INSPIRATION – Spatial Data Infrastructure in the Western Balkans

Open Data & Social Benefits

INSPIRATION National Workshop, Croatia
21st – 22nd November, 2012

Christian Ansorge

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Content

- Open Data
  - History & Tradition
  - What is ‘open’ data?
  - OGD vs. INSPIRE
  - Examples
  - Why Open Data?
    - Actual Costs vs. Benefit Models

Open Data

What is Open Data?

- Initiative and idea of the free accessibility and availability of data for everyone
- Movement of data providers and users
- Beyond legal obligations

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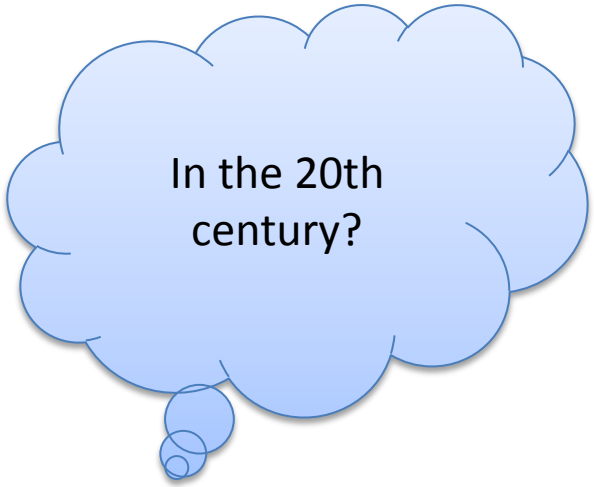
Open Data



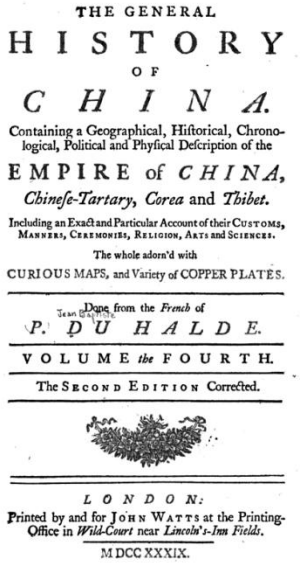
When did it start?

Open Data

- History & Tradition
  - Result of Open Government and E-Government movements
    - Economic liberalism
    - Government transparency
  - Early roots go back to 17th century in Asia resp. period of European Enlightenment in Europe
    - China: Peking Gazette, early 17th century China
    - Sweden: Freedom of the Press, 1766
    - USA: United States Constitution, 1787

Open Data

- Peking Gazette
  - Traces of Open Government in Chinese legislation recorded by Jean Baptiste du Halde's 1736 '*The General History of China*'
  - '*Peking Gazette*' as first media to publish governmental data



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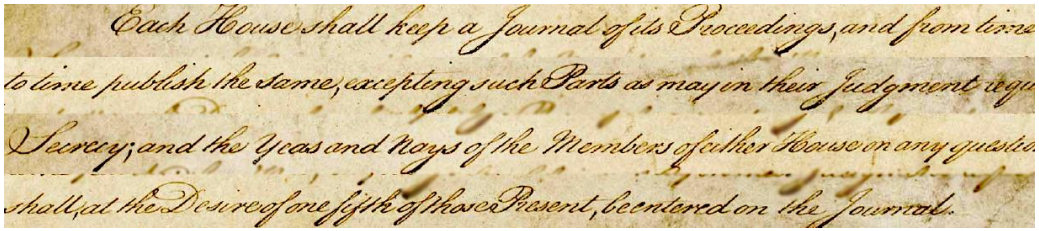
Open Data

- **Freedom of the Press**, 1766, Sweden
  - *6. [A]ll exchanges of correspondence, species facti, documents, protocols, judgments and awards . . . when requested, shall immediately be issued to anyone who applies for them.*
  - *7. [I]n order to prevent the several kinds of hazardous consequences that may follow from imprudent votes, likewise graciously decided that [judges] shall no longer be protected behind an anonymity that is no less injurious than unnecessary; for which reason when anyone, whether he is a party to the case or not, announces his wish to print older or more recent voting records in cases where votes have occurred, they shall, as soon as a judgment or verdict has been given in the matter, immediately be released for a fee, when for each votum the full name of each voting member should also be clearly set out . . . and that on pain of the loss of office for whosoever refuses to do so or to any degree obstructs it.*

