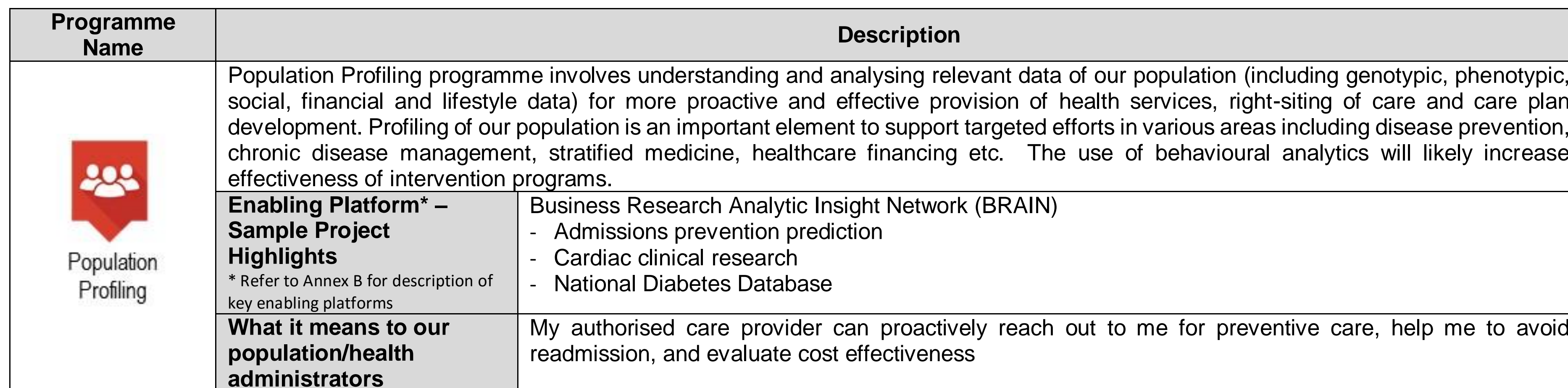
For Immediate Release

Annex A

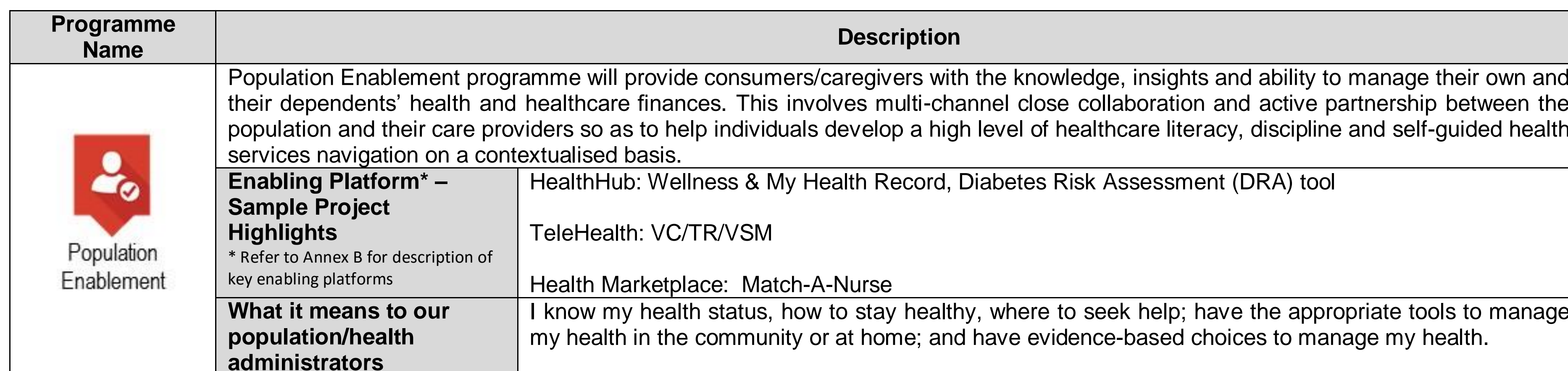
Health IT Master Plan (HITMAP)

The Health IT Master Plan (HITMAP) started development in mid-2013 through a business-driven consultative process involving more than 850 stakeholders across the health ecosystem to achieve the goals set out in the Healthcare 2020 Master Plan for accessible, high-quality and affordable healthcare. By early 2014, HITMAP had begun to serve as a strategic IT master plan to guide IT efforts and investments.

