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The role of valuation of infrastructure assets in their management and sustainable development

Reza Afrashtehmehr
PhD student in Accounting, Islamic Azad University, South Tehran Branch. afrashtehmehr@yahoo.com

Roya Darabi
Associate Professor, Department of Accounting, Islamic Azad University, South Tehran Branch.
royadarabi110@yahoo.com

Ghodratollah Emamverdi
Assistant Professor of Economics department, Central Tehran branch, Islamic Azad University, Tehran, Iran
ghemamverdi@iauctb.ac.ir

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ABSTRACT

The development of infrastructure assets is one of the important requirements for economic growth and increasing public welfare. Proper and efficient management of such assets is necessary for the development of infrastructure assets. The purpose of this study is to investigate the role of infrastructure asset valuation in infrastructure asset management and sustainable development. For this purpose, the necessary data for conducting research was prepared through a questionnaire and in the form of a snowball among experts in the field of accounting and financial management in the public sector and also through the press line and it was distributed on social networks. After collecting the questionnaires, the data was classified through Excel 2016 software and SPSS software version 20. LISREL software and structural equation method were used to analyze the data. Findings from the study showed that the factor loads related to hidden variables and observed variables have a good relationship and also the management of infrastructure assets has a positive relationship with sustainable development. Also, the evaluation of infrastructure assets as a mediating variable has a positive and significant relationship with infrastructure asset management and sustainable development. Therefore, it can be concluded that the variables of infrastructure asset management and infrastructure asset valuation have a direct effect on sustainable development from all aspects of social, economic and environmental. The management of infrastructure assets, for example, increases economic growth (increasing the movement of passengers, goods), reducing unemployment, reducing corruption, reducing risks and traffic accidents, and preserving environmental species, and so on.

Keywords: Infrastructure Asset Management, Infrastructure Asset Valuation, Sustainable Development, Economic Growth

1. Introduction

It is now clear to everyone that investing in infrastructure assets can stimulate economic growth. The fact is that the infrastructure systems and economies of countries are intricately intertwined. Infrastructure assets can increase communications, facilitate productivity, stimulate job creation and trade that all are key drivers of economic growth (KPMG, 2016).

The development of infrastructure assets is one of the important requirements for economic growth and increasing public welfare. Direct investment in infrastructure assets provides the production facilities, stimulates economic activities and improves competitiveness and ultimately contributes to economic growth through reducing trade and transfer costs (Ghorbani et al., 2014).

The role of infrastructure assets in economic development has been proven in many studies, and in most studies it has been stated that the proper provision of infrastructure assets services is an essential component for economic productivity and growth. Development of social and economic infrastructure is one of the determinants of economic growth, especially in developing countries. also in these countries, infrastructures are essential to achieve the main goals of development such as urbanization, industrialization, export development, income distribution and Sustainable economic development (Ghorbani et al., 2014).

However, economic development will occur when it is possible to develop infrastructure assets and, consequently, to create growth and prosperity, and this requires the management of infrastructure assets. The importance of managing public assets for governments has been recognized worldwide. However, is not always easy to implement because there are many problems with public asset management (Kegel, 2003; Keganova and Nyaston, 2000). For example, Ghobdian et al. (2017) believe that in Iran, the lack of access to reliable information on the amount of public sector property and assets, the lack of a unified database of government property and assets, and the lack of a mechanism for identifying government assets to improve the decision-making processes in their transfer and transfer and to provide stable financial resources and the optimal use of all dimensions of government assets are among the important weaknesses of modern government management.

Accordingly, the main question of the present study is “What is the role of infrastructure assets valuation in the economic development of the country?” To conduct this study, the necessary data on the evaluation and management of assets in the public sector were collected through a qualitative and survey method, and analysis and conclusions were performed. This study will be arranged as follows: The development of literature related to the evaluation and management of infrastructure assets and its role in economic development in the public sector, the evaluation of infrastructure assets, management of infrastructure assets and economic development in the public sector, research methodology, findings and conclusions.

