

Towards key variables to assess National Spatial Data Infrastructures (NSDIs) in developing countries

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Overview presentation

- Motivation
- Overall objective
- Research methodology
- Results
- Recommendations



Motivation (1)



- National SDIs developing rapidly:
1998: 11 (Masser) ⇒ 2002: 120 initiatives
(Cromptvoets)
- NSDIs & challenges for developing countries
- No ‘assessment framework’ for systematic evaluation available
- Support of ‘Space for Geo-Information’:
PhD research (Lukasz Grus)
- In order to interpret NSDI differences, this research assumes that a common set of measurable key variables to assess NSDIs is needed ⇒ how to define?

Motivation (2)

- **Six case study countries:**
Colombia, Cuba (Latin America)
Nepal, Indonesia (Asia)
Nigeria, Ethiopia (Africa)

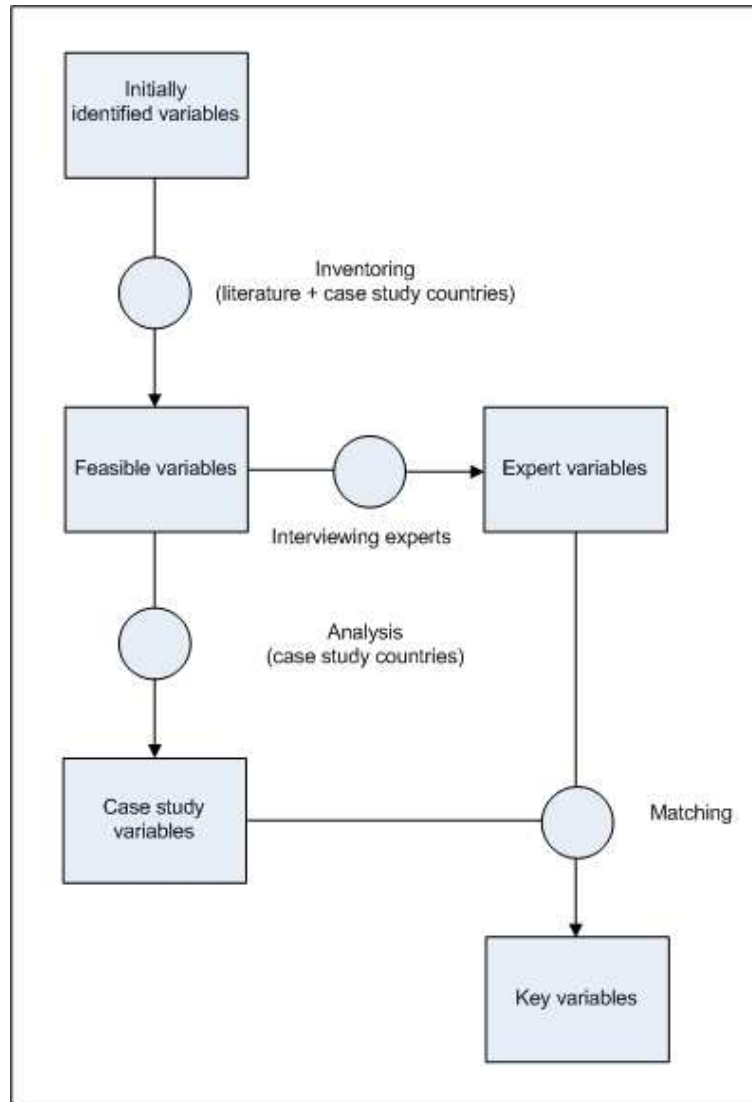


Overall objective



- To explore how to select a common set of measurable key variables that can be utilised to assess NSDIs - with a focus on developing countries

Research methodology



Flowchart of research methodology

Step 1: initially identified variables



- De Man (2006): ‘SDIs require a multi-faceted way of monitoring and evaluation’
- Brainstorm session: investigating several assessment frameworks describing different (mostly single) evaluation aspects
- Initial list of **94 identified variables** over SDI components (data, people, access network, policy, standards + other)

Case study countries

- **Colombia**

Achieved great deal without formal mandate

Online since March 2007

- **Cuba**

Moving fast

Following latest trends

Insufficient SDI experts (?)



