Balanced Scorecard Based Management Information System – A Potential for Public Monitoring and Good Governance Advancement

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"The ability to execute strategy is more important than the strategy itself"
R. Kaplan & D. Norton

Abstract: The Coordination Center for Information Communication and Management Technologies, Information Services PLC and the State Administration Directorate at the Council of Ministers developed a pilot web-based Management Information System using the Balanced Scorecard methodology. Authors share their experience gained during the implementation of MIS for Bulgarian e-Government Strategy. MIS provides monitoring of 42 key indicators in 17 ministries. It is designed to be extended to cover the modernization of the state administration.

Keywords: e-Government, Balanced Scorecard, Good Governance, Strategy, Modernization, Public Administration

1. Background

Like in the other countries of Central and Eastern Europe e-Government in Bulgaria is seen as an important component of information society development and corresponds to one of the main development priorities of EU. In striving to fulfill the EU accession criteria and to adopt the EU regulatory framework, Bulgaria has been able to accelerate administrative reform concurrently with its preparation for EU membership. This reform outlines the need for citizen-centered administrative services and is a major driver for taking practical steps in e-Government development in Bulgaria.

In December 2002 the Council of Ministers adopted the E-Government Strategy of Bulgaria. The Strategy was developed in close cooperation with all stakeholders in e-Government – citizens, businesses, academic institutions, government and non-government organizations and the donor community. It reflects their vision on the modernization of state administration in accordance with the current assessment of realities in the country. The Strategy structured and accelerated the process of e-Government development in Bulgaria.

The e-Government Strategy has long-term significance for the highest governmental and political levels and provides guidelines for outlining various specific current and future projects for development of e-Government. The objectives, principles, and priorities defined in this document are applicable to all related projects.

The implementation of the strategic objectives is focused on the introduction of services, which will save time and efforts to citizens and business and will bring down the administrative barriers, and ultimately will accelerate economic and social development.

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Some complexity was brought in by the interdepartmental nature of the e-Government process which is managed on a national level by an Interdepartmental Task Force under the Council for Modernization of the State Administration, while the operational management is performed by the Minister of the State Administration. At the time when the Strategy was adopted there were more than 50 ongoing e-Government-related projects executed by different ministries and administrations that had to be synchronized.

One of the most important requirements to the system was to provide decision makers with the opportunity to have immediate access to current information and without having to wait for the preparation of the next progress reports, which makes their support for and participation in the planning and implementation of e-Government more efficient.

The need for a system to support the change management process was also identified. When something changes at the strategic level, it requires corresponding changes and reengineering to be made at the other levels and vice-versa. Another requirement is to keep comprehensive history of the change process. The high level decision-makers and operational managers must be able to follow the logic of change, and hence have increased motivation to implement it.

Sharing of information and establishment of horizontal information links is an important factor for beneficial cooperation and successful team work. Therefore, there was a need for a system which would ensure that every user can enter additional information and provide comments on indicators and objects involved.

2. Why balanced scorecard

The idea for the implementation of a strategic Management Information System (MIS) to support the process of e-Government strategy implementation crystallized during the preparation of the Bulgarian e-Government Progress Report. It is based on some preliminary research done by the Coordination Center for Information Communication and Management Technologies in cooperation with Information Services Plc. Finally, the Balanced Scorecard (BSC) methodology (Norton D. & Kaplan R.) was selected because it ensures the appropriate logical model that translates the strategy into operational terms. BSC also provides the appropriate interface for different types of users: from the highest strategic level to the very operational level in every single administration included in the process.

The successful functioning of e-Government is possible only through mutual collaboration of administration, citizens and businesses on all stages of its realization – from definition of vision and priorities to conceptualization and implementation of particular services. It was recognized that a BSC-based MIS can make the e-Government implementation process transparent and can provide detailed information for efficient participation of citizens and businesses in the e-Government by publishing the key indicators on the web.

The team had to find a way to provide access over the Internet to properly structured information concerning:

- Strategies and objectives declared
- Models used and analyses performed
- Forecast of the technological development process and the results of the “Foresight” initiative
- Performance measurement and management.

Now software market offers various effective solutions for each of the topics above, but few of the solutions provide full and integrated spectrum of successful strategic management tools. During the stage of different strategies, action plans and policy papers creation different software, suitable for the specific case was used. However, as a result of discussions and mutual agreement between stakeholders and for the sake of complete solution development the Balanced Scorecard methodology and corresponding software application were chosen.

