



ITU KALEIDOSCOPE

NANJING 2017

Challenges for a data-driven society

Small Data and Sustainable Development

INDIVIDUALS AT THE CENTRE OF DATA-DRIVEN SOCIETIES

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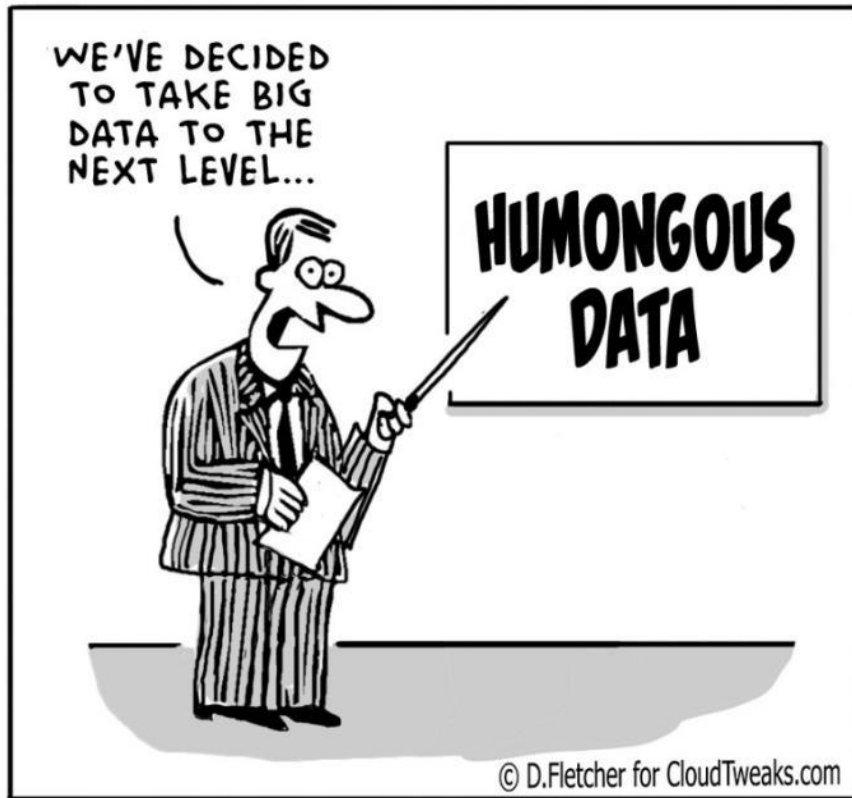
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Nanjing, China
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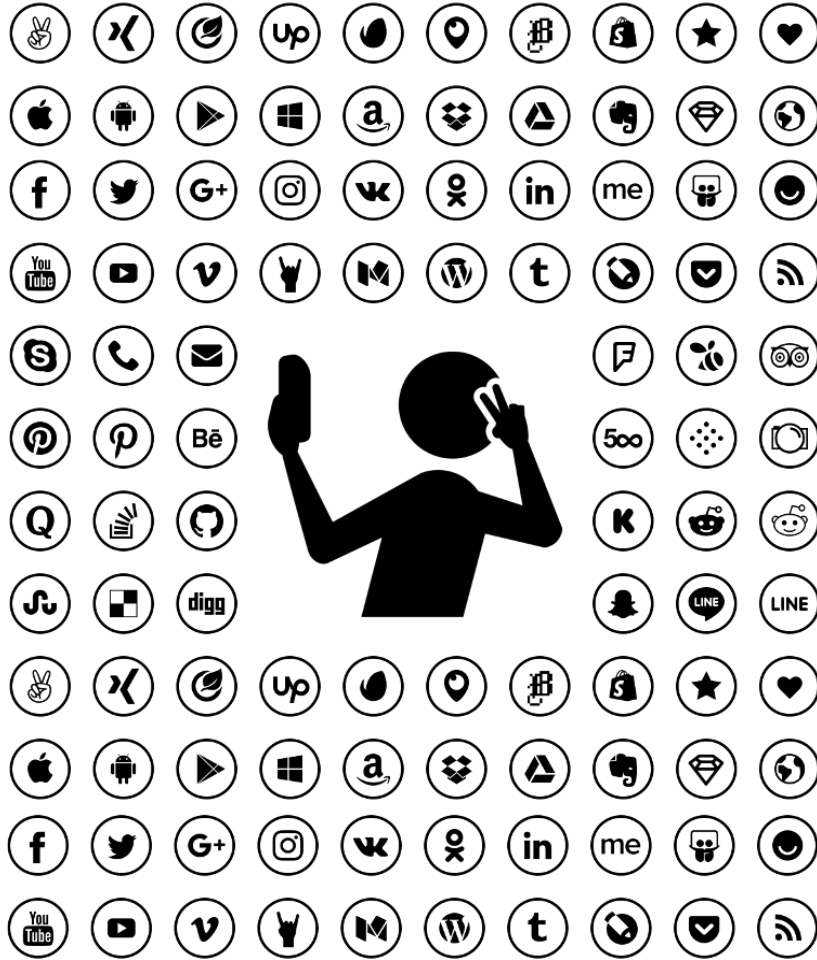
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SINGLES' DAY – 11.11

