

A New Approach to Economic Operation Monitoring and Analysis Based on the Web

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Abstract — With the rapid development of economy and information technology, construction of economic monitoring and forecasting system is becoming increasingly important, but the most fundamental problem faced when building the existing macroeconomic data is that it stored in different databases at all levels of economic sectors. They are heterogeneous, dispersed, incomplete with other problems and issues. In this paper, the economic monitoring and forecasting system based on the requirements of economic data and their integration issues are studied. Web-based technology is used to provide macroeconomic data integration solutions. Heterogeneous and incomplete questions are dealt with to include: i) economic operation monitoring of the overall design, ii) demonstrating the combination of ASP and ADO economic data integration, and iii) data warehouse technology. Technical architecture design and implementation of government services and business development work means innovation is vital in the integration of information technology and industrialization to actively explore effective ways.

Keywords- *Economic Operation; Economic Monitoring; ASP.NET; ADO.NET; Data Warehouse*

I. INTRODUCTION

Economy is the economy of all walks of life, including from production to distribution, service so that all aspects of culture, education, etc.. With the rapid development of modern economy, industrial and economic development are facing new opportunities and challenges, the reform of industrial organization, changes in industry linkages, industry structure updates are affecting the industry and drive economic development at this time, the industrial economy monitoring and analysis operation is particularly critical and important, and industry-based monitoring and analysis of economic performance for the national government's macro-control features to better reflect the country, but also more effective in promoting the standardization of industrial and economic development industrial economic operation monitoring and analysis of the situation can be reflected in the national government's macro-control features, can effectively promote industrial and economic development of standardization and long-term oriented [1-3].

This paper presents a Web-based technology, according to the infrastructure, supporting platform, business applications into three levels, progressive promotion of industrial economic operation monitoring and analysis platform, use of information technology to promote monitoring and analysis of industrial economic operation quality and posture, build industrial enterprise economy authoritative information display platform. Through the industrial economic operation analysis and understanding of the background, the study of e-government application system construction, government, and contacting various industrial enterprises in the park, using the object-oriented approach to the system of economic indicators and economic

operation analysis subsystem sub-system analysis and design, using browser/server (B/S) mode, N-tier architecture client, application server, database development using .Net-based technologies. And ultimately the industrial economic operation monitoring and analysis system, to achieve the enterprise's comprehensive economic indicator data collection, the transmission, collation, analysis and utilization, and industrial economic operation data visualization analysis and display. System to help the government faster and more direct understanding of industrial and economic development of each park, but also to promote the park and standardization of enterprise information, work together to promote industrial and economic development.

II. PROPOSED METHODOLOGY

ASP.NET technology. It is part of NET FrameWork, you can re-create them dynamically when requesting documents via HTTP on a Web server, as shown in FIG. Because the ASP .NET is compiled based on the common language runtime, which is fully dependent on the virtual machine, so it has a cross-platform, ASP .NET applications built to run on almost all platforms. asp.net uses a character-based, hierarchical configuration system, set up a virtual server environments and applications easier. Because the configuration information is stored in simple text, new settings might not need to activate the local administrator tools can be achieved [4]. It is a unified Web development platform, developers quickly to provide enterprise-class Web applications generate the required services. ASP.NET is largely syntax compatible with ASP, but it also provides a new programming model and structure, is used to generate more secure, scalable, and stable applications. You can

gradually add in the existing ASP applications, compared with the previous Web development models, ASP.NET is compiled on the server running good common language runtime code. ASP.NET can take advantage of early binding, real-time compilation, native optimization, and caching services outside the box. This corresponds to the line of code before writing it significantly improves performance [5-6].

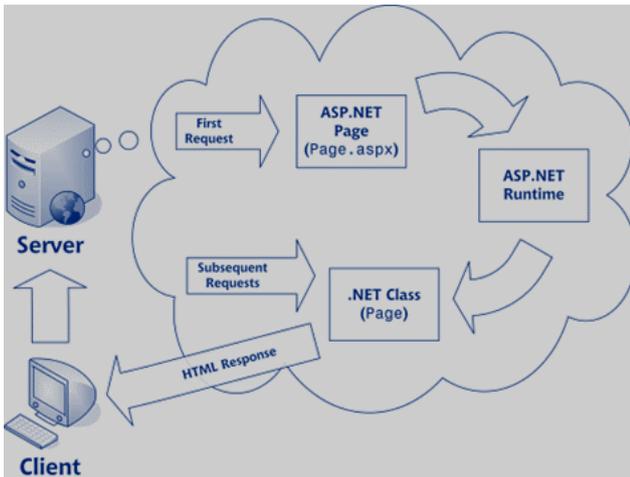


Figure 1. Structure of the ASP.NET technology.

