Executive Summary

The ambitious target of boosting trade across the Commonwealth, in the process grow intra-Commonwealth trade to US$2 trillion by 2030 and expand investment through a bottom-up and member-led approach, remains an enormous hurdle for the 56 member countries. Achieving this target is expected to leverage the strength of the Commonwealth to support growth and create employment in the wake of declining global multilateralism and the rise of protectionism. With so much at stake, it is no surprise that food systems transformation has been recognised as a critical pillar for most Commonwealth countries. Yet the food import bill of Commonwealth members is rising rapidly, reaching $272 billion in 2023, and over the next decade, the Commonwealth's population is projected to grow by over 385 million, requiring an additional $100 billion in food imports to meet this increased demand (Commonwealth Secretariat, 2024a).

Against this backdrop, digitalisation of food production and trade can be a game changer in accelerating the ambitious target for the Commonwealth.

Data has become the engine of economic growth for many economies today and it is the fuel that propels digitalisation. But despite its huge potential, harnessing the gains of digitalisation for intra-regional trade faces a significant challenge due to the absence of a coordinated foundational layer for data in these countries. This has resulted in disaggregated, siloed and duplicated data systems, operational inefficiencies and data power imbalances which pose a huge barrier to the interoperability of digital services and products between countries in support of intra-Commonwealth trade.

In response to the above challenge, the Commonwealth Secretariat, through the Commonwealth Connectivity Agenda for Trade and Investment, and in collaboration with other technical partners, began exploring the concept of national data infrastructure for countries in 2022. Thereafter, the Connectivity Agenda developed a model of National Agricultural Data Infrastructure (NAgDI) through a collaborative process with some selected countries. The process includes diagnostic engagement by creating awareness on the data coordination issue, discussing and validating the model within the national context, building consensus on potential follow-up actions by stakeholders, and advocating for the design and establishment of a nationally coordinated approach to agricultural data management.

Three multi-stakeholder national dialogues were held in Malawi (2023), Ghana (2023) and Bangladesh (2024); one multi-stakeholder regional dialogue was held in the Caribbean (2024); and one multi-stakeholder dialogue was held at COP28 in Dubai (2024). As a follow-up to these dialogues, a Writeshop was held in Malawi in 2024 to develop a guide for investing in NAgDI, with experts representing the multi-stakeholder dialogues. The policy guide for investing in NAgDI presented in this document is a generic guide for all countries. The guide, which was collaboratively produced with the support of member countries and experts, was validated in 2025 through an online Webinar with over 60 experts globally. It provides a comprehensive overview of a sectoral approach to digital public infrastructure (DPI) aimed at establishing a coordinated and collaborative framework for agricultural data management across Commonwealth countries and beyond.

The NAgDI model takes a process approach by responding to 'how' countries should design and implement shared infrastructure for their agricultural data.

It is anchored on a holistic approach to infrastructure for agricultural data at country level, with infrastructure framed as a set of facilities and systems to include both technical (hard) and institutional (soft) components. The agriculture in NAgDI also takes a broad approach to include fisheries, livestock and forestry, and data in the areas to include user[1] data and

1 Referring to any data or different pieces of data, when brought together, can lead to the identification of a particular person or entity, including farmers, traders, enterprises, consumers, field IDs or polygons of farmers' fields.

content[2] data. This unique resource – agricultural data – requires national infrastructure that encompasses public and private sector partners being harnessed by countries.

Taking this holistic approach, the NAgDI initiative aims to support member countries to design and build standardised and interoperable national infrastructure for data exchange that creates a superhighway of quality data for intra-Commonwealth trade and investment facilitation. Ultimately, it seeks to assist countries to harness the potentials of the data economy by fostering collaboration, leveraging existing digital public goods and enhancing their data management capabilities to support innovation and improve decision-making and sustainable agricultural practices.

The vision of NAgDI is to strengthen and harmonise existing individual data systems[3] at country level through an interoperable national data infrastructure, enabling interconnected infrastructure at regional and global levels, thereby creating a superhighway for secure data exchange within and between countries, and across regions for macro-level decision-making.

The design of NAgDI to achieve its vision is built on two goals, namely (1) to foster an enabling environment for data exchange through policies and an independent governance model, and (2) to establish a secure, decentralised, interoperable and financially sustainable data exchange mechanism. The Commonwealth's model of agricultural data management at country level consists of four main components that are presented as investment areas:

- **Investment to develop policies and principles for NAgDI** – this involves mobilising resources to establish comprehensive policies and principles to guide the design and use of the infrastructure.
- **Investment to ensure independent governance and administration** – this involves constituting an independent oversight mechanism that ensures trust and reliability of the infrastructure.[4]
- **Investment to assemble technologies and systems** – this involves assembling and developing decentralised, secure, standardised and interoperable data exchange mechanisms.
- **Investment to develop a marketing and business strategy for NAgDI** – this involves mobilising resources for the initial establishment of the infrastructure and ensuring its financial sustainability.