We believe that combination of suitable methodology such as the Balanced Scorecard and an appropriate software application is one of the best instruments to open information over the Internet for all groups of persons and organizations

involved in the e-Government implementation process. Moreover the information that will be subject to wide publicity must be structured in a way that enables clear definition of strategic objectives, relationship between objectives, key performance indicators, projects and initiatives as well as resource provision and allocation. The information must be structured in a way that enables benchmarking of actual data against plans, comparison of current status of the e-Government implementation in Bulgaria versus the process in other countries. And last but not least – the information must give stakeholders the opportunity to participate in future development discussions, planning, and improvement. Stakeholders' involvement is a guarantee for obtaining effective feedback with regard to the necessary and desired service quality level and the cost-effect ratio that will be generally accepted.

The strategic map defined according to BSC methodology provides different views of the strategic objectives and logical links between them. The relationship between strategy components is used to identify the key performance drivers that, taken together, chart the path to successful outcomes as seen through the eyes of the stakeholders – employees, customers, society. The correct linkage and grouping of the objectives is of critical importance for successful strategic management since the correctness of the Strategic map model influences the quality of management process. Moreover the strategy map shows the road that has to be passed for effective fulfillment of the strategy and for the continual improvement.

3. The pilot project

Balanced Scorecard is a proven management tool in many large multinational corporations (Siemens, AT&T Canada, BMW, Siemens, Cigna, Du Pont, Mobil, etc.). There are a few BSC implementations in public sector too (City of Charlotte, North Carolina – USA, The May Institute Inc, The United Way of Southeastern New England, U.S. Department of Defense, U.S. Department of Veterans Affairs, Procurement Division in the U.S. Department of Transportation, etc.). In Bulgaria the Balanced Scorecard implementation starts as a pilot project for the e-Government Strategy management process and if it proves successful, it can be extended to cover the whole Strategy for modernization of the state administration.

The main purpose of the management information system for e-Government strategy implementation is to support the managers and experts from the State Administration during the process of decision making with the help of reliable monitoring and strategy management tools.

> *"The Government of The Republic of Bulgaria will provide modern and efficient governance, while using the means of contemporary information technologies in order to meet the real needs of citizens and businesses at any time and any place"* is the vision statement of the Strategy.

The mission of the Government is decomposed into three strategic objectives, which in turn are presented by a set of objectives, included in the management model.

The Strategic map consists of four perspectives that, according to the Balanced Scorecard methodology and for the purposes of the project, reflect the viewpoints of all groups of stakeholders.

- Management and development - reflects the viewpoint of employees and operational managers in State Administration, who are actively involved in the improvement of administrative services. It outlines different opportunities for their professional development and training, focused on the establishment of new organizational culture. This perspective stands in the foundation of the strategic map. Various activities, such as planning, creation of new organizational culture, leadership support, employee motivation and training are included. The perspective embraces objectives such as Personnel Development and Motivation, Professional Skills Enhancement, New Organization Culture and Philosophy Adoption.
- Business processes - reflects the operational managers' view on the practices, procedures and functions that must be implemented in the State

Administration. Special significance is given to business processes, whose assimilation and implementation is of key importance to the successful achievement of planned initiatives. This perspective also provides for development and implementation of standards, rules and procedures for inter-institutional cooperation, as well as means and technologies for their practical use. Objectives, included in the perspective are Information Integration, Identification and Information Security, Communication and Collaboration between Institutions, etc.

- Services and users (Public services consumers) – reflects the viewpoint of citizens and businesses on the services offered by the State Administration. It is focused on the citizens' and businesses' expectations and requirements about the quality and accessibility of administrative services. The objectives, included in the perspective, outline the State Administration's mission and vision, aimed at serving the public interest through providing the largest number of services of the highest possible quality using modern information technologies. Objectives assigned to this perspective are Consumer Satisfaction, Provision of Public e-Services, and Decrease of Citizens' and Businesses' expenses for Public Services.
- Transparency and dialogue among stakeholders - covers citizens' and firms' desire to be involved in the public dialogue, as well as the presence of transparency and clarity in the various activities and processes, performed by State Administration. Its frame of reference is outlined by the ability of citizens and businesses to exert structured involvement and control over the process of establishment and delivery of administrative services, as well as the capability to use channels for access to the administration.

