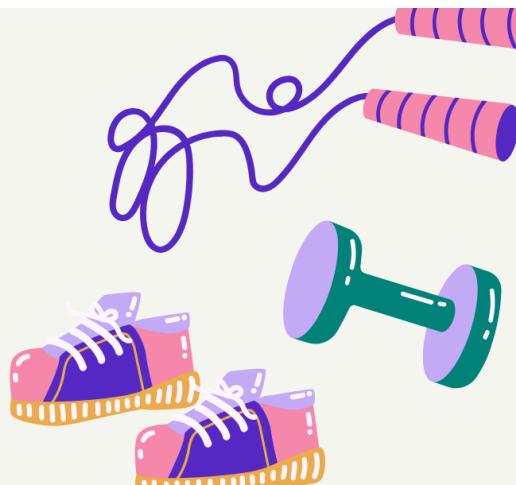


TYPE 2 DIABETES

SOLVING A CONTEMPORARY HEALTH CHALLENGE

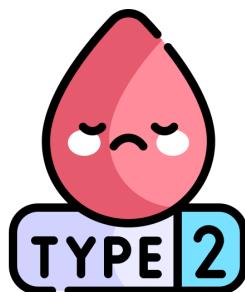


INNOVATIVE
HEALTH

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GROUP 1

GROUP REPORT



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TABLE OF CONTENTS

1. Executive Summary.....	2
2. Problem Reiteration.....	3
Figure 1: Global prevalence (Left)	
Figure 2: South Africa's prevalence (Right).....	4
3. Innovation Spectrum.....	5
Figure 3: The Ecosystem of Well-being: A Multi-Sector Partnership and Policy Framework.....	8
4. Integrated Approach.....	9
Figure 4: Visual Representation of the interconnectedness of the different types of innovation.....	12
4.7 Ideation process.....	13
Figure 4 : Ideation Process for our integrated approach.....	13
5. Stakeholder Engagement.....	15
Figure 5: Stakeholder Engagement in preventing Type 2 Diabetes.....	20
6. Scalability and Sustainability.....	21
Figure 6: Scalability and Sustainability.....	22
7. Ethical and Cultural Sensitivity.....	24
8. Measurable Outcomes.....	26
Figure 7: SMART Objectives.....	30
9. Conclusion.....	31
10. References.....	32

1. Executive Summary

Type 2 diabetes is a chronic and increasingly prevalent public health challenge in South Africa, driven by poor diet, physical inactivity, obesity and socio-economic

disparities. In 2024, nearly 589 million adults globally were living with diabetes, with projections rising to 853 million by 2050. In South Africa alone, 4.2 million individuals were affected in 2021, with nearly half undiagnosed (International Diabetes Federation, n.d.). The country's high obesity rates and unequal access to healthcare continue to strain an already overburdened system. As treatment efforts have proven insufficient to slow the rise, this report proposes a shift toward innovative, prevention-focused solutions that address the root causes of the disease. This comprehensive strategy combines policy reform, technological tools, community-based initiatives, and business innovation. School gardening programs, nutrition-focused competitions, and regulated food offerings can reshape food habits early in life, while the *Vital App* incentivises healthy behavior through point-based rewards and educational content. Community-driven events like the Diabetes Day SA can promote traditional healthy meals and accessible screenings foster social engagement, and the *VitaBites Café* model offers a healthier alternative to fast food, supported by government VAT relief. These multi-sectoral efforts promote long-term behavior change and create supportive environments for healthy living across diverse settings.

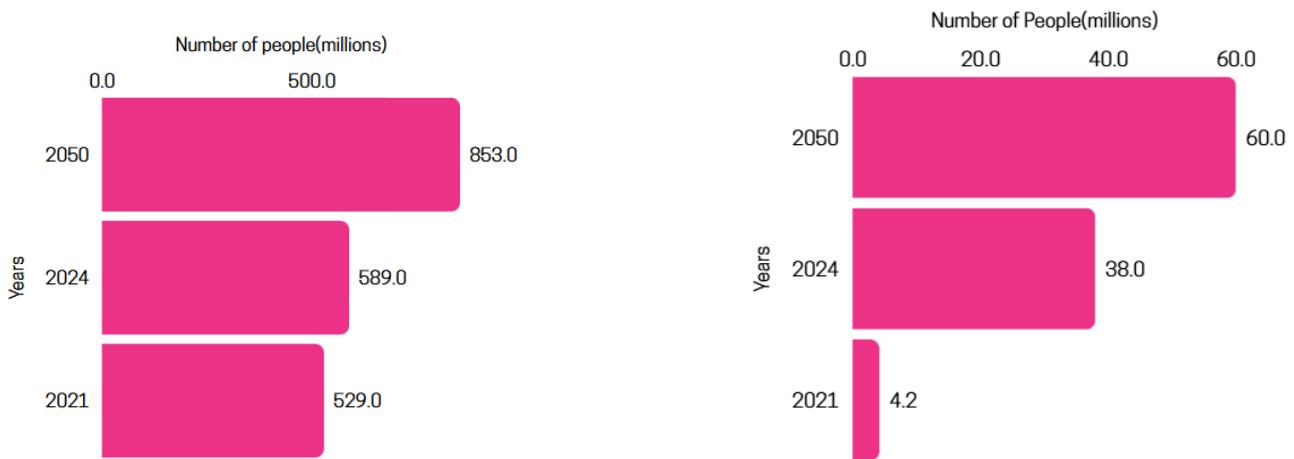
The intervention is grounded in ethical principles of equity, justice, autonomy, and cultural sensitivity, ensuring broad access and meaningful participation. It actively involves key stakeholders, students, health workers, traditional leaders, businesses, and government agencies-through co-design methods like Community Health Design Labs and mobile feedback systems. Continuous monitoring and evaluation will track progress in areas such as school garden implementation, app engagement, community event participation, and shifts in public attitudes toward diabetes. By fostering inclusivity, reducing stigma, and reinforcing cross-sector collaboration, this model presents a scalable, community-driven blueprint for reducing Type 2 diabetes in South Africa.

2. Problem Reiteration

Diabetes is a long-term non-communicable condition that develops when the pancreas produces insufficient insulin or when the body is unable to use insulin effectively (World Health Organisation, 2024). Insulin is a hormone responsible for regulating blood sugar levels. Type 2 diabetes specifically impacts the way the body uses glucose for energy. It prevents the body from using insulin effectively, which can result in elevated blood sugar levels if left unmanaged (World Health Organisation, 2024). This condition is linked to factors such as diet, physical inactivity and genetics, and is now seen in both adults and children. Type 2 diabetes can lead to serious health problems, including heart disease, kidney failure and nerve damage if not managed well (Goyal, Singhal & Jialal, 2020).

