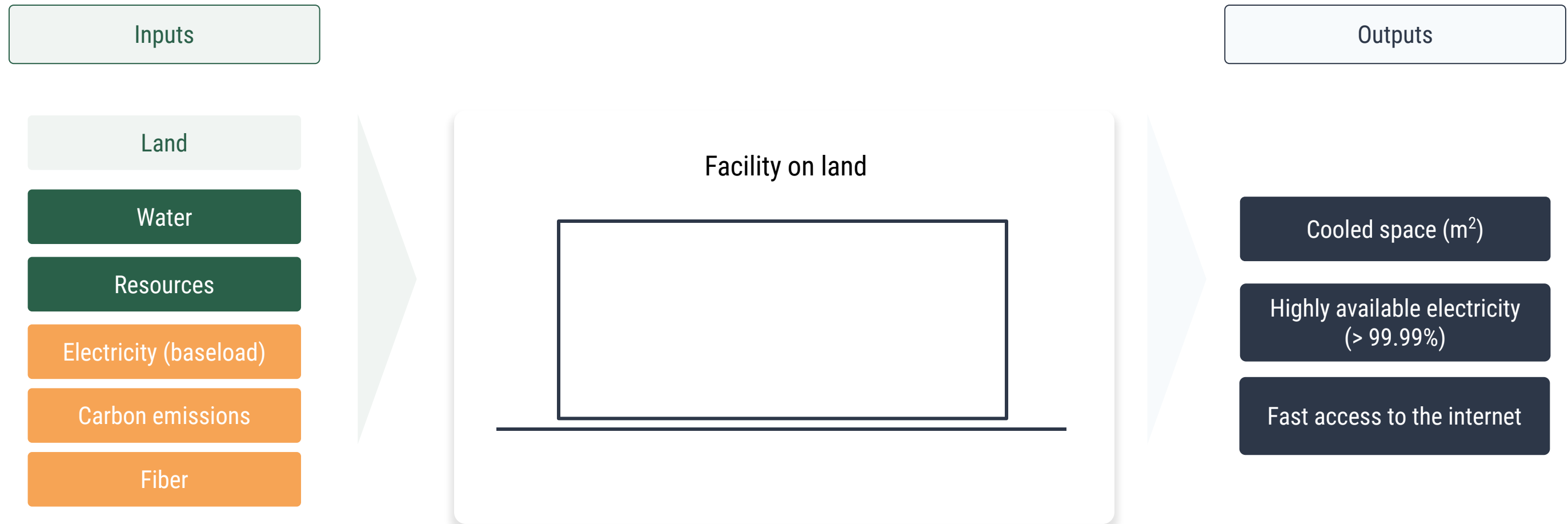SDIA SUSTAINABLE DIGITAL INFRASTRUCTURE ALLIANCE

Untangling digital infrastructure:
A new school of thought
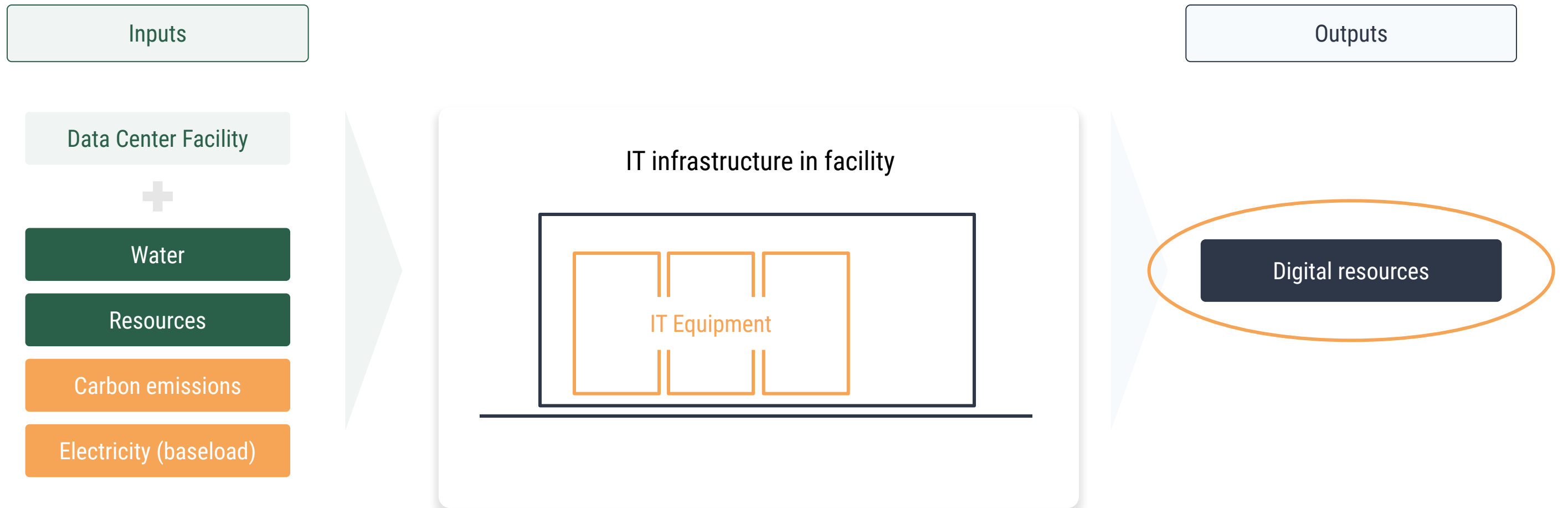
Presentation, EU Connect, 28th of September 2022