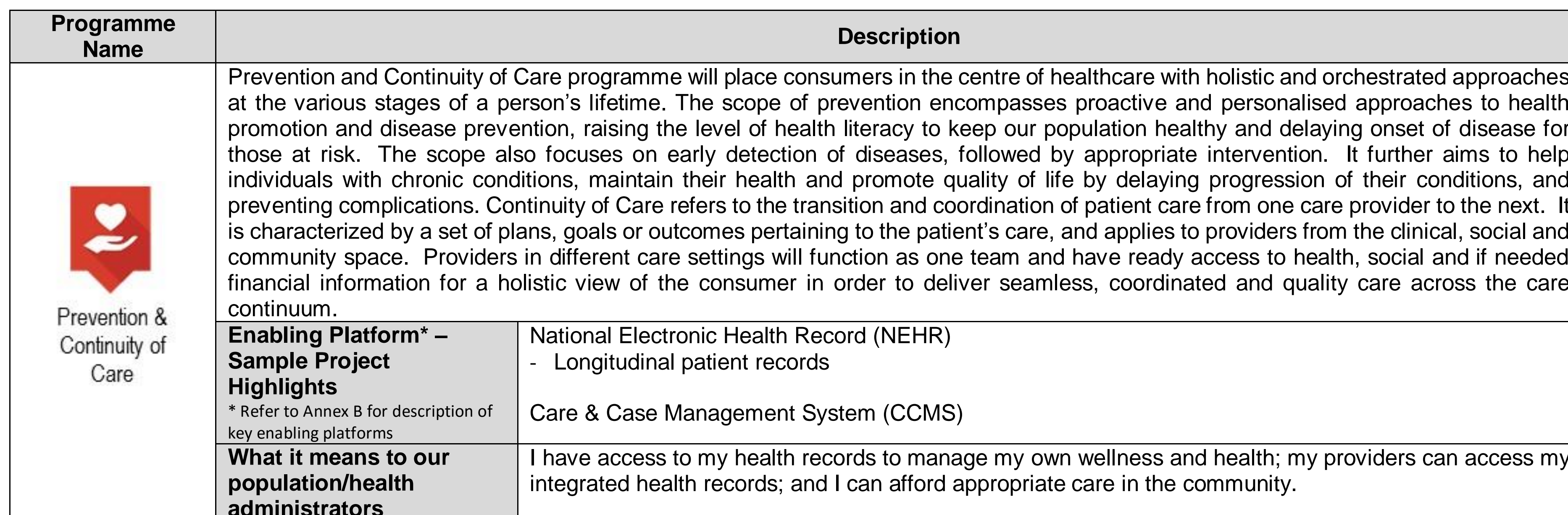
HITMAP is a strategic technology roadmap that comprises **seven transformation programmes** that also guides the Singapore healthcare sector in the development of ICT initiatives to advance the Ministry of Health's (MOH) three shifts: moving care beyond the hospital to the community, beyond healthcare to health, and beyond quality to value. It also supports policy formulation and evaluation, systems governance, public health and operations management, as well as strengthens IT resiliency and improves cost effectiveness.