According to a study by The Lancet, 529 million people were living with diabetes globally in 2021. By 2024, this number had risen to approximately 589 million adults aged 20 to 79 (International Diabetes Federation, n.d.). More than 90% of these cases are type 2 diabetes, influenced by a combination of socio-economic, demographic, environmental, and genetic factors (International Diabetes Federation, n.d.). Based on current trends, the International Diabetes Federation projects that by 2050, 1 in 8 adults, around 853 million people, will be living with diabetes, representing a 46% increase.

South Africa on the other hand, has the highest prevalence of diabetes on the African continent, according to the International Diabetes Federation (IDF). In 2021, an estimated 4.2 million people in South Africa were living with diabetes, yet only about 55% had been formally diagnosed (Voigt, 2023). By 2024, the number of adults with diabetes across Africa had risen to approximately 38 million (International Diabetes Federation, n.d.). Based on current projections, the IDF anticipates this figure could increase to 60 million by 2050. In 2018 alone, diabetes was responsible for over 26,800 deaths in the country (Health-e News, 2023).



The statistics clearly indicate that diabetes is highly prevalent and continues to rise over time. According to Yolanda Phakela of the South African Medical Research Council, Type 2 diabetes represents a major cause of mortality and a significant contributor to morbidity in South Africa. Among the 4.6 million estimated, almost 50% of South African adults are classified as overweight or obese, a condition that significantly heightens the likelihood of developing diabetes-related complications, including high blood pressure and cardiovascular disease (Singh, 2024). This significant public health challenge is compounded by inadequate access to diagnostic services and appropriate medical care, especially in underserved regions.

The high levels of Type 2 Diabetes in South Africa overburden an already burdened healthcare system. Diabetes that remains undiagnosed or is poorly managed significantly contributes to a rise in severe health complications, including increased hospital admissions, amputations, renal failure and vision impairment. These adverse outcomes place considerable pressure on already limited healthcare resources and have a detrimental effect on population health outcomes overall (University of Pretoria Diabetes Research Centre, 2024). Hence, we would like to propose an integrated innovative solution that will rather focus on preventing Type 2 Diabetes rather than curing, for the betterment of our healthcare system and for every person with or without this NCD. By observing statistically, we have noted that when curing the disease, the rise remains on a steep hill, so why not implement an alternative approach?

3. Innovation Spectrum

In South Africa, learners are introduced to the concept of a balanced diet as early as primary school, where nutrition is taught in Life Skills and Natural Sciences (Kupolati et al., 2015). This forms part of a broader health promotion curriculum aimed at helping learners make informed choices about their health. However, despite this education, many learners are still exposed to an environment where unhealthy foods high in fat, sugar, and salt are widely available and often cheaper (Temple et al., 2006).

This suggests that unhealthy eating habits are formed early and continue into adulthood. Research has shown that there are several factors linked to the development of type 2 diabetes. Therefore, there is a clear need for innovative approaches that not only educate but also empower people to make and sustain healthier lifestyle choices.

3.1 Policy Proposal: School Gardens and Nutrition Policies (Educational and Environmental innovation)

One innovative solution is a policy change requiring every school in South Africa to have its own food garden and participate in an Annual School Gardening Competition. While similar initiatives already exist, such as those supported by CapeNature, this proposal would make participation compulsory just like sports competitions. The aim is to encourage learners to live healthier lifestyles by actively engaging in food cultivation, rather than just learning about it in theory. Gardening would be an extracurricular activity and an alternative to traditional sports, providing physical activity while also teaching about food sustainability.

The policy would also regulate the kinds of foods sold at schools, promoting the sale of fruits and discouraging the availability of high-sugar and high-fat snacks. This would help break the cycle of unhealthy food consumption and introduce a culture where fresh, home-grown produce becomes the norm.

Kupolati et al. (2015) found that some learners were reluctant to eat from the National School Nutrition Programme (NSNP) due to fear of being seen as poor. As a result,

they turned to unhealthy snacks sold by vendors and tuck shops. A shift in school policy could help tackle such stigma by making healthy eating part of school culture for everyone.

The competition could be supported by public-private partnerships, with companies like CapeNature sponsoring prizes and resources. Schools could sell surplus produce to the community at lower prices, improving access to healthy food in townships and rural areas.

3.2. Digital Support: The Vital App (Technological innovation)

Although South Africa has introduced the Health Promotion Levy on sugary drinks, which raised R5.8 billion in its first two years (Goldstein & Naidoo, 2025), further action is needed. People need to be encouraged not just to avoid unhealthy choices, but also to pursue healthier ones.

Fast food chains in South Africa often reward loyalty through discounts and point systems. A similar model can be used to promote healthy eating through a mobile app called The Vital App. This app would allow users to scan receipts for healthy food purchases and earn points that can be exchanged for discounts on groceries, airtime, or other essentials.

To support this, businesses could receive tax incentives for participating, based on the volume of healthy choices made by customers. The app would be available on any device, with each person limited to one profile. Additional features would include earning points for walking 5,000 steps per day, serving as a motivation for daily physical activity. The app would also include reminders and educational content on healthy living, diabetes, and other common South African diseases.

3.3 Community Engagement: Diabetes Day SA (Social and Cultural innovation)

This innovation is Diabetes Day SA, where communities can host Annual Events for Healthy Traditional Meals, where residents gather to cook and enjoy nutritious dishes based on traditional South African recipes. These meals would use vegetables grown in community gardens, encouraging local food production and food security.

These events would include interactive workshops on preventing and managing diabetes, the benefits of exercise, and education about other conditions such as hypertension and HIV. Health professionals and community health workers would provide tailored support, and free diabetes screenings would be offered. Personal stories from those living with diabetes could be shared, helping to reduce stigma and create a sense of community. As part of this initiative, community members could form walking groups and commit to walking together at least once a week. This fosters a sense of connection and accountability, while promoting regular physical activity.

3.4 VitaBites Cafes(Business Model)

In urban settings, the widespread availability and popularity of fast food can be attributed to its convenience, speed, and affordability, particularly for individuals with busy lifestyles and limited time for meal preparation (Rydell et al., 2008). The dominance of fast food outlets makes unhealthy food choices more accessible, often leading consumers to choose them simply out of ease and habit. This has contributed to poor dietary patterns and an increase in non-communicable diseases.

A potential solution to this issue could involve establishing an equal number of restaurants that offer healthy food options, using similar business models to successful fast food chains such as KFC and McDonald's. By mirroring their strategies in terms of pricing, branding, and accessibility, healthier food outlets may become more appealing to the general public. Furthermore, to incentivise this shift, government policy could be introduced to offer tax relief, such as a reduction or exemption from Value Added Tax (VAT), to restaurants that actively promote and uphold healthy eating norms. This approach may encourage more businesses to prioritise nutritious meals, ultimately contributing to improved public health outcomes in urban communities.