ADO.NET technology. ADO is to develop database applications on the Internet a new object-oriented interface is shielded remote data access complexity, fast and efficient access to the database of new technologies. ADO access to the database is provided through the program to access the OLEDB data. OLEDB is a set of COM interfaces, the new database low-level interface that encapsulates the ODBC functions, and in a uniform way to access data stored in different data sources. However, the purpose OLEDB application programming interface to provide the best functionality for a variety of applications, the use of a large number of COM interfaces, resulting in a complicated operation. The ADO encapsulates these interfaces, simplifying operation OLEDB, therefore, ADO is a high level of access to technology. With ADO data source has easy access, access speed, small footprint, can access different data sources (including Access, Oracle, SQL Server, etc.) and can be used for Microsoft ActiveX page and so on [7-8]. Thus, ADO technology appeared, they loved by the majority of programmers, and quickly became a mainstream technology development database, shown in Figure 2.

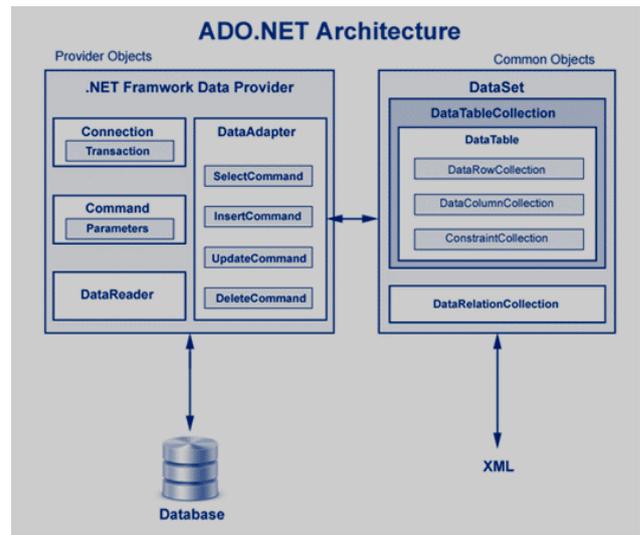


Figure 2. Structure of the ADO.NET technology.

Data warehouse technology. The purpose is to establish a data warehouse for data analysis, sorting, statistics, providing a reliable, scientific, standardized information for policy makers, the financial industry has become the key to improve the market competitiveness and customer service levels. The data warehouse is built on a database, we can use the database, using intelligence means to establish a knowledge mining applications, such as industry index analysis system through knowledge, reports, statistics and leadership inquiry system. In the risk analysis, credit analysis or decision analysis time, often it requires an analysis of the object from multiple angles dynamically organize, browse and computing, which requires the data warehouse must be multi-dimensional database to organize data. Victoria is that people observe the real world point of view, but multidimensional database dimension is not arbitrarily defined, it must be divided according to analysis needs of the object [9-11].

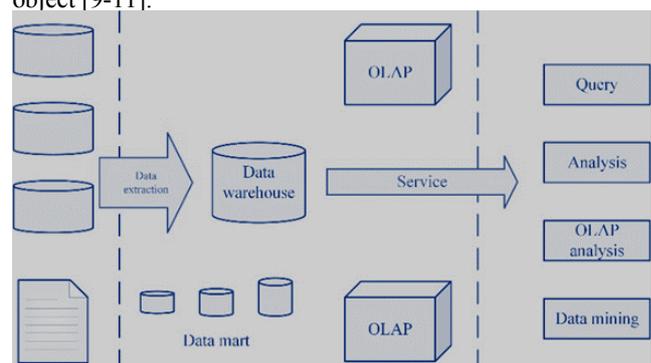


Figure 3. System structure of the data warehouse.

III. PERFORMANCE REQUIREMENTS

Economic performance data management is an important function of the system, the system needs to collect large amounts of data and processing and analysis [12]. Data

capacity, long storage period, at any time of the system failure will bring immeasurable loss. So the whole system architecture is the first to consider the reliability of the system to withstand high intensity concurrent access capability, and secondly, taking into account the future expansion functional application platform, to actually consider system compatibility, scalability and scalability.

