

Digital Public Goods and Sustainable Development

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TREO Talk

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Introduction

- Two Perspectives on Digital Public Goods (DPGs):
 - Academic: DPGs are digital goods designed as non-rivalrous, non-excludable, and displaying positive network effects” (Nicolson et al., 2022). Examples: Moodle LMS, DIGIT, DHIS2.
 - UN-Driven: DPGs are open-source software, open data, open AI systems, and open content collections that adhere to privacy & other applicable laws and & practices, do no harm by design, and help attain the SDGs (DPG Alliance, 2023).
- DPG’s Main Concerns
 - Lack of consensus on DPG conceptualization (Nicolson et al., 2022, Utvik, 2022)
 - No empirical evidence on the way DPGs lead to development/SDGs (Nicolson et al., 2022)
- To addresses the above concerns, this study examines:
 - RQ1: What are Digital Public Goods (DPGs)?
 - RQ2: How do DPGs support the sustainable development?

Analysis – RQ1

- For RQ1, we suggest the conceptualization is academically originated, ontologically grounded, and follows bottom-up approach.
- DPGs: Digital + Public Goods
- Digital Goods: *Material/non-material/hybrid bearers of bitstrings*
- Public Goods: *Largely non-rivalrous and non-excludable objects with public benefits*
- While we infer two properties of DPGs – Openness and non-materiality, the public benefits in terms of socio-economic impact is left unexplainable. For this, we examine the cases of two DPGs - DHIS2 and DIGIT.
- DHIS2 – District Health Information System 2
- DIGIT – Digital Infrastructure for Governance, Impact, and Transformation
- The important observations from these two cases are: (i) the non-linear emergence of a broader network where the actors of sub-networks are aligned. (ii) Both have large scale impact,

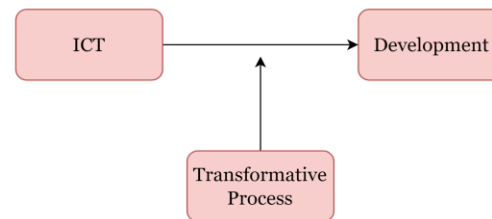
Analysis - RQ1

Public/Digital Elements	Significance	DPG Property
Largely non-rivalrous and non-excludable	Unrestricted access & participation	Openness (Smith & Elder, 2010)
Material/non-material/hybrid bearers of bitstrings	Material: limited scope; Non-material: allow scaling & non-depletability	Non-material (Faulkner & Runde, 2019)
Public benefits	Socio-economic impact	Collaborative Creation & Evolution

- Based on the literature and case analysis, we define DPGs as *non-material open bearers of bitstrings, created & evolved collaboratively for social benefits..*

Analysis - RQ2

- We position RQ2 in the ICT4D domain, where ICT is DPG and development is sustainable development.
- There is a long-standing debate in ICT4D literature on the relationship between ICT and Development.
- Sein et al (2019) suggested -

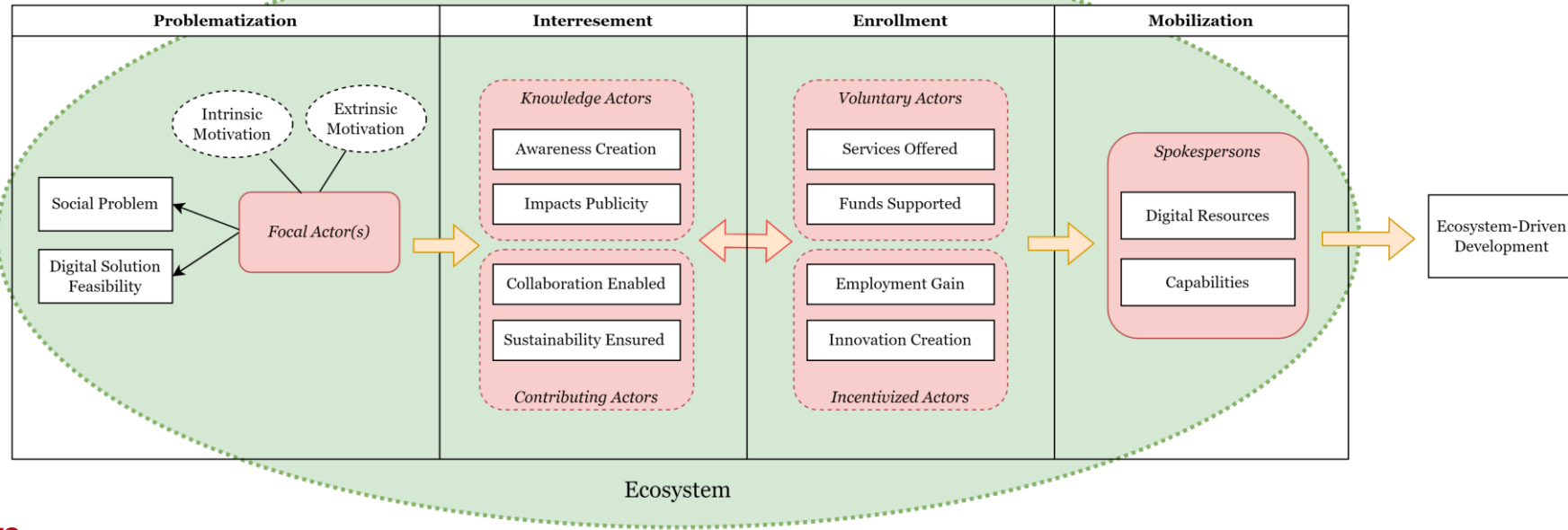


- We put RQ2 in the above framework and use Actor-Network Theory and Translation Stages to examine the transformative process that leads DPGs to SDGs.
- ANT mainly tries to explain how networks, actors and things come together to act as a whole.
- In the concept of translation actors attempt to create a a central network which all the actors agree is worth building and defending.



Findings - RQ2

We analyze the cases of DHIS2 and DIGIT DPGs and map them into translation stages to understand how the network of human and non-human actors come together to for ensuring sustainability and scalability of DPGs. The stability of this network eventually leads to an enhancement of digital resources and capabilities of beneficiaries. Because these two are the major drivers of development, we infer that the ecosystem-driven development is the way DPGs lead to SDGs.



Discussion & Conclusion

- DPGs support sustainable development through:
 - **Inherent nature:** Developed conceptualization
 - **Institutionalization:** UN-Driven Organizing Vision
- Academic Contribution of Study
 - DPG conceptualization
 - Manifests - *if, why, and how* ICT leads to Development
 - Contribution to literatures on Open-Source, Public Goods
- Limitations
 - Ground-level operational issues
 - Case selection - depth and count
 - Transformative process elaboration

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