Figure 3: The Ecosystem of Well-being: A Multi-Sector Partnership and Policy Framework

4. Integrated Approach

Complex health challenges, such as unhealthy eating habits and the rising prevalence of non-communicable diseases in South Africa, demand a multifaceted and integrated response. Combining various forms of innovation processes like technological, organisational, cultural, educational and social, into a cohesive strategy enhances both feasibility and impact, increasing the likelihood of meaningful and sustained change.

4.1 Process Innovation: Structuring Engagement and Behaviour Change

Process innovation provides the backbone of the strategy by establishing clear, manageable steps for intervention delivery and stakeholder engagement. For example, implementing compulsory school gardening programmes alongside regulated healthy food sales creates a structured environment where learners actively participate in cultivating nutritious food rather than passively receiving information (Kupolati et al., 2015). This hands-on involvement fosters ownership and reinforces healthy habits.

Similarly, organising annual community events and competitions introduces regular milestones that maintain momentum and encourage continuous participation. These processes embed health promotion into daily routines and institutional practices, making behaviour change more feasible and sustainable.

4.2 Technological Innovation: Leveraging Digital Tools for Motivation and Education

Technological innovation complements process improvements by providing scalable, personalised support. The Vital App exemplifies this by incentivising healthy food purchases and physical activity through a user-friendly digital platform that rewards positive behaviours (Goldstein and Naidoo, 2025). This approach uses behavioural economics and gamification to sustain motivation beyond initial interventions.

The app's educational content and reminders reinforce knowledge gained through cultural and social initiatives, while tax incentives for participating businesses create

an enabling ecosystem. Technology thus acts as both a catalyst and a support mechanism, bridging individual actions with broader systemic change.

4.3 Organisational Innovation: Aligning Institutions and Policies

Organisational innovation ensures that institutions, from schools to local governments, adopt policies and structures that support healthy lifestyles. Mandating school gardens and regulating food sales require organisational commitment and coordination, embedding health promotion into the education system's fabric (Kupolati et al., 2015).

Partnerships between public bodies and private entities, such as sponsorships for gardening competitions and tax relief for healthy restaurants, create aligned incentives that mobilise resources and expertise. Organisational innovation thus integrates diverse stakeholders into a unified framework, enhancing the intervention's reach and sustainability.

4.4 Cultural Innovation: Shaping Norms and Values

Cultural innovation addresses the underlying beliefs and social norms that influence behaviour. By normalising gardening and healthy eating through school programmes and community events(Diabetes Day SA), the strategy shifts perceptions of food and health from abstract concepts to lived experiences (Mchiza et al., 2015).

Breaking the stigma associated with nutrition programmes, such as the National School Nutrition Programme, by making healthy eating a shared cultural practice fosters inclusivity and equity. This cultural shift creates a fertile environment for other innovations to take root and flourish.

4.5 Social Innovation: Building Community Support and Accountability

Social innovation harnesses the power of community to sustain change. Initiatives like Healthy Traditional Food Events and walking groups at a Diabetes Day SA event fosters social cohesion, peer support, and collective accountability (Mchiza et al., 2015). These social structures provide emotional and practical support, making healthy choices more accessible and enjoyable.

Engaging health professionals and community health workers in these settings ensures tailored advice and early disease detection, linking social innovation to improved health outcomes.

4.6 Synergy and Strengthened Impact

- The true strength of this integrated model lies in the synergy between its components:
- Process innovation structures activities that are amplified by technological tools offering personalised motivation and education.
- Organisational innovation embeds these activities within institutions, ensuring policy support and resource mobilisation.
- Cultural innovation shifts societal norms, making healthy behaviours desirable and socially accepted.
- Social innovation builds community networks that sustain behaviour change through support and shared commitment.

Together, these innovations create a reinforcing cycle where each component enhances the others, reducing barriers and increasing facilitators for healthy living. This layered, interconnected approach not only improves feasibility by addressing multiple determinants of behaviour but also magnifies impact by fostering an environment conducive to long-term change.

Addressing complex health challenges requires more than isolated interventions, it demands an integrated innovation strategy that blends process, technological, organisational, cultural, and social innovations. By leveraging their complementary strengths and fostering synergy, this cohesive model enhances the feasibility, reach, and sustainability of health interventions, thereby increasing the likelihood of meaningful and enduring improvements in public health.

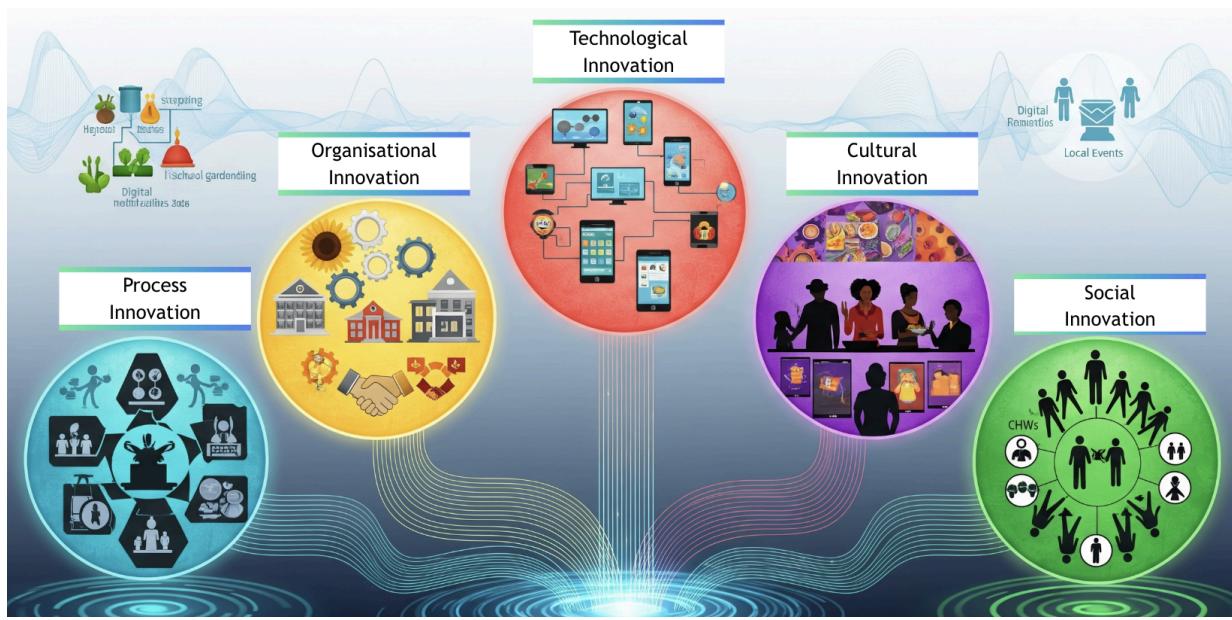


Figure 4: Visual Representation of the interconnectedness of the different types of innovation.