Peter Hogg, 2006

Open Data

- United States Constitution, 1787, USA
  - **Congressional Record**
  - *'Each House shall keep a Journal of its Proceedings, and from time to time publish the same, excepting such Parts as may in their Judgment require Secrecy; and the Yeas and Nays of the Members of either House on any question shall, at the Desire of one fifth of those Present, be entered on the Journal.'*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Open Data

- Recent development of Open Government legislation
  - Open Government movements in the 50‘ and 60‘ as reaction on the governmental developments during and after WWII in the US
    - Freedom of Information Act (FOIA), 1966
      - idealistic principles of having an informed citizenry
    - FOIA amendments, 1974
      - strengthening right-to-know

Open Data

What *'data'* can be open?

- Data which may of use for other purposes or communities than those it was created for
- Data be it scientific, historical, geographic or otherwise (e.g. Open Science Data)
- Government and other administrative information (e.g. Open Governmental Data)

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Open Data

What is *'open' data*?

"A piece of content or data is open if anyone is free to use, reuse, and redistribute it — subject only, at most, to the requirement to attribute and/or share-alike."

http://opendefinition.org/

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Open Data

What is *'open' data*?

- Availability and Access
- Reuse and Redistribution
- Universal Participation

http://opendefinition.org/

Open Data

- Availability and Access
  - Most be available to no more than reasonable reproduction cost
    - marginal costs of data or information are near zero if internet technology is used for distribution
  - Data most be available in a convenient and modifiable form
    - Open data formats & standards

Open Data

Reuse and Redistribution

- Data must be provided under ‘terms’ which allow reuse and redistribution
  - Technical & legal accessibility
- Data must be intermixable with other data sources

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Open Data

Universal Participation

- Everyone should be able to use the data under the same conditions
  - No discrimination against communities or activities
  - Commercial as well as non commercial use of data

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Open Data

Availability & Access *to enable* Reuse & Redistribution *to achieve* Universal Participation

INSPIRE ?!

Interoperability?

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Open Governmental Data

- Part of Open Data movement
  - Mainly government bodies with close relations to the public or interested in visibility/transparency
  - 10 Principles of OGD
    - Completeness
    - Primacy
    - Timeliness
    - Machine readibility
    - …

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Open Governmental Data

Is Open Governmental Data a SDI?

- OGD data are mainly spatial data
- Organisational SDI approach

BUT

- Agreements on commonly used standards and technologies are widely missing
- OGD is rather focusing on content than on infrastructure and interoperability

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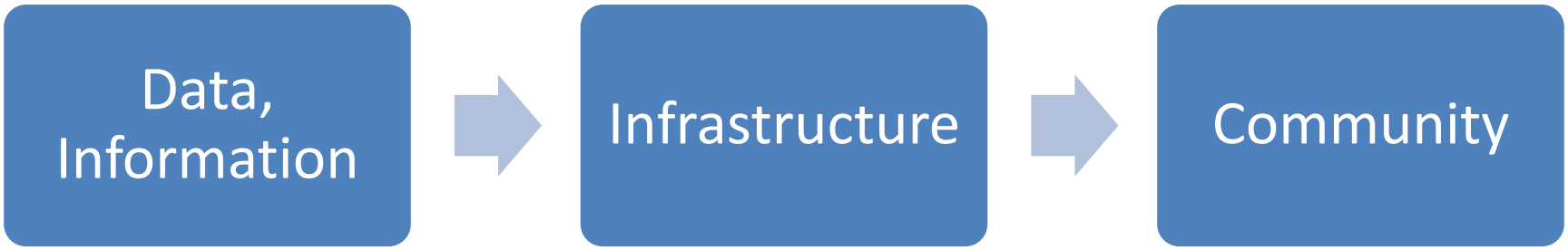
Open Data

- Open Data from information system viewpoint



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Open Governmental Data

Legal & Institutional framework

	OGD	INSPIRE
Approach	• Bottom-Up • Driven by provider and user communities	• Top-Down • Driven by EU and economy
Legal framework	• Legally not binding and no obligation • Voluntary movement • OGD is an initiative which goes beyond the existing legal obligations	• EU Directive 2007/2/EC • National transposed EU Directives
Availability	• Operational and growing • Regional coverage highly heterogeneous	• Fully with European coverage operational by 2020