Theoretical Foundations and Research Background

Infrastructure asset management as an emerging discipline has introduced as a systematic approach to public sector accounting. The Australian Society of Public Works Engineering, for example, outlines the benefits of improving the asset management process, including improving customer satisfaction, management and accountability, risk management, financial return and sustainability. Infrastructure assets include roads, railways, bridges, dams, shipping lanes, transmission lines, ports, airports, and wastewater treatment and collection facilities in addition to determining the standard of living and public welfare of the community; They are also the basis of economic growth and development (Satari et al., 2013). Failure to build, develop and maintain them will not only cause public dissatisfaction but also social, economic and even political problems.

The subject of infrastructure asset management includes the application of a set of integrated engineering and financial strategies aimed at maximizing the sustainability of infrastructure assets such as highways, railways, energy pipelines, dams and water supply and sewerage networks. The main purpose of using asset management processes is to protect and extend the service life of infrastructure assets, which are typically the vital components and economic fabric of a society. Issues such as identification methods of infrastructure assets and creating databases, analyzing lifetime costs, estimating demand and creating investment and exploitation

strategies in preparing an infrastructure asset management program require an integrated and multidisciplinary approach (Firoozi et al., 2016).
Asset management is so important that international standards called ISO 55000 have been proposed in this field. This International Standard provides an overview of asset management, its principles and terms, and the expected benefits of establishing an asset management. This international standard can be applied to all types of assets and in all organizations large and small (Zavashkiani and Rabiee, 2014). Table (1) shows an example of the classification of infrastructure assets:

Table (1) Classification of infrastructure assets

Power transmission lines	Roads	Railways	Water resources
Power distribution network Power generation equipment	Road surface level Other procedures Bridges	Embankments Pieces of stones Horizontal beams Railroad track Bridges and tunnels Underwater water pipe Warning signs and signs Communication systems Train stations	Water transmission pipes Water tanks Water pumping station Communication services

However, one of the dimensions of infrastructure asset management is the valuation of infrastructure assets. Valuation of infrastructure assets is one of the important components of infrastructure asset management in any country because it provides facilities to maintain or increase the value of such assets. Although the basic concept is general valuation, there are slightly different ways to valuate assets. In order to achieve different goals of asset management, these methods can be used to select the most appropriate method for accurate valuation of assets. Asset valuation has received a great deal of attention in the resources. Indeed, it focuses on a better understanding of asset valuation methods and their applicability to various underlying assets, as well as the development or improvement of new methods. Moreover, various research activities have been considered to integrate asset valuation into asset management practices (Amkdoozi et al. ,2002; Kuhl Falls, 2003; Kuh Falls et al., 2001; Kuh Falls et al., 2006; Herbert et al. 2002; Lamer, 1998; McNeill, 2000; Tig & Co Falls, 2002; DeJotrak et al., 2012; Lee et al., 2014).

On the other hand, it can be said that if the management of infrastructure assets is done properly, it will contribute to economic development. Sido et al. (2020), for example, believe that it is a long time to invest in infrastructure assets which is known as an accelerator and stimulus of the economy. Infrastructure assets include roads, railways, bridges, dams, shipping lanes, transmission lines, ports, airports, and wastewater treatment and collection facilities in addition to determining the standard of living and public welfare of the community; They are also the basis of economic growth and development (Satari et al., 2013). Failure to build, develop and maintain them will not only cause public dissatisfaction, but also social, economic and even political problems.

The characteristics of infrastructure assets, especially in the construction sector, cause governments to be sponsors and custodians of their construction and maintenance (Wonderold et al., 2013). For proper and principled management in this branch of assets, after creating a database, studying and carefully reviewing information in various sectors of infrastructure assets in the United States and the Netherlands, the asset management process and important roles in its implementation have been identified. In the United States and after the collapse of the Ohio River Bridge, in order to maintain the bridges as one of the infrastructure assets of the civil sector, an extensive database was created and reports were extracted from its information on the useful life of the main members of the bridges and important maintenance activities to increase the useful life of these members along with the costs incurred were extracted. By continuing this process and completing the database information about other infrastructure assets of the construction sector, policies, budgeting, determining methods and as a result, the optimal use of investments made in this sector will be done (Bahraini Rad, 1395).