A data center facility is the "empty office building" for IT infrastructure businesses

Inputs

Outputs

Land

Water

Resources

Electricity (baseload)

Carbon emissions

Fiber

Facility on land

Cooled space (m^2)

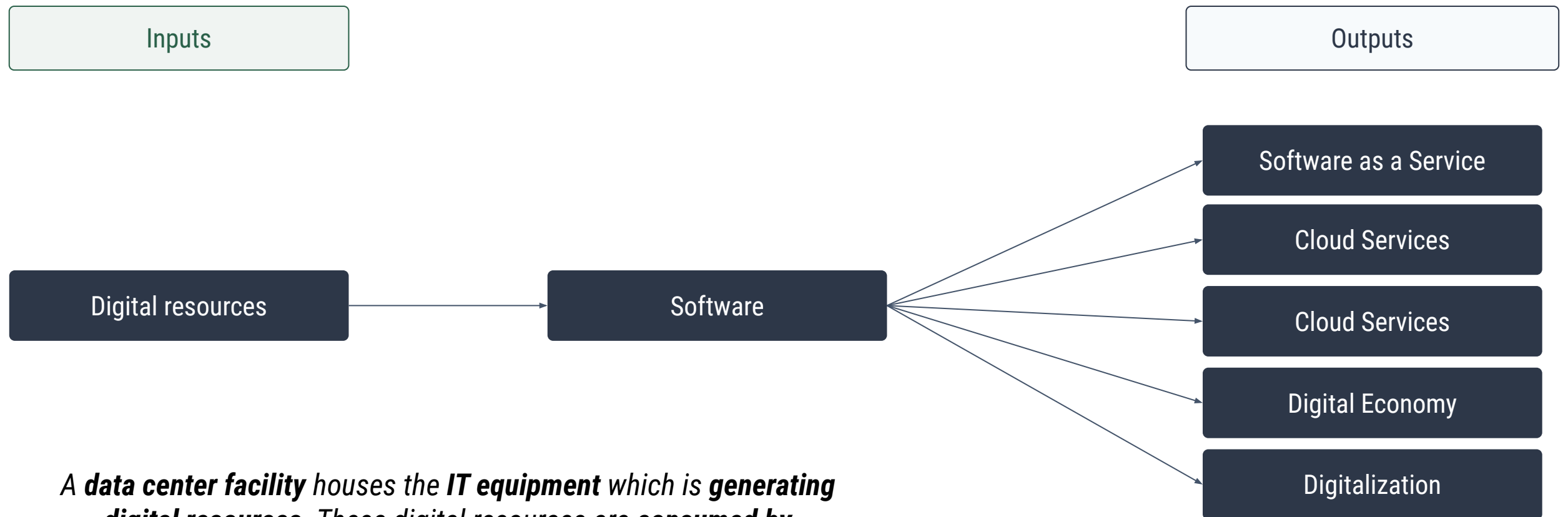Highly available electricity (> 99.99%)

Fast access to the internet

Business model: Co-location, wholesale co-location, build-to-suit, …

SDIA

IT businesses bring their own "furniture" = "digital resource generators" (IT equipment)

Inputs

Outputs

Data Center Facility

+

Water

Resources

Carbon emissions

Electricity (baseload)

