

Current Asset Managements in Various Countries Accelerating Movements towards Effective Public Asset Management

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Compared with Japan, the countries in mainly Europe and the United States more actively promote the efficiency and advancement of public asset maintenance and management due to the rapid aging of infrastructures and financial difficulties, and they have taken further actions because of several reasons: 1) administration reforms employing the New Public Management (NPM), 2) reformations of public accounting systems, 3) recent rapid progress of IT. Accordingly, the new management approach "Asset Management" pursuing better economic performance, efficiency and effectiveness, has been introduced into various agencies in the countries. This paper presents the findings of a study on some countries' implementations of asset management, which was conducted through several visits to the countries, Internet and public database services. Although the implemented asset management covers wide areas from roads facilities including pavements, to bridges, tunnels, railways, airports, water systems, sewage systems and to school systems, the one for road facilities will be focused on as the most typical example.

American Case

In the 1970's when several problems surfaced concerning the use of bridge facilities, the United States tried several attempts to solve

those problems step by step, such as the establishments of look-over systems and engineering qualification systems, establishment of database, developments of analysis systems for operating facility maintenance and management and controlling budgets. Since then, Federal Highway Administration (FHWA) has developed such data processing and analytical software as National Bridge Inventory (NBI) system, PONTIS, Life-Cycle Cost Analysis (LCCA), Highway Economic Requirements System (HERS) and has offered the software to each state and local governments. In February 1999, FHWA placed the Office of Asset Management in the administration, and then in the December published "Asset Management Primer."

In the same year, American Association of State Highway and Transportation Officials (AASHTO) launched "Task Force on Transportation Asset Management," and in the following year, draw up "Strategic Plan 2000-2010," in which their mission, vision and goals are presented as a strategic plan for the implementation of asset management. In addition, National Cooperative Highway Research Program (NCHRP) conducted four related researches sponsored by AASHTO.

A review of compliance with GASB 34 requirements (completed in Oct 2003)
A study on research programs and asset management guide (completed in Nov 2002)
A study on improvements of decision-making process in asset management (to be completed in spring 2005)
A study on performance indices and targets of asset management (to be completed in June 2005)

Figure-1: NCHRP's studies on asset management

As to Figure-1, "Transportation Asset Management Guide, NCHRP Project 20-24 (11) was published in November 2002. What makes it interesting is that in chapter are self-assessment tools provided which help each agency identify the areas to be fortified, and based on the results of self-assessment, the agency figure out proper strategy and operations of asset management. Furthermore, the chapter refers that regarding operation plan, each agency can customize the policies and techniques presented in the Guide according to its own situations and capabilities.

Meanwhile, there is no regulation for state and local governments to make them implement asset management in America; however, by the fact that "Governmental Accounting Standards Boards Statement No. 34 (GASB 34) was drawn up in 1999, state and local governments have increased interest in asset management. The GASB 34 explains the accounting systems to reflect the values of public assets like roads in annual financial report. Along with the development of the GASB 34, several local governments have been creating new systems which will utilize the databases and GASB 34.

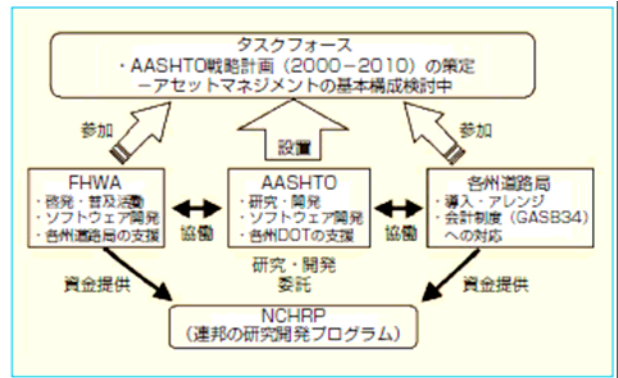


Figure-2: Cooperation of related organizations in USA

In America, in terms of antitrust law and quality control, federal and local governments take care of the work to be done with their responsibility, while outsourcing such works as they can ensure efficiency of maintenance and management to private sectors.

System Developments contributed by Operating-System Companies

As discussed above, in late years, public accounting systems have significantly changed; the GASB 34 has been introduced to municipalities as well as private sectors, stipulating the municipalities for reporting the values of major public assets. Accordingly, systematizing public asset management turns essential to efficiently computing the values of voluminous public assets. Given that this need could have accelerated the development of database system, I conducted a study on the system developments contributed by specific operating system companies, using the following sources:

Public databases

- Transportation Research Information Services (TRIS) database
- American Society of Civil Engineers (ASCE) database
- Canada Institute for Scientific and Technical Information database

Internet

Presentations/ exhibitions done at seminars on database software relating to construction in the US

Out of the fifty-two software systems studied, remarkably well-functioning eleven were selected for follow-up studies including interviews with software developers. The questions asked in the interviews were:

- Software's name and contents
- Public and governmental agencies which have adopted asset management software
- Software types: commercially manufactured, or internally developed
- Market prices
- Assets to which software can be applied
- Years which software was developed
- Functions which software possess

Further, exceptionally well-functioning software systems met all of these conditions:

- It can be applied to several assets
- It can work in network environment
- Several functions are available:

1. Computation of asset values

Asset values are computed for annual financial report. The GASB-34 provides the method of computing depreciation expenses and the other, so-called revising method, of reviewing

maintenance and management

2. Life-Cycle Cost Analysis (LCCA)

The LCCA function analyzes the costs for managing assets to be spent during the serviceable period of the subject assets, comparing with alternative asset managements.