Research conducted in the field of public sector asset management have introduced issues such as lack of attention and interest of senior managers of organizations, political interference, poor financial analysis, short-sightedness, insufficient resources of human and financial capital and lack of real data as public sector asset management challenges. One of the major problems that always exists for governments is the lack of data on the actual size of public sector assets and valuation (White, 2011).

International experts and scientists have suggested various opinions on the subject of recognizing assets. Rolls et al. (1998), for example, recommend recognizing all assets, such as the ground under roads, infrastructure assets, and national heritage, arguing that the fundamentals of accrual accounting should provide useful information for making decisions about government efficiency, thus recognizing all assets. Government financial statements are the first step in improving management and accountability. Figure (1-2) shows Saka's asset control and management system.

Walker et al. (2000) evaluated the report of government assets in terms of asset management. Although they note the fundamental differences between private and public infrastructure assets, they emphasize the recognition of government maintained assets. Based on the fact that government property needs to make important decisions regarding their management, repairs and maintenance, they propose a combination of complementary information and non-financial disclosure by adopting an information-based approach.

Some approaches to infrastructure assets relate to the operational function of infrastructure assets. Proponents of this approach focus on the maintenance of infrastructure assets in order to prevent their deterioration and depreciation. These approaches are related to building or creating an asset in favorable and reliable conditions. These activities include the development of the infrastructure asset database, the decision-making system, monitoring asset conditions و and the asset life expectancy forecasting system within the framework of an infrastructure asset management system. Another approach is related to the strategic function of infrastructure assets. The purpose of the activities mentioned in this section is to improve the performance of infrastructure assets in the long run. These activities are not only related to creating assets for operations, but also to performing assets and creating value for money in the long run. These activities include the acquisition, construction and management of individual assets, asset group and asset maintenance strategy. Common activities in this sector include life cycle costing, demand analysis, risk analysis (financial, technical and environmental) and so on. Another approach is related to the commercial-operational function of infrastructure assets. This section considers asset management processes in order to achieve organizational productivity and increase quality. These activities include ideas for cost minimization, compliance with environmental goals, profitability and asset quality, and internal organizational efficiency (e.g., information technology, operations, human resources, finance, etc.). Finally, the business-strategic approach focuses on the responsibility of managing infrastructure assets that support and create value for all stakeholders. This approach typically involves developing an infrastructure asset management strategy by conducting market trend analysis, asset demand analysis, and stakeholder consultation. Different infrastructure asset options are then evaluated for their capability to achieve the organization's business goals (Eric To and Linda T., 2008).

In recent years, the challenges that most industrial economies face are related to the creation and management of infrastructure assets. On the one hand, infrastructure assets are critical to support economic growth, meet basic needs, facilitate displacement and social interaction. On the other hand, environmental pressures are likely to increase through climate change, traffic, and so on. It focuses entirely on itself, thus emphasizing the tension between the need for infrastructure development and the need for sustainability (Stevens et al., 2006).

According to macroeconomic theory, public sector investment in infrastructure assets stimulates economic activity through short-term effects on aggregate demand and increases the productivity of human and physical capital in the private sector. . Public sector investment also encourages private sector investment to benefit from the higher productivity it creates, and increase economic growth. However, when public sector investment exceeds a certain threshold, the positive relationship between public investment and economic growth may be negative, because the burden of public sector financing has a negative impact on

economic growth or public investment (Zeissmer, 2016; Schwartz et al., 2020).