Based on the outcomes of the four national dialogues, a key observation is that each country may have different existing foundational resources and be at different stages of maturity. Some countries with existing resources for data management, policies, governance, technologies and business may be able to implement it faster. As a result, this policy guide to investing does not propose financial or budgetary considerations.

The generic guide to investing in NAgDI outlines the details of the broad activity areas across all four investment areas in terms of a figurative five-year process of implementation.[5] The guide is meant to be used by countries to plan their implementation approaches and develop their implementation strategies for NAgDI, adapted to the context of their respective countries. The detailed mix of broad activities within each year illustrates the need to adopt a holistic approach to the implementation of NAgDI, which also determine the interdependencies in national and local contexts.

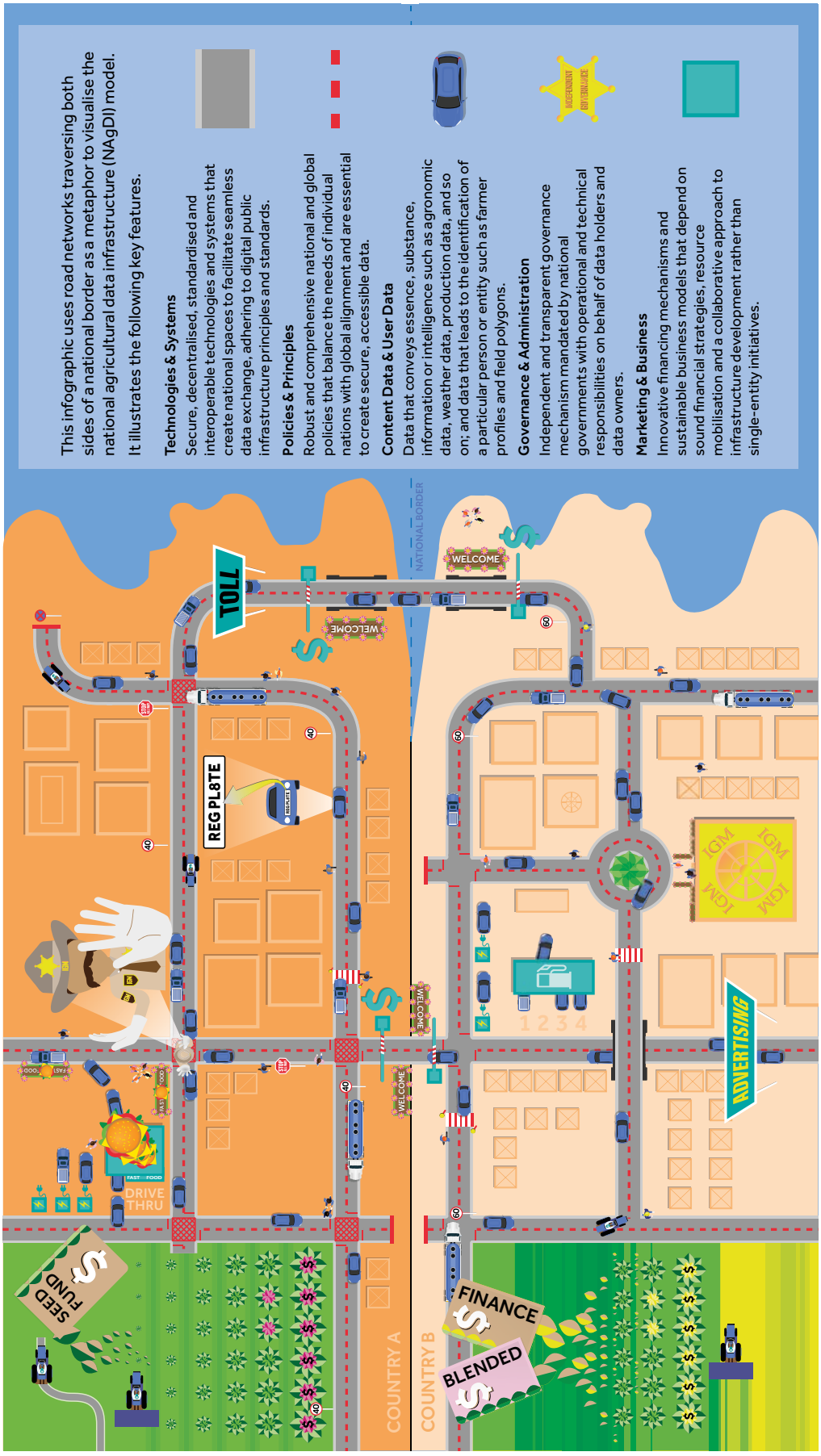
2 Referring to data that conveys essence, substance, information, meaning, purpose, intent or intelligence, either singularly or when in a combined form, in either its unprocessed or processed form, including soil, agronomic, weather, financial, insurance and market data.