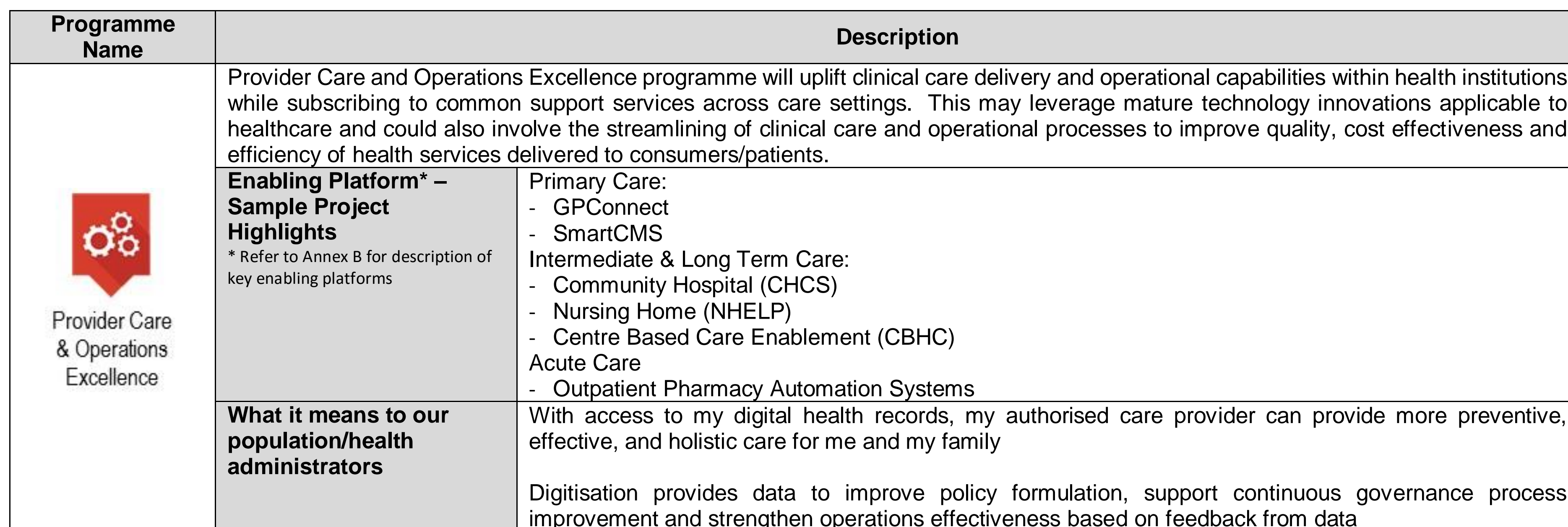
Programme Name	Description	
Population Profiling	Population Profiling programme involves understanding and analysing relevant data of our population (including genotypic, phenotypic, social, financial and lifestyle data) for more proactive and effective provision of health services, right-siting of care and care plan development. Profiling of our population is an important element to support targeted efforts in various areas including disease prevention, chronic disease management, stratified medicine, healthcare financing etc. The use of behavioural analytics will likely increase effectiveness of intervention programs.	
	Enabling Platform* – Sample Project Highlights * Refer to Annex B for description of key enabling platforms	Business Research Analytic Insight Network (BRAIN) - Admissions prevention prediction - Cardiac clinical research - National Diabetes Database
	What it means to our population/health administrators	My authorised care provider can proactively reach out to me for preventive care, help me to avoid readmission, and evaluate cost effectiveness