Infrastructure can contribute to productivity and economic growth through several channels:

1) Infrastructure can lower production costs. Seethepalli et al. (2008) found that telecommunications, electricity, roads, water, and sanitation have significant positive impact on economic growth in East Asia, after controlling human capital and total investment. Similarly, Straub and Terada-Hagiwara's study (2010) showed the growth rate of these infrastructure stocks promotes economic growth in most countries in East
2) Asia and South Asia. For production, electricity is often a major constraint in developing countries. Dollar et al. (2005) showed that the inconsistent power supply has strong negative impacts on productivity using firm level survey data. Firms often have to rely on their own generators to supplement the unreliable public electricity supply. However, the cost of maintaining a power generator is often high and burdensome, especially for small and medium firms, where a large share of the poor and vulnerable are employed. Hallaert et al. (2011) found electricity supply is a major constraint to trade expansion in developing countries.
3) Infrastructure can lower transactions costs. Limao and Venables (2001) showed poor infrastructure accounts for more than 40 percent of transport costs. Radelet and Sachs (1998) found that a doubling of the shipping cost is associated with slower annual growth of slightly more than half of one percentage point. Cordella and Simon (1997) found that infrastructure can reduce transaction costs (including the costs for gathering information, evaluating alternative options, negotiating, and contracting) by reducing time and cost in communication and information exchange and by flattening the organizational structure to reduce information flux and coordination needs. Lakshmanan (2011) suggested that time and cost savings due to transport infrastructure improvement can better link product and factor markets, promote inter-regional trade and specialization, increase returns to scale, and reallocate economic activities.
4) Infrastructure can increase total factor productivity. Good infrastructure can increase efficiency of conventional inputs (Duggal et al., 1999). Interconnections and complementarities between infrastructures help improve service efficiency and support innovative technologies adoption (Bottini et al., 2012). Based on a large-scale firm-level survey data from China, Wan and Zhang (2017) explored the causality between infrastructure and firm total factor productivity, and concluded that roads, telecommunication servers, and cable promote firm productivity. In addition to the conventional productivity effect, Fay et al. (2011) found that infrastructure is likely to condition the efficiency of many key areas of productive factors, such as the costs of investment adjustment, the durability of private capital, and both demand for and supply of health and education services. Dam (2007) showed that the rule of law is important to unlocking the developing world's full growth potential.
5) Infrastructure services can "crowd in" other productive inputs. Calderón and Servén (2014) suggested an increase in infrastructure stock or improvement in infrastructure can indirectly crowd in other inputs owing to the accompanying rise in their marginal productivity, and this indirect effect may take place instantaneously (for variable inputs in elastic supply) or over time (for fixed inputs such as human and non-infrastructure physical capital). Infrastructure, being a key element of the business environment, conditions individual firms' transaction and marginal return on investment. Wheeler and Mody (1992) and Richaud et al. (1999) provided evidence that infrastructure can crowd in foreign direct investment, an important element for growth in less developed countries. Eden and Kraay (2014) found that an extra dollar of public investment can raise private investment by roughly two dollars, and output by 1.5 dollars, based on data from 39 low-income countries (Luo & Xu, 2018).

Infrastructure development includes two main stages. The first stage is the development of transport infrastructure. It significantly lowers transport costs and made it feasible to spatially separate production and consumption. Production becomes specialized and clustered in large scale (Florida, 2005). The second stage is the development of communication infrastructure. It significantly lowers coordination costs and makes it feasible for firm specific knowledge and know-how to be shared across national borders (Baldwin, 2011).

Public sector investment in infrastructure assets contributes to economic growth in two ways. Efficiency (how much of a certain amount of public sector investment generates infrastructure assets) and productivity (how generated infrastructure assets affect the economy).

Efficiency: Not all public sector investments are equally converted to infrastructure assets, which means that the efficiency of public sector investment varies from country to country. Many countries receive less money, whereas if they were more resource efficient, then they received more value for money.

Productivity: Not all infrastructure assets have the same positive effect on the economy. Even if a lot of infrastructure assets are built, their productivity is lost due to the wrong choice of projects and will not contribute much to economic growth (Schwartz et al., 2020).

