-65% as compared to that for other mature digital offerings such as e-commerce and m-commerce, which have reached 76.7% of the population (Arthur D. Little, Nathealth 2022; Ganbold 2021). The situation in rural India is not very different, where the primary resources required for accessing digital health solutions are limited, hindering their usage. As of 2021, the internet penetration stood at 37% in rural India as contrasted with 69% in urban areas. Out of 850 million Indians who have access to mobile phones, around 320 million still own a feature phone as compared to roughly 530 million smartphone owners (ICUBE, IAMAI & KANTAR 2021; Bendre 2021). Many adults suffer from poor health literacy which results in low health-seeking behaviour. This, along with the digital divide, especially among the rural population, affects the demand for digital health solutions.

Furthermore, poor socio-economic conditions, limited availability of low-cost digital health services, lack of clear understanding of the value proposition of digital health solutions is reflected in the unwillingness to pay for digital health solutions. These factors affect the economic viability and sustainability of such solutions in the underserved market.

**Challenges in the uptake of digital health solutions can be seen even among healthcare providers, especially small scale private providers.**

While large corporate hospital chains, and hospitals operating in Tier 1 cities are moving to digitised operations, smaller setups such as clinics and low-cost nursing homes lag behind. Private healthcare providers cater to around 51.8% of families in urban areas and 46.4% in villages, making it essential for them to be a part of the digitisation process (Ministry of Health and Family Welfare 2019-21).

Change management costs such as the upgradation of existing hardware and connectivity systems, training of staff, and the digital entry of data, apart from the other indirect costs, impact the adoption of digital health solutions among healthcare providers. Independent practitioners who run small clinics, especially in the rural areas of the country, still use traditional paper-based methods of storing data. For most of these professionals, the feasibility of adopting digital tools is very low. In the absence of a government mandate for the digitisation of certain healthcare services in a clinic, as well as the fragmented nature of these providers, most small-to-medium scale healthcare providers do not see a clear value proposition in investing in the digitisation of their clinics, inhibiting them from paying for the associated costs.

**Although there is a growing interest in healthtech solutions, the number of solutions available for the underserved remains limited. Challenges across the product life cycle inhibit digital health solution developers from venturing into these markets.**

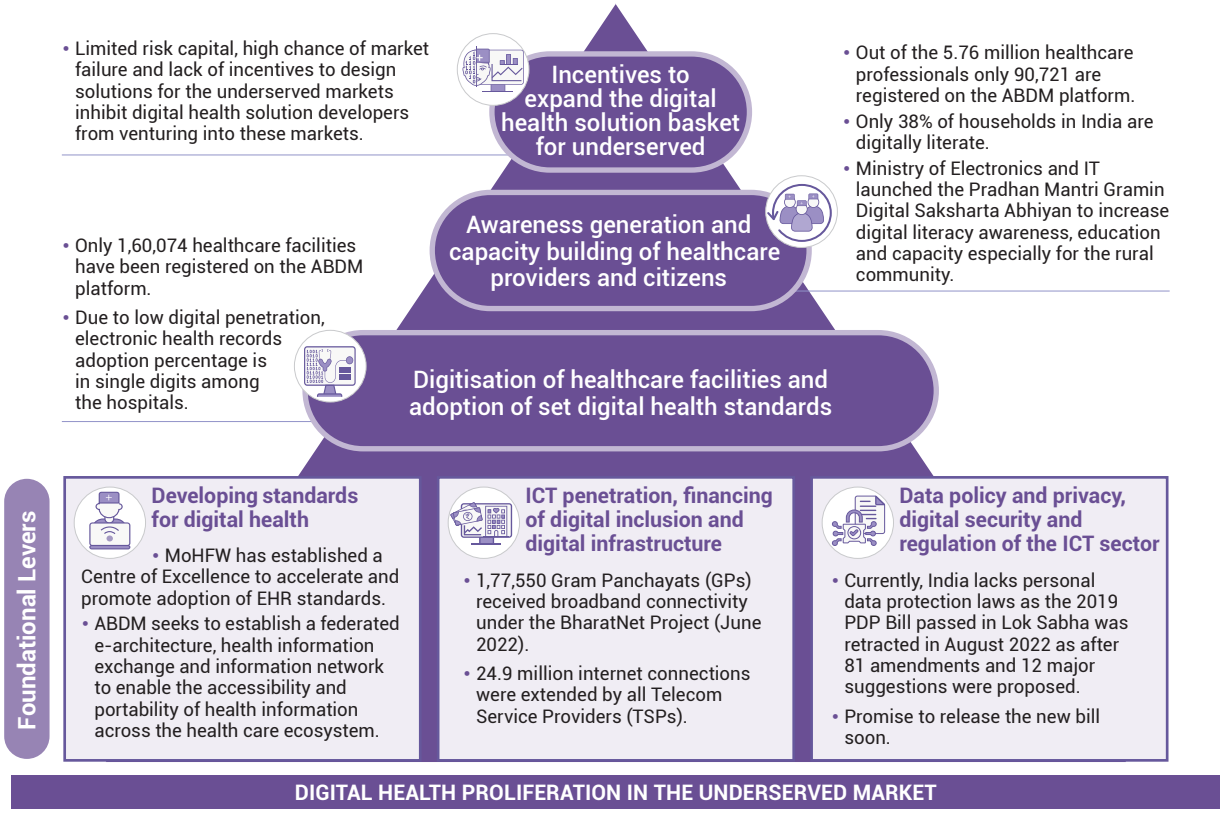
Healthtech businesses need about ten years to break even, which is approximately double the time required by non-health startups (Sharma 2021). Therefore, the de facto target market becomes the digitally competent, metropolitan, top-of-the-pyramid population segment which can demonstrate the products' value proposition and facilitate adoption. Some digital health solutions like tele-ICUs have high capital expenditure cost. Solutions like AI/ML-enabled point-of-care diagnostic devices have high unit manufacturing cost due to limited production volume, making the business value proposition unviable for low-paying markets. Additionally, solutions that are trying to address underserved markets through working in the public health sector need to deal with longer sales cycles and complex tendering processes which affects the profitability and cash flow.