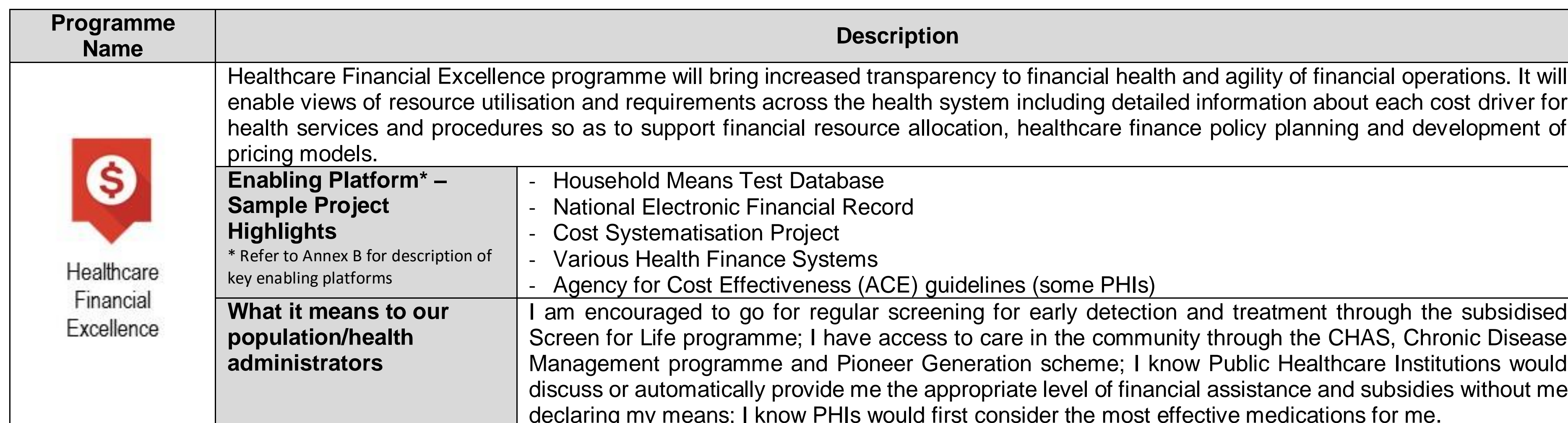
Programme Name	Description	
Population Enablement	Population Enablement programme will provide consumers/caregivers with the knowledge, insights and ability to manage their own and their dependents' health and healthcare finances. This involves multi-channel close collaboration and active partnership between the population and their care providers so as to help individuals develop a high level of healthcare literacy, discipline and self-guided health services navigation on a contextualised basis.	
	Enabling Platform* – Sample Project Highlights * Refer to Annex B for description of key enabling platforms	HealthHub: Wellness & My Health Record, Diabetes Risk Assessment (DRA) tool TeleHealth: VC/TR/VSM Health Marketplace: Match-A-Nurse
	What it means to our population/health administrators	I know my health status, how to stay healthy, where to seek help; have the appropriate tools to manage my health in the community or at home; and have evidence-based choices to manage my health.



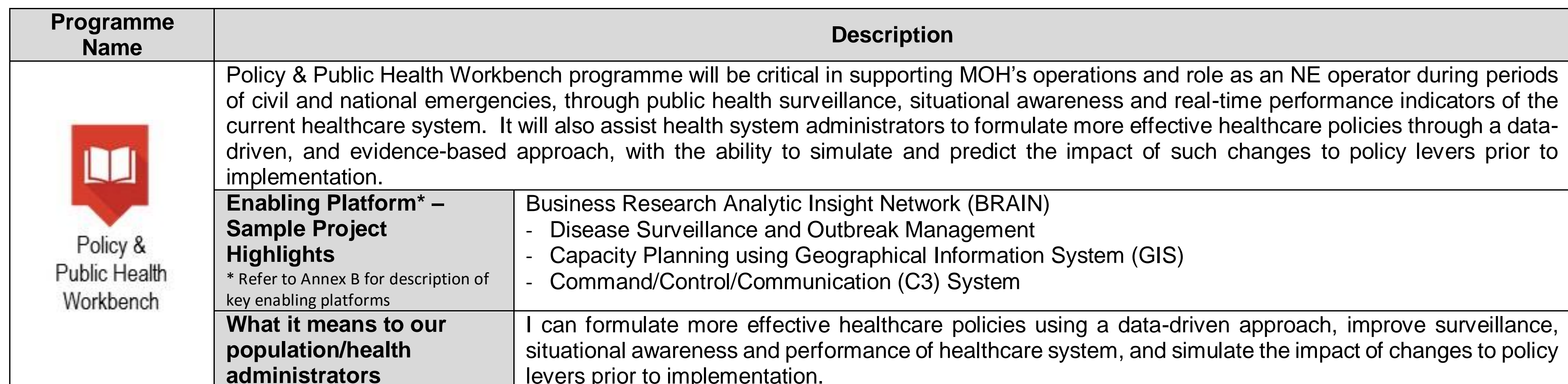
Programme Name	Description	
Prevention & Continuity of Care	Prevention and Continuity of Care programme will place consumers in the centre of healthcare with holistic and orchestrated approaches at the various stages of a person's lifetime. The scope of prevention encompasses proactive and personalised approaches to health promotion and disease prevention, raising the level of health literacy to keep our population healthy and delaying onset of disease for those at risk. The scope also focuses on early detection of diseases, followed by appropriate intervention. It further aims to help individuals with chronic conditions, maintain their health and promote quality of life by delaying progression of their conditions, and preventing complications. Continuity of Care refers to the transition and coordination of patient care from one care provider to the next. It is characterized by a set of plans, goals or outcomes pertaining to the patient's care, and applies to providers from the clinical, social and community space. Providers in different care settings will function as one team and have ready access to health, social and if needed financial information for a holistic view of the consumer in order to deliver seamless, coordinated and quality care across the care continuum.	
	Enabling Platform* – Sample Project Highlights * Refer to Annex B for description of key enabling platforms	National Electronic Health Record (NEHR) - Longitudinal patient records Care & Case Management System (CCMS)
	What it means to our population/health administrators	I have access to my health records to manage my own wellness and health; my providers can access my integrated health records; and I can afford appropriate care in the community.