Faced with a variety of government enterprises and other users, the system should have the ease of use features. Operation and management of various types of operating systems and software used should be simple, easy to operate, it is easy to use features that can make both ordinary users and system maintenance and management personnel, after a very simple training can quickly after well qualified work [13]. All kinds of man-machine interface application software should be simple and elegant, handy to use, easy to operate, with user-friendly features. Simple operation and easy to use client, process clarity, the functional operation convenient, especially for providing shortcuts to frequently used functions should operate.

Systems try to achieve zero client maintenance, except in special need of applications, the entire system using B / S structure, all the data and applications on the server side to maintain a unified, browser-only client can complete all operations. Practicability requires a system to satisfy the government, various industrial parks and employment base, the actual job requirements of various industrial enterprises, is a system performance of each subsystem must be considered in the construction process, the server platform to the existing county government network bandwidth and performance as the basis; processing capacity of the hardware environment for the goal of establishing a comprehensive information platform and multimedia communication; with the overall system integration design, technical solutions step by step implementation. Advanced system refers to a system with advanced business model, the system uses the technology in line with the current direction of technology development, the use of current advanced design methods and design patterns, not only to provide all the basic functions, but also should be able to provide the economic operation of the domestic industry Monitoring and analysis of advanced features included in the project, and as much as possible to provide system-specific advanced features. Enabling the system to fully accommodate future development needs, provision to achieve a comprehensive and stable system function.

Therefore, the system uses advanced open architecture, modular design based on Web technology, using browser / server (B / S) mode, N-tier architecture client, application servers, databases, middleware increased reliability; with Modern management techniques for system operation and maintenance management, system main function uses a common N-tier architecture and object-oriented technology to design and implement the entire system design follows the MVC pattern, the system can satisfy the business needs, but also has better scalability, can be achieved based scalability clustering technology on any one level, flexible structure, stable performance. System development support common application layer standard middleware products. Security is

one of the necessary conditions for the normal operation of the system, damaged system data, modification or destruction would cause great economic losses and adverse social impact [33]. Therefore, the system design squadron different kinds and levels of information have varying degrees of access restrictions to different users. We must consider all potential risks confidentiality and integrity of data transmission, external trespass prevention, prevention of internal personnel leapfrog operations, the establishment of a strict security system, to be necessary to deal with.

IV. ECONOMIC OPERATION MONITORING AND ANALYSIS INDEX SYSTEM

Run Data System is the main measure of economic industrial economic operation monitoring and analysis. The establishment of a comprehensive indicator system reflects the scientific concept of development is conducive to promoting sustainable development of the industrial economy, promote industrial upgrading and structural adjustment, improve the level of development. Because of the design only value system reflects the current economic situation, but also highlight compare and contrast economic developments. So the selected system index is particularly important, need to absorb the latest research results and practical experience related to the field of academia and industry, but according to the actual situation of economic and social development, in close connection with the status quo for their own development zone enterprises to form long-term development requirements of the system . In China, the selected system index mainly follow the norms, guidance, standards, scientific and comprehensive principles. In addition, the establishment and operation of the data acquisition process of economic data in the index system, but also the integrated use of factor analysis, system measurement evaluation method, the relative index method, geographical information systems and risk evaluation method, various types of factor indexes are weighted so that the These data more intuitive, better able to reflect the overall economic development of industrial enterprises and district area. The main function modules of the system for the system of economic indicators show investment platform subsystems and subsystem modules. 4 shows a functional block diagram below.

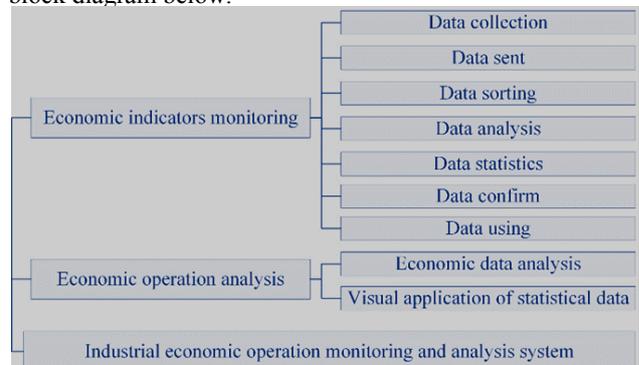


Figure 4. Function module of economic operation monitoring and analysis system.

(1) Data acquisition data acquisition system, as a basis step is to obtain the index data from the park in the business or the public. Economic Indicators enterprises in the park to fill the table according to the data acquisition system processes and management system to ensure the full effect of the evaluation system. To develop a complete data acquisition process, standardized survey methods of work, establishing clear purpose of the survey, the survey, statistical coverage, survey methodology, survey frequency, reporting requirements and submit channel and time requirements. In order to achieve economic operation of a unified and efficient data management.