The order and the direction of the cause-and-effect relationships between the objectives in the Strategic map depends on the prioritization of the perspectives.

High quality service for State administration "customers" is of highest priority as well as a main prerequisite for transparency and public dialogue. The order of perspectives in The Strategy map depends on their significance for the State administration's mission and vision fulfillment. **Transparency and dialogue between stakeholders** comes in first place, followed by the perspective **Services and users**. The clarity and transparency in the State administration, as well as the motivation of citizens and firms to participate in the state governance may be achieved by provision of high quality and highly accessible administrative services. Citizens and businesses may be stimulated to take advantage of the access channels that the State administration provides for them, if they are open, clearly indicated, low cost, and offer shorter service completion terms.

Service and users perspective is followed by **Business processes** perspective. For provision of high quality services, that satisfy consumers' needs and requirements, the Administration must persist with the initiative for improvement and modernization. Higher quality and effectiveness of business processes, activities and functions, executed by public institutions is a prerequisite for higher quality of the end product (administrative services) and for customer satisfaction. Through this perspective (Business processes) much attention is paid to the "Administration-to-Administration" relation, outlined in the e-Government strategy. The progress of Information Technologies, as well as their effective usage by the State administration, is another prerequisite for administration's enhanced activity and business process optimization.

Management and development perspective is placed in the foundation of the Strategy map. The objectives that belong to this perspective influence directly the objectives that are included in the **Business processes** perspective. The availability of qualified and motivated staff as well as leadership commitment to the process of modernization and improvement is a precondition for administration's functional effectiveness and quality. Implementation of modern technologies and adoption of best practices in the internal business processes, depends to a large extend on the employee qualification, perceptions and search for new knowledge and skills

improvement. The entire process of renewal and development would be impossible without leadership support and vision on the need for improvement, resource supply and provision of appropriate work environment.

To clarify the dependencies between objectives, concrete cause-and-effect linkages between objectives are defined.

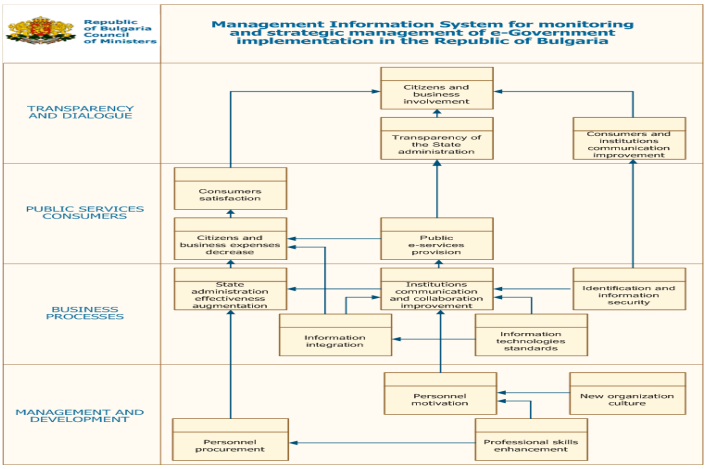

Figure 1: Strategic map model, with all the perspectives, objectives and cause-and-effect relationship of Bulgarian e-Government strategy implementation

One of the most important purposes of the model is to provide feedback to the state decision makers as a result of their actions and decisions and to support the strategic control, i.e. to answer the question weather they do the right things.

The answer to another important question – whether they do the things right, is given by the consistent monitoring and analysis of the key performance indicators used by the management system.

Key performance indicators (KPIs) define the degree of objective accomplishment quantitatively. Every objective is measured in a different way. That is why a specific measurement model is defined for every single objective. Models include common and specific elements. Specific elements are indicators (called "analysis options") and dimensions that enable multidimensional data analyses. Common elements are functionalities as calculations, benchmarks, forecasting and information sharing.

To explain the essence and benefits of objectives' measurement in detail the model for "Public services online provision" objective will be used. According to that model the government will provide online all basic services for citizens and firms, defined by the eEurope initiative of the European Commission as well as some additional services, listed in the e-Government Action Plan by year 2005.

Figure 2: The Measurement model for "Public e-services provision" objective

The graph shows actual values (bar chart - solid colors), planned values (lines) and forecast values (bar chart – fading colors) of per cent of basic public services available online – blue for services designed for citizens, green for services designed for businesses.

