



C/Can Digital Health Discovery Forum

# Digital Health solutions for cancer care: 10 key lessons

# About City Cancer Challenge

City Cancer Challenge Foundation (C/Can) supports cities around the world as they work to improve access to equitable, quality cancer care.

C/Can leads a city-based partnership initiative that aims to improve access to quality cancer care in cities around the world by transforming the way stakeholders from the public and private sectors collectively design, plan, and implement cancer solutions.

The approach is built on the core principle that cities can drive impact at national level by crafting data-driven solutions with the support of a network of global, regional, and local partners that reflect an understanding of the unique local context.

C/Can was launched by the Union for International Cancer Control (UICC) at the 2017 World Economic Forum Annual Meeting in Davos. It was established as a standalone Swiss foundation in January 2019.

# Background

As part of City Cancer Challenge's Digital Health Discovery Forum, sixteen practitioners and key opinion leaders from across regions and sectors (government, civil society, healthcare professionals, academia and industry) were interviewed to map innovative cancer care solutions in digital health, as well as the barriers and enabling conditions for their uptake, particularly in low- and middle-income settings. Subsequently, C/Can conducted a series of virtual regional expert dialogues on leveraging digital health solutions for cancer care with a selected group of experts from across sectors in Africa, Asia, Eastern Europe and Latin America. The aim of these action-oriented dialogues was to share insights on emerging opportunities and innovations that respond to cancer care gaps in each region and chart a path to advance solutions.

This document provides an overview of ten key learnings based on the overall themes that emerged and is intended as practical guidance for city stakeholders interested in digital health and cancer care.

# Definition of digital health

For the purpose of the Digital Health Discovery Forum, C/Can defines digital health as the convergence of advanced information and communications technologies (ICT) with public health, diagnostics, health service delivery, information dissemination and education through secure digital channels.

C/Can is currently supporting nine cities across Africa, Asia, Latin America and Eastern Europe to identify, prioritise and respond to cancer care gaps. Whilst each city is unique, common areas of need are emerging across the cities with opportunities to address these through digital health innovations, including for example:

- Training of healthcare professionals through online learning platforms
- Enhancing continuity of cancer care through information systems that promote data interchange, interoperability and accessibility
- Improving the quality of cancer diagnosis through integration of digital solutions for training and remote planning and consultation
- Promoting a people-centred approach to cancer care through improved patient navigation systems

# 10 Key lessons

on building digital health solutions for cancer care

03  
Involving  
the end-user

02  
Understanding  
the role of  
regulatory  
frameworks  
and policies

01  
Keeping the  
patient at the  
centre

07  
Fostering training  
and capacity  
building of human  
resources

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Exploring local  
ecosystems for  
investment and  
entrepreneurship

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Leveraging  
multi-stakeholder  
engagement

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Knowing the  
local context

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Maintaining a  
flexible approach  
based on evidence

09  
Ensuring  
interoperability

08  
Addressing  
data  
governance

## 01

Keeping  
the patient  
at the  
centre

Digital health solutions can overcome existing barriers for patient access to health education and care and can contribute to increased choice and transparency. The use of telemedicine, health apps, platforms and other digital information-sharing tools provides **opportunities to empower patients** in accessing information, addressing financial challenges such as reducing travel costs or immediate out-of-pocket payments, and managing the navigation of their health journey between providers and facilities, which in cancer care can be particularly fragmented.

At the same time, it is important to acknowledge specific needs of groups (such as the elderly or indigenous communities), who may have a low level of digital literacy or who, for cultural or other reasons are not able to access or are resistant to new technologies or non-traditional healthcare. **Fostering digital education and digital health literacy of patients is essential to address disparities along the digital divide and contribute to equity in access to care.**

The generation and systematisation of data as part of digital health innovation solutions, such as centralized health registries, electronic medical records, referral systems, etc. has the potential to lead to better diagnostics, decision-making and treatment and can therefore have a direct impact on patient outcomes. In turn, improved access to their own data can enable patients to be better informed, engaged and self-managed. This contributes to patient confidence, in particular when navigating complex health systems in relation to cancer diagnosis, treatment and care. **Keeping patients at the centre and enhancing transparency and thus public trust in the concept of digital health are therefore key.**



# 02

## Understanding the role of regulatory frameworks and policies

In many contexts, the **Covid-19 pandemic has accelerated digital solutions by triggering new or updated regulations and legislative frameworks, including for cancer care.**

In some countries, governments have broadened criteria for telemedicine or expanded insurance coverage for telehealth consultations, including for cancer and psychosocial support. In other contexts, however, legislation regulating telehealth or, more broadly, digital health overall is not strongly developed or restricts such practices.