IT infrastructure in facility

IT Equipment

Digital resources

Business model: Hosting, cloud infrastructure, IT infrastructure as a service, …

SDIA

3

And these digital resources are what power software which drives the digital economy & transformation

Inputs

Outputs

Digital resources	→	Software

Software as a Service

Cloud Services

Cloud Services

Digital Economy

Digitalization

*A **data center facility** houses the **IT equipment** which is **generating digital resources**. These digital resources are **consumed by software** applications.*
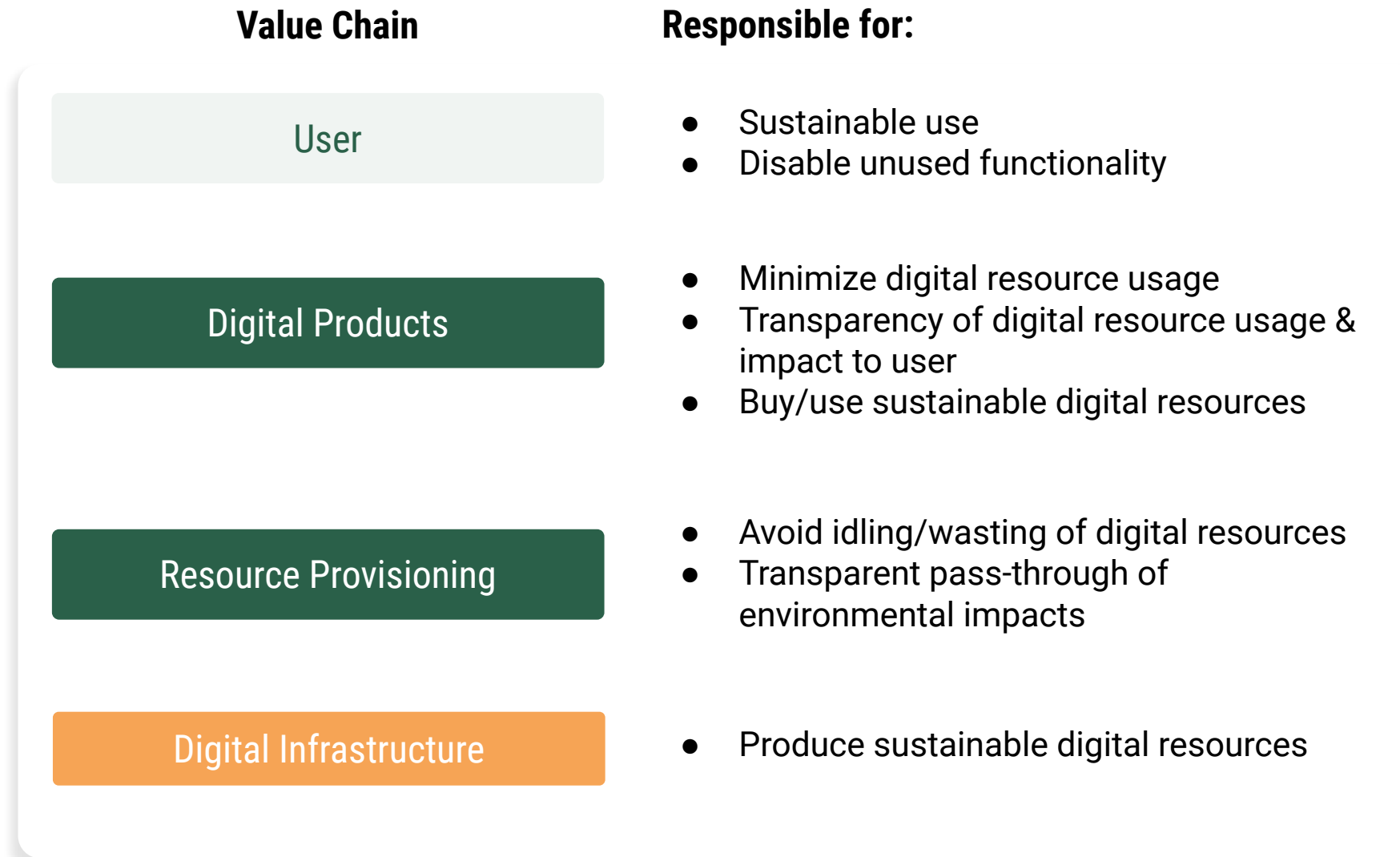
Without software = no demand for digital resources