Case study countries

■ Nepal

Realising need for institutional arrangements
Limited access digital data
Unstable portal

■ Indonesia

One of 1st establishers
Long term vision in place
Improved portal (late 2006)
Expecting considerable grant



Case study countries

■ Nigeria

Understanding need -
no formal mandate (yet)
Mainly working on policy
documents

Hardly any digital data available



■ Ethiopia

Limited awareness and
understanding
Enforced by donors?



Step 2: feasible variables

- UNDP (2006) suggesting variables to be Specific, Measurable, Attainable, Relevant and Trackable (acronym 'SMART')
- Filling out tables with identified variables of case study countries (literature, interviews national SDI coordinators phone / e-mail)
- Applying set of rules to progress from identified to feasible variables: (1) no information available (not measurable), (2) sub-variables of a larger variable, and (3) variables have been arranged already
- Feasible variables are 'SMAT': list of 49 feasible variables
- Checking case study countries for the 1st time

Step 3: case study variables

- ‘Challenge in selecting key variables is to find measures that can meaningfully capture key changes’ (UNDP, 2006)

How?

- Comparing feasible variables of case study countries through reclassification of answers (to simplify comparison and selecting relevant case study variables)
- General NSDI developments in developing countries (Latin America, Asia and Africa) ⇒ giving criteria for the selection of important variables (literature review)
- List of **29 case study variables**
- Checking case study countries for the 2nd time