**Solid and clear national e-Health strategies or digital health plans are important factors to facilitate the uptake of digital health interventions in general.** As key enablers for innovative solutions, they **create a common understanding and acceptance of digital technologies** in healthcare and can support decision-makers with guidance. Good governance frameworks and regulations, including on data privacy, should also be backed with appropriate compliance mechanisms.



# 03

## Involving the end-user

Patients and other end-users, such as clinicians, healthcare providers and others must be able to understand the benefit of digital solutions. Only a clear value for the user will enhance the acceptance and wide usage of digital tools and can overcome resistance related to existing practices or lack of technical knowledge. **Engaging patients and communities directly to ensure their needs are targeted appropriately from the start and adjusted as needed, can improve the relevance and sustainability of solutions.**

**Involving end-users early in the development of a digital solution, can also alleviate the need for additional training or capacity-building efforts.** Users that are already familiar with digital health solutions and understand their positive effects, can also act as knowledge multipliers or training focal points, as appropriate. Integrating training and capacity-building needs from the outset is thus an important consideration for innovation.

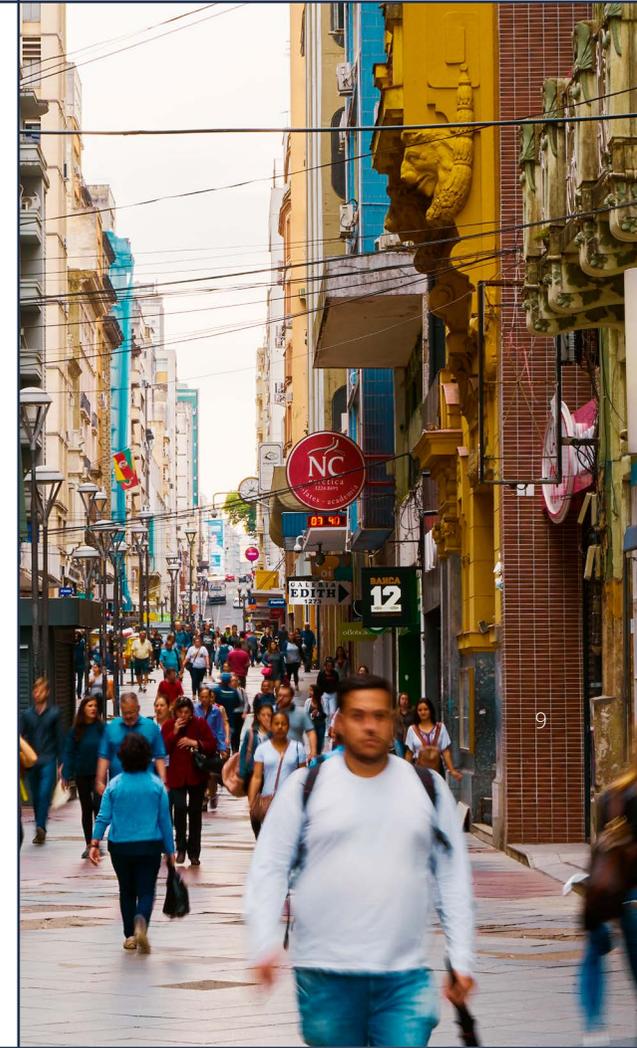


# 04

## Knowing the local context

Although there are many examples of successful digital health interventions in low- and middle- income countries (LMIC), **solutions that work in high-income settings may not always be adaptable to low- and middle-income settings.** When assessing what has already worked elsewhere and whether it is adaptable to a different context, it is therefore important to **explore the socio-economic realities and particular needs, available infrastructure and connectivity, resources, capacity, literacy level, customs and traditions in each place.** Community-based approaches can facilitate understanding of local language barriers, medical traditions and the way in which health themes are approached and communicated.

**Sometimes simple solutions can work better** and under certain circumstances, sophisticated and complex digital health solutions may not be required for a wide-reaching impact. Using technology through offline solutions, such as SMS to distribute health information where analogue phones are more commonly used than smartphones, or online patient webinars and downloadable guidance to facilitate access to information to large groups of people, may be a cost- and resource-efficient way of serving a large number of beneficiaries with limited access.



# 05

## Leveraging multi-stakeholder engagement

The setup and implementation of innovative health solutions is particularly successful when a **broad range of key stakeholders and decision-makers from the public and private sectors** are part of the process. Bridging the gap across different relevant areas, i.e. involving medical, technical and legal experts to ensure that all relevant aspects in a new initiative are covered from the outset and everybody 'speaks the same language', will not only create ownership but also contribute to the long-term success of a project.