Open Governmental Data

Content

	OGD	INSPIRE
Content	• Data across all field which are hold by government institution • From raw data to aggregated data and indicators • Not limited to spatial data • Content provided in highly heterogeneous formats	• Data in according to the annex themes • Mainly spatial reference data • Spatial data only • Content provided in harmonized format
Licences	• Data is '**Open**' by definition • No restriction regarding licenses as long the are open • Mainly Creative Commons (CC BY 3.0)	• Data has to be **accessible** in case of emergency • Fees (ecommerce) and restrictions (security) are possible • INSPIRE proposes standard (basic) licenses similar to CC

Open Governmental Data

Infrastructure

	OGD	INSPIRE
Infrastructure	• Unconnected 'data islands' • No central coordination body • No discovery service for the whole OGD • Search portals on national level only (if any) • No use of widely established (spatial) standards • High technological flexibility	• Infrastructure is (over-) developed and (over-) regulated • Based on (spatial) standards • International and national coordination bodies • Connected search portals on national and international level • Low technological flexibility

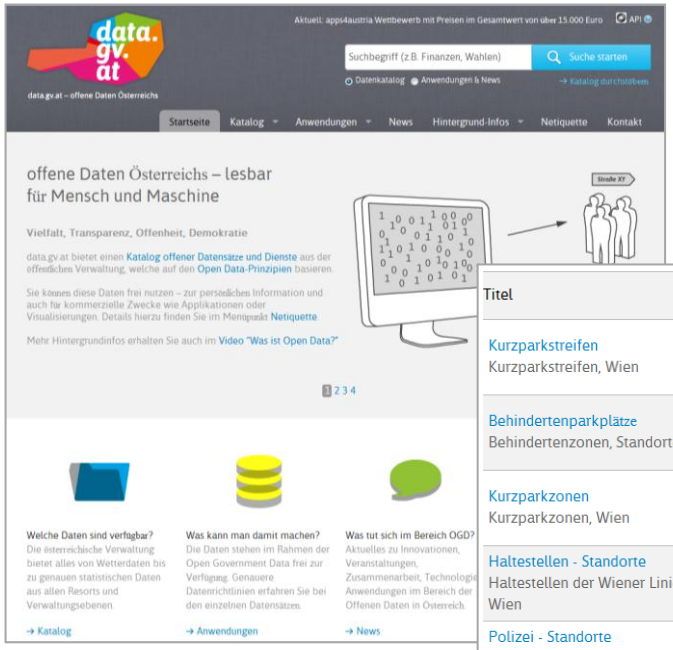
Open Governmental Data

Community

	OGD	INSPIRE
Community	• Governmental data provider on voluntary base • Communities & Economy needed to customize data and provide services (Downstream) • Public benefits from free or fee based services based on INSPIRE • No direct communication channel with the public (indirect communication through service provider)	• Governmental data provider legally bound by law • Communities & Economy needed to customize data and provide services (Downstream) • Public benefits from free or fee based services based on INSPIRE • No direct communication channel with the public

Open Data

- Example data.gv.at (http://data.gv.at/)



Titel	Letzte Änderung	Veröffentlichende Stelle	Format
Kurzparkstreifen Kurzparkstreifen, Wien	19.11.2012	Stadt Wien / MA 46 - Verkehrsorganisation und technische Verkehrsangelegenheiten	GML, JSON, KML, RSS, CSV, SHP
Behindertenparkplätze Behindertenzonen, Standorte, Wien	19.11.2012	Stadt Wien / MA 46 - Verkehrsorganisation und technische Verkehrsangelegenheiten	GML, JSON, KML, RSS, CSV, SHP
Kurzparkzonen Kurzparkzonen, Wien	19.11.2012	Stadt Wien / MA 46 - Verkehrsorganisation und technische Verkehrsangelegenheiten	GML, JSON, KML, RSS, CSV, SHP
Haltestellen - Standorte Haltestellen der Wiener Linien, Standorte, Wien	19.11.2012	Stadt Wien / Wiener Linien, Verkehrsverbund Ost-Region	GML, JSON, KML, RSS, CSV, SHP
Polizei - Standorte Polizeiinspektionen und Stadtpolizeikommandos, Standorte, Wien	19.11.2012	Stadt Wien / MA 14 - Automationsunterstützte Datenverarbeitung, Informations- und Kommunikationstechnologie	GML, JSON, KML, RSS, CSV, SHP