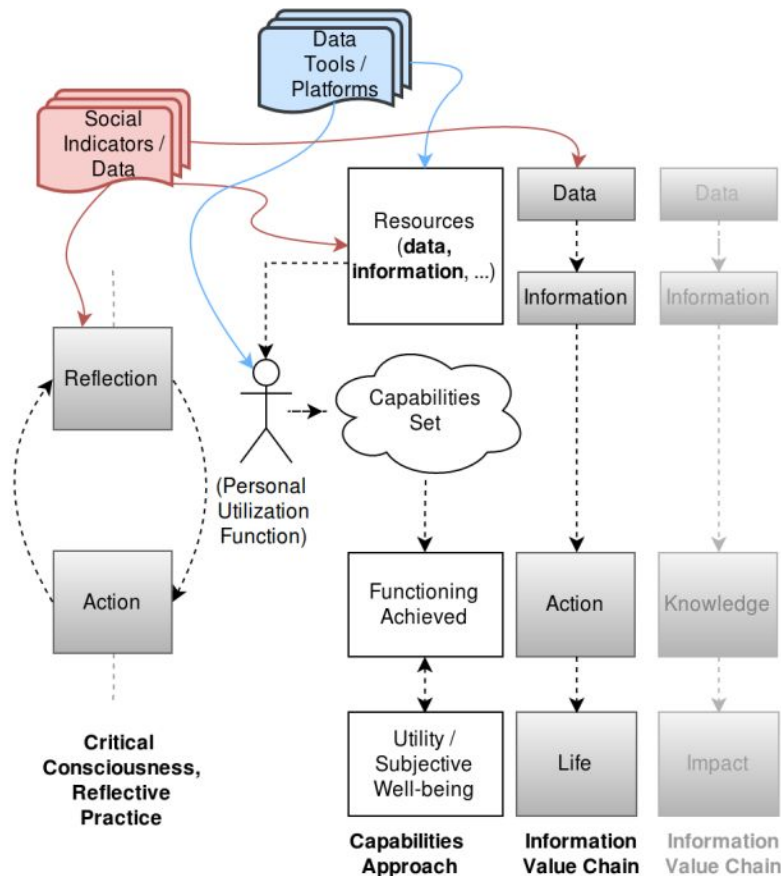
- 256,000 transactions per second
- RMB 168.2 billion (~USD 25.3 billion)
 - USD 1.5 billion in 3 minutes
- Shoppers from **192 countries**
- 777 million parcels shipped
- **90% mobile phone** purchases
- 400,000 duck eggs (**Shandong farmer**)
- Humongous data!



CHALLENGES (OPPORTUNITIES)

- Technical challenges
 - Processing, Infrastructure, Protocols, Standards
- Data
 - Quality, Provenance
- Human Data Interaction
 - Legibility, Agency, Negotiability (Mortier et al, 2014)
- Data for Sustainable Development
 - Capabilities, (UN) Freedoms, (DIS) Empowerment
 - Data Ethics, Data Justice





SMALL DATA, BY ANY OTHER NAME?