## Levers to Expand Digital Health Proliferation

There are a few key enablers that need to be in place to overcome the said challenges and ensure last-mile reach. Some of these are foundational, such as ICT infrastructure, availability of uniform standards, as well as appropriate policies and guidelines around the implementation of the same. Others are more focused on interventions that look at expanding the choice bucket and driving adoption for these stakeholders.

While the government has worked extensively to implement the foundational levers, strategic and innovative financing from the private sector can focus on the other levers to complement the government's effort. Appropriate and context-specific financing mechanisms have the potential to address prevailing unfavourable market conditions and drive the availability and uptake of contextualised digital health solutions for both citizens and providers.

**Figure 1: Building blocks for digital health proliferation in the underserved market**




(NHA 2022; Mothkoor & Mumtaz 2021; Ministry of Electronics and Information Technology 2022; Karan et al. 2021, BCG FICCI 2020; National Resource Centre for EHR Standards n.d; Ministry Of Communications 2022; Lok Sabha 2021)

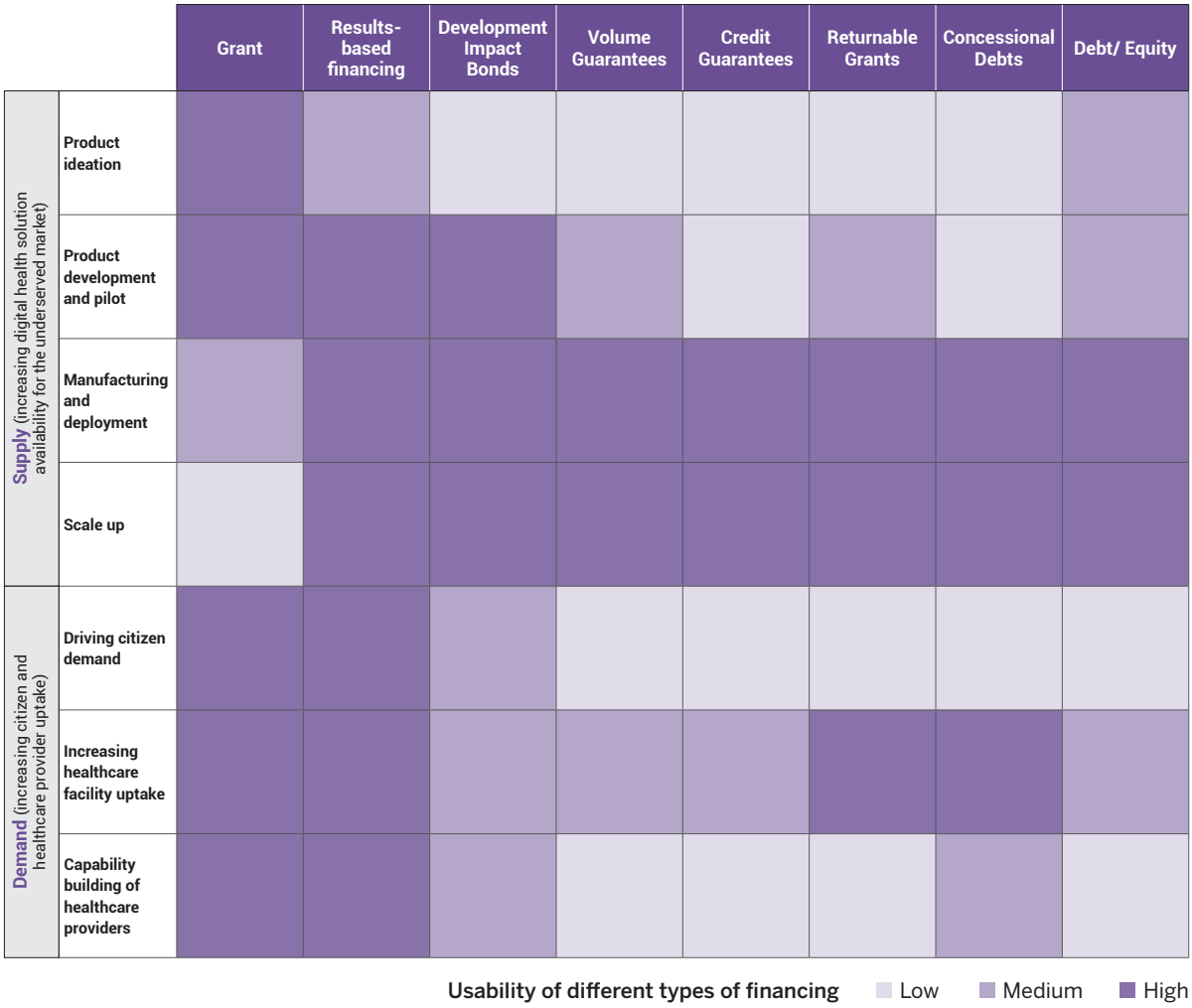
# Financing for Digital Health

**The following section lays out different modes of financing and their potential to solve for the barriers hindering digital health solution penetration.**

In the following sections, we present key areas where financing has the potential to play a catalytic role in driving digital health solution penetration to underserved markets.

- The first two areas explore how innovative financing instruments such as volume guarantees and returnable grants can address issues arising due to high capital expenditure, limited manufacturing volume, which lead to higher unit costs.
- The third area explains the role of concessional or low-cost debt in supporting healthcare facilities (especially low-cost private facilities) with change management and digitisation of the facility.
- The fourth area delves into the role of social impact bonds (SIBs) in driving digital health inclusion.

**Figure 2: Key areas for financing to drive digital health solution penetration in the underserved markets**




DIBs and returnable grants would mostly solve issues regarding long working capital cycles, high up-front costs, and limited manufacturing capacity in the manufacturing deployment and scale-up

(Sattva analysis; Chen 2021, The World Bank n.d.; USAID 2021; Medaccess n.d.; Pande & Naik 2021; UN Statistics Division n.d. Chen 2022, Banton 2022)

We also discuss the need and importance of innovation in insurance in order to encourage digital health adoption, and understand how such innovations can be funded at different stages through relevant financing mechanisms. Further, we highlight the role of philanthropy in supporting these interventions and catalysing the necessary partnerships needed with government and other private sector players. Such partnerships can pool resources and channelise them to the relevant businesses or beneficiaries thereby ensuring systematic, faster and more efficient scale-up of digital health.