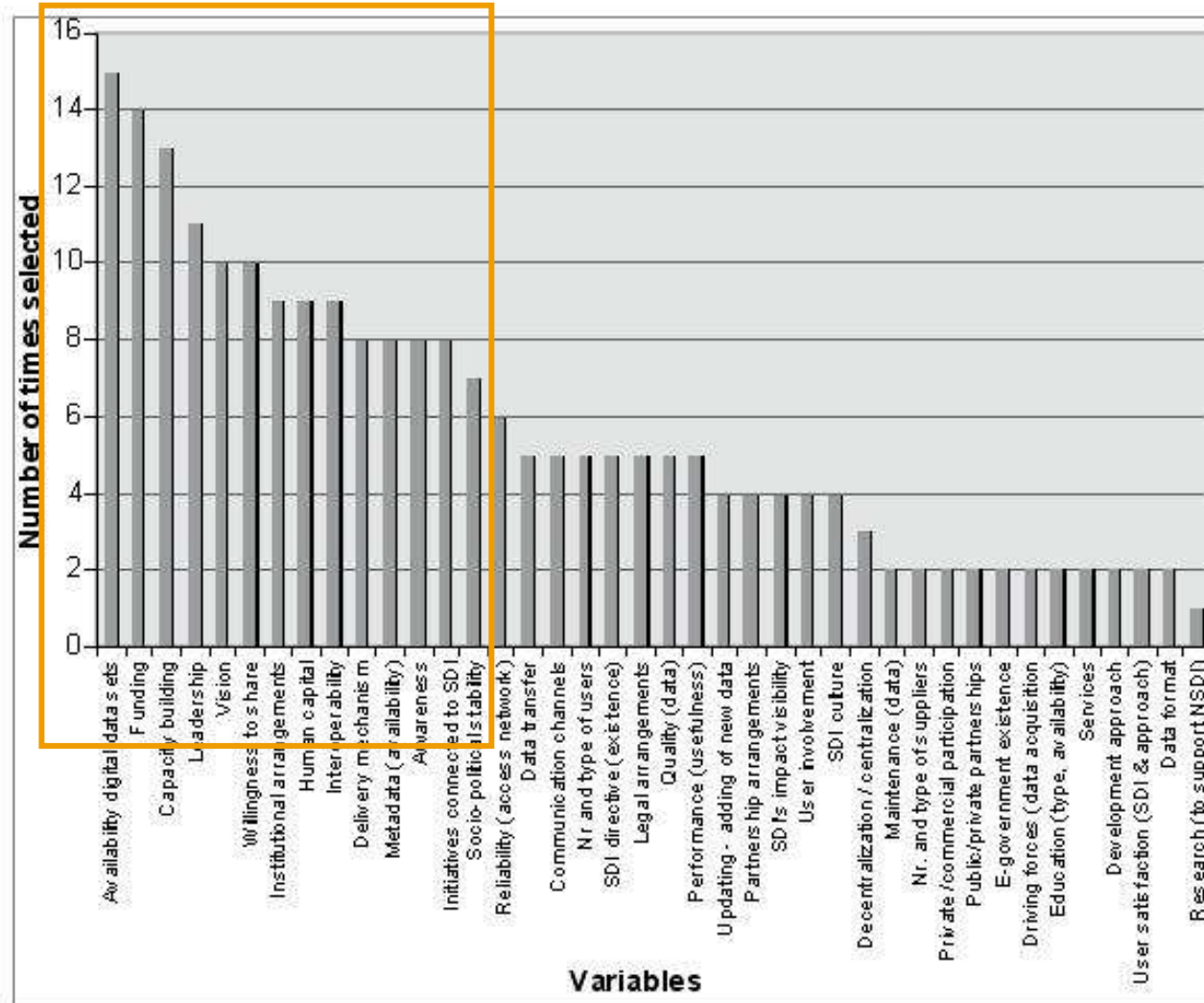
Step 4: expert variables

- Selected group of SDI experts has been consulted to validate the resulting list of case study variables

Justification:

- Looking at ‘key changes’, however, only taking one moment in time in consideration
- Selecting different/more case study countries ⇒ other variables could have come forward
- Other techniques for comparing variables are available

Step 4: expert variables



Graph: opinion SDI experts

Step 5: key variables



- A common set of measurable key variables is selected based on the comparison and matching of the case study variables with the expert variables

Case study variables	ATTACHING CASE STUDY & EXPERT VARIABLES	Expert variables	Key variables	
Data component			Data component	Data component
Availability of digital data		Availability of digital data	1. Availability of digital data	
Good quality of data				
Updating – adding new data				
Maintaining datasets				
People component			People component	People component
Willingness to share		Willingness to share	2. Willingness to share	
Human capital ('resources')		Human capital ('resources')	3. Human capital ('resources')	
Capacity building		Capacity building	4. Capacity building	
Research/development capacity				
SDI education				
Involvement users all sectors				
User satisfaction				
Awareness SDI concepts	Awareness SDI concepts	5. Awareness SDI concepts		
Access network component		Access network component	Access network component	
Delivery mechanism (availability)	Delivery mechanism (availability)	6. Delivery mechanism (availability)		
Reliability				

Section of matching table

Results

- Common set of 14 measurable key variables for assessment of NSDIs in developing countries
- Data component: (1) availability digital data
- People component: (2) capacity building, (3) willingness to share, (4) human capital, (5) awareness
- Access network component: (6) delivery/access mechanism (availability)
- Policy component: (7) funding, (8) existence leadership, (9) long-term strategic vision, (10) institutional arrangements, (11) socio-political stability
- Standards component: (12) interoperability, (13) metadata (availability)
- Other component: (14) initiatives connected to SDI (country's activity)

Recommendations



- Similar research in near future in order to better capture key changes
- Take into consideration other developing countries \Rightarrow other results?
- Exploring other comparison techniques, such as index / factor analysis \Rightarrow other results?
- Experts opinion \Rightarrow other experts and/or validation from identified list instead of feasible list \Rightarrow other results?

Thank you for your attention!

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