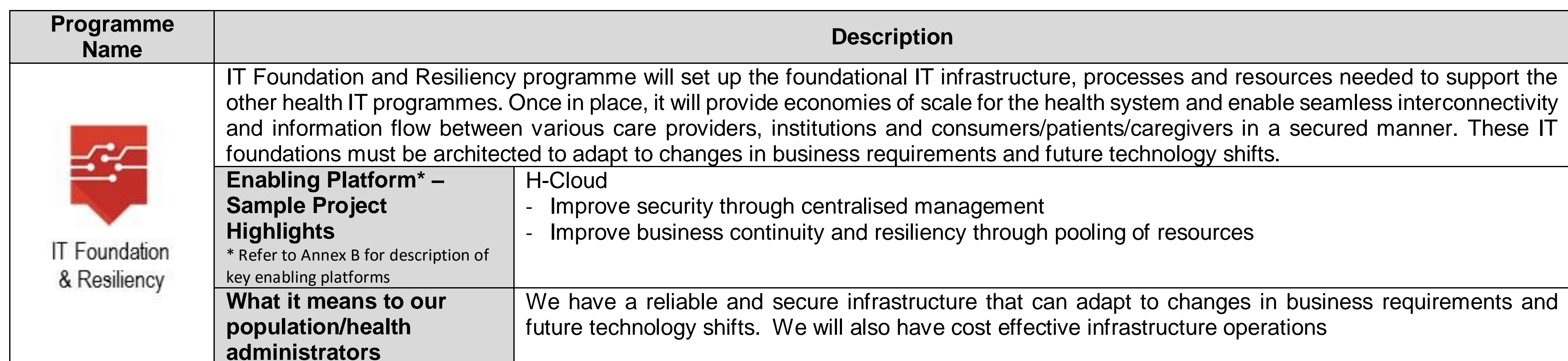
Programme Name	Description	
Provider Care & Operations Excellence	Provider Care and Operations Excellence programme will uplift clinical care delivery and operational capabilities within health institutions while subscribing to common support services across care settings. This may leverage mature technology innovations applicable to healthcare and could also involve the streamlining of clinical care and operational processes to improve quality, cost effectiveness and efficiency of health services delivered to consumers/patients.	
	Enabling Platform* – Sample Project Highlights * Refer to Annex B for description of key enabling platforms	Primary Care: - GPConnect - SmartCMS Intermediate & Long Term Care: - Community Hospital (CHCS) - Nursing Home (NHELP) - Centre Based Care Enablement (CBHC) Acute Care - Outpatient Pharmacy Automation Systems
	What it means to our population/health administrators	With access to my digital health records, my authorised care provider can provide more preventive, effective, and holistic care for me and my family Digitisation provides data to improve policy formulation, support continuous governance process improvement and strengthen operations effectiveness based on feedback from data



Programme Name	Description	
Healthcare Financial Excellence	Healthcare Financial Excellence programme will bring increased transparency to financial health and agility of financial operations. It will enable views of resource utilisation and requirements across the health system including detailed information about each cost driver for health services and procedures so as to support financial resource allocation, healthcare finance policy planning and development of pricing models.	
	Enabling Platform* – Sample Project Highlights * Refer to Annex B for description of key enabling platforms	- Household Means Test Database - National Electronic Financial Record - Cost Systematisation Project - Various Health Finance Systems - Agency for Cost Effectiveness (ACE) guidelines (some PHIs)
	What it means to our population/health administrators	I am encouraged to go for regular screening for early detection and treatment through the subsidised Screen for Life programme; I have access to care in the community through the CHAS, Chronic Disease Management programme and Pioneer Generation scheme; I know Public Healthcare Institutions would discuss or automatically provide me the appropriate level of financial assistance and subsidies without me declaring my means; I know PHIs would first consider the most effective medications for me.