Beyond the importance of having **governments and other key local decision-makers** on board as well as engaging **international organisations and institutions, non-traditional actors**, such as local startups, technology providers, banks and communications companies can make important contributions, increase knowledge and facilitate access and coverage.

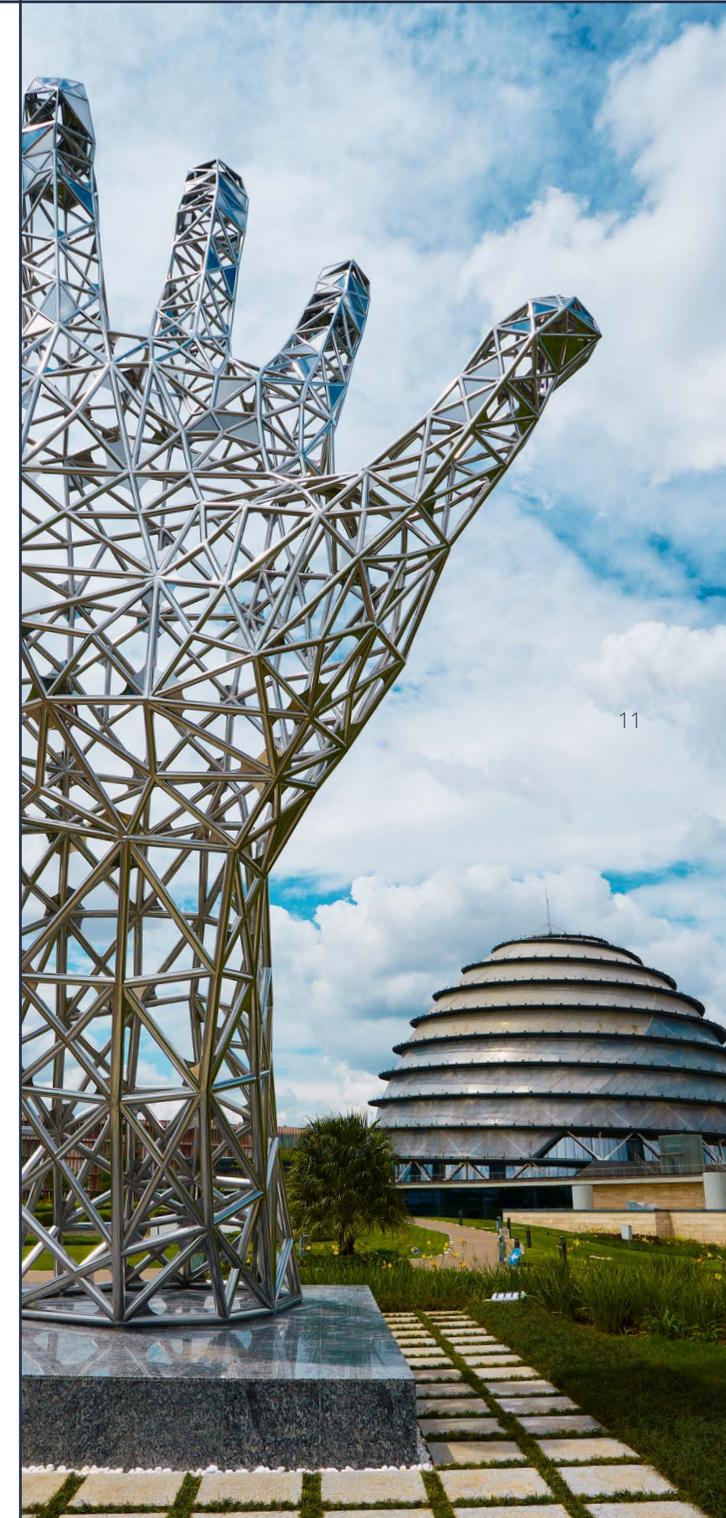


# 06

## Exploring local ecosystems for investment and entrepreneurship

While in some countries digital innovation is flourishing and encouraged by the public sector, in other settings, there is limited understanding of how digital health solutions can contribute to strengthening systems and patient outcomes. As a consequence, digital services may not be seen as viable business models for the health sector, which is often exclusively associated with investment in physical health infrastructure, equipment and human resources. Moreover, where there is a proliferation of isolated innovative digital solutions ('pilotitis'), choosing the most effective and scalable digital health interventions can remain a challenge when technical and business knowledge are limited. **Exploring the state of entrepreneurship at the local level** and the readiness for digital health innovation on the ground is thus central.

To ensure the financial sustainability aspect and the future possibility of scaling an innovative solution, **funding considerations should also take place early on**, by engaging with government stakeholders and other types of investors.

