TOWARDS A GDI BUSINESS MODEL FOR AFRICA

No Management without Measurement

GIS specialists in Africa are quickly seeing the horizon with respect to Geospatial Data Infrastructure (GDI); it is the bottom line that is proving elusive. Financial, budgeting and accounting measures need to be brought into the discourse. Accessing and allocating funds are key to identifying a functional business model for GDI and may also provide a mechanism for government co-ordination.

Recognition of the need for financial tracking of geospatial investment is not new. In 1934 a six-month intensive review was conducted of 28 federal agencies engaged in surveying and mapping in the United States. This study noted a disturbing proliferation and duplication of activity resulting in waste of funds. Federal surveying and mapping activity was found to be "enormous in volume, of confusing variety and to have developed independently and often without correlation in many different executive agencies."

Lessons Learned

In 1972 a US Federal Mapping Task Force chaired by the Office of Management and Budget (OMB) completed another broad study of federal mapping, charting, geodesy and surveying, to determine how best to use resources to meet overall national requirements. The first step was to determine amounts of federal expenditure. Although the Task Force found that funding was spent in a piecemeal fashion and without an overall national plan or strategy, no concrete action was taken to improve efficiency in carrying out mapping programmes. Another twenty years passed before OMB conducted another, cross-agency financial review of geospatial investment. In 1993, OMB asked federal agencies involved in the management of geographic data to provide details of expenditure equalling or exceeding US$ 500,000. Agencies were meant to list budgetary resources under the categories of data collection and data management. From the response OMB determined the amount of federal spending on geographic data acquisition and management; but this information was not fed into an overseeing function at OMB, so that the review proved ultimately to be simply an exercise. Again, no concrete measures were taken to improve budgetary efficiency.

A similar exercise was repeated ten years later, in 2003. This time no minimum investment thres-hold of US$ 500,000 was set and a different geospatial investment classification was used. However, there was limited response from agencies and support from OMB and the effort came to a halt. But then, in 2004, another study got underway to quantify costs and benefits of the E-government Geospatial One-Stop programme. The Geospatial One-Stop team is currently discussing the development of a mechanism to automate financial data collection and updates with state and local government.

Budgetary Mechanism

Despite the long history of tracking of geospatial investments in the US, no mechanism for budgetary co-ordination or oversight has resulted. A June 2004 congressional hearing report entitled â€˜Geospatial Information: Are we really headed in the right direction or are we lost?â€™ highlights the current predicament in the US. The General Accounting Office admits that much remains unsatisfactory: "A complete and up-to-date strategic plan (to co-ordinate geospatial investments) is missingâ€¦ federal agencies are not consistently complying with OMB direction to co-ordinate their investmentsâ€¦ and OMBâ€™s oversight methods have not identified or eliminated specific instances of duplication." According to Karen Evans, OMB administrator for e-government and IT, "We need to get to the issue of accountability and managing information strategically."

It is interesting to note that one organisational alternative proposed in the 1973 OMB report was to institute a federal mapping co-ordinator at OMB to provide guidance on trends and priorities, facilitate communication on plans and programmes and identify voids and overlaps. Perhaps OMB is getting closer to assuming this role. There is a precedent: OMB already has a chief statistician charged with annually overseeing statistical spending. An explicit statutory basis for the OMB council of statistical agency heads was provided in 1995 by the Paperwork Reduction Act reauthorization (44 U.S.C. 3504 (e)(8)). Known as the Interagency Council on Statistical Policy (ICSP), this group enables OMB to obtain more direct participation from the agencies in planning and co-ordinating federal statistical activities. It would not seem such a tall order for something similar to be implemented for geospatial expenditure. If there is a chief statistician at OMB, why not have a â€˜chief geospatial officerâ€™ as well?

Homework for Africa

Obviously, as this brief historical narrative has shown, conventional budgetary processes have thus far not been sufficient to constrain the fragmentation of geospatial investments in the United States. The homework for African countries is to establish mechanisms for:

- annual tracking of geospatial investment
- metadata/clearinghouse for planned data collection and acquisition

- budget oversight, with a designated person at Ministry of Finance
- user requirements well articulated and collected systematically
- incentives for agency participation.

Some African countries are, in fact, moving in this direction.