3 The data systems here refer to the individual datasets (user data and content data) built by separate organisations and companies in countries for service provision. Examples include data systems by AgTech partners such as Hello Tractor, Farmerline, Trotro Tractor, Esoko, Digifarm and Digital Green, and others such as National Statistics Organisation, the Food and Agriculture Organization, the World Bank, National Research Institutes, CGIAR and NGOs operating in the same country.

4 A system or process to maintain a watchful eye over NAgDI that involves taking responsibility for the design, operation, implementation and outcome (quality and effectiveness) of the infrastructure.

5 The duration proposed is intended to illustrate that NAgDI requires medium- to long-term planning and implementation, while the actual implementation phase of NAgDI could be longer than five years, and structured in phases, depending on the current conditions in a country.

ES1 Visualising the NAgDI model



Nevertheless, the general areas of focus in each year can be summarised as follows:

- **Year one – advocate, engage and mobilise**. The focus of the first year should be on advocacy to identify lead institutions and securing high-level endorsement of NAgDI by national governments for multi-stakeholder engagement and initial resource mobilisation. The first-year activities should be heavily leaned towards investment to develop policies and principles intended to be applied to the other investment areas.
- **Year two – collaborate, analyse and plan**. The focus of the second year should be on the lead institutions, ensuring that stakeholders understand why and how to collaborate to design, develop and eventually use shared infrastructures. The year's activities should focus on analysis with evidence to inform planning. The strategic messaging should be around creating a shared national resource through cooperation among key partners.
- **Year three – design, develop and launch**. The focus of the third year should be on guiding the collaborative development and the launch of a working version of the national infrastructure in a way that is adapted to the country, with the potential to connect with other national infrastructures. For a successful designing process, an agreement on the independent oversight mechanism should be reached by the third year.
- **Year four – validate, implement and operate**. The focus of the fourth year should be on operationalising the infrastructure through a functioning NAgDI. This should be done by test proofing the technical and operational functionalities of the infrastructure in readiness for market in the final year. Activities should include validating the entire pilot process and implementing all possible components.
- **Year five – consolidate, market and scale**. The focus of the fifth and final year should be on strategic implementation in order to create opportunities for business engagement in readiness of the infrastructure for private sector investment. This will enable the infrastructure to transition from an initiative to a national asset with a sustainable business model.

An important question from national governments and partners is: *what are the benefits of such an infrastructure for my country, or why should I invest in such an infrastructure?* Some of the anticipated macro-level benefits of NAgDI for countries include:

- **Independent data verification for investors**. Before committing funds, investors scrutinise the veracity of data by startups and micro, small and medium enterprises. The independent oversight mechanism of NAgDI will independently verify and certify data for investors.
- **Better policy decisions on import and export**. Governments importing products based on inaccurate data could impact businesses. NAgDI will coordinate data sources from multiple partners to inform better policy decision-making.
- **Unified data estimates for countries**. Development organisations often report independently on the performance of countries with contradicting figures. NAgDI will ensure verification of such external reports through harmonisation and certification.
- **Source of revenue for businesses and the country**. The data economy of a country depends on its ability to harness the economic value of its data. NAgDI will empower countries to generate revenue from their data through access to reliable datasets.
- **Facing well-intended but disruptive external regulations**. Countries react to external regulation such as the European Union Deforestation Regulation. NAgDI is a proactive effort to respond to such future regulations that disrupt national policies and programmes.
- **Preparing countries for artificial intelligence (AI) and emerging technologies**. The economic potential of AI for countries is huge in the next decade. AI services perform better on organised data and NAgDI is about better data coordination by countries.

The operation of a functioning NAgDI will include sourcing datasets from the multiple existing data holders based on the agreed business model, independently verifying and harmonising the datasets for interoperability and producing macro-level decision products for clients upon request.

It should be noted that the success of NAgDI rests upon diverse adoption to ensure sustainability, with the value proposition to boost existing services through co-petition rather than competition, duplication and inefficient practices among services providers. Finally, data in general is domain agnostic, and NAgDI is just a use case of national data infrastructure for agriculture. Functionalities such as those in NAgDI can be scaled to other domains such as health and education and merged with foundational DPI to eventually result in a comprehensive national data infrastructure.