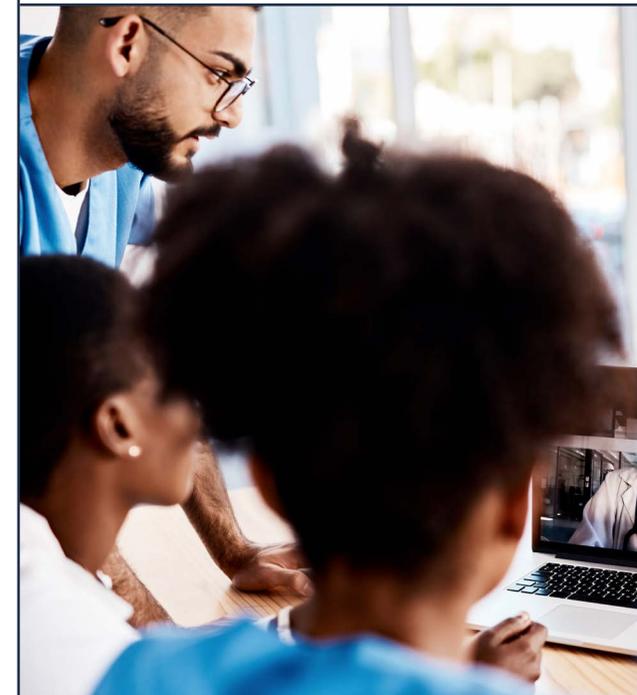


## 07

Fostering  
training  
and capacity  
building  
of human  
resources

Digital approaches can bring **opportunities for training and education of healthcare professionals**. There is evidence that digital education functions well, can efficiently replace classroom teaching for students and to some extent practitioners, is widely accessible and affordable as a successful model for the future. As long as the local culture and context are taken into consideration, such approaches can have particular value for knowledge sharing and capacity building in low-resource settings, and are increasingly relevant in the current pandemic.

**An initial assessment of needs, including available knowledge on the ground is the starting point.** This provides the basis for prioritisation and decision-making on what is feasible, cost-effective and sustainable. Examples of easily implementable or **'smart' approaches include training or technical capacity building with minimal efforts through multiplier effects** such as online training of trainers or pro-bono networks of experts, as well as easy-to-use and free digital solutions that can be used on personal devices. Some digital approaches to support service delivery such as virtual tumor boards, remote capacity building in pathology or care management, may also serve **a dual purpose of providing educational opportunities for healthcare professionals**.



## 08

Addressing  
data  
governance

**The availability and use of comprehensive, aggregated population data as well as patient information offers opportunities**, including better decision making and prioritisation, outcome assessments, risk analysis, personalised approaches. Nevertheless, **robust health-data governance to ensure the protection, oversight, transparency and accountability of all ICT-related aspects, should always remain a foremost objective of digital health solutions** and put patient interests at the centre.

Whilst in some low- and middle-income settings, data privacy laws are less comprehensive, other LMICs have restrictive data privacy laws and legitimate concerns and requirements about the location of data and making it available to third parties. **An assessment of the policy and regulatory environment on the ground is therefore the starting point for each context. Involving local governments and regulators** must be part of this process to address potential barriers early on and ensure sustainable engagement.

Restrictions on sharing digital patient information internationally may also pose difficulties for the provision of remote services across borders. While the use of anonymised data can be sufficient to develop prototypes or pilot projects, such workarounds may not work for clinical environments, where a full picture of patient history and background is required to make safe decisions and quality diagnoses or for teaching and capacity building purposes that require real-life examples.



# 09

## Ensuring interoperability



The fragmentation of cancer care systems is a frequently cited problem in LMICs. The inability to share patient data between or within healthcare facilities and the resulting absence of comprehensive patient information, duplication of medical efforts and slow processes are hampering effective diagnosis, treatment and care. Where healthcare providers are using their own, separate systems and are working in silos, important information stays restricted, rather than being used to facilitate the patient journey and work of cancer care providers to ultimately improve patient outcomes.

In order to maximise their value and ensure a lasting and broad impact, **new digital tools should therefore try to connect with what already exists in a given context.** This includes, for example, health information systems, local or national cancer registries or other digital record systems.

To ensure compatibility and security at the technical level, **new solutions should be adaptable with existing software, standards, definitions and systems in order to facilitate faster uptake and limit room for error.** Moreover, ensuring that systems are sufficiently flexible so that they can be adjusted easily once a pilot project has been completed, will ensure local ownership and sustainability.