Open Data

- Example UNdata (http://data.un.org)

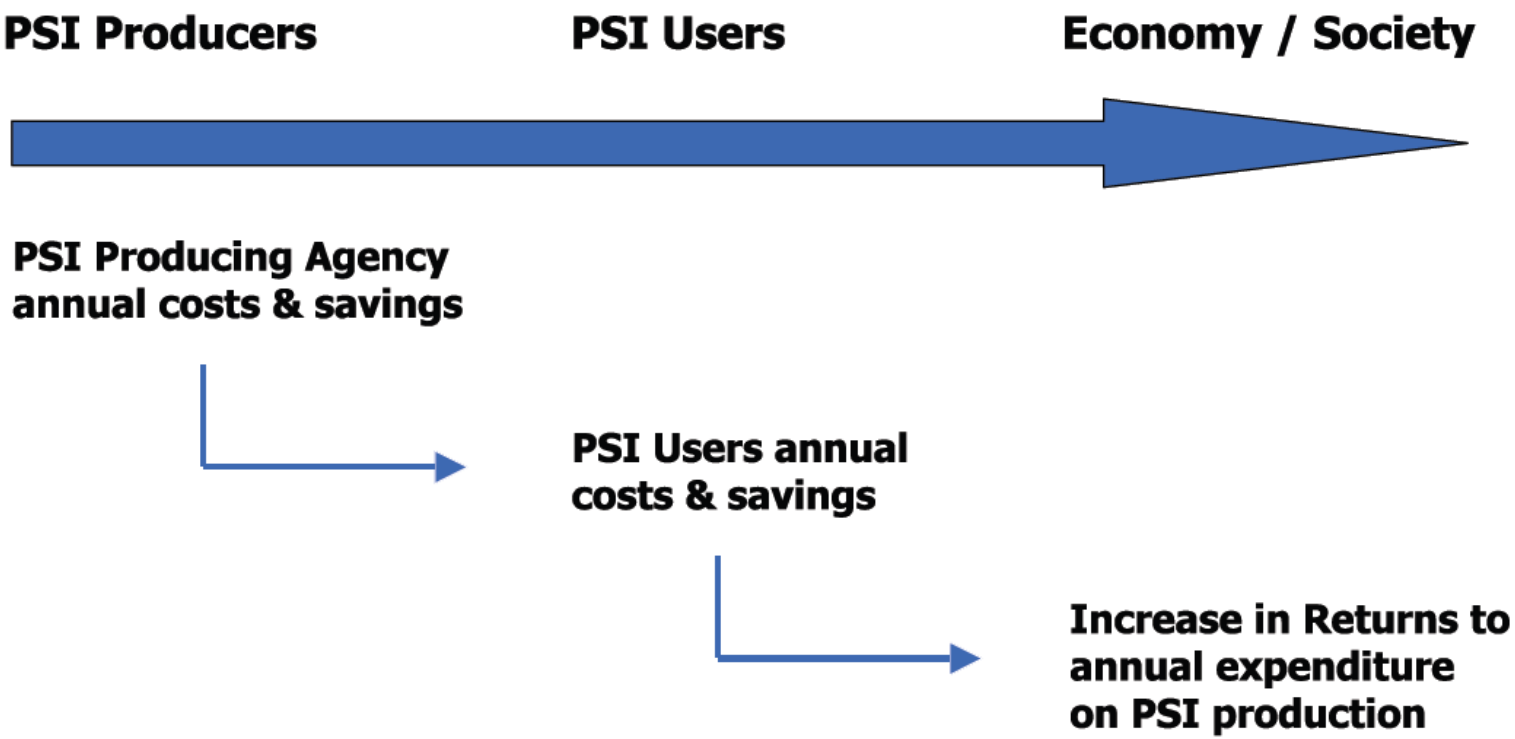
Open Data

Why Open Data?

What are the benefits?