SDIA

4

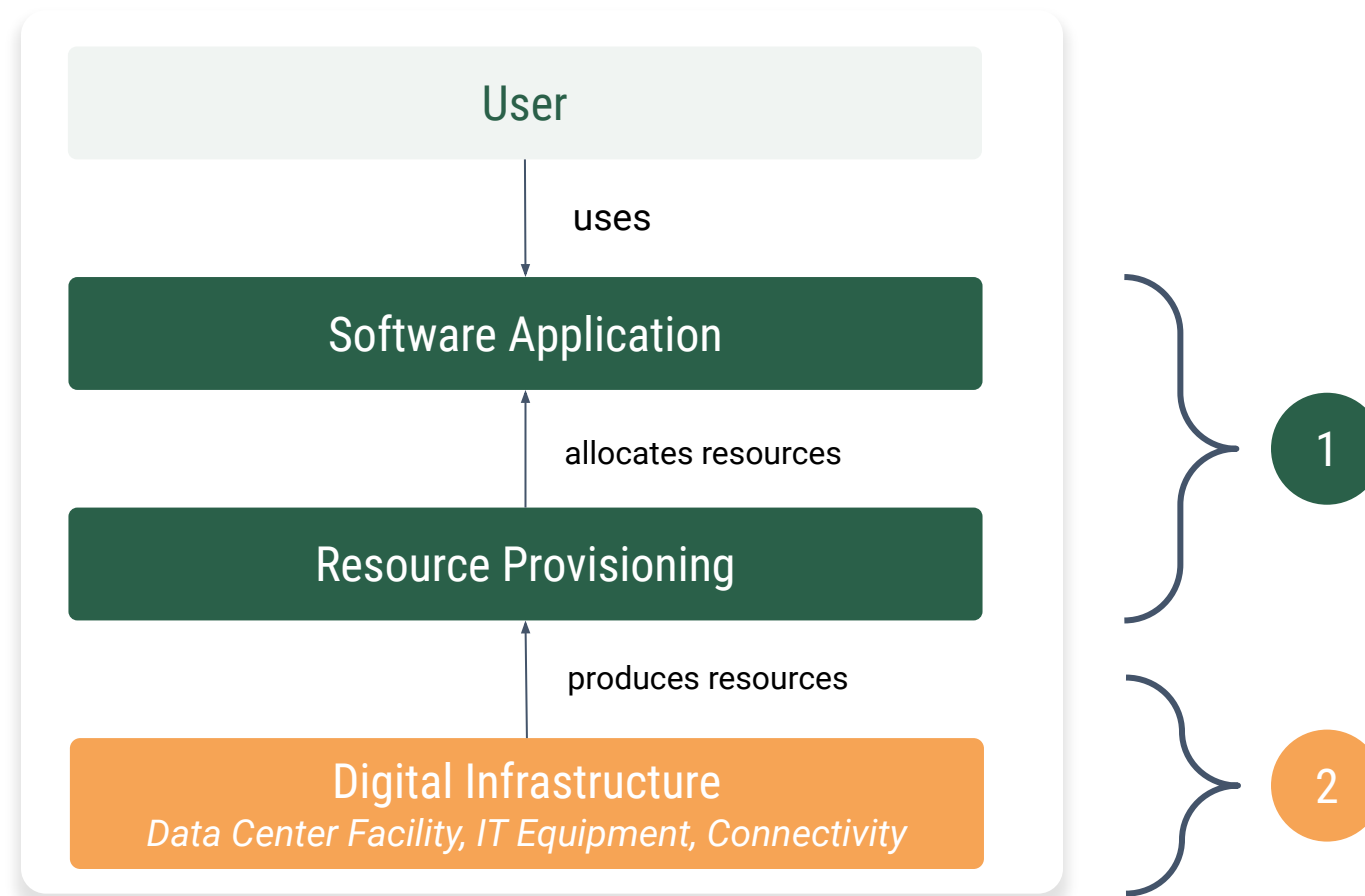# To make it even simpler, we have created this thought model:
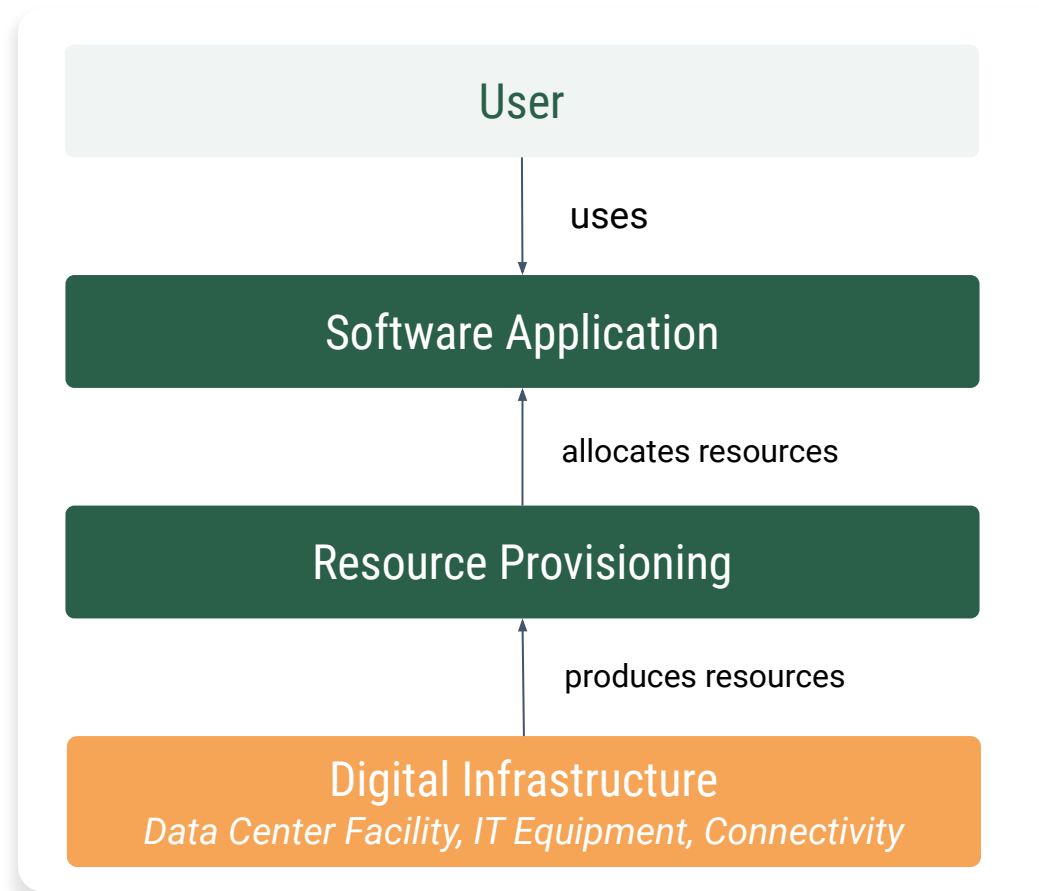
A more detailed version can be found in the paper Taxonomy for a Digital Economy
Schulze, Kumar, Oghia, 2021 published by the Commonwealth & SDIA

