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IMMERSIVE SELF-CARE: A 2030 REALITY IN MIDDLE EAST?

AUTHORED BY: ANKIT A. SHUKLA,
Vice President, TechVision Practice, Frost & Sullivan

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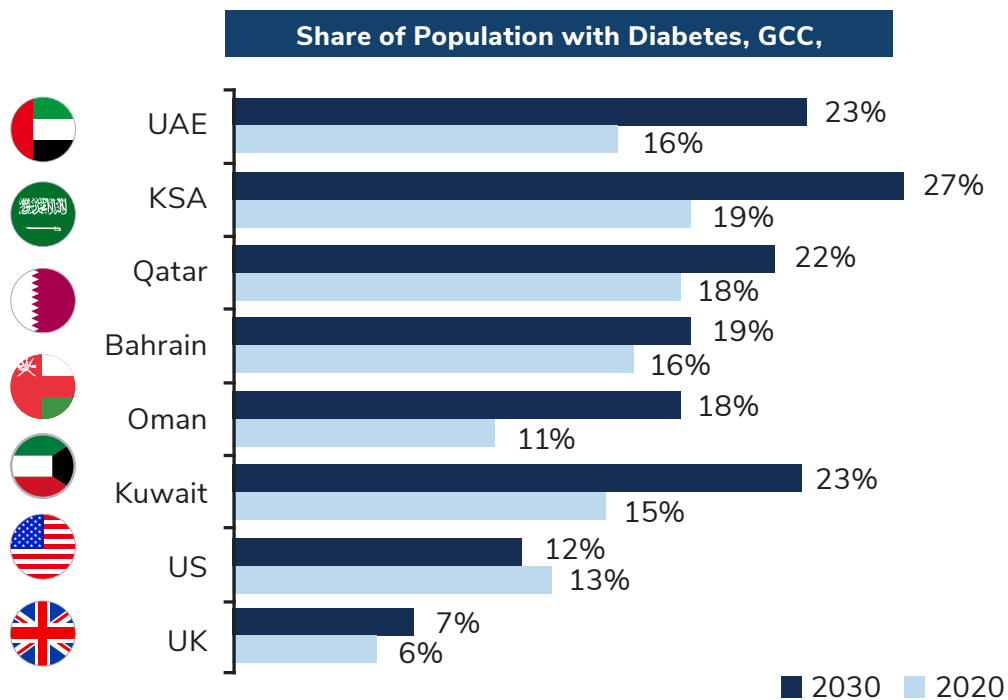
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Personal health + wellbeing, and the awareness around it, took hyper precedence during COVID-19. Even though “COVID-19 times” feels like a bad dream to most of us right now, the desire to be healthy is increasingly the number 1 priority for individuals and governments on the planet.

The disease burden in the Gulf Cooperation Council (GCC) is skewed towards lifestyle diseases, driven by sedentary practises; obesity rates are very high, leading to diabetes and cardiovascular diseases (CVDs).

Not surprisingly, the disease burden is projected to increase significantly in the future as shown below.

To manage the ballooning impact on the population, healthcare-related spending in GCC is forecasted to reach approximately **\$110 billion by 2025**.