Research Methodology

This study is of experimental type in the field of descriptive research because it examines and describes the relationships between variables in society. On the other hand, this study is an applied research in terms of purpose. In the present study, library and field methods are used to collect information. In the library method, the information required for research literature and theoretical foundations has been used through Persian and Latin books and articles, and dissertations and journals. One of the common tools of survey research for direct data collection is a questionnaire. In the present study, in order to collect field information, a questionnaire was distributed among accountants, financial managers, university professors and other experts in the field of evaluation and management of infrastructure assets, and the method of distributing the questionnaire was snowball. The questionnaire is divided into two parts. In the first part, general and demographic information is collected from the respondents. In the second part, questions about research variables are designed and scored using a range of five Likert options. In the statistical analysis section, Excel 2016 software was used to classify the data and SPSS software version 20 was used to evaluate the reliability of the questionnaire and LISREL software was used to analyze the structural equations. Figure (1) shows the conceptual model of the present study:

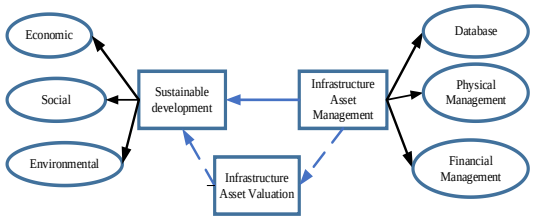

Figure (1) Conceptual model of research

4.1. Findings

In the data analysis and descriptive statistics section, the demographic characteristics of the respondents will be mentioned first. Table (1) shows the demographic characteristics of the respondents to the items if the questionnaire.

As in Press Line, the original questionnaire is available as a reference. Among the respondents to the questionnaire, selected individuals in different departments are working in the public sector; for example, organizations and departments such as Gilan Fisheries Department, General Treasury, Rural Cooperative Organization, General Directorate of Roads and Urban Development, Ministry of Energy, Hormozgan General Department of Economic Affairs and Finance, General Department of Economic Affairs and Finance of Yazd Province, General Department of Environmental Protection Biology, General Directorate of Islamic Culture and Guidance, University of Tehran, Imam Khomeini International University, etc.

The validity of the measuring instrument indicates the degree of accuracy of the measuring instrument, and the reliability of the methods and processes means to achieve the same results by using repetitive criteria with the same instrument. Regarding terms such as ‘validity’ and ‘reliability’, some researchers believe that these tools are relevant in quantitative research methods, and since qualitative research has a different

meaning, there is no need to study and analyze these concepts. On the other hand, other categories, according to qualitative methods, offer different definitions and interpretations of the concepts of validity and validity (Faghihi et al., 2005). In qualitative research, the term 'validity' refers to concepts such as credibility, reliability and trust in results. In this research, considering that the components in question are standard models and accepted by the international community and all respondents to the questionnaire answered all the questions, then it has the necessary validity on the subject under discussion. Cronbach's alpha method was used to assess the reliability of the items of the questionnaire. Table (1) shows the results of the Cronbach's AF test:

Table (1) Demographic characteristics of the respondents to the items of the questionnaire

Number of individuals	Work experience (in years)	Workplace	position	row
٥١	٢٨-١٠	Ministry of Economic Affairs and Finance, Judiciary	accountant	١
١١	١٦-٥	Ministry of Economic Affairs and Finance, Judiciary	Accounting agent and financial officer	٢
١٨	٢١-١٥	Ministry of Economic Affairs and Finance, Judiciary	Financial department employee	٣
١١	٢٦-١٠	Banking Sector, Ministry of Economy and Judiciary	General Manager or Deputy General Manager	٤
٣	٢٤-٥	Audit Organization, Court of Accounts	Auditor	٥
٦	٣٠-١٠	University	Faculty member of the university	٦

Table (1) Summary of data processing and Cronbach's alpha test result

Number of items	percentage	Number	
٣٥	١٠٠٪	١١٦	Valid numbers
Cronbach's alpha	٠	٠	Unanswered items
٠/٩٢٩	١٠٠٪	١١٦	total

Given that the test result is 0.929 and greater than 0.7, therefore, we conclude that the test has acceptable reliability.