The choice of measures for each model is one of the most challenging parts in the management information system design process. The key to developing effective measures is to identify those factors that have direct correlation to the desired

results. In this case indicators had to observe some requirements – to provide a complete, accurate, and true picture of performance, to be readily available, to be meaningful, the data has to be gathered periodically and on a regular basis and of course the set of measures needs to be balanced - to have selected leading and lagging indicators. Some of the indicators included in the system are gathered from sources in the State administration. Others are derived from end user surveys. Combination of internal and external data sources is one of the guarantees for a balanced selection of indicators.

Dimensions are another important aspect of data utilization. Dimensions are the items by which data can be monitored and analyzed in a more detailed and meaningful manner. Dimensions in the example above are Services, Suppliers and Sub-suppliers, which means that the per cent of basic public services available online may be examined across public service or across supplier that provides such services. Dimensions allow comparison between different members and examination of information at different levels.

Figure 3: Comparison of basic public services availability online

Dimensions that are used by the system enable decision makers to recognize the difference between indicators' values across different levels and dimension items, which guarantees thoroughness and detailed monitoring of the particularities of a complex and large-scaled process such as e-government implementation. With the aid of the multidimensional analysis experts can detect the core reasons for a positive or a negative result and can give an appropriate and facts-based explanation. The multidimensional analysis helps decision-makers answer questions like "when", "where", "who" and "why".

A set of common elements is included in the measurement models to ease experts and state officials in the process of decision making. These elements are:

- Colour-alarm status – for faster and intuition based user direction towards objectives with different performance status – unacceptable (red), marginal (yellow) and acceptable (green). The status of the objective fulfilment is determined by comparison between actual and benchmark data and gives information to the users whether a given objective is attained as planned.
- Predefined calculations – facilitate quick data processing. Parallel presentation of actual and benchmark data helps users identify differences and deviations. Predefined calculations – percent of plan, variation, etc. allow users to identify and to analyze concrete values and to make better precise conclusions.
- Benchmarks – comparison between indicator values and accepted standard values supports better assessment and helps for more precise diagnostics of the current status of the e-government implementation process.
- Forecast – one of the most popular decision-support techniques. Applies different forecast methods for trend analysis and helps managers to predict future and undertake appropriate actions in the present.
- Relation of the management information system to the e-Government Action Plan – second group of KPIs is added to objectives' measurement models. These KPIs are Initiatives. Initiatives are another type of indicators and provide different kind of information to the decision makers. The purpose of these initiatives is to detect percentage of completion and costs for all the projects undertaken as to make the fulfilment of objectives possible. Dimensions assigned to these indicators are "Projects" and "Units responsible". Items of "Projects" dimension will be all projects, listed in the e-Government Action Plan. Items of "Units responsible" dimension will be public administrations responsible for projects' realization process. The option for projects' execution monitoring that is given to the decision makers allows them to report on the current status of the e-Government implementation in Bulgaria and to take

decisions related to future development.

4. Lessons learned

Building an appropriate Balanced Scorecard model for the e-Government Strategy management was a true challenge for the team.

It was clear from the very beginning that the project needed an owner – a structure or a person to undertake the process from users' side. The Coordination Center proposed The State administration directorate at the Council of ministers to be the initial project owner. Such a solution turned out to be the most appropriate one since the Directorate played the leading role in collecting and disseminating data necessary for the functioning of the system. Moreover, the staff and especially the Head of the department had the necessary knowledge and experience in areas such as strategic management and performance measurement. Most valuable result of this arrangement was the fact that the people in the Directorate truly realized the need of such a system.

The logical model of the system was outlined on the basis of the IT take up readiness survey of the State Administration. During the design stage the team investigated the Balanced Scorecard methodology requirements and adapted the model to reflect the e-Government strategy.

According to the BSC methodology, a Strategic map had to be created to describe the process of strategy implementation presented through better defined objectives. To build a proper Strategic map model, the objectives had to be selected properly, placed in the appropriate perspective categories and interlinked by cause-and-effect relationships. The selection of objectives was made by the team with the guidance of the Head of the State administration directorate. Not all of the objectives cited by the e-Government Strategy were included in the Strategy map. The main principle of objectives' selection was their applicability to a complete and thorough model.