### 1. Driving adoption of digital health solutions (such as wearables, point-of-care devices, tele-ICUs) by increasing citizens' and healthcare providers' ability to pay, and reducing unit manufacturing cost and capex using volume guarantee as a financial instrument

There is a growing demand for digital solutions like wearables and point-of-care devices and a general consensus about their potential to improve health monitoring, screening, and care delivery. People from underserved areas could benefit from the use of solutions such as tele-ICUs, teleradiology, portable AI/ML diagnostic devices and home-based palliative care solutions which can help both doctors and patients to be engaged remotely, preventing readmission and reoccurrence of the condition.

In spite of the potential and the value addition of these solutions, their penetration in the underserved regions is limited. Some of these solutions have high capex or unit production cost. In the absence of comprehensive health insurance on a mass scale, the bulk of medical expenditure is borne by patients themselves and the public system. The capex to set up a 10 bed tele-ICU in India is $53,000 (10 Bed ICU n.d). Any technological service adds to the service fee and may face resistance from healthcare providers and consumers. Niramai, the AI/ML-based breast cancer screening solution has already reduced screening cost by 60%. However, the current cost of $22 per test might still be unaffordable in the underserved areas. The startup believes that the cost will further go down as volumes pick up (D'Cunha 2018).

Newer solutions with potential to bridge the gap in healthcare delivery often face challenges to lower their production costs or capex because of lower volumes. This can be solved by increasing the production volume of products, supplying them at lower unit costs, and capturing a larger market. A volume guarantee can provide the necessary price and volume commitment to the manufacturing company and serve as a shock absorber in case of market failures. In a volume guarantee agreement, the manufacturer agrees to sell the product at or below the agreed price for the term of the agreement, and manufacture an agreed minimum volume of products available for each year of the guarantee.

By encouraging changes in the behaviour of suppliers and purchasers, volume guarantees address market failures that restrict wider access to healthcare interventions. They facilitate price reduction to drive demand and improve health outcomes, while also realising significant cost savings for donors and other funders. Higher volumes for the right product can also create a market which can increase profits in the long term.