# 10

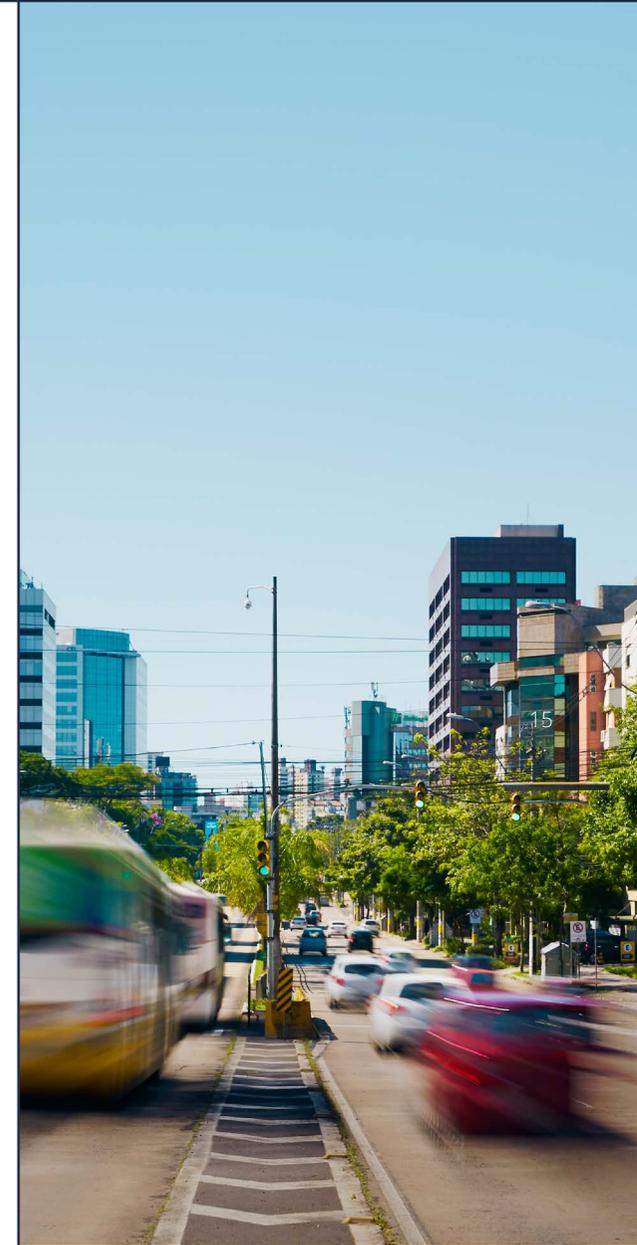
## Maintaining a flexible approach based on evidence

Part of an entrepreneurial spirit is to learn, test, validate and, if necessary, adjust. This also means being ready **to adapt to local realities, involve the right stakeholders and maintain an open and flexible approach**, while not losing sight of the long-term goal to respond to concrete local needs and the possibility of scaling.

One such approach is to learn from and **repurpose successful innovative technology solutions**, including in other sectors, disease areas or provided by non-oncology stakeholders.

There are also possibilities **to connect to existing and well-functioning systems** such as established telehealth platforms or applications. In many LMICs, there are simple solutions that already work well, are easy to adapt and do not require substantive changes. Building on what functions effectively and leveraging ‘quick-wins’ can enhance uptake in low-resource settings.

**Robust evidence is key** to this approach. A landscape assessment, database or selection of effective practices in specific regions and across countries with similar socio-economic, cultural or geographic characteristics will help understand, customize and scale digital solutions.



# Conclusion

The global Covid-19 pandemic has accelerated the uptake of digital solutions in many contexts, in particular through new policies and innovative practices in exchanging, learning and delivering healthcare services. At the same time, there has been a change of mindset among patients and providers away from traditional, face-to-face approaches to healthcare, which creates opportunities, including for cancer care.

While digital health has started to change peoples' lives, and can contribute to more equitable access to cancer care if patients remain at the centre of all efforts, there is a need to address systemic barriers and take into account differences in local infrastructure, connectivity, socio-economic circumstances and other factors.

If locally adapted, responsible and inclusive, digital health innovation has the potential to fill gaps in strengthening cancer care and make health systems more resilient. In line with its principles, C/Can will continue to contribute to collecting evidence, experiences and effective practices to foster learning and sharing across cities and regions to improve the lives of cancer patients.

C/Can is most grateful for the valuable contributions, expertise, reflections and insights shared by the interviewees, as well as chairs, panelists and participants in the regional dialogues. C/Can also extends its sincere appreciation to its partners for their contribution to this project: Bristol Myers Squibb, Icon Group, Merck & Co. (MSD), Roche, and Varian Medical Systems.



<https://citycancerchallenge.org/>



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