Another challenge at this stage of project development was to set the directions of cause-and-effect links. The links between perspectives were obvious because the generally accepted model for a Balanced Scorecard implementation in the public sector was available. The team was faced with the task to interlink the objectives in such a way as to show how the fulfillment of one objective influences the fulfillment of the other objectives and the strategy as a whole.

Next steps in building a balanced scorecard model were to select key performance indicators, to appoint data sources, to determine data gathering frequency, and to select measurement units and analysis options.

Two types of indicators were included in the system to provide a balanced model. Facts-based indicators exist actually and unquestionably, e.g. number of employees who have passed qualification training, number of digital signature certificates issued to Administrative units, percentage of basic public services available online, etc. Subjective indicators are based on the judgment of experts and heads of departments in the State administration e.g. one-stop shop provision level, level of inter-institutional coordination in the process of integrated public services provision, level of e-government commitment of administrative units, etc. Such indicators were evenly distributed between the "inner" and the "outer" perspectives.

Providing data for objective measurement was another challenge. Different information sources had to be revised, data to be extracted, transformed and properly loaded into the system. A great variety of data had to be unified and adapted in advance. It took some time because of the non-automated process of data gathering and transformation and the absence of a common data base for all indicators.

The frequency of data gathering was determined to be annual and semi-annual. This periodicity was approved by both the workgroup and the Head of The State Administration Directorate. A provision for shorter frequency (quarterly and even monthly) was made, if needed in the future. The shorter terms of gathering data

gives better opportunities for making detailed and value-based data monitoring and analysis.
The measurement unit types approved at the indicator design stage were “number”, “percent” and “level”. Number was used for “natural” and “absolute” scale measurement, percent - for relative measurement, and level – for experts’ and managers’ subjective rating.

An important part of the Balanced Scorecard model design is the definition of benchmark values. Generally, some of the benchmark values are plan-based or budget-based, competitive values or average values in the branch. In the management information system for e-Government strategy implementation two benchmark values were selected – plan-based values and previous year values. Although well defined, there is still no benchmark data provided for the system. Benchmarking is one of the areas, which needs further development.

During design and implementation stages of the management information system for e-Government strategy implementation in Bulgaria the team learned that:

- Involving system users and owners is of crucial importance because the system is designed to support their own work;
- Data sources and data frequency gathering must be planned in advance;
- Balanced efforts must be devoted during both of the stages – the design and the implementation;
- A full, detailed and thorough examination of the model must be conducted as to provide for management and decision support features;
- Continuous improvement and strategic control of the system application and suitability as well as adaptation towards the constantly changing conditions of the social and political environment must be observed.

5. A step forward

If a pilot project like this one is not developed to its full potential and actual deployment, the project remains just a good theoretical example of how definite ideas and conceptions could be possibly used in a future indefinite moment. What is of much importance for the project now is leadership support and investment of endeavors and resources for its expansion.

One of the initiatives that can be undertaken with little expense of time, money and efforts is granting access for the general public to the management information system. The decision proved more than useful and suitable for three main reasons. First reason is the technical convenience of the “opening” which results from the web-based nature of the system. The system initially was developed so that users and decision-makers from the State administration to be able to access it over the Internet. The web-based nature of the system gives them freedom of access whenever and wherever they want and so are the rest users – citizens, companies and all e-government stakeholders. Today every person or organization that is interested in the e-government progress in Bulgaria is able to open the system and to get acquainted with the situation. Access rights are granted through corresponding username and password which are announced in the welcome page. Users are not left alone in the quest because the necessary documentation (“System’s model description” and “User’s guide”) is created and published in order to make the use of the system more convenient and easy for them. This initiative would not have been carried out without the explicit permission of the Head of the State administration Directorate at the Council of Ministers. This permission is the second reason in favour of the correctness and timeliness of the initiative. The readiness to open the system for wide public access is a demonstration of good will towards making state decisions more transparent and warrantable. Strategic map is a good example of the consecution and the straightness of the idea of e-government implementation. It shows how the units responsible plan to execute the strategy and to measure the “speed” of the process – by walking a premarked road, formed by a set of interrelated objectives and projects and by using a precise combination of measures, the values of which are also clear enough for the wide public’s estimation.