3. Estimation of depreciation expenses

Employing the data on past conditions, this function estimates future asset values and creates the models of possible depreciations.

4. Budget/ project planning

It can estimate the total expenses of public projects on asset maintenance, improvement and replacement.

5. Activity Based Costing (ABC) analysis

It calculates total expenditures on public projects including commissions, intergovernmental/ inter-organizational payroll costs, equipment purchases and maintenance costs, all-round costs and other overhead costs.

6. Geographical Information System (GIS) use

The GIS is employed in analyzing the values of public assets.

All of the eleven systems were off-the-shelf software. Whereas, considering the fact that few answers were provided as to the price of the software, those systems must have been modified somehow in order to serve the users' needs fully. Also a question about the years when the systems were developed was little answered, either. It could be difficult to determine the exact year of the developments of the systems. The users were not only state governments but also several local ones like

village, town and city in the country, and also were those in Canada, England, Australia, New Zealand and others.

The systems contained management systems for infrastructure management systems for a specific facility such as pavement and bridge and asset management systems, and were further systematizing the managements of construction, order, inventory, finance and human resource. Additionally, they were able to manage multiple facilities, ranging from road to pavement, bridge, railway, airport, water system and to sewer systems.

Regarding maintenance and security, all of those systems were able to assess the values of asset, which indicated that the revisions of public accounting systems contributed to the improvements of asset management systems. The fact that the budget planning function was loaded all of the systems suggested that the systems had developed up to a stage that they could be applied to financial analysis. As to the other functions, GIS was installed in ten out of the even systems, Estimation of depreciation expenses and ABC analysis were in five systems, and LCC analysis in three systems. Meanwhile, only two systems had all of the six functions, and one system had five functions, four systems did four functions and three systems three functions.

The study implied significant developments of systems in these years although the data possibly involved some margins of fully grasping the systems due to the data collected by mainly interviews with the users. Thanks to rapid advancement of IT technology in these

years, further improvements of the database systems can be greatly expected as a practical tool of asset management.

British Case

In the U.K., the Department for Transport (DFT) is in charge of overseeing trunk roads and motorways, and the Highways Agency (HA), the executive agency, part of DFT, has responsibility for maintaining and managing the trunk roads. Since 1997, focusing on the improvement of operating road maintenance and management, the HA has pursued the efficiency of the operations and outsourced almost all of them to Managing Agent Contractor (MAC).

Meanwhile, since 1999, the HA has worked on the development of the Structures Management Information System (SMIS) which controls whole structure maintenance and management. SMIS, the system assisting the maintenance of such structures as bridges, tunnels, retaining walls and drainage conduits, records the list of those structures and the history of inspections and maintenance operations, and has the functions which support planning of structure maintenance and management and manage time schedule. SMIS is available to the twenty MACs to which is connected via the extranet of HA; at the same time, it can be accessed by every HA employees.

The HA has developed Route Management Strategy (RMS) to provide a framework for maintaining and managing individual trunk road. The details of RMS can be reviewed in the guideline called "Route Management Strategy Guidance" published as the second version in

November 2004 on the homepage:
<http://www.highways.gov.uk>.

Canadian Case

The National Guide to Sustainable Municipal Infrastructure was established in 2001, a cooperative organization of the Federal Government and municipalities. Since then, it has worked for the best way to have the municipalities attain sustainability socially, financially and environmentally and economic development. In January 2004, it issued another guidelines named "InfraGuide" advising as to decision-makings on those subject matters. The guidelines, covering overall infrastructures, refers to the six areas of roads, sidewalks, drinking water, wastewater, decision-making, investment planning, environmental protocols and transit. Also several reports on best practices in the six areas are collected and up on the National Guide to Sustainable Municipal Infrastructure's homepage <http://www.infraguide.gc.ca>, one of which is "Managing Infrastructure Assets" discussing asset management methodology and implementation. Interestingly, it suggests that small municipalities implement a maintenance management system instead of asset management, and that remote municipalities ensure continuity of local knowledge and expertise in managing their infrastructures.

Oceanian Case

Austroroads, the association of Australian and New Zealand road transport and traffic authorities has developed technical guidelines and manuals on asset management. In 2002, the association drew up "Integrated Asset

Management Guidelines for Road Networks, whose most distinct feature is that it deals with the process for disseminating information and public reporting. Further details of the Guideline can be referred on the homepage: <http://www.austroads.com.au/default.html>.

This paper has introduced four countries' cases, and concludes the discussion as follows: asset management has drawn worldwide attention; it has been discussed in leading international organizations such as Organization for Economic Cooperation and Development (OECD) and World Road Association (PIARC) where major industrialized nations including Japan belong.