4.7 Ideation process

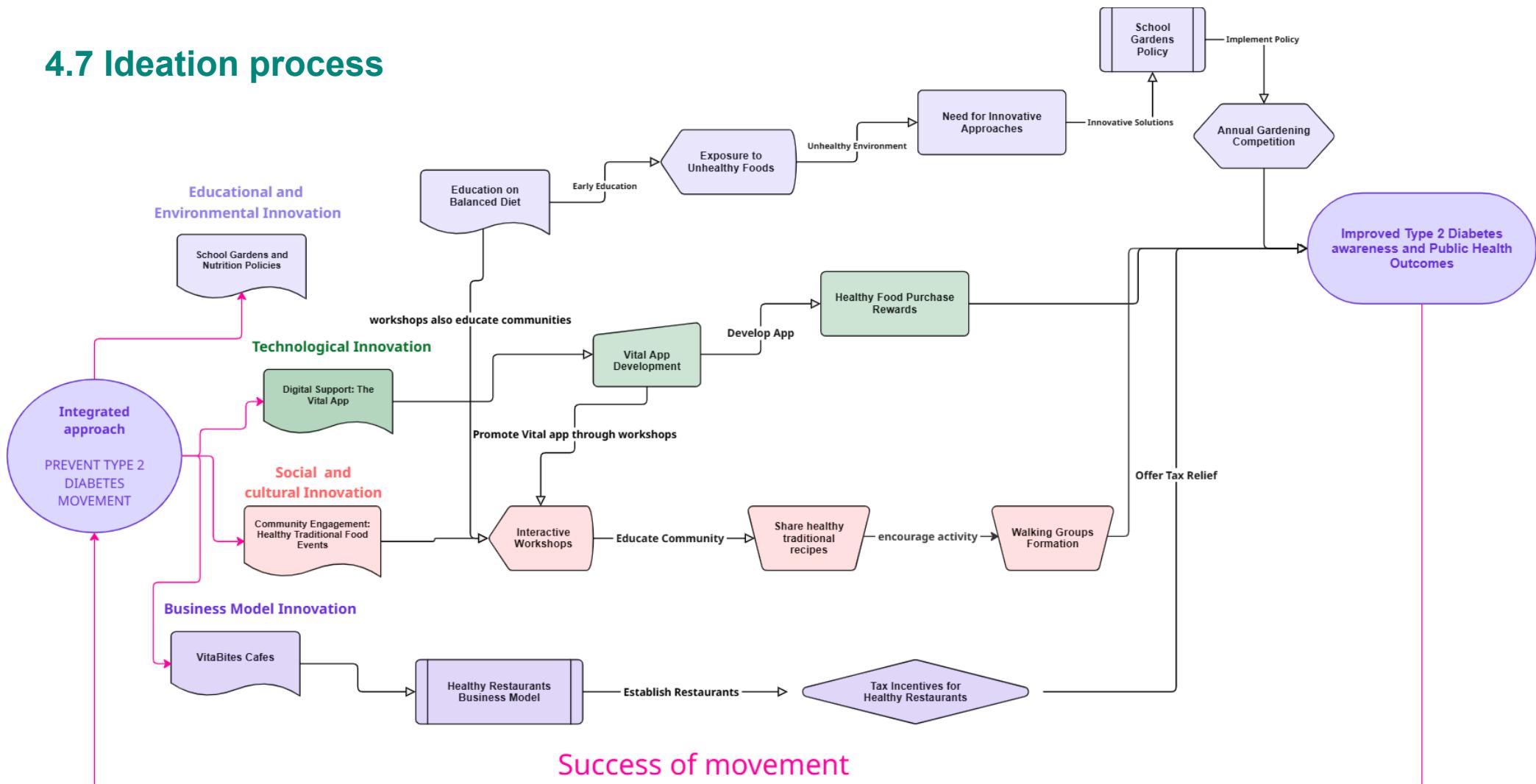


Figure 4 : Ideation Process for our integrated approach.

The ideation process presented in the diagram demonstrates a comprehensive, integrated approach to preventing Type 2 Diabetes by drawing on innovation across multiple key areas shown in the process. It begins with foundational efforts like early education on nutrition and the promotion of school gardens, which aim to reduce exposure to unhealthy foods and environments. These efforts build community awareness and spark the need for creative solutions, such as gardening competitions and supportive policies as mentioned earlier. Technological tools like the Vital App, along with community engagement through workshops and healthy food initiatives, further reinforce positive behaviour change. Sustainable business models, including healthy restaurants and tax incentives, add economic support to the movement. The entire process aligns with the Quadruple Helix Innovation Framework(Multi-sector partnership and policy backbone), which connects academia, industry, government (Fidanoski et al., 2022), and civil society to collaboratively tackle public health challenges and improve long-term outcomes.

5. Stakeholder Engagement

The successful prevention of Type 2 diabetes in South Africa centers not merely on biological advancements, but critically on the depth and quality of stakeholder involvement. Given that diabetes arises from complex behavioral, socioeconomic, and environmental factors, any truly effective intervention necessitates shared ownership among a diverse array of actors who both influence and are affected by its outcomes (World Health Organisation, 2024). Consequently, engaging stakeholders is not a peripheral activity but a strategic imperative, ensuring the intervention's social viability, ethical integrity, and cultural resonance.

5.1 Identifying Key Stakeholders

Within this framework, stakeholders are defined as individuals, groups, and organisations that either exert influence on or are impacted by the implementation of diabetes prevention initiatives (Bellen, 2025). Each brings a unique blend of authority, resources, and perspectives to the table.

5.2 Primary Stakeholders

These individuals and entities are fundamental to prevention efforts, possessing direct experience with Type 2 diabetes, and must be integrated into every phase of the intervention, from its conceptualisation to its evaluation.

- **Individuals with diabetes or at risk:** Their lived experiences provide invaluable insights into the systemic, practical, and emotional dimensions of prevention. As highlighted by Hilliard et al. (2015), they are pivotal in co-creating educational content, serving as community advocates, and leveraging personal narratives to combat stigma.
- **Students and parents:** Given that school-based nutrition and gardening programs form core components of the intervention, students and their caregivers are essential collaborators. Their input will shape how health education is delivered and received both within and beyond the classroom setting (Li, et. al. 2025)
- **Community Health Workers (CHWs):** These frontline professionals are particularly trusted in resource-constrained environments. Their participation

ensures linguistic and cultural accessibility, facilitating the integration of traditional and biomedical health approaches. CHWs will be instrumental in overseeing screening campaigns, follow-up procedures, and door-to-door health education initiatives

- **Faith leaders and traditional healers:** In many communities, traditional healers are respected custodians of health knowledge. As such, they should be engaged as partners in health promotion, rather than being viewed as adversaries to conventional medicine. Their involvement guarantees cultural alignment in communications and fosters trust.
- **Teachers and school personnel:** Educators serve as powerful proponents of health and role models. Their support will be crucial for the successful integration of the curriculum and the gardening competition.