- Small data as small data sets
- Small data as actionable by-product of big data analytics (Bonde, 2013)
- Small data where $n = me$ (Estrin, 2014)
- Small data from ethnographic human centric observations (Lindstrom, 2016)
- Small data as an approach to data analysis (Best, 2015)



SMALL DATA FOR DEVELOPMENT

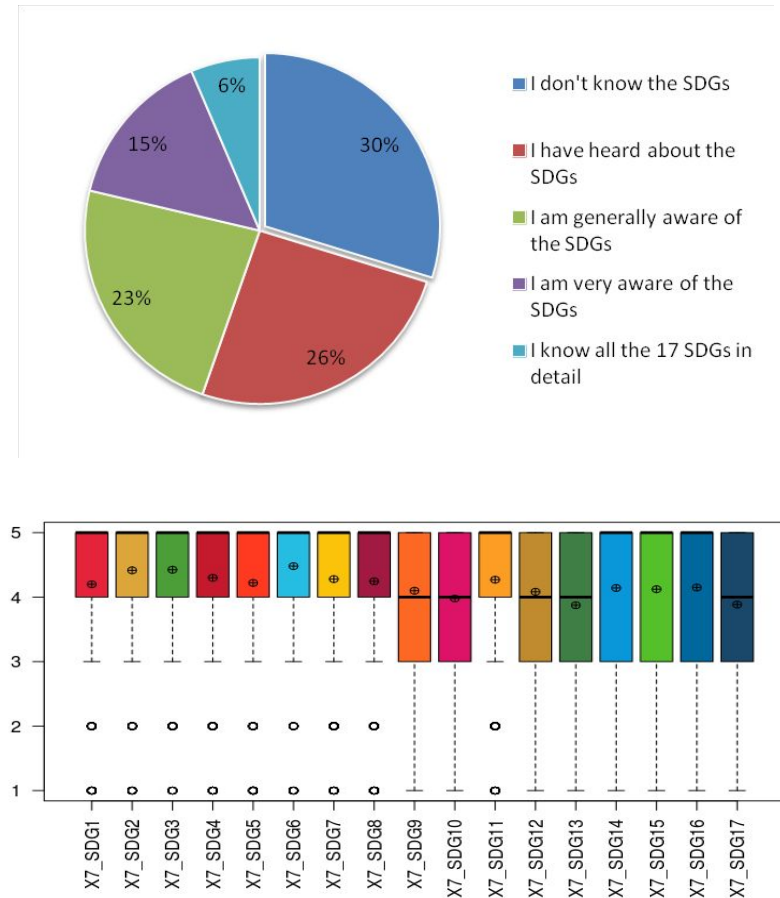
“an **approach** to data processing that focuses on the **individual** as the **locus** of data collection, analysis, and utilization towards increasing their **capabilities** and freedom to achieve their desired functioning”

SURVEY INSTRUMENT

- Online survey
- Initial phase
 - **37 / 53** participants, online recruitment, virtual snowballing
- Second phase
 - **1864 / 2125** participants, recruited via QuestionPro



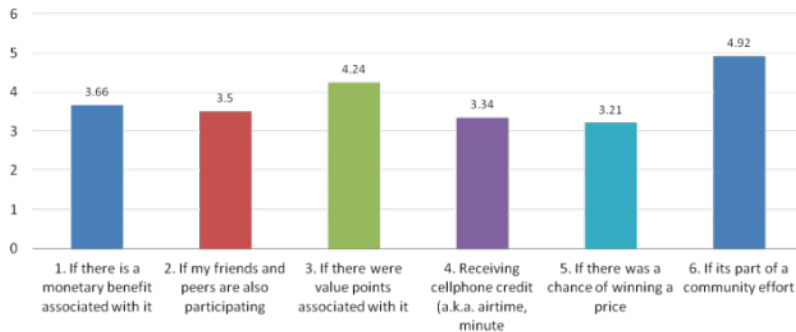
AWARENESS OF SDGs





MOTIVATIONS / INCENTIVES

- Intrinsic motivations & Extrinsic incentives
- “if its part of community effort” motivation
 - Social sense-making
 - Collective capabilities