Using it we can assign clear responsibilities to market actors and design effective policy:

Value Chain

Responsible for:

User

- Sustainable use
- Disable unused functionality

Digital Products

- Minimize digital resource usage
- Transparency of digital resource usage & impact to user
- Buy/use sustainable digital resources

Resource Provisioning

- Avoid idling/wasting of digital resources
- Transparent pass-through of environmental impacts

Digital Infrastructure

- Produce sustainable digital resources

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In this value chain, there are two leverage points for sustainable development of the digital sector:

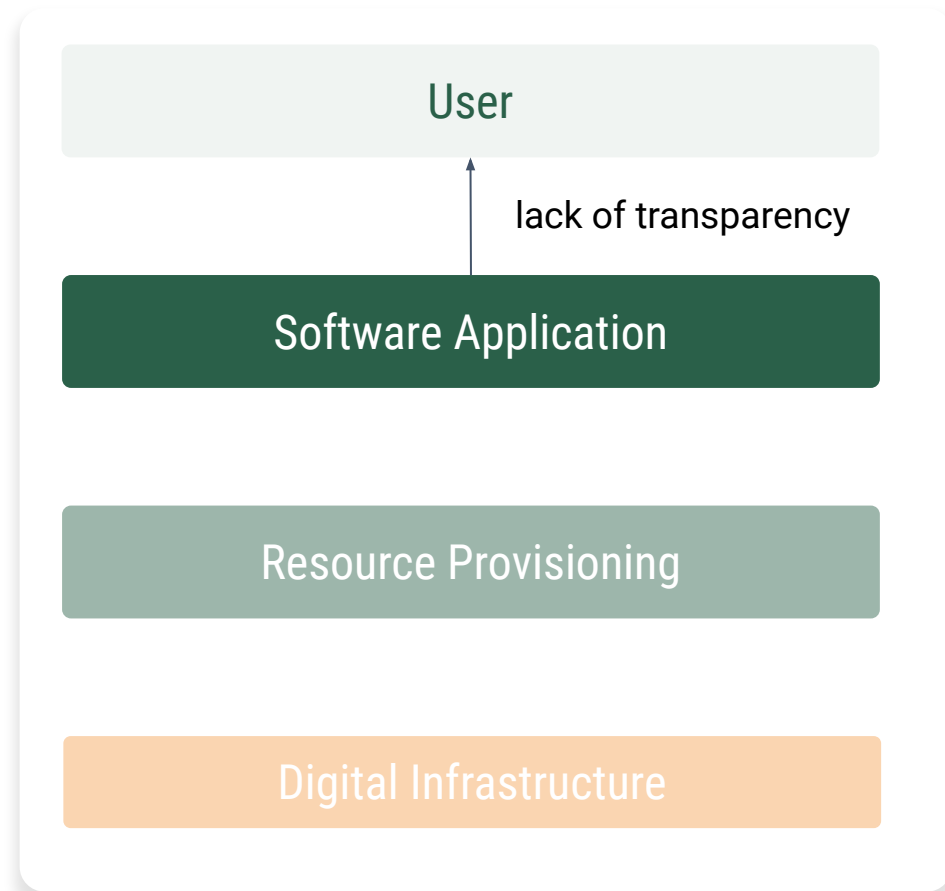*A more detailed version can be found in the paper Taxonomy for a Digital Economy Schulze, Kumar, Oghia, 2021 published by the Commonwealth & SDIA*
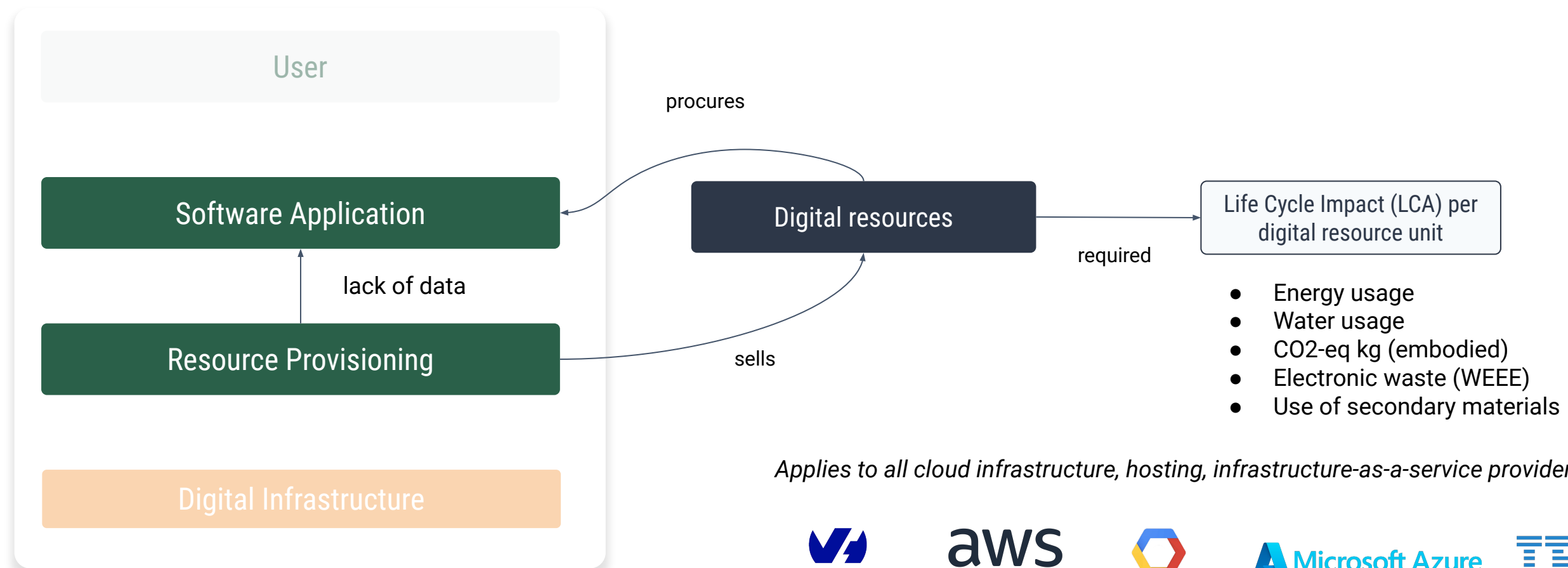
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Lord Kelvin: "to measure is to know"