5.3 Secondary Stakeholders

These actors influence the broader social, economic, policy, and infrastructural landscapes that can either facilitate or impede change.

- **Government agencies:** The Departments of Agriculture, Education, and Health play a critical role in fostering inter-sectoral collaboration, program integration, and policy coherence. The Treasury's involvement in fiscal policy (e.g., VAT incentives for healthy food producers) will determine financial sustainability and scalability.
- **Actors in the private sector:** Mobile app developers, supermarkets, fast-food establishments, and agricultural suppliers are significant players in transforming food environments and driving digital innovation. Policy incentives and public-private partnerships will guide their engagement.
- **Media companies:** Media partners are instrumental in disseminating information, dispelling misconceptions, and normalising new health practices through radio and online platforms. A key aspect of engagement will involve training media professionals to report on diabetes and prevention responsibly.
- **Civil society and NGOs:** Organisations already active in community mobilisation, school nutrition, and food justice offer local credibility, practical implementation experience, and advocacy reach.

5.4 Co-Design and Participatory Implementation

The intervention employs a collaborative, co-creation-based participatory design methodology. A key element of this strategy involves establishing Community Health Design Labs, which serve as structured and inviting environments for generating ideas, refining concepts, and planning implementation. These laboratories, hosted in schools, community centers, and clinics, will facilitate the customisation of various solutions, including the school garden program, the digital application (Vital App), and community food events. Students and teachers will collaboratively develop the criteria and themes for school garden competitions through co-design workshops, integrating these into the national curriculum for Life Orientation.

To ensure that health literacy levels are acknowledged and respected, community health workers, nurses, and app developers will work together to create culturally appropriate and accessible content for The Vital App. Similarly, local chefs and informal vendors will contribute to the development of menus and supply chains for improved food options, thereby merging public health promotion with commercial viability. Involving stakeholders from the outset of this intervention avoids a top-down imposition and instead emerges as a collaborative product of the community's values, expertise, and creativity.

5.5 Methods for Co-Creating Meaningful Participation

To guarantee that engagement extends beyond, several approaches will be utilised to foster genuine and inclusive participation. These include forums for deliberative discussion, which offer community members a platform to articulate and refine interventions in their native languages and according to their own preferences. These forums aim to dismantle established hierarchies that frequently marginalise perspectives and are grounded in cultural norms of collective decision-making..

The intervention will also incorporate World Café-style consultations and rotating working groups, where participants will move between discussion stations focused on different intervention components, such as school gardening, digital incentive programs, and traditional food events. This method prevents the isolation of viewpoints and ensures a cross-pollination of ideas.

5.6 Building Trust and Local Ownership

Trust is paramount in interventions that address individual lifestyle choices, health, and social norms. In South Africa, where historical marginalisation may have contributed to public mistrust of health services, deliberate measures are necessary to establish and maintain relational credibility (Madela, et. al. 2023). As intermediaries, the intervention will appoint Wellness Ambassadors, respected community members such as women's group leaders, church leaders, school principals, and traditional healers who will ensure cultural legitimacy and assist in translating technical objectives into messages relevant to the local community.

Open and honest communication is another vital element in building trust. All participants will be kept informed and acknowledged through the dissemination of intervention updates, community achievements (such as app milestones), and success stories via WhatsApp broadcasts, community bulletin boards, and local radio. Crucially, community-generated ideas will be validated as co-creators by being cited in official documents and reports. This fosters a sense of pride and ownership, thereby increasing long-term commitment to habit change and community wellness.

5.7 Valuing Diverse Perspectives and Ensuring Inclusivity

In the development of the stakeholder engagement framework, inclusivity is not merely an incidental consideration but a fundamental and intentional design principle. To ensure comprehensive linguistic accessibility across various regions, all educational materials, communication channels, and feedback mechanisms are made available in different official languages. Furthermore, particular attention will be given to gender dynamics, acknowledging the pivotal role women often play in household decisions concerning food procurement and preparation, as well as the care of elderly family members and children (Mendenhall & Norris, 2015).

Moreover, the initiative will incorporate youth advisory panels, specifically designed to empower young individuals to articulate their preferences regarding garden-related activities and the application's content. The insights garnered from these panels will directly inform the development of positive reinforcement mechanisms and contribute to the strategic design of the app's gamification features.

To ensure the inclusion of individuals with disabilities, the application will feature adaptable display options, including large-text modes and full compatibility with screen readers. Concurrently, all workshop and event venues will be selected for their physical accessibility. The commitment to inclusivity will be further strengthened through ongoing collaboration with disability advocacy organisations, continuously evaluating and refining the engagement strategies. This comprehensive and deeply integrated approach to stakeholder engagement ensures that the intervention is not simply implemented in communities, but rather developed and executed with and through them, thereby re-envisioning prevention as a collective, shared endeavor rather than a singular public health objective.

Stakeholder Engagement in Preventing Type 2 Diabetes

Co-designing for impact, inclusion, and trust

WHO IS INVOLVED



Primary diabetes



Parent- & Child

Primary Stakeholders



Community Health Worker



Traditional Healer

Secondary Stakeholders



Government Agency



Innovative App Developer



Radio Teacher

Secondary Stakeholders



Nutritionist



Male Teacher

HOW THEY WORK TOGETHER



Deliberative Forums



Community Design Labs



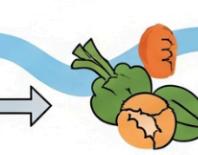
Collaborative Co-Design with Local efs/vendors



Interactive App Feedback Loops



Community Garden Competitions



Exciting Media Feedback



Youth Advisory Panel

PRINCIPLES / TOOLS FOR ENGAGEMENT



Community



SMS/
WhatsApp



World Café
Feedback



Accessibility
Feedback



Accessibility



Shared



Co-creators

TRUST & OWNERSHIP

6. Scalability and Sustainability

For a health intervention to make a real and lasting difference in people's lives, it must be both scalable and sustainable. *Scalability* means that the program can grow reaching more people in different places while still working effectively(Surfe, 2024). *Sustainability* means the program can keep going over time, even when there is less funding or external help(Elisha, 2017). These two ideas are especially important in South Africa, where many communities face health challenges related to poverty, limited infrastructure, and unequal access to care.