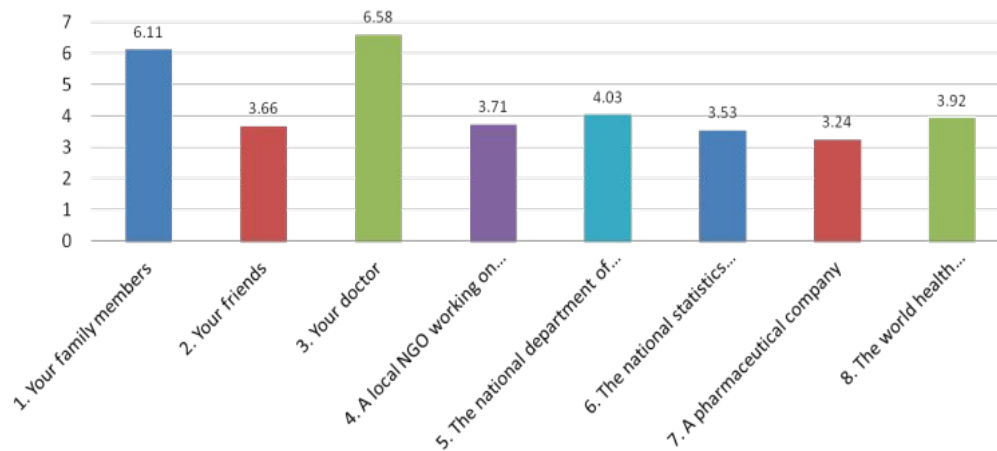


DATA COLLECTION AND MONITORING

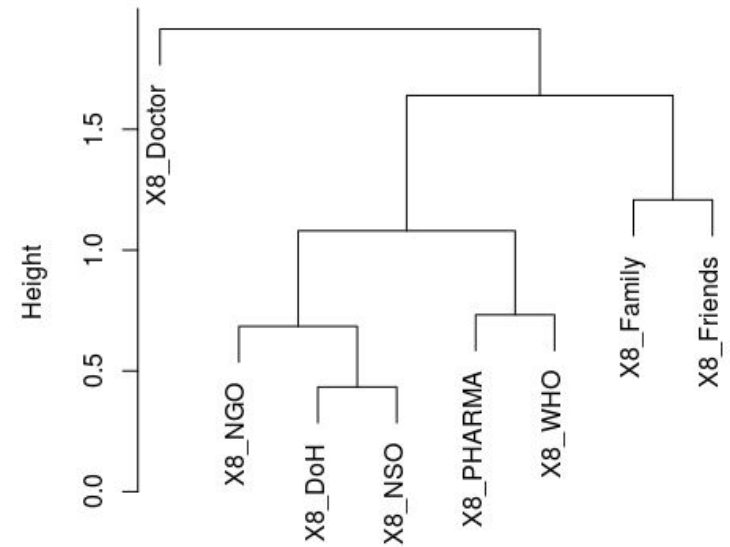
- Current use of fitness / activity trackers
 - 18.57% daily use, 62.5% never use
- Use of mobile devices for tracking and monitoring
- High use of mobile phones
 - 95.83% daily use



DATA UTILITY, SHARING, AND SOCIAL SENSE-MAKING



Clustering of Data Sharing entities/individuals





FACTORS AFFECTING DATA SHARING



Key	Description	Mean
Intrinsic value based		5.64
X9_confidential	The confidentiality of the information	5.66
X9_secret	The secrecy of the information	5.11
X9_privacy	The privacy of the information	6.16
Intrinsic personal		4.7
X9_benefit	That the information is used for my direct benefit and wellbeing	5
X9_control	The need to control access to personal information	5.26
X9_alone	My right to be left alone	3.84
Extrinsic		4.48
X9_UN	Assisting the UN to compare quality of health across different countries	4
X9_reporting	Assisting government to report on quality of health in the country	4.34
X9_industry	Contributing to improving the health industry through better medicines	4.84
X9_national	That the information is used for national health policies	4.74



DISCUSSIONS AND CONSIDERATIONS

- Amplifying the role of individuals in 21st century data-driven societies
- HDI and Small Data
 - data, (dis) empowerment, and (un) freedoms
- Data for SDGs
 - engaging individuals; primary utility; social sense-making; differentiated data sharing; incentives and motivations; privacy



NEXT STEPS...