\$22B Healthcare expenditure for diabetes in GCC by 2040

18X Multiple of diabetes treatment cost at later stages versus early stages

50% Reduction in prevalence of diabetes with effective preventive programs

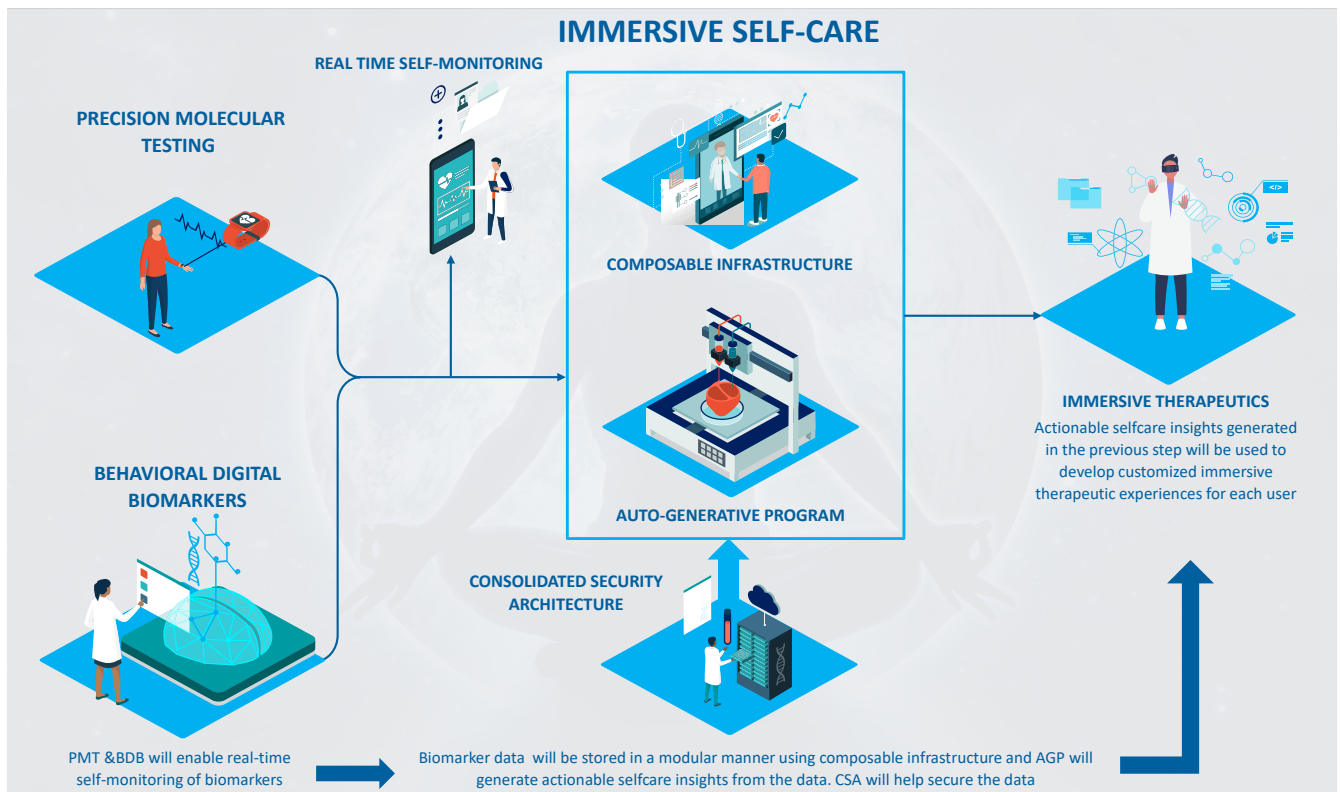
Key: NCDS-Non-communicable Diseases; CVD-Cardiovascular Diseases

Source: Frost & Sullivan

The old adage “prevention is always better than cure” has always been an aspiration for players in the GCC Healthcare ecosystem. The real way to realise the true potential of this adage – **convergence of technologies and business models.**





Frost & Sullivan believes the GCC as a region packs the desire and potential to drive this convergence of technologies and business models by 2030. **Immersive Self-Care (IS-C)** is one such convergence scenario that provides an extraordinary growth opportunity. IS-C will:

1. Leverage technologies such as behavioral digital biomarkers + precision molecular testing + immersive therapeutics to assess individual physical and mental health.
2. It will then, provide customised self-care recommendations to maintain and improve a user’s holistic well-being.
3. Composable infrastructure will help create modular biological data centers that improve the flexibility and efficiency of data access for processing clinical insights.
4. Auto-generative programs that leverage machine and deep learning algorithms to derive actionable wellness insights and recommendations will facilitate such large volumes of biological data.





Source: Frost & Sullivan

ENABLING TECHNOLOGIES IN IMMERSIVE SELF-CARE

Technology	Description	Benefits to Immersive Selfcare	Technology Readiness Level
Precision Molecular Testing	Precision molecular testing comprises a toolbox of screening tests and clinical diagnostics that can be used for health assessment, disease prevention, and therapy selection. It can be applied across the self-care continuum, including disease prevention, self-monitoring, and personalized self-management.	It enables accurate and real-time self-monitoring of physiological biomarkers using sensors, wearables, smartphone apps, and connected devices.	 1 2 3 4 5 6 7 8 9
Behavioral Digital Biomarkers	Behavioral digital biomarkers refer to quantifiable measurements of human behavioral data such as physical activity, sleep patterns, eye movement, and voice samples obtained through digital technologies, such as smartphones, wearables, and internet-connected devices. The large volumes of collected data can be used to track patterns of different symptoms to better understand health and disease. Behavioral digital biomarker analysis can significantly improve preventive measures and personalized treatments.	It enables accurate and real-time self-monitoring of physical and behavioral biomarkers using sensors, wearables, smartphone apps, and connected devices.	 1 2 3 4 5 6 7 8 9
Composable Infrastructure	Composable infrastructure is introducing modularity into an organization’s data centers. It facilitates flexibility and efficiency in the infrastructure according to organizational needs and objectives. This enables them to optimally use their infrastructure by disintegrating components from restricted silos.	It will help modularly organize biomarker data and will improve the flexibility and efficiency of data access.	 1 2 3 4 5 6 7 8 9
Auto-Generative Program	It is a technology based on un-supervised and semi-supervised learning techniques that can create content such as text, software codes, images, audio, video, or any other type of creative content in response to the prompt input by identifying its abstract or underlying patterns. The content can be created based on machine learning/ deep learning (ML/DL) algorithms to generate a creative, systemized, and optimized human-like output.	The technology will be able to process biomarker data to derive meaningful and actionable self-care insights using ML/DL algorithms.	 1 2 3 4 5 6 7 8 9