#### Relevant stakeholders

The stakeholders in such cases would involve a guarantor, ideally a funder with a significant risk appetite (e.g. a philanthropic funder) entering into a partnership with a digital health solution provider and public or private procurers.

The success of volume guarantees in the development sector can be seen globally and in India across priority sectors. Learnings from these can be implemented in the context of digital health. One such example is volume guarantee enabling an increase in access to viral load testing for HIV, Hepatitis and HPV in 14 countries in sub-Saharan Africa. MedAccess, a social finance company, provided a volume guarantee to Hologic, a medical technology company, that enabled it to reduce the price of its Panther platform and fast-track supplies to low- and middle-income countries. The Clinton Health Access Initiative (CHAI) assisted the formation of the partnership and supported the monitoring and implementation of the agreement. This partnership was able to identify 554,000 patients who were earlier not virally suppressed (having less than 200 copies of HIV per millilitre of blood) and drove $27 million in direct procurement savings for governments, donors, and public bodies (HIV 2022).

In another instance, MedAccess partnered with CHAI to execute a volume guarantee with Wondfo, a biotechnology company in China, to make its WHO-prequalified HIV self-test available for $1 in 140 low- and middle-income countries. Through the partnership, Wondfo was able to bring down the cost of its testing kit to a price that was over 30% lower than the then-current lowest-priced test, and 50% lower than the most widely used test, making it the most affordable WHO-prequalified HIV self-test in the market (MedAccess n.d).

It is likely that solutions aligned with government priorities will also see an increased uptake, driving a reduction in their costs.

### Case Study
### Volume guarantee to reduce prices and enable scale up of affordable contraceptive implants in developing countries

Long-acting, reversible contraceptives had been in high demand but short in supply in developing countries. To achieve the goal of reaching around 112.5 million women worldwide who wanted to avoid pregnancy but were not using any contraceptive methods, the Bill and Melinda Gates Foundation (BMGF) partnered with contraceptive manufacturers and provided long term sales guarantee to reduce prices and enable the scale up of affordable contraceptives in the developing markets.

**Through innovative partnership and volume guarantee, the cost of Merck & Co. and Bayer's reversible contraceptive implant could be reduced by more than 50%** in more than fifty countries, including the ones which were considered least likely by the United Nations (UN) Secretary-General, to meet the Millennium Development Goals (MDGs) on maternal and child health by 2015.

**About the agreement**

In order to fulfill the 2020 goal of catering to more than half of the estimated target group worldwide, together with donors from Norway, the United Kingdom, and the United States, BMGF negotiated with two of the major pharmaceutical firms, Merck & Co. Inc. and Bayer AG, to approximately double the supply and half the price of their contraceptive implants. As per the agreement, Bayer reduced the price of its contraceptive implant, Jadelle, to $8.50 per unit from $18, in more than fifty countries.

**Stakeholders involved and their role**
The stakeholders involved a consortium of funders such as BMGF, and donors from Norway, the UK and the USA who negotiated the agreement with the pharmaceutical companies. The agreement also involved non-government organisations (NGOs) who would buy these contraceptives from the companies.

**Impact**
Through the partnership, it was estimated that the contraceptive implant had reached more than 27 million women in the poorest countries for a period of six years.
Within three years of the deal (separate deals with Bayer and Merck), the demand for contraceptives grew higher than what was originally anticipated. The annual run rate approached 10 million in 2015 from 4.7 million in 2012.

The partnership enabled immense savings for global public health donors who procure products for the needy in developing countries. By 2016, the cost reductions had saved more than $240 million. By the end of the agreement in 2018, the total savings were estimated to top $500 million.

(Bank 2016)

## 2. Solving cash flow-related challenges for emerging digital health solution providers by leveraging returnable grants

As of September 2022, there are 7,598 healthtech startups in India (Tracxn 2022). However, with their focus on underserved populations, these nascent healthtech startups often face a cash flow crunch triggered by high upfront costs and working capital, which limits their ability to scale up in these markets. Startups working in the public sector also experience long sales cycles and complicated tendering processes.

**Returnable grants can bridge the capital gap by providing upfront capital at zero interest. Returnable grant, unlike a zero-interest loan, is not a balance sheet transaction, and is treated as income and not as liability. It is a moral obligation on the recipient to return it and no legal recovery actions can be taken by the financier in case of default. It also does not build a credit history. Hence, alternatively, a zero-interest loan instrument can also be looked at. Occasionally, the instrument can be structured in a way where the obligation to return the money can be waived off under the precondition of achieving certain health outcomes.**

Innovative digital health solutions such as point-of-care diagnostics, AI/ML-based testing devices, last-mile delivery of medical supplies, step-down and tele-ICUs, require longer gestation periods in the underserved market, and a steady cash flow during the initial years. This can be enabled by returnable grants, that are capital structured in the form of zero-interest loans with only a moral obligation to repay. Once returned to the lender, the grant capital can be re-disbursed for other programmes or priorities. Returnable grants can help solve the problems of delayed payments and high working capital by providing upfront capital or funds and a partial risk guarantee that makes the investment commercially viable.