The first step is **transparency.**
Here are the 3 challenges prohibiting it.

Challenge 1: A customer has no transparency on the environmental impact of their usage.

# Challenge 2: The software application does not receive information on impact of digital resources consumed

User

Software Application

lack of data

Resource Provisioning

Digital Infrastructure

procures

sells

Digital resources

required

Life Cycle Impact (LCA) per digital resource unit

- Energy usage
- Water usage
- CO_2-eq kg (embodied)
- Electronic waste (WEEE)
- Use of secondary materials

Applies to all cloud infrastructure, hosting, infrastructure-as-a-service providers:

OVHcloud

aws

Google Cloud Platform

Microsoft Azure

IBM

1&1 IONOS

leaseweb *reliable hosting*

HETZNER ONLINE

Atos

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Challenge 3: There is no accepted & standardized method to assess the environmental impact of software

| User |
| Software Application |
| Resource Provisioning |
| Digital Infrastructure |
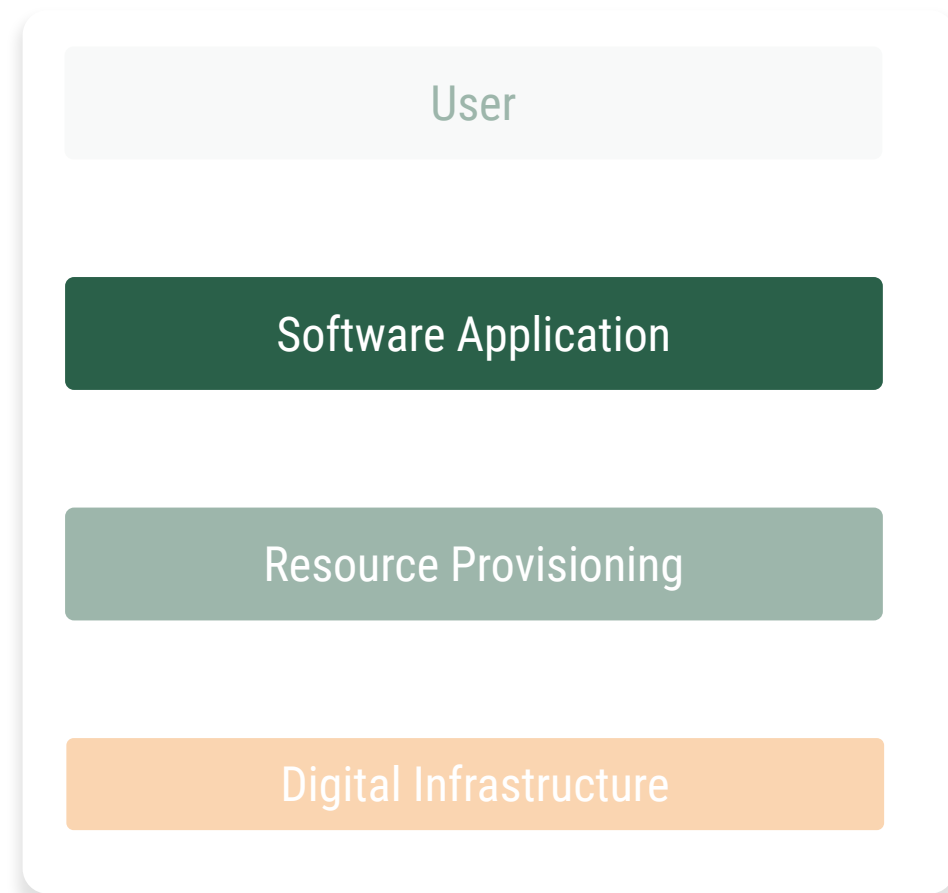
Brings all actors together, enables collaboration & though models/policy ideas

Thank you!

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