Innovative Idea	Scalability	Sustainability
School Gardens & Nutrition Policies	Can be implemented nationally in all schools, using existing school land and community support.	Ongoing gardens provide continuous food, education, and can generate income from surplus produce.
The Vital App	Can be used on smartphones and basic phones (USSD). Easily expandable across communities.	Rewards and partnerships with businesses make it self-sustaining and encourage continued healthy habits.
Healthy Traditional Food Events	Can be replicated in any community using local recipes and spaces.	Builds community ownership and tradition, promoting long-term healthy eating.
VitaBites Cafes	Franchising models like fast food chains for healthy food. Can expand	Tax incentives and demand for healthy

	in urban areas countrywide.	alternatives support financial sustainability.
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Figure 6: Scalability and Sustainability

Diabetes Day SA has been designed from the beginning to be easily scaled across various communities. One reason it can grow is that it uses resources that already exist: local clinics, schools, community health workers (CHWs), elders, and even open land for gardening. Because it does not rely on expensive equipment or outside experts, it can be run by people in the community themselves. For example, gardening can happen in recycled tyres or plastic containers, using compost made from food waste. These simple, low-cost methods make it possible for both rural villages and urban townships to run the same program in their own way.

Building on that, the activities in Diabetes Day SA are flexible and adaptable. Communities can choose which traditional recipes to cook based on their cultural background and available ingredients. In this way, the program respects diversity while still keeping the same core message: eat healthier, move more, and learn about diabetes. This adaptability makes the intervention more acceptable and easier to replicate in different provinces, languages, and cultures. It ensures that people feel ownership of the program and that the lessons are meaningful to them.

Another important part of the scalability of Diabetes Day SA is the use of mobile technology. The Vital App allows users to earn small rewards by buying healthy food or walking more. What makes this tool scalable is that it works not just on smartphones but also on basic cell phones through USSD codes. This means people in areas without internet or smartphones can still participate. In South Africa, where many people still rely on simple phones, this kind of low-tech solution ensures that no one is left behind (Tanzako A, 2024). As the app grows in popularity, it could even be connected to government health databases or clinic systems to track progress and expand support nationally.

The fact that Diabetes Day SA is so adaptable and inclusive leads us naturally to its sustainability and its ability to last over time. The most powerful reason the program can continue is that it is owned and led by the community. The gardens are not

managed by outsiders but by local families, elders, teachers, and volunteers. CHWs and clinic staff provide support, but the work is done by people who see the benefit in their own lives. This kind of local involvement builds pride, responsibility, and long-term commitment(Faber, Witten and Drimie, 2011) .

In addition, the skills and resources used in the program are renewable. Once a garden is planted, it can be harvested many times, providing food, seeds, and even income if families sell the extra produce. Community events and cooking demonstrations don't need to rely on big budgets; they can be run using shared spaces, local speakers, and volunteer organisers. As the program becomes more popular, local businesses and supermarkets may want to support it by donating seeds, food, or airtime rewards for the app. In this way, financial sustainability is supported through small contributions from many partners, rather than relying on one large funder.

Finally, the program is designed to link into existing systems, like ward-based outreach teams (WBOTs), school health activities, and local government health calendars. This means Diabetes Day SA doesn't operate in isolation; it becomes part of everyday life and existing health work. By building on what is already there, the program avoids duplication and becomes stronger with time.

Diabetes Day SA can be scaled because it is simple, adaptable, and locally rooted. It can be sustained because it is meaningful, low-cost, and built into community life. Together, these qualities mean that the program is not just a one-time event, it is a long-term solution to a growing national health challenge.

7. Ethical and Cultural Sensitivity

7.1 Ethical Principles Guiding the Intervention

Equity:

According to Posel and Rogan (2018) South Africa is considered one of the most unequal countries with high rates of poverty even post-apartheid. The interventions documented in this report will ensure equity across the country across all income levels. Only 26.3 people had reported using smart phones in South Africa during 2023 (Statista, 2023) which is less than half the population thus proving the need to include interventions such as the food garden and Diabetes Day community awareness. These interventions will ensure that all socioeconomic groups benefit. The interventions are targeted at all population groups based on their interests, resources that they have access to and their geographic location

Autonomy:

The interventions aim to uphold the autonomy of all the individuals involved in the innovations. It is important to consider various factors which may affect the autonomy of individuals when creating an innovation such as culture, social status, religion and intersectional (Akhtar, Bhatti and Fredericks, 2024). Informing individuals about the interventions in a language that they understand will ensure that the decision to use the innovation will be an informed one. Furthermore, although there will be benefits such as points for the intervention, this will not force people to take part based on their socioeconomic status, nor will it go against any religion or culture. Deciding to use an intervention will not be a lifetime commitment because individuals will be able to enrol and exit as they please.

Justice:

All innovations are designed to be fair to all citizens of South Africa. The innovations will be further tailored to the needs and challenges of the community. For example, those in urban areas who do not have access to abundant space for gardening will not receive the same education and expectation as those who do. Furthermore, those in socioeconomic areas who cannot afford smartphones and watches will not

be expected to partake in the exact same intervention. Community assessments will be conducted to ensure justice across all interventions.

Non-maleficence and Beneficence:

All innovations are designed in a way to ensure that all beneficiaries will benefit and that potential harm is minimised. There may be moral dilemmas when it comes to “doing no harm” (Motloba, 2019) however these innovations ensure that the risk for physical and psychological harm is minimal. Should any risks occur after the innovation have been implemented there will be a team to ensure that the risks are identified and mitigated.

7.2 Cultural Sensitivity and Community Engagement

- Respect for Cultural Beliefs and Traditions:**

According to Koenane (2017) South Africans still believe in traditional leadership and beliefs. Ensuring that the innovations are endorsed by traditional leaders in communities with this type of leadership will assist in aligning the innovation with community beliefs and increasing an appeal. Furthermore, creating a partnership with traditional leaders and healers will ensure that they are also informed and educated about diabetes and may be able to refer people to the clinic aiding in early recognition.

- Community Involvement:**

Involving community members, home based care workers and other community members as stakeholders in the innovation, will ensure that the input of the community is considered and that the innovation is culturally appropriate across the board. In urban areas, there will be collaboration with local health care facilities, schools, supermarkets and gyms. Allowing various stakeholder engagement will assist in identifying community needs and culture while also ensuring that the innovation gains support from the communities.

7.3 Strategies to Ensure Inclusivity and Reduce Stigma

- **Language**

South Africa has 12 official languages including sign language, by ensuring that the innovations are available in all languages will ensure that everyone is accommodated. Furthermore with the assistance of healthcare workers the health promotion and education can accommodate the languages spoken in communities.

- **Avoiding Harm and Stigma:**

According to Pillen and Ward (2021), there is a growing stigma in relation to diabetes. Educating people about diabetes, may contribute to the reduction of this stigma. Furthermore, the innovations will maintain the confidentiality of individuals to ensure that their personal data and information is protected.