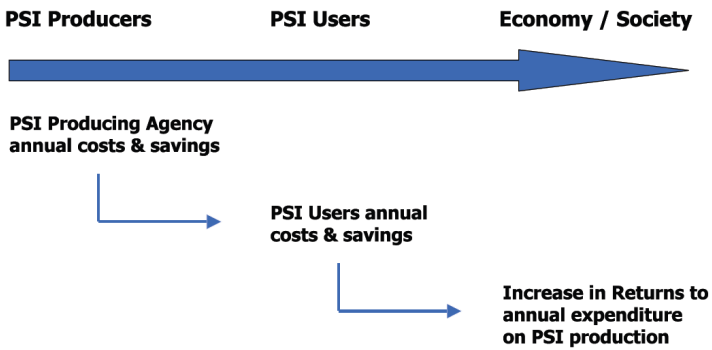
- For provider
- For the society
- For the political system

Cost-Benefit Framework



Houghton, 2011

Cost-Benefit Framework



$$\text{Benefit/Cost} = \frac{\text{Agency \& Users Savings} + \text{Increased Returns to expenditure on PSI production}}{\text{Agency \& Users Costs}}$$

Common good

- Information is a “public good”
  - Non-excludable and non-rival
    - It good is considered as non-excludable “when it isn’t possible to prevent people who have not paid for it from having access to it”
    - The use of the good doesn’t degrade the value of the good itself
    - “a good is considered non-rival (non-subtractable) if, for any level of production, the cost of providing it to a marginal (additional) individual is zero.”
  - Multiple consumable, infinitely expansible
  - Spreading and distribution of information is difficult to restrict

- Information as a distributable good is under-produced by the private sector
- Important role of the information from the public sector

Costs vs. Benefits

- **Costs** are relatively easy to determine
- **Benefit** is complex and difficult to identify and determinable

- ***"It is (probably) not possible to use a (standard) CBA methodology, with a single success criteria/metric, to assess the cost-benefit for an entire information infrastructure."***, INSPIRE CBA/ROI Workshop, Jan. 2006
- Cost-Benefit-Analysis (CBA) are riddled with assumptions and highly complex
- With increased complexity of the CBA model the more it is based on assumptions to more less reliable it becomes
- Don't worry ☺

Costs of Open Data

- Technology costs
  - Implementation set-up costs (e.g. design, hardware, software development)
  - Management costs
  - Maintenance costs

- Technology costs strongly depends on technical approaches and organisational issues

Costs of Open Data

- Processes costs
  - Changes in organisational models
  - Training
  - Coordination
  - Consultation
  - Promotion and user integration

- Some of the costs for processes affect only dedicated levels of governmental system