In this arrangement, a guarantor agrees to pay a part of the total value of the loan to the lender as a risk mitigation measure in case of payment default or loss of value. The partial risk guarantee helps in shifting the risk-return profile of the investment and reducing the cost of capital. It can also increase an investment's creditworthiness by limiting downside losses and reducing the payable return for that level of risk for other investors, in turn reducing the uncertainty of operationalisation of the project.

Novel solutions aligned with national healthcare priorities such as maternal and child care, nutrition, cancer screening, mental health, health and wellness solutions, disease surveillance, strengthening supply chain and referral loops, and low-cost HMIS for low-cost healthcare facilities, can be financed through returnable grants to ensure a steady cash flow during the initial years of implementation. Philanthropic funders can collaborate to create a returnable grant pool to fund solutions with a potential to scale in the underserved market and be embedded in public healthcare delivery channels. Due to the returnable nature of the grant, this can act as a revolving fund which can be leveraged to identify and support newer solutions in a cyclical manner.

### Relevant stakeholders

A returnable grant involves a lender (e.g. philanthropic funder) and a technical partner who designs and structures the grant, provides performance management support and identifies the lender's choice of recipients (beneficiaries). Returnable grants allow money to be directly credited into the participants' accounts, or in certain cases, disbursed as cash-equivalent vouchers. This process of fund disbursement is generally supported by a non-banking financial company (NBFC) and non-profit organisations, wherein the NBFCs play a crucial role in fund management for the beneficiaries while the non-profits help in identifying the beneficiaries through their connections.

### Case Study
### Augmenting manufacturing capacity and enabling expansion of an early stage healthtech company leveraging returnable grant

#### Background and context

A healthtech company called Blackfrog Technologies specialised in the last-mile delivery of medical supplies and biologicals. Their invention EMVÓLIO, a portable, active cooling, battery-powered device enabled safe last-mile delivery of COVID-19 vaccines across the country. In order to expand to other geographies and augment its manufacturing capacity, the company was in need of funds.

Given the initial stage of the company, Blackfrog was experiencing a challenge with its cash flow due to long working capital cycles, high upfront costs, and limited manufacturing capacity.

To gather funds, Blackfrog Technologies was able to secure a loan from Caspian Debt, a leading NBFC. However, given the risk profile of the company, it needed additional collateral to avail the loan and initial support to service the loans at market rates, until

the company achieved commercial stability. Due to the future demand for their product and the order pipeline, the company was a right fit for returnable grants. Leveraging the benefits of returnable grants and combining them with a commercial loan from an NBFC allowed the company to scale up faster and achieve financial sustainability without the burden of equity funds.

**Stakeholders involved and their role**
IIT-Delhi, Caspian Debt and IPE Global were the investment managers, while USAID and Rockefeller Foundation served as developmental funders. USAID also provided scale-up advisory support for their technical assistance facility to support Blackfrog in expanding to international markets such as Africa.

**Expected Impact**
The blended approach enabled the company to avail commercial lending at favourable terms to finance its expansion which further enabled greater economies of scale and improved cash flows.

(SAMRIDH Healthcare Blended Finance Facility, USAID, IPE Global Ltd 2022)

## 3. Supporting digitisation of small private hospitals by meeting change management costs through low-cost or concessional debt financing

As per the NFHS-5 data, around 51.8% of families in urban areas and 46.4% in villages used private health facilities for their healthcare needs (Ministry of Health and Family Welfare 2019-21). The private health sector is hence a crucial part of the healthcare sector. While 10% of the hospital sector is served by organised players and chains, the remaining 90% is highly fragmented and unorganised (BCG & FICCI 2020). Given the capital-intensive nature of the business and high input costs, most small-to-mid-sized hospitals operate at very low margins. Even the leading hospitals have an average EBITDA margin of 5% to 8% (BCG & FICCI 2020). Once the hospital is set up, achieving operational breakeven can take many years. The low margins inhibit hospitals from investing additional capital for digitisation. With the implementation of ABDM, experts estimate the cost of change management - which includes upgrading their hardware, training of present staff, cost to customise digital tools and transfer of existing data - to be in thousands of crores for all government and private healthcare facilities (Sattva Analysis).

Therefore, in spite of the presence of over 500 Hospital Management Information System (HMIS) software providers in the country, the adoption percentage of electronic health records is in single digits, driven mostly by the fragmentation of the sector and the prevalent digital divide (BCG & FICCI 2020). The cost of change management combined with a lack of clear understanding of the value proposition inhibits private healthcare facilities from going digital.