Bright Spots in Sight
The Sierra Leone Development Assistance Co-ordination Office (DACO) is establishing a development assistance database to track and monitor all commitment and aid inflow to Sierra Leone. In collaboration with the Ministry of Finance, Ministry of Development and Economic Planning and the Bank of Sierra Leone, DACO will ensure that external assistance data is systematically incorporated into the annual budget. The Sierra Leone Information System (SLIS), GIS-based, is part of DACO and those involved are aware of the need to track geospatial investments.

Malawi
CIDA recently launched its Project for Economic Governance, in collaboration with the Malawi Ministry of Finance. The cornerstone of this effort is an integrated database of information on funding agency and government expenditure that will be available to stakeholders in the area of public expenditure. At the moment there is no means of extracting from this database expenditure specifically devoted to geospatial activity; but some homework should make possible faster identification of geospatial investments.

Egypt
At the beginning of 2004, as part of an Egyptian Survey Authority effort to align its mapping production with user needs, ESA asked ministries to put in writing their data requirements with respect to content, scale, accuracy and symbology. ESA held several workshops with data users and is now preparing a work plan and budget for data production based on the received responses. The purpose is to inform each ministry of the cost of data indicated as needed by the ministry and to enable cost sharing of framework data production between ministries.

Uganda
Uganda is implementing a Poverty Eradication Action Plan (PEAP) framed around five pillars. The first is economic management. In order to attain PEAP objectives the government has introduced a government-wide co-ordination framework based on an inter-ministerial co-ordination mechanism. A National Integrated Monitoring and Evaluation Strategy (NIMES) has also been designed to minimise disjointed and duplicative activities. NIMES is not a new monitoring and evaluation system but harmonisation of existing national information systems to ensure that holistic countrywide, sector-wide and local government perspective is attained. NIMES is an innovative â€˜whole-of-governmentâ€™ approach in Africa, dealing explicitly with economic management; it is noteworthy that the co-ordination mechanism falls under high executive office, the Office of the Prime Minister.

Zambia
The Civil Society for Poverty Reduction (CSPR) conducted an analysis of Zambia's 2002 and 2003 budgets to determine whether the countryâ€™s Poverty Reduction Programs (PRP) were receiving the funding they needed. This study showed limitations in the government budget classification system prevented linkage of the Poverty Reduction Strategy Paper (PRSP) with PRPs. In specific terms it was (a) difficult to tell which PRPs matched up with PRSP objectives, and (b) the budget was not detailed enough to allow an accurate gauge of how much funding each PRP was actually receiving. Despite these limitations, certain inconsistencies between PRSP objectives and budget expenditure were identified. Based on PSRP projections, overall spending on PRPs should have been 56.8% of the budget, yet in 2002 it was only 7% and in 2003 it was only 10.5%. Although this example describes civil society monitoring of government poverty reduction expenditure, not geospatial expenditure, it does highlight the need for increased transparency in the budget classification system to facilitate tracking of expenditure. This is something that will need to be addressed if GDI advocates in Zambia begin to pursue geospatial investment tracking mechanisms. The example is also worth mentioning since it is a relatively new phenomenon in Africa for civil society organisations to monitor government spending.

Giving It a Try
Some may argue that a geospatial investment tracking approach requires a degree of motivation and capability that may be lacking in developing countries. However, even if the feasibility of a geospatial investments tracking mechanism is in doubt, any modest attempt at this could stimulate behavioural change. It might act like a placebo for the malady called â€˜duplication of effortâ€™. People might just focus better on leveraging resources - because they think that those around them are counting the beans. A human resources study carried out some decades ago at the Western Electric Companyâ€™s Hawthorne plant in Illinois found that production there increased not as a consequence of actual changes in working conditions but rather because staff perceived new interest in their work. Improved lighting had resulted in improved worker productivity; but a repeat study with decreased lighting revealed that this also improved productivity. The conclusion was that productivity gains were related not to brightness of lights but rather to the act of measuring. The Hawthorne Effect states that individuals alter their behaviour because they know they are being observed â€“ applicable, perhaps, to some benevolent financial overseeing of geospatial investments?

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Further Reading

- Freihage, J. and M. Robinson, 2003. Geospatial investments review. Federal Geographic Data Committee, USGS, Reston, VA.
- Mayo, E., 1933. The human problems of an industrial civilization. MacMillan. New York.
- OMB, 1973. Report of the Federal Mapping Task Force on Mapping, Charting, Geodesy and Surveying. Washington, DC.
- OMB, 2004. Statistical Programs of the United States Government: Fiscal Year 2004.
- Science Advisory Board, 1934. Report of the Committee on Mapping Services of the Federal Government. Washington, DC.