7.4 Monitoring and Evaluation

There will be continuous monitoring of the population that uses the innovation to ensure that trends are recognised and that should there be a need for improvement it is done. Furthermore, the evaluation will assist in identifying and mitigating the risk associated with the innovation. The evaluation by an impartial team will also ensure that the ethical standards are upheld and the effectiveness of the innovation is tested and upheld.

8. Measurable Outcomes

To understand whether this intervention is making a real difference, it is important to track both the small and bigger changes happening in schools, homes, and communities. Since this approach brings together several types of innovation such as school gardening, digital tools, partnerships, and cultural practices, the outcomes need to reflect how these parts support each other in practice

In schools, outcomes will include the number of food gardens established and maintained, along with learner participation in gardening activities. Teachers will help

track participation through activity logs. Changes in school shops offerings will be observed, particularly any increase in the sale of fruits and a decrease in unhealthy snacks. To measure shifts in knowledge and behaviour, short surveys will be conducted with learners and teachers before and after the implementation of garden based activities.

On the community side, events focused on healthy traditional meals will be assessed by how many people attend, and how many families get involved in cooking and workshops. These events will also offer free diabetes screenings, a record of how many people take up this offer will be kept. Follow-up surveys and community discussions will be used to assess whether participants have adopted healthier food preparation methods or increased physical activity.

The mobile app, *The Vital App*, adds another layer to this. It is not just about counting downloads it is about how people actually use it. Key indicators will include registration numbers, frequency of receipt scanning for healthy food purchases, average step counts logged, and the number of points earned and redeemed. Engagement with educational features, such as health tips and in-app quizzes, will also be tracked to determine knowledge improvement.

On a larger scale, the involvement of businesses and government support will be measured by looking at how many restaurants or stores take part in offering healthy options and how many apply for VAT reductions as part of the incentive scheme. Sales data from these outlets will help show whether people are choosing healthier meals when they are made more available and affordable.

Cultural innovation outcomes will be assessed by the number of culturally relevant meals prepared during community events, participation of traditional leaders and healers, and changes in public attitudes towards diabetes. Surveys and interviews will be used to explore reductions in stigma and increased acceptance of preventive health practices that align with cultural beliefs.

Social outcomes will include levels of participation in walking groups, youth advisory panels, and other community-led activities. Feedback channels such as SMS, WhatsApp, and in-person sessions will provide further insight into community

engagement and satisfaction. Inclusivity will be measured by assessing access to the intervention across different languages, regions, age groups, and ability levels.

At a broader level, integrated outcomes will reflect changes in lifestyle behaviours, such as improvements in diet and physical activity, increased rates of diabetes screening, and better health literacy. Stronger partnerships between schools, clinics, businesses, and civil society groups will also be used as an indicator of sustainable collaboration. Data will be collected through a combination of surveys, school and clinic records, app usage data, event attendance lists, and stakeholder feedback tools. These findings will support ongoing refinement of the intervention and help ensure long-term health improvements within diverse South African communities.

8.1 SMART Objectives and Measurable Outcomes

Our SMART objectives are summarised below, showing how progress will be measured and monitored.

Activity	SMART Objective	Measurement	Data Collection Method
School Gardens	By December 2025, at least 80% of participating schools will establish and maintain a food garden with active participation from at least 50 learners per school.	Number of gardens created and maintained; number of learners actively involved.	School activity logs, teacher reports, site visits.
Vital App	By 12 months post-launch, 5,000 users will have registered and scanned at least one healthy food	App usage statistics, receipts scanned, points redeemed.	App analytics, system logs, user surveys.

	receipt, with an average of 20 points redeemed per user.		
Community Food Events	By November 2025, at least 1,000 community members will attend Healthy Traditional Food Events, with 50% completing free diabetes screenings.	Event attendance records; screening records.	Event sign-in sheets, health worker screening reports.
VitaBites Cafes	Within one year of opening, each café will achieve a 30% increase in healthy meal sales compared to baseline fast food sales in the same area.	Monthly sales figures, meal category tracking.	Sales reports, point-of-sale data, customer purchase logs.
Walking Groups	By June 2026, at least 20 active community walking groups will be established, each meeting at least once a week with an average of 15 participants per walk.	Number of groups; frequency of walks; average group size.	Group leader logs, sign-in sheets, community health worker reports.

Stigma Reduction & Cultural Acceptance	By the end of year one, 70% of community participants report increased knowledge about diabetes prevention and decreased stigma in surveys.	Survey results showing knowledge gain and attitude change.	Pre- and post-intervention surveys, focus groups.
Inclusivity	By the end of year one, all materials and tools will be available in at least 5 official languages and accessible formats for people with disabilities.	Language and accessibility compliance checks.	Review of materials, usability testing, disability advocacy group feedback.

Figure 7: SMART Objectives

9. Conclusion

This report presents a comprehensive and innovative strategy to reduce the escalating prevalence of Type 2 diabetes in South Africa by focusing on prevention rather than treatment. The Diabetes SA initiative is transforming the national approach to diabetes prevention by leveraging mobile technology to convert everyday choices into lasting behavioural changes. Additionally, it revitalises cultural traditions through celebrations centered on nutritious eating and transforms educational institutions into experiential environments that promote nutrition awareness. Supported by inclusive policies and measurable outcomes, the initiative fosters collaboration among educators, traditional leaders, app developers, and government agencies, uniting them toward a shared objective. Each element functions collaboratively within a holistic system designed to make healthy living sustainable, engaging, and accessible. With its strong emphasis on cultural relevance, cross-sector partnerships, and ethical principles, this model offers a versatile and thorough framework for reducing the incidence of Type 2 diabetes and fostering a healthier South Africa.

Word count: 6545

10. References

- Akhtar, M.U., Bhatti, M.E. and Fredericks, S. (2024). What factors influence patient autonomy in healthcare decision-making? A systematic review of studies from the Global South. *Nursing Ethics*, 32(3). doi:<https://doi.org/10.1177/09697330241272794>.
- Bellen, K. (2025). Understanding Different Types of Stakeholders and Their Roles. Project management articles. Available at: [Understanding Different Types of Stakeholders and Their Roles](#)
- Elisha (2017). *7 Basic Ways To Sustain Your Projects | Charity Grants HQ*. [online] Charity Grants. Available at: <https://www.charitygrantshq.com/7-basic-ways-to-sustain-your-projects/>.
- Faber, M., Witten, C. and Drimie, S. (2011). Community-based agricultural interventions in the context of food and nutrition security in South Africa. *South African Journal of Clinical Nutrition*, 24(1), pp.21–30. doi:<https://doi.org/10.1080/16070658.2011.11734346>.
- Fidanoski, F., Simeonovski, K., Kaftandzieva, T., Ranga, M., Dana, L.P., Davidovic, M., Ziolo, M. & Sergi, B.S., (2022). The triple helix in developed countries: when knowledge meets innovation? *Heliyon*, 8(11), e10168. Science Direct. Available at: <https://www.sciencedirect.com/science/article/pii/S2405844022014566#:~:text=Consequently%2C%20industrial%20societies%20have%20gradually,Bagchi%2DSen%2C%202010>).
- Goldstein, S., & Naidoo, P. (2025). Impact of the Health Promotion Levy on sugary drinks in South Africa. *South African Journal of Public Health*, 20(1), 45–58.
- Goyal, R., Singhal, S. and Jialal, I. (2020) ‘Type 2 diabetes mellitus: Pathogenesis and treatment’, *StatPearls*. Available at: <https://www.ncbi.nlm.nih.gov/books/NBK513253/>
- Health-e News (2023) *Diabetes-related deaths more than doubled in the past decade*, 7 November. Available at: <https://health-e.org.za/2023/11/07/diabetes-related-deaths-more-than-doubled-in-the-past-decade/>