**While grants can be structured to support digitisation of public and charitable health facilities; for private hospitals, especially low cost facilities, that are willing but unable to invest upfront capital for digitisation, low-cost or concessional debts can provide easier and affordable avenues.**

Concessional loans are loans with interest rates lower than market rates. They have lenient terms, such as extended grace periods (during which only interest or service charges are due) and interest holidays. Concessional loans generally have longer repayment schedules as compared to traditional loans. Soft loans can be provided to healthcare facilities to help set up their digital infrastructure. These loans can also be availed when the project is not eligible for grants, or the beneficiary cannot afford traditional loan rates.

## Relevant stakeholders involved

Concessional loans are issued by development finance institutions (DFIs), non-governmental finance organisations and NBFCs. Compared to commercial banks, these organisations accept higher risk in return for beneficial social and/or environmental impact. Low cost healthcare facilities can be the beneficiaries of these loans.

### Case Study
### Strengthening infrastructure of private schools catering to children from middle and low-income families using low-cost debts

**Background and context**

Around 50% of all students in India are enrolled in privately managed schools across the country. These schools mainly cater to children from middle and low-income families (almost half of all students enrolled in private schools pay less than $6.16 per month in fees) and are run and managed by individuals from the local community who do not receive any governmental or philanthropic support.

**Through flexible loans, Varthana is helping transform the schools in order to provide good quality education to students from lower and middle-income families.**

Varthana is a specialised education finance company that offers loans to meet private schools' requirements such as the construction and renovation of school buildings, improving infrastructure, such as setting up of computer labs and smart classes. These loans are more flexible as compared to traditional loans. The company can provide unsecured loans upto $6,164 and secured loans upto $2,46,583 with a tenure of upto six years with structured and easy monthly installments. In addition, Varthana also provides academic and management support to schools to enhance their service quality.

**Stakeholders involved and their role**

The two main stakeholders involved were an NBFC which provides loans with flexible terms, and the beneficiary (private schools in this case) who can avail loans to fulfill their requirements.

**Expected Impact**

As of September 2022, Varthana has disbursed around 9,000 loans, supported 4,000 schools, and impacted the lives of 3.8 million students and 1,25,000 teachers through its school loans programmes. In addition to supporting infrastructure development, through its academic and management support, Varthana has helped in improving child development through various assessments and has enhanced the development of teachers and students.

(Varthana n.d.)

## 4. Increasing citizen demand and adoption of digital health services using results-based financing such as Social Impact Bonds

Poor health-seeking behaviour among the citizens, the prevalent digital divide and the lack of foundational digital infrastructure have added to the challenges in accessing and adopting digital health solutions in rural and inaccessible regions. The low uptake can also be attributed to lack of awareness and low perceived value of the benefits of using digital health solutions in improving overall health and well-being. This can result in a lack of willingness to pay for digital health products and services, in spite of the ability to do so. In other cases, citizens from the lower and lower middle income strata are unable to pay for digital health services, given their socio-economic conditions.

Impact bonds are concerned with the outcomes instead of inputs and activities. A results-based financing instrument such as a social or development impact bond along with grants can help improve the health-seeking behaviour, promote digital inclusion and increase awareness in the community by focusing on conveying a clear value proposition and building citizen capacity to leverage digital health solutions. This can have a positive impact on the uptake of digital health, as the intervention would create a compelling case for citizens to use these solutions.

The provision of upfront capital can help design appropriate interventions and onboard necessary partners without having to worry about returns. Due to the nature of the contract, the focus would be on improving the overall health-seeking behaviour, increasing receptiveness and acceptability of digital health solutions, and overall improvement of citizen health outcomes, especially for non-communicable diseases such as cardiovascular disease, diabetes, and mental health issues.

For digital health adoption by citizens, the interventions can be designed with a component of awareness leading to an understanding of the value of digital health. This can include digital inclusion interventions to bridge the digital divide, and digital health interventions such as telemedicine kiosks, AI/ML-enabled point-of-care diagnostic devices at primary health centres. Payments can be released against outcomes such as internet penetration, number of citizens using digital services provided in the community, health outcomes and gains in terms of increased screening, early diagnosis, and reduced time to travel to a health facility to seek care.

### Relevant stakeholders

A social impact bond or results-based contract generally involves an investor (e.g. a social investor) who provides the upfront capital required to begin the interventions, an implementer or service provider who implements the interventions on ground, a third party evaluator who determines whether a project has delivered according to the objectives laid out by the contract, and an outcome payer, who identifies beneficiaries, defines payable outcomes and pays for the achieved outcomes to the investor.

## Case Study
## Improved access to and awareness of menstrual hygiene through a development impact bond

### Background and context

A development impact bond between the French Development Agency (Agence Française de Développement, or AFD), NGO CARE International and a French banking group was formulated for creating awareness and increasing access to menstrual health and hygiene products in Ethiopia.