- Informing the development of Small Data tools
- “Engaging Citizens for Sustainable Development” report
- Mainstreaming Small Data approaches and citizen-generated data for Sustainable Development



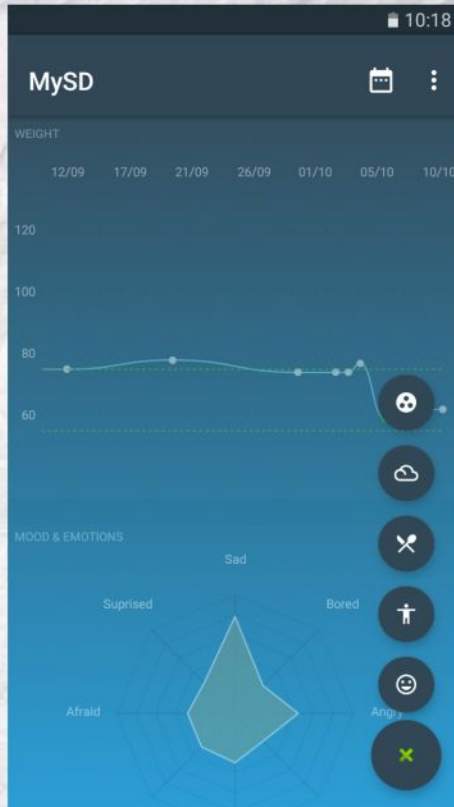
Engaging Citizens for Sustainable Development

Small Data and Sustainable Development



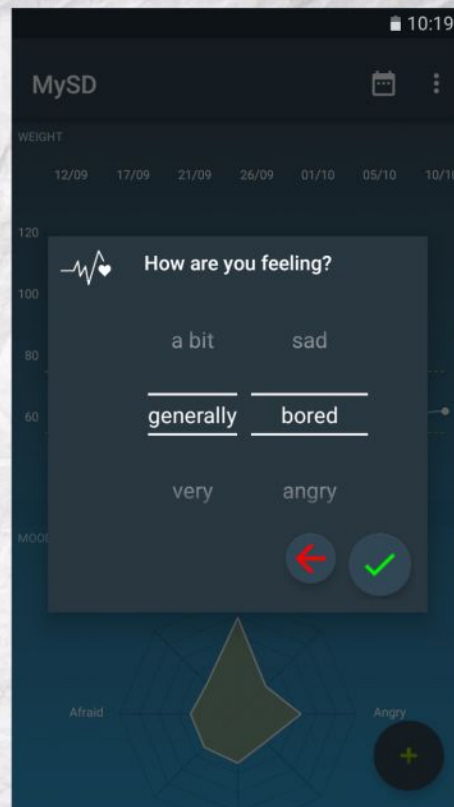
Monitor wellbeing indicators

Mood and emotions, physical and physiological, food and nutrition, and environmental indicators, ...



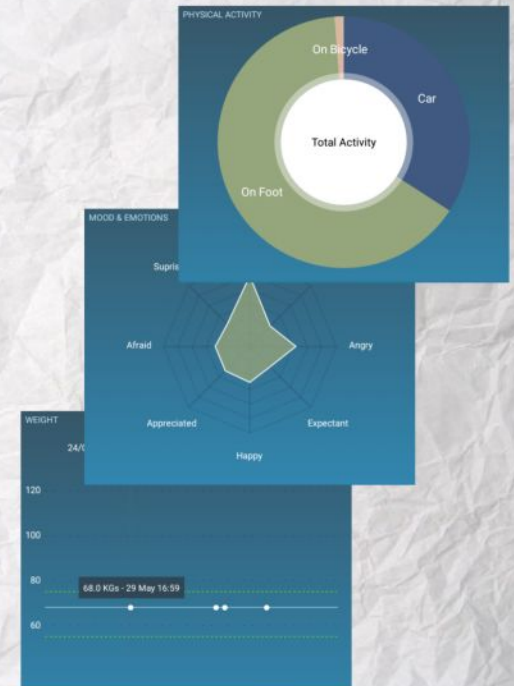
Record perceptions and opinions ...

as well as sensor data from your devices and digital traces.



Actionable & relevant insights

Gain awareness, keep track of goals, and stay informed.





THANK YOU...

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<http://cs.unu.edu>



**“Let’s shrink Big Data into Small Data ...
and hope it magically becomes Great Data.”**