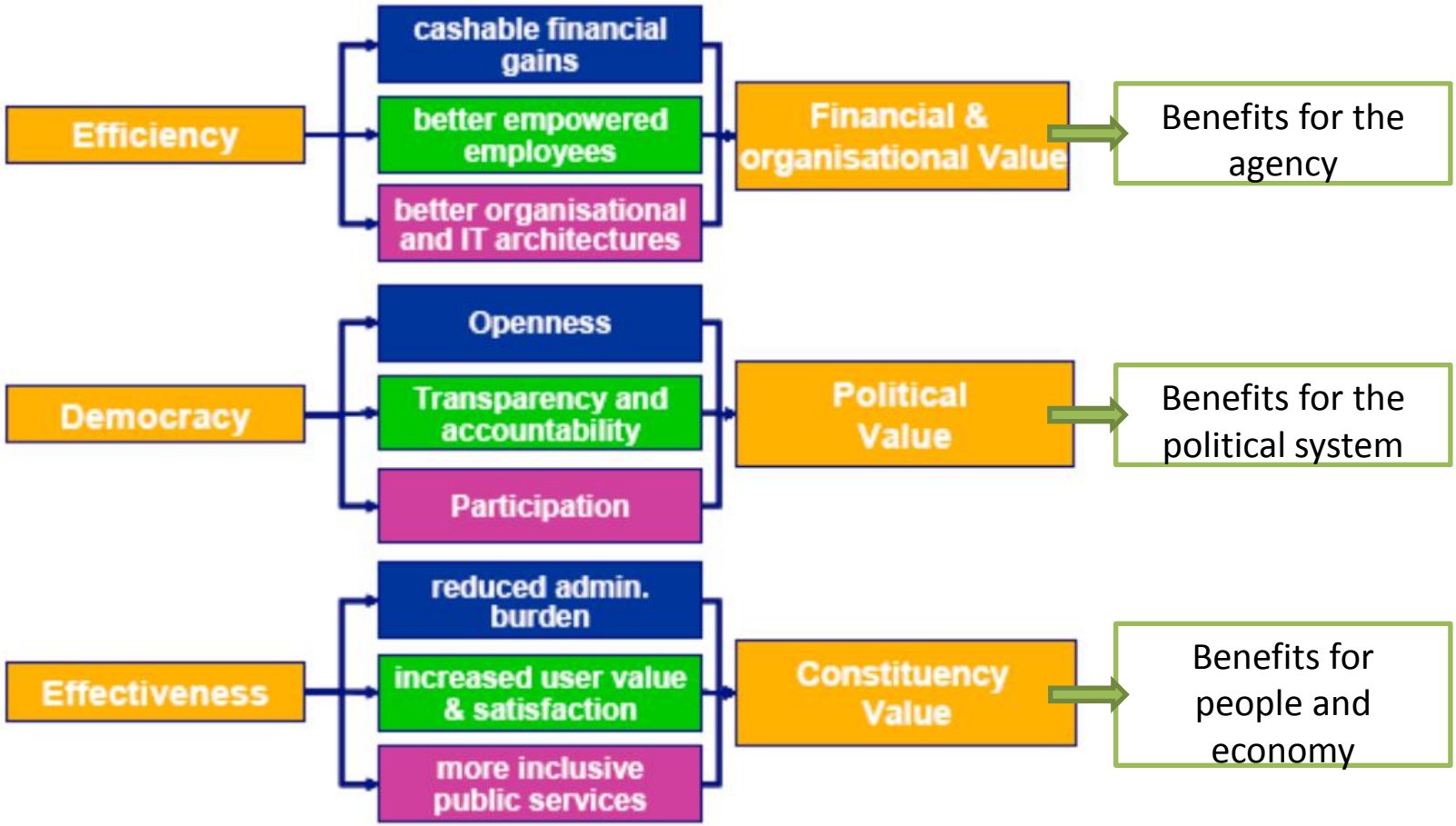
Benefits

- **Shared Information**
  - For decision makers
  - For the economy and education
  - For the public

- Core beneficiary fields (Catalonia Study, JRC)
  - Efficiency
  - Democracy
  - Effectiveness

Other benefits

- Network externalities
  - Streamlining of processes
  - Productivity improvements
- Innovation
  - New services and ideas
  - Business cases for downstream services
- Better service and information delivery
  - Policy support
- Risk prevention
- Better resource allocation
- Public awareness of governmental activities


Efficiency
cashable financial gains
better empowered employees
better organisational and IT architectures
Financial & organisational Value
Benefits for the agency
Democracy
Openness
Transparency and accountability
Participation
Political Value
Benefits for the political system
Effectiveness
reduced admin. burden
increased user value & satisfaction
more inclusive public services
Constituency Value
Benefits for people and economy

Efficiency

- Efficiency → **Financial and organisational value**
  - Monetary gains and cost savings (Agency & User)
    - Savings in time
    - Saving in consumables
    - Distribution with no marginal costs
  - Personal and staff
    - More motivated and higher qualified staff
  - Organisational improvements
    - Streamlining of processes and information flows
      - Time savings by redesigned processes)
      - New processes (eCommerce)
    - Interdepartmental data sharing
    - New synergies and communication channels

Effectiveness

- Effectiveness → **Constituency Value**
  - Benefits for residents
    - Time savings and increased efficiency of citizen and economy
  - User satisfaction
    - Reduced administrative burden
    - Increased usage of governmental data
    - Increased value of governmental services
  - Extension of services and innovation
    - Information infrastructure (SDI) as common knowledge and basis for innovation
    - Development of new services based on data available
    - New data will be available from public and private sources
    - Increased productivity on national level