Factor load is a numerical value that determines the intensity of the relationship between a hidden variable and the corresponding explicit variable during the path analysis process. The higher the factor load of an index in relation to a given structure, the more that index plays a role in explaining that structure. Also, if the factor load is a negative indicator, it indicates its negative effect in explaining the relevant structure. In other words, the question related to that index is designed in reverse (Seyed Abbaszadeh et al.). The larger the factor load and the closer it is to 1, the better the observed variable can explain the independent variable. As mentioned earlier, if the factor load is less than 0.3, the weak relationship is considered and ignored. A factor load between 0.3 and 0.6 is acceptable, and if it is greater than 0.6, then it is highly desirable. According to Table (2), the measurement indices of each structure have the necessary reliability based on the relevant factor loads.

The RMSEA index is the root of the mean squared approximation. This criterion is defined as the size of the difference for each degree of freedom. Its value is actually the same as the deviation test of each degree of freedom, and for models that have good fitness, the RMSEA index is less than 0.1. Values higher than that indicate a reasonable error for approximation in society. Models with a RMSEA value equal to 0.1 or higher have a poor fitness. Due to the fact that in the research model, the value of RMSEA index is less than 0.1 and equal to 0.083 and it shows the appropriateness of the index, therefore the fitness of the model is desirable.

As shown in Figure (2), t-statistic indicates the relationship between research variables. The value of t-statistic is 2.64 for the relationship between infrastructure asset management and sustainable development and 4.41 for the relationship between infrastructure asset management variable and infrastructure asset valuation. Also, the value of t-statistic for the relationship between the evaluation of infrastructure assets and sustainable development is 3.30, which indicates that there is a significant relationship between the research variables.

The significance level of the model was more than 0.05, which is an acceptable value for model fitness. On the other hand, considering that the ratio of chi-square to freedom is equal to 1.679 and is less than 4, it can be said that it is an acceptable value and indicates the suitability of the model. Considering the cases, it can be said that there is a significant relationship between infrastructure asset management and sustainable development. On the other hand, one of the components that improves the relationship between infrastructure asset management and sustainable development is valuation of infrastructure assets.

Table(2) factor loadings

Factor load	Index- structure	row	Factor load	Index- structure	row
۰/۵۸	Infrastructure asset valuation 6	۱۸	۰/۳۱	Physical Management - IAM	۱
۰/۶۱	Infrastructure asset valuation 7	۱۹	۰/۷۵	Financial management 1- IAM	۲
۰/۶۹	Infrastructure asset valuation 8	۲۰	۰/۴۷	Financial management 2- IAM	۳
۰/۵۱	Infrastructure asset valuation 9	۲۱	۰/۵۷	Financial Management 3- IAM	۴
۰/۵۶	Infrastructure asset valuation 10	۲۲	۰/۴۰	Financial Management 4- IAM	۵
۰/۵۶	Environmental dimension 1 - sustainable development	۲۳	۰/۳۹	Financial Management 5- IAM	۶
۰/۶۲	Environmental dimension 2 - sustainable development	۲۴	۰/۵۶	Financial Management 6- IAM	۷
۰/۶۳	Environmental dimension 3 - sustainable development	۲۵	۰/۴۱	Financial Management 7- IAM	۸
۰/۶۴	Environmental dimension 4 - sustainable development	۲۶	۰/۳۵	Financial Management 8- IAM	۹
۰/۵۱	Economic dimension - sustainable development	۲۷	۰/۳۱	Database 1 - IAM	۱۰
۰/۵۴	Economic dimension - sustainable development	۲۸	۰/۳۸	Database 2 - I IAM	۱۱
۰/۵۶	Economic aspect - sustainable development	۲۹	۰/۳۸	Database 3 - IAM	۱۲
۰/۵۰	Social dimension - sustainable development	۳۰	۰/۴۱	Infrastructure asset valuation 1	۱۳
۰/۵۰	Social dimension - sustainable development	۳۱	۰/۵۵	Infrastructure asset valuation 2	۱۴
۰/۶۰	Social dimension - sustainable development	۳۲	۰/۶۴	Infrastructure asset valuation 3	۱۵
۰/۶۳	Social dimension - sustainable development	۳۳	۰/۶۶	Infrastructure asset valuation 4	۱۶
			۰/۷۲	Infrastructure asset valuation 5	۱۷