Public access to the system demonstrates not only a good will to uncover the

decision-making processes in the administration but also administration's will to uncover itself. There is an option in the system with the help of which stakeholders can check up what administrative unit, structure or person is responsible for a definite objective completion and what kind of actions they intend to undertake in order to keep a good trend or to prevent unwanted consequences. These actions, at a later phase of the implementation, can change their place in the system by becoming official projects. Thus, stakeholders, represented by citizens, business, NGOs and donors can receive up-to-date information (if loaded often and at proper time intervals) about what projects have been undertaken, what terms have been appointed and how much did they cost to the state. Such kind of accountability is a prerequisite and an element of the so-called and often used term "transparency of the government process" and the e-government initiative itself is among other things another transparency campaign.

Speaking of transparency and involvement, one cannot miss the participation issue. This is the third reason for undertaking the "open access" initiative. With the management information system being published on the Internet with free access granted to the general public, all parts concerned could express their opinion on the subject. Community can share its attitude towards the "status" of the e-government process, e.g. objectives' stage of completion, KPIs values, targets, terms, projects, costs etc. Having data at disposal and monitoring the condition of different e-government aspects, people can freely criticize or encourage ruling circles about initiatives undertaken or ignored. They also can signal for trends (opportunities or threads) in the e-government process that state administrators cannot notice because of the different views of the two groups. Citizens and business can stress on issues they find significant and this is important for the administration because state managers need to know in what direction energy and resources must be focused.

Another aspect of taking into consideration public's opinion is the logical model of the system. A well-structured model is a guarantee for better strategic management and objectives' fulfillment. When more viewpoints are reflected in the logical model, then it is more probable that this model is closer to the actual situation. If end users disagree or have different thinking with regard to the model (order of perspectives, cause-and-effect linkages, KPIs selection or targets set) than perhaps a revision of the model is needed. Similar to the e-government process assessment, people are encouraged to share their opinion upon the model. They are free to do this in the sectors for assessment and collaboration.

6. Conclusions

The pilot project showed that Balanced Scorecard approach can be applied successfully not only for enterprises but also in public administration. The system could be extended to cover processes of modernization of the state administration in accordance with the Good Governance principles. This is one of the initiatives undertaken by the State Administration Directorate at the Council of Ministers. Few months after the implementation of the web-based management information system the Head of the Directorate started a project. The purpose of this new project was to select a set of indicators, or as they call it "system of measures" to estimate the process of modernization of the state administration. This initiative is a logical continuation and is worth undertaking for two main reasons. First, there is a methodological link between e-government process and the process of modernization of the state administration. Second, the performance measurement component is common for the both systems.

E-government initiative in Bulgaria is part of the State Administration Modernization Strategy and the corresponding action plan. This connection is expressed even at organization level – one of the working groups in the State administration modernization council, whish is directly subordinate to one of the vice-premiers is the "E-government and administrative services" working group. Taking into consideration the methodological and organizational relationship between the initiatives a question rises: is it possible and how these two systems of indicators can be incorporated.

The integration of the systems is completely possible and executable. However before the integration few tasks must be carried out. These tasks originate by the particularity of the integration, which must be performed at two levels – methodological and physical (or technological).

At the methodological level the points of intersection between the e-government strategy and the State administration modernization strategy must be found. A Large Balanced Scorecard Strategy map model must be invented in order to embrace the objectives from the two strategies. The general strategic map is not a "mechanical" sum of set of objectives, neither is a sum of indicators set. Thorough analysis of objectives' and KPIs' definition and meaning must be performed, so that the logical interlink to be put into place. New strategy map model must be designed, in which objectives and measures are logically bound.

The second level of integration is technical and affects the unification of different sources of data. If the two systems of indicators are to be united in a general management information system for strategic management of state modernization process than data must be pulled out by a common pool. At the beginning this can be performed gradually, e.g. building a common (central) data base which would gather information from different sources whose number will grow with time. The physical connection between the central database can be performed, if data format standards are defined and if different institutions work together to make the integrated system functional. The final result of all parts' endeavors would be an integrated information system, which undoubtedly would be organizational and technological step forward for the management process in the Bulgarian State admistration.

Technologies for implementation of BSC in state administrations are readily available. The main success factor is the leadership of decision makers at all levels. It is important for them to understand how the MIS/BSC helps them to perform their daily duties better.

The implementation of the MIS/BSC strengthens the civil society. It gives citizens access to information about the goals of administrations, their actions to meet these goals and to the results of these actions. In this respect one can consider the system as a step forward toward building an information society.

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