Menstrual health and hygiene tend to have a positive influence on education and performance, health and gender equality in the community. However, in Ethiopia, 70% of girls are not aware about menstruation before it occurs for the first time. 75% of Ethiopian women and girls do not have access to the right menstrual products. 25% of women cannot use any sanitary products during their periods, due to unaffordability of the products, and they often use makeshift products, such as dry grass or newspaper (Frilseth 2020). Menstruation is considered taboo in Ethiopian society, therefore, the topic is rarely discussed and included in the school curriculum, leading to stigma and embarrassment for the girls and women who often lack access to sanitary products such as pads and tampons.

### Terms of the bond

The impact bond intervention package included three components, namely, creating awareness of menstrual hygiene and management, construction and maintenance of sanitary infrastructure, and production and distribution of sanitary products. The amount for the bond was €3 million for a tenure of three years with an expected return of 5-6% IRR and a maximum loss of 100%. The payment metrics included increased mobility of girls and women during their menstruation period, increased knowledge of communities about menstruation, meeting needs of menstruation health and hygiene of women and girls, percentage of schools with appropriate menstrual health and hygiene infrastructure, and percentage of vouchers converted into reusable sanitary pads purchases.

### Stakeholders involved and their role

BNP Paribas was the social investor who pre-financed the intervention. CARE France was on board as a service provider who conducted interventions to generate awareness, build sanitary facilities, and distribute sanitary products in the Ethiopian community. A third party evaluator was onboarded to evaluate the success metrics which were pre-defined in the agreement. The outcome funder, AFD in this case, would pay back the social investor as per the agreed returns depending on the fulfillment of the success metrics.

### Expected Impact

The intervention reached more than 3,00,000 beneficiaries in Ethiopia, increased knowledge, self-esteem and confidence of girls and women, and increased their access to sanitary infrastructure and products.

(KOIS Impact Report 2020)

**While financing can offer the much-needed impetus to digital health adoption, health insurance penetration can further accelerate it, as it has the potential to shift the payment burden from citizens and healthcare providers.**

Globally, universal health coverage has been supported by the payer model, which in return incentivised hospitals that adopt Electronic Health Records (EHR) by faster claims settlement process (example: Medicare and Medicaid). Supporting digital health interventions can also be beneficial for the insurance company as it can lower overall claims costs.

Insurance payers can save as much as 10% to 20% of medical costs if they use a digital solution such as advanced analytics to prioritise invoices (Singhal et al. 2019). Digital healthcare solutions used by citizens can help insurance companies identify people likely to have future high-cost claims. Additionally, wellness-focused digital solutions can encourage citizens to take better care of their health by tracking vital parameters, which can decrease insurance pay-out rates in the long term.

India has one of the lowest percentages of health insurance penetration in the world, with only 19% of people in urban areas and 14% in rural areas covered under any kind of health insurance scheme (MoSPI 2018). Solutions like Clinnik, that offer virtual consultation, unlimited access to doctors, medicines, diagnostics and specialist consultation, all in exchange for a subscription fee, have emerged to target the missing middle, that is, people who are covered by neither private nor government insurance programmes. This gap provides a massive opportunity to innovate at the convergence of insurance and digital health. While digital health interventions have the potential to make quality healthcare accessible at a lower cost, even in the remotest geographies, digital technology enables insurance providers to optimise their services. It allows them to know their customers better, which can enable them to price and underwrite more accurately, identify fraudulent claims, and offer bundled and tailored services.

**This calls for business model innovation in the insurance space which can finance digital health adoption for the dual outcome of citizen health and well-being, and optimised business value for the insurance providers.**

## Case Study
## Increase in penetration of affordable insurance among the underserved population through business model innovation

### Background and context

BIMA MILVIK (under the brand name BIMA) was launched in 2010 in Ghana, as a company that provides affordable insurance to the underserved population. By partnering with major mobile network operators and financial services companies, BIMA MILVIK provides insurance and underwriting services to low-income populations, many of whom are first-time insurance buyers and are living on less than $10 per

day. In developing countries, the low-income population at the bottom of the pyramid often lacks access to quality healthcare services. Most of them do not have health insurance, and in the case of health emergencies, they either ignore the problem, seek non-professional help or bear catastrophic costs. To solve this challenge, BIMA MILVIK, along with mobile network operators and financial companies, through a combination of digital (using mobile phones) and physical (agents that educate customers driving greater health-seeking behavior) channels, provides a range of affordable products for life, personal accidents and health microinsurance.

**Terms of the contract**
BIMA MILVIK offers digital health subscriptions that combine healthcare and insurance, starting from $1 per month.

The subscription is on a recurring basis and families can get access to a digital health solution platform that provides services such as health screening, telemedicine, specialist care, personalised health programmes, medicine delivery, laboratory testing and insurance. Memberships are available in 3, 6 or 12-month prepaid packages and include an unlimited number of phone consultations with a qualified doctor for the whole family.

