

Using Balanced Scorecard for evaluation of Spatial Data Infrastructures: a case study for INSPIRE
 Ara Teemanian

SDI!!! BSC!!!! What?

Introduction

- SDI Evaluation and monitoring
- INSPIRE directive and Swedish NSDI
- SDI evaluation Model using Business management methods
- BSC for SDI

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SDI evaluation and monitoring

- 120 countries Implement SDI
- A bottleneck is how to monitor the SDI progress
- A proper model for the evaluation of SDI is needed
- SDI evaluation is a hot topic in the academic areas
- Different existing models cover some dimensions
- The model should be scientific and easy to implement

In business management literature various models and methods exist such as BSC which we used it to monitor and evaluate the progress of SDI.

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INSPIRE directive

Infrastructure for Spatial Information in Europe

Multi level SDI implementation in the European Union.

Objective:

To make available relevant, harmonised and quality geographic information to support the formulation, implementation, monitoring and evaluation of Community policies with a territorial dimension or impact.



<http://inspire.jrc.it>

Sharing of **environmental** spatial data sets



Inspire Evaluation Model

INSPIRE Monitoring and Reporting Implementing Rule

- Monitoring the implementation of metadata requirements
 - **Monitoring the existence of metadata**
 - count of the spatial data sets for Annex I that have metadata, divided by the number of spatial data sets for that Annex
- Monitoring the implementation of the requirements for interoperability of spatial data sets
 - **Monitoring the extent of spatial data sets**
 - sum of the actual areas covered by the spatial data sets for Annex I, divided by the sum of the relevant areas of the spatial data sets for that Annex
- Monitoring the implementation of spatial data services requirements
 - **Monitoring the use of spatial data services**
 - the sum of the annual number of service requests for all the view services, divided by the number of view services

This model needs to be improved in order to evaluate and monitor various dimensions of spatial data production and sharing

Swedish NSDI

As a member state of European Union, Sweden is obliged to follow the INSPIRE directory.

The main goal of the national geodata strategy is that it should contribute to the development of the Swedish e-governance and promote close co-operation between the public and private sectors as well as support the Swedish business sector (Lantmäteriet, 2008)

To fulfill the intentions of the geodata strategy nine action areas have been identified: *co-operation; information structure; technical infrastructure; metadata; geodetic reference system; research, development and education; legal framework; financing and pricing.*

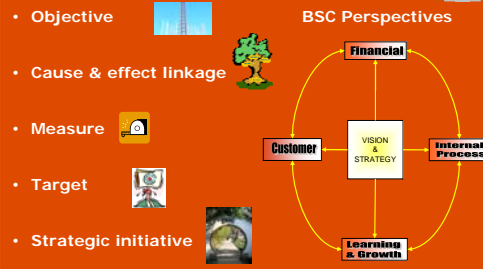
The Swedish government requires that the national geodata strategy is evaluated. For the forthcoming yearly evaluations, a framework is required; this framework should include methodology and recommended indicators.

What is BSC



BSC (Balanced Scorecard) is a performance measurement framework that provides an integrated look at the business performance of an organization by a set of measures, both financial and non-financial metrics.

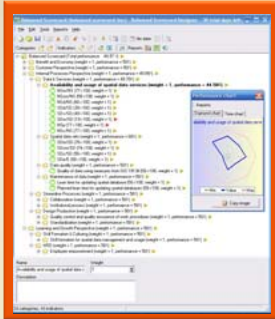
Balanced Scorecard



BSC for SDI

Perspective	Objective	Cause & Effect linkage	Measure (KPI)	Initiative
Benefit and Economy	Society benefit	Benefits from the implementation of the spatial data and economic success	The amount of money received from market in a year The amount of money funded for SDI in a year, divided by the amount of money planned for funding in that year	Economic adjustment initiative program
Customer	Usage of Spatial Data Services	Wide range of Visualization and more analysis made by the customer	Inconsistencies between data standards and user's requirements NSrd/NS; NSrv/NS; NSrw/NS	Enterprise CRM program
Internal Process	Data & Services	Proper Spatial Data and Service Production according to the existing standards with high level metadata	Quality of data using measures from ISO 19138	Enterprise clearinghouse system Continuous improvement
Learning & Growth	Skill Formation & Culturing	Capacity Building	Number of annual training courses for the employees Number of annual workshops and seminars	HR training program

BSC for SDI Evaluation



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Conclusion

- BSC provides a comprehensive framework for SDI evaluation from different perspectives.
 - BSC helps to evaluate SDIs from both data producers and users (customers) point of views
 - A general and flexible SDI evaluation framework can be established for SDI activities regarding both individual (learning and growth) and organizational levels (internal process).
 - Finally, affairs and benefit achievements (benefits and economy) would be an essential part of the evaluation

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Thank you



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