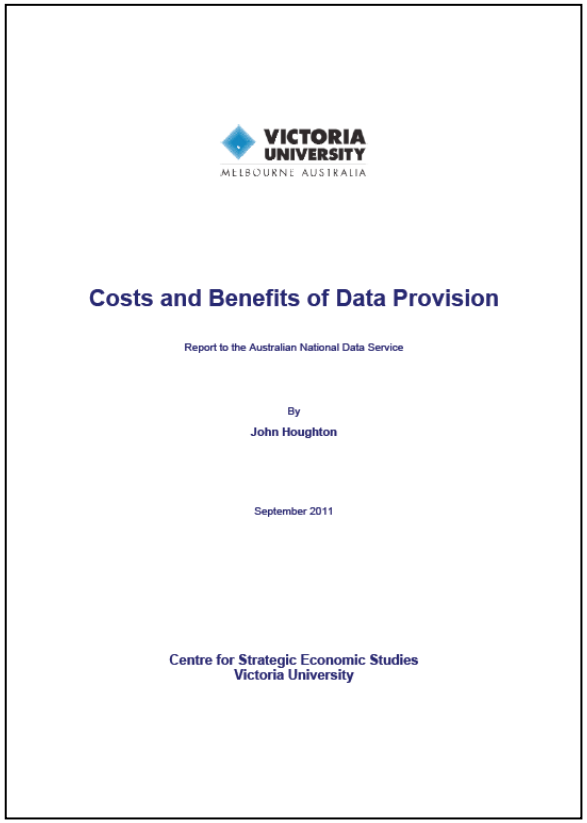
Democracy & SDI

How can SDI lead to an increased political value?

- Openness
  - Interactive services and web access
  - Citizen and economy can discover data available
- Participation
  - Feedback from citizen and economy regarding needs or requirements
- Transparency and accountability
- Increased public awareness for the governmental activities and measures

Literature

- http://ands.org.au/resource/houghton-cost-benefit-study.pdf
  - The costs and cost savings experienced by PSI producing agencies involved in the provision of free and open access to information;
  - The costs and cost savings experienced by the users of PSI in accessing, using and reusing the information; and
  - The potential wider economic and social impacts of freely accessible PSI


VICTORIA UNIVERSITY
MELBOURNE AUSTRALIA

Costs and Benefits of Data Provision

Report to the Australian National Data Service

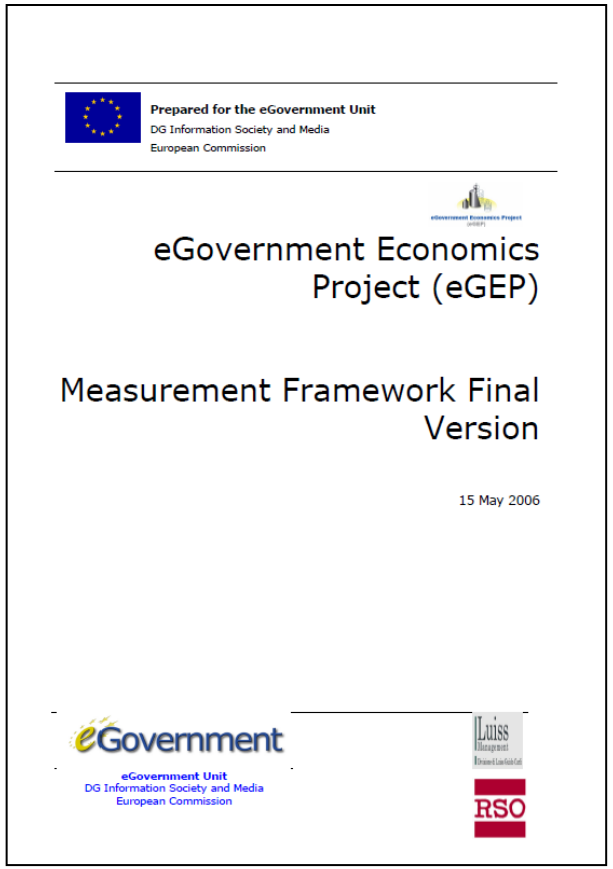
By
John Houghton

September 2011

Centre for Strategic Economic Studies
Victoria University

Literature

- http://www.umic.pt/images/stories/publicacoes200709/D.2.4_Measurement_Framework_final_version.pdf
- eGovernment Economics Project
  - Benefit Model used by Catalonia Study (JRC)
  - Indicators for measuring, penetration and success of SDI



Prepared for the eGovernment Unit
DG Information Society and Media
European Commission

eGovernment Economics Project (eGEP)

Measurement Framework Final Version

15 May 2006

eGovernment
eGovernment Unit
DG Information Society and Media
European Commission

Luiss
RSO

Opportunity costs

- "The cost of an alternative that must be forgone in order to pursue a certain action. Put another way, the benefits you could have received by taking an alternative action."

Thank you very much!

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Zagreb■ 22th November 2012