ENABLING TECHNOLOGIES IN IMMERSIVE SELF-CARE (CONTINUED)

Technology	Description	Benefits to Immersive Selfcare	Technology Readiness Level
Immersive Therapeutics	Immersive therapeutics include the use of digital technologies such as augmented reality (AR), virtual reality (VR), and extended reality (ER) to develop virtual worlds that create an immersive therapy environment for patients to treat various diseases. The immersive environment improves user experience, treatment adherence, and clinical outcomes.	Immersive therapies can be leveraged for self-care practices to improve physical and mental wellbeing.	
Consolidated Security Architecture	Consolidated security architecture is the new comprehensive approach to cybersecurity challenges throughout an attack surface, be it across networks, mobile and fixed endpoints, multi-cloud environments, or various other devices. This brings more visibility and control to threat management with increased efficiency and cost-effectiveness.	This technology can be pivotal to protecting user biological data in multi-cloud environments and wearable devices.	

Key factors driving the Immersive Self-care scenario:

- COVID-19 Pandemic:** The pandemic re-instated the need to focus on self-care to improve an individual’s holistic health, immunity, and well-being. Global healthcare providers have also encouraged self-care practices to reduce the global healthcare burden and enable proactive health monitoring. This can delay or prevent the onset of diseases, especially lifestyle disorders such as obesity and type 2 diabetes.
- Rising Investments:** Precision molecular testing, an integral component of self-care, received around \$5 billion in funding between 2021 and 2022. This will fuel the development, launch, and adoption of new self-monitoring and digital healthcare tracking platforms. It will also lead to the development of personalised health management initiatives through immersive self-care therapy platforms.
- Rapid Advances in Immersive Technologies:** Technological advances in AR/VR and mixed reality (MR) platforms have enabled the development of an immersive user experience that can be harnessed for diverse self-care practices. Several companies are developing products and services that help users access these immersive platforms for self-managing pain, anxiety, insomnia, and isolation.

What's accelerating IS-C are the on-going industry efforts around:

- Growing Healthcare-IT Collaborations
- Emerging Regulations
- Personalization of Innovations

For the GCC, the potential of IS-C can be realised through overcoming the following challenges:

1. Bolstering Cross-Industry Collaborations:

- While there are growing healthcare IT collaborations and rapid advancements across immersive therapy platforms, there is a need to improve collaboration across self-tracking and immersive therapy technologies. There is also a rising need to integrate IT technology components pertaining to data storage, interpretation, insights, and data security.
- All these collaborations should happen simultaneously to create a single-stop convergence scenario to actualise a holistic and immersive self-care experience for users.
- After such collaborations, there will be a need to test the safety and efficacy of such platforms in real-world settings to establish clinical evidence and build reliable products and services that help provide an immersive self-care experience tailored to individual user needs. Start-ups striving to build simplified and energy-efficient chips/software that respond with human speed

2. Drafting Robust Regulatory Guidelines:

- As self-care technologies rapidly emerge to improve wellness and self-management, there is a need to quickly develop robust and streamlined regulatory guidelines to ensure the safety and effectiveness of self-care services and products. Currently, there are a few regulatory guidelines that are not synchronised.
- There is also a need to introduce national level policies that mandate self-care practices under defined circumstances to help prevent or delay diseases and encourage proactive self-care in the region.

In summary, can Immersive Self-Care technology convergence scenario deliver impact, as a reality for the GCC, by 2030?

Yes, It's Possible!





About Frost & Sullivan

For over six decades, Frost & Sullivan has provided actionable insights to corporations, governments and investors, resulting in a stream of innovative growth opportunities that allow them to maximize their economic potential, navigate emerging Mega Trends and shape a future based on sustainable growth.

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GITEX Global, the world's largest tech show, returns to Dubai World Trade Centre from 16-20 October 2023. Under the overarching theme "The year to imagine AI in everything," the event will bring together global tech experts, seasoned investors, world-class leaders, and prominent developers from 176 countries. GITEX Global 2023 will gather over 170,000 trade buyers, 6,000 exhibitors, and 1,400 speakers. Following the record-breaking success of the 42nd edition in 2022, the flagship event will launch three new co-located shows this year: GITEX Impact, Future Urbanism EXPO, and SuperBridge Summit Dubai. Attendees are also going to access the conference agenda and exhibition halls of industry-defining events, such as Ai Everything and Global DevSlam. In 2023, GITEX Global will also inspire the world's largest start-up and investors event, Expand North Star, to grow even further, taking place for the first time from October 15-18, at the iconic Dubai Harbour.

DUBAI

2601, Swiss Tower, Cluster Y
PO Box 33372
Jumeirah Lake Towers
Dubai, UAE
Tel: +971 4 433 1893

RIYADH

F16, Level 1, Localizer Mall
2803 Prince Muhammad Bin
Abdulaziz Rd
Al Olaya, Riyadh 12222
Tel: +966 11 486 8463

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myfrost@frost.com

 877.GoFrost

 <http://www.frost.com>

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