- Hillard, M. E., Sparling, K. M., Hitchcock, J., Oser, T. K., & Hood, K. K. (2015). The emerging diabetes online community. *Current diabetes review*, 11(4), 261-272. Available at: <https://doi.org/10.2174/1573399811666150421123448>
- International Diabetes Federation (n.d) *Diabetes facts and figures*. Available at: <https://idf.org/about-diabetes/diabetes-facts-figures/>
- International Diabetes Federation (n.d) *South Africa: IDF member*, retrieved from IDF Africa regional network. Available at: <https://idf.org/our-network/regions-and-members/africa/members/south-africa/>
- Koenane, M.L.J. (2017). The role and significance of traditional leadership in the governance of modern democratic South Africa. *Africa Review*, 10(1), pp.58–71. doi:<https://doi.org/10.1080/09744053.2017.1399563>.
- Kupolati, M. D., Gericke, G. J., & MacIntyre, U. E. (2015). Nutrition education in South African primary schools: Challenges and opportunities. *South African Journal of Clinical Nutrition*, 28(4), 167–172. <https://pubmed.ncbi.nlm.nih.gov/27064924/>
- Madela, S. L. M., Harriman, N. W., Sewpaul, R., Mbewu, A. D., Williams, D. R., Sifunda, S., Manyaapelo, T., Nyembezi, A., & Reddy, S. P. (2023). Area-level deprivation and individual-level socioeconomic correlates of the diabetes care cascade among black South Africans in uMgungundlovu, KwaZulu-Natal, South Africa. *Plos one*, 18(12), e0293250. Accessed from: <https://doi.org/10.1371/journal.pone.0293250>
- Mchiza, Z. J., Parker, W., & Shung-King, M. (2015). Traditional foods and nutrition security in South African communities. *Nutrition Reviews*, 73(10), 695–707. DOI: <https://doi.org/10.1093/nutrit/nuv032> <https://academic.oup.com/nutritionreviews/article/73/10/695/1938743>
- Motloba, P. (2019). Non-maleficence - a disremembered moral obligation. *South African Dental Journal*, 74(1), pp.40–42. doi:<https://doi.org/10.17159/2519-0105/2019/v74no1a7>.
- Pillen, H. and Ward, P.R. (2021). How might diabetes organisations address diabetes-related stigma? Findings from a deliberative democratic case study. *Health Expectations*, 25(5). doi:<https://doi.org/10.1111/hex.13398>.
- Phakela, Y. (2024). *Diabetes in South Africa: the need for evidence-based science and decisive leadership*. South African Medical Research Council (SAMRC), Available at:

<https://www.samrc.ac.za/news/diabetes-south-africa-need-evidence-based-science-and-decisive-leadership>

- Posel, D. and Rogan, M. (2018). Inequality, Social Comparisons and Income Aspirations: Evidence from a Highly Unequal Country. *Journal of Human Development and Capabilities*, 20(1), pp.94–111. doi:<https://doi.org/10.1080/19452829.2018.1547272>.
- Rydell, S. A., Harnack, L., Oakes, J. M., Story, M., & Jeffery, R. W. (2008). Fast food consumption and health outcomes in urban South Africa. *Public Health Nutrition*, 11(8), 789–796. DOI: <https://doi.org/10.1017/S1368980007001339>
<https://www.cambridge.org/core/journals/public-health-nutrition/article/fast-food-consumption-and-health-outcomes-in-urban-south-africa/3C7A6F4D9C5B7A6F4E3A3E1F2F1B4E4C>
- Singh R.S., (2024). World Diabetes Day 2024: Raising Awareness and Improving Access to Care. Health Systems Trust. Available at: <https://www.hst.org.za/media/blog/Lists/Posts/Post.aspx?List=7e537fad%2Db20f%2D4a5c%2Dae54%2D855b08e3bb99&ID=262&Web=dcbfef2f%2D5815%2D4f54%2D8d0f%2D3f8135ce8e11#:~:text=The%20Diabetes%20Crisis%20in%20South,tools%2C%20worsening%20the%20diabetes%20crisis.>
- Statista (2023). *Smartphone users in South Africa 2014-2023 | Statista*. Statista. Available at: <https://www.statista.com/statistics/488376/forecast-of-smartphone-users-in-south-africa/>.
- Surfe (2024). *Scalability: Grow Your Business Without Limits*. [online] SURFE. Available at: <https://www.surfe.com/glossary/scalability/> [Accessed 5 Jul. 2025].
- Tanzako A (2024). *Leveraging USSD for Healthcare: Opportunities and Challenges* - arkesel.com. [online] arkesel.com. Available at: <https://arkesel.com/leveraging-ussd-for-healthcare-opportunities-and-challenges/> [Accessed 5 Jul. 2025].
- Temple, N., Steyn, N. P., Myburgh, N. G., & Nel, J. H. (2006). Food items consumed by students attending schools in disadvantaged communities in Cape Town, South Africa. *Nutrition*, 22(1), 252–258. DOI: <https://doi.org/10.1016/j.nut.2005.11.003>

<https://doi.org/10.1016/j.nut.2005.08.005> Abstract and access via:
<https://www.sciencedirect.com/science/article/abs/pii/S0899900705001817>

- UK Innovation Strategy. (2023). Building a Global Innovation Hub: Policy Framework. UK Government Publications. Available at: <https://www.gov.uk/government/publications/uk-innovation-strategy-building-a-global-innovation-hub>
- University of Pretoria, 2024. *UP Expert Opinion: South Africa has more than 4 million people living with diabetes – many aren't getting proper treatment.* Available at: https://www.up.ac.za/diabetes-research-centre/news/post_3214595-up-expert-opinion-south-africa-has-more-than-4-million-people-living-with-diabetes-many-arent-getting-proper-treatment
- V. Li, S. M. Carter, L. Rychetnik, (2025). Evidence valued and used by health promotion practitioners, *Health Education Research*, 30,(2), Pages 193–205, <https://doi.org/10.1093/her/cyu071>