(2) Data is sent after the data acquisition entry, to send data to the system. In order to improve the efficiency of statistics, coordination of data management at all levels to fill, submit to the process and procedures for processing data, a reasonable allocation to make it, break down the workload is to establish a comprehensive index system inevitable demand, to build a reasonable flow of data submitted. In order to avoid the traditional statistical information submitted is complete in the information center, which can reduce the burden of the information center, to achieve and maintain the data transfer directly on the network, improve work efficiency.

(3) Data finishing. Finishing Comprehensive Index System data refers to data collected validity analysis, review and verify, correct data errors, rounding duplicate and irrelevant data, to make up for missing data, to ensure data accuracy and integrity.

(4) Data analysis of data collation, use technical methods and logical analysis of the data collected to be reviewed, to verify the authenticity of data; For comprehensive data and other quantitative calculation of the data can not be used, should take the letter Select the certificate and key parts of the method validation checks.

(5) Statistics. After verification of data analysis, data on the examined further according to economic data specified index calculation method, were added to the sum of comparative economic data to calculate specific indicators calculated value.

(6) Data confirmation. The calculated index value of economic data confirm that in accordance with procedures to be responsible for the park and the employment base unit and the relevant regulatory authorities related person.

(7) Data utilization Get the ultimate goal of an integrated system of various economic indicators index data is to use the system to analyze the internal law of industrial and economic development through a deep economic phenomenon reflected in the data.

(8) Economic data analysis visualization analysis of existing industrial economic operation of the underlying data, the integration of information from vast amounts of data, for data analysis, reasoning and decision-making, to provide users with fast, testable, easy to understand Industrial economic data to assess the results, the user is easier to understand and communicate more effectively.

(9) Economic statistics query the underlying data is generated based on various economic statistics tables, graphs annual economic performance of enterprises, with annual

unit horizontal comparison chart, the industry enterprises horizontal comparison chart, the implementation of policies to support the economy before and after comparison report.

Systems for enterprise data collection by corporate officers or public input collected and sent to the system, through systematic collation and analysis of data, produce indicators to assess the enterprise's economic data, by monitoring the government and the park, companies can better understand the industry The latest developments, enterprises can quickly make adjustments based on government policies and regulations, produced good economic returns. In addition the system of business-to-business show promotion and enterprise promotion and presentation are also a huge help. Economic Indicators system subsystem is the core business modules of the system. In the industrial economic benefit evaluation system based on appropriate extension, to develop a series of economic, employment, environment, social development comprehensive index system, make full use of modern information technology, the establishment of sensor information network, to achieve automatic collection of data, unified management, effective tracking and intelligent analysis, comprehensive, timely and in-depth reflection of the actual operation of the industrial economic efficiency. The main elements of economic indicator system module includes data collection, send, organize, analyze, use and statistics, as well as to confirm the park personnel statistics. Economic operation of the subsystem to the area parks and business at all levels of statistical reporting data, namely industrial economic performance data and economic indicators system subsystem to produce a comprehensive analysis, was presented to the user, for government leadership decision-making, healthy competition to provide intuitive business real-time information, analysis and visualization display.

V. ECONOMIC OPERATION MONITORING AND ANALYSIS STRUCTURE

Industrial economic operation monitoring and analysis system for the main structure is divided into infrastructure, supporting platform, business applications, user interaction is four levels. Through a unified interface and integrated data standards to ensure interoperability between the various functional modules, reasonable structure, clear layer. System architecture shown in Figure 5 below. Infrastructure layer to deliver high reliability and security of computing as the core, the establishment of cloud computing services platform is based on virtualization technology, as the basis for the integration of all types of hardware and software resources, the integration process services, messaging services and analytical services three core shared functional modules, providing technical data exchange and reusable functionality for the system. Integrated support platform layer authentication, the underlying data to support business applications integrated basic services, focused to achieve access to the underlying data from the county economic evaluation index system service platform and other information systems. Business application layer, including economic indicators and economic operation analysis

modules. User interaction layer. Different objects and access methods for the service of four subsystems. "Government Portal" subsystem for government staff to achieve access through the government network; various industrial parks and employment base of the CMC way to VPN access via the Internet; for corporate users to complete the work according to reporting subsystem, the user You need to use dynamic token way to access and manipulate through the SSL protocol; for the public to showcase the industrial economic operation and promotion of investment work services.