Programme Name	Description	
Policy & Public Health Workbench	Policy & Public Health Workbench programme will be critical in supporting MOH's operations and role as an NE operator during periods of civil and national emergencies, through public health surveillance, situational awareness and real-time performance indicators of the current healthcare system. It will also assist health system administrators to formulate more effective healthcare policies through a data-driven, and evidence-based approach, with the ability to simulate and predict the impact of such changes to policy levers prior to implementation.	
	Enabling Platform* – Sample Project Highlights * Refer to Annex B for description of key enabling platforms	Business Research Analytic Insight Network (BRAIN) - Disease Surveillance and Outbreak Management - Capacity Planning using Geographical Information System (GIS) - Command/Control/Communication (C3) System
	What it means to our population/health administrators	I can formulate more effective healthcare policies using a data-driven approach, improve surveillance, situational awareness and performance of healthcare system, and simulate the impact of changes to policy levers prior to implementation.



Programme Name	Description	
IT Foundation & Resiliency	IT Foundation and Resiliency programme will set up the foundational IT infrastructure, processes and resources needed to support the other health IT programmes. Once in place, it will provide economies of scale for the health system and enable seamless interconnectivity and information flow between various care providers, institutions and consumers/patients/caregivers in a secured manner. These IT foundations must be architected to adapt to changes in business requirements and future technology shifts.	
	Enabling Platform* – Sample Project Highlights * Refer to Annex B for description of key enabling platforms	H-Cloud - Improve security through centralised management - Improve business continuity and resiliency through pooling of resources
	What it means to our population/health administrators	We have a reliable and secure infrastructure that can adapt to changes in business requirements and future technology shifts. We will also have cost effective infrastructure operations

Annex B

Enabling Platform	Description
Business Research Analytics Insights Network (BRAIN)	BRAIN enables analytics to be performed in a federated manner by providing common software and platform-as-a-service to business and research users with end-to-end common analytics toolsets to discover and unlock insights from data. It also facilitates collaboration amongst different users andresearchers through sharing of toolsets and know-how.
HealthHub	HealthHub is the one-stop online health content, information and services portal for Singapore residents. Featuring a user friendly mobile application and website, HealthHub aims to encourage those who are well to adopt healthy lifestyle practices, provide those who have health conditions with tools to self-manage their conditions, and equip individuals who care for others in an informal capacity with the necessary information and tools. Via HealthHub, residents have access to medical appointments and selected health records e.g. test results, and are able to grant their caregivers access to these as well.
Telehealth	Telehealth enables the shift from institution-based care towards home and community care, and is a "workforce multiplier" to help healthcare providers improve productivity and multiply care provisioning capacity. Examples of telehealth services that have been piloted in Singapore: • Tele-Rehab supplements traditional post-acute home-based rehabilitation without the need for the physical presence of a therapist. • Vital Signs Monitoring involves using devices to monitor patients' vital signs at home or in the community. It also enables healthcare providers with an IT system to set thresholds and receive alerts so as to intervene early warning signs while educating patients to self-care, as part of a new model of care for post-discharge management or chronic disease management. • Video Consultation uses video conferencing for one-to-one or multiparty remote consultation, between the healthcare provider and the patient/ caregiver, as well as collaboration or training among healthcare professionals.
Health Marketplace	An online matchmaking platform that links patient/ caregiver to home-care services and supplies. The idea includes unlocking existing untapped resources (e.g. nurses or therapists on their off hours or volunteers in the neighbourhood) to offer home care services. Complimentary offerings such as transport, meals or personal care services can be further orchestrated, providing holistic care for the patient at home.
National Electronic Health Records (NEHR)	NEHR enables accessibility and sharing of patients' health records across the national healthcare network, meeting MOH's vision for "One Singaporean, One Health Record". The system provides clinicians with secure near "real-time" access to care records for each patient including problem lists, medications, discharge and event summaries, allergies, immunisations, investigations, and procedures. The long-term goal of the NEHR is to allow primary-, acute- and community-care clinicians to access and contribute clinical data that help enhance medical treatment and improve patient safety.