**Stakeholders involved and their role**
BIMA MILVIK provides the technology platform for disseminating of services.
It provides the technology to bring together mobile network operators and the insurance providers on a single platform, with further support on distribution, product development and daily management. It also plays a role in claims administration and delivery of claims payments. The mobile operator companies provide free insurance in place of free minutes or discounts, wherein a small part of talk time goes into insurance premium for the subscriber. Insurance companies provide simplified health and life insurance coverage with five exclusions underwritten.

**Impact**
Today, BIMA MILVIK has presence in ten countries across South Asia, Southeast Asia and Africa with more than 10 million active users. Through its innovative model, BIMA MILVIK has provided healthcare and insurance access to around 10 million people and driven 74 million positive health interventions via its consumer health programmes in 2021.

(BIMA MILVIK n.d)

# Way Forward

**Philanthropic organisations, with their high risk appetite, are ideally placed to innovate and identify solutions that can address the challenges discussed above.**

In addition to looking at grant-based models, philanthropic organisations can diversify their funding into different types of financial instruments to increase the value and efficiency of the capital and drive impact at a larger scale. Social impact bonds and results-based financing can bridge the digital divide in citizens more efficiently, and at the same time can fund digital health solutions against the population health outcomes it is

able to achieve. This together has the potential to significantly reduce DALYs and result in significant public savings.

Traditional grant-based approaches of philanthropic funds can support the research and development of low cost digital health solutions for these markets. For supporting solutions in the trial phase and gestation period, philanthropy can partner with other investors such as NBFCs and private market investors, to create a structure or a pool to share risks, where the first loss guarantee can be provided by philanthropic entities. Funding in the form of returnable grants can also encourage philanthropic funders to recycle their funds and increase their investment portfolio to reach a wider base. Digitisation and change management costs of low-cost mid-sized hospitals operating with a low margin can be financed through low cost debt by financial service companies. This will enable hospitals to adapt to changes and optimise internal processes, leading to better efficiency and delivering better care to their customers.

Along with philanthropy, outcome funders such as development agencies and DFIs, impact investors, and non-governmental finance organisations such as NBFCs should forge partnerships to explore the approach of pooled funds that allow for the flexibility of different types of instruments that can be used, depending on the stakeholder and beneficiary requirements to realise the larger goal of digital health proliferation. Innovation in financing of digital health interventions which are catalytic in nature can help achieve positive population health outcomes and thus, India's SDG targets for health.

# Annexure

## Definitions of Various Financing Instruments

| | Definition |
|---|---|
| **Grant** | A grant is an award, usually financial, which is given by entities such as a company, foundation, or government to an individual or a company to facilitate a goal or incentivise performance. Under normal circumstances, grants are essentially gifts that do not have to be paid back. |
| **Results-based financing** | Results-based financing is an umbrella term referring to any programme or intervention that provides rewards to individuals or institutions after agreed-upon results are achieved and verified. The approach has the potential to provide a stronger focus on the actions necessary to improve learning outcomes, foster local solutions to common education challenges, and strengthen the capacity of education systems to measure and track progress. |
| **Development Impact Bonds** | A pay-for-success model that ties payment to the attainment of a pre-determined social outcome. Agreements include outcome funders, investors, service providers, and independent evaluation. |
| **Volume Guarantees** | A volume guarantee is an agreement with price and volume commitments of a product. The objectives of volume guarantees are to increase demand and ensure stable, affordable supply. |
| **Credit Guarantees** | A credit guarantee scheme provides third-party credit risk mitigation to lenders through the absorption of a portion of the lender's losses on the loans made to the small and medium enterprises in case of default, typically in return for a fee. |
| **Returnable Grants** | The returnable grant (RG) is a financial instrument that aims to leverage the best of a grant and a loan. It is like a loan in that there is an expectation of repayment. It is like a grant in that there is no legal obligation to repay; the expectation is only 'moral', i.e., the recipient is encouraged to repay when she has achieved some intended milestones of financial recovery. |
| **Concessional Debts** | Debt concessionality (also referred to as concessional lending) involves transactions where a loan is granted bearing an interest payable below normal market rates as a matter of policy, such that it contains a gift/transfer element from the creditor to the debtor. |
| **Debt/ Equity** | Debt is usually money, borrowed by one party from another and is used by many corporations and individuals to make large purchases that is not affordable under normal circumstances.<br>Equity financing is the process of raising capital through the sale of shares. Companies raise money because they might have a short-term need to pay bills or have a long-term goal and require funds to invest in their growth. By selling shares, a company is effectively selling ownership in their company in return for cash. |

(Sattva analysis; Chen 2021, The World Bank n.d.; USAID 2021; Medaccess n.d.; Pande & Naik 2021; UN Statistics Division n.d. Chen 2022, Banton 2022)

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