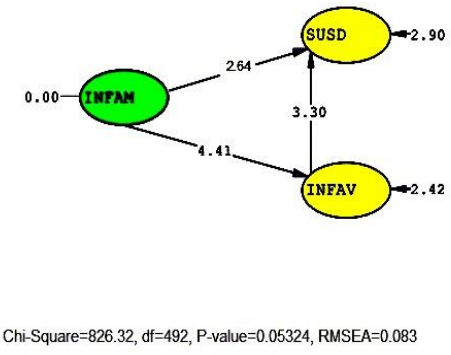

Figure (2) Relationships between research variables using structural equations

5. Conclusion

According to the results of the study, it can be said that anything that can be evaluated is manageable. For this reason, the valuation of infrastructure assets is one of the basic pillars of infrastructure asset management. Therefore, the valuation of infrastructure assets has a very important effect on the management of infrastructure assets.

poorly managed infrastructure investments are a main explanation of surfacing economic and financial problems in every country. Unless countries shift to a lower level of higher-quality infrastructure investments, the countries is headed for an infrastructure-led national financial and economic crisis, which is likely also to be a crisis for the international economy. research's suggests that the organizations manage infrastructure assets must (1) adopt a more strategic approach in the management of infrastructure assets, (2) develop a framework of strategic infrastructure asset management processes, and (3) identify the core capabilities needed in the management of infrastructure assets.

One of the advantages of infrastructure asset management is the transparency of financial reporting and the presentation of public sector statistics in the form of comprehensive and integrated reports. Infrastructure asset management and transparent and comprehensive reporting will be a factor in introducing high-yield projects in the public sector and encouraging and attracting investors in this field.

Infrastructure asset management will help to improve production in the whole country and will prevent decentralization, and as a result, the increase and prosperity of production will increase employment throughout the country. Managing and evaluating infrastructure assets helps verify financial decisions and make public sector data reliable.

Among the benefits of infrastructure asset management is paving the way for the start of new research and academic projects in other public sector accounting departments. Infrastructure asset management will be to develop the transportation industry and share the benefits of this industry throughout the country. The development of transportation through rail, sea, land and air will help increase freight and passenger traffic and will pave the way for economic growth and development. The expansion of rail, air and land lines, etc. will increase public welfare and reduce accidents and risks caused by road and transit problems, as well as the development of investment and management of infrastructure assets, increase satisfaction with the rulers and assessment of accountability. In the public sector will follow. On the other hand, it can be said that the evaluation of infrastructure assets in a combined way through financial and engineering reports will provide accurate and reliable information to the management of infrastructure assets.

If the infrastructure asset management team consists of people specialized in finance, sociology, engineering, psychology, biology, etc., the occurrence of adverse environmental consequences, such as air pollution, the risk of extinction of rare species and the drying up of rivers, etc. will be prevented. Also, the reports provided are combined and will improve the management of infrastructure assets. infrastructure development is one of the important requirements of economic growth and increasing welfare. Direct investment on infrastructure causes providing the manufacturing facilities, stimulate economic activities and improve competitiveness by decreasing the costs of trade and transfer.

Also, infrastructure asset management by evaluation enabling better control of public spending on infrastructure.

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Index