Enabling Platform	Description
Care and Case Management System (CCMS)	CCMS enables a multidisciplinary approach to clinical care, thus enabling improved coordination among clinicians and care providers across the continuum of care and provides care transformation from the traditional doctor-centric model to a team-based, patient-centric model. It goes beyond the boundaries of the public healthcare sector to connect the community and intermediate and long term care (ILTC) sector who are critical partners in the management of patients with comorbid conditions and need healthcare and social support from different care providers. CCMS helps in ensuring that everyone involved in the patient's care are on the same page, tasks assigned to the multi-disciplinary care team members are completed on time. Any deviations from the plan are alerted to the Case Owners so that necessary follow-up can be initiated on timely and effective manner.
GPConnect	GPConnect is an integrated IT system for GPs, to support local clinical processes. GPConnect comprises a customised Clinic Management System (CMS) and Electronic Medical Records (EMR) solution. With its links to many national systems, GPConnect facilitates the seamless exchange of relevant clinical information between GPs and other healthcare providers. This improves the efficiency of GP clinics while ensuring an integrated continuum of patient care. In addition, claims for various national schemes can be done automatically through GPConnect.
Smart Clinic Management System (SmartCMS)	SmartCMS Programme provides a variety of services for Primary Care Providers' IT systems to automate claims and clinical data exchange with public healthcare systems. Smart services supported by SmartCMS: Community Health Assistance Scheme (CHAS), Chronic Disease Management Programme (CDMP), Clinical Indicator Data Collection (CIDC), National Electronic Health Record (NEHR), Haze Subsidy Scheme (HSS).
Community Hospitals Common System (CHCS)	CHCS enables seamless transition of patient care between acute and intermediate and long term care (ILTC) care providers. The solution provides a common patient administration and patient accounting system for all partnering community hospital provider and allow direct integration to the partnering acute hospital "Electronic Medical Record" system to support seamless transition of care between acute and community hospitals.
Nursing Home IT Enablement Programme (NHELP)	NHELP provides nursing homes with a integrated IT System focusing on Patient Management and Electronic Medical Record (EMR), and includes interfaces that enable connectivity and inter-operability with other ministry systems. It is connected to the ILTC Referral Management System (IRMS), ILTC Portal and National Electronic Health Records (NEHR), supporting patient management, clinical documentation and human resource functions. NHELP has greatly reduced the time nurses spent on information retrieval. With NHELP, it now takes less than 10 minutes, as compared to 60 minutes previously, to sort through patients' records for discharge. This increases staff productivity allowing more time to be spent on direct patient care.
Centre and Home Based Care (CHBC)	The CHBC IT Programme targets to IT enable community-based care service providers that includes both Centre Based Care (CBC) and Home Care service providers via the deployment of cost effective IT solutions.

Enabling Platform	Description
Outpatient Pharmacy Automated System (OPAS)	The Outpatient Pharmacy Automated System is an integration of 7 multi-disciplinary technologies and robotics that automates the prescription filling process and improves manual picking accuracy for certain drugs.
Disease Surveillance and Outbreak Management	To monitor the infectious disease situation, trigger alerts, increase sensitivity of detecting possible outbreaks and enhance surveillance of disease syndromes
Capacity Planning	To provide the ability to analyse utilisation of the existing and planned capacity in (i) Public Acute Care; (ii) Intermediate and Long-term care (ILTC) (includes Nursing Homes, Community Hospitals and Psychiatrics Nursing Homes); (iii) Public Primary Care (encompass Polyclinics and SOCs). With the capacity utilisation information, actionable insights can be derived to enable the increased of healthcare services through planned infrastructure expansions, workforce optimisation and process improvements, as well as manage the service planning and manpower across the primary care setting
Health Cloud (H-Cloud)	The H-Cloud is based on a modular architecture that would provide a single platform for clinicians to access, analyse, and update patient EMRs, while also guaranteeing disaster recovery and uptime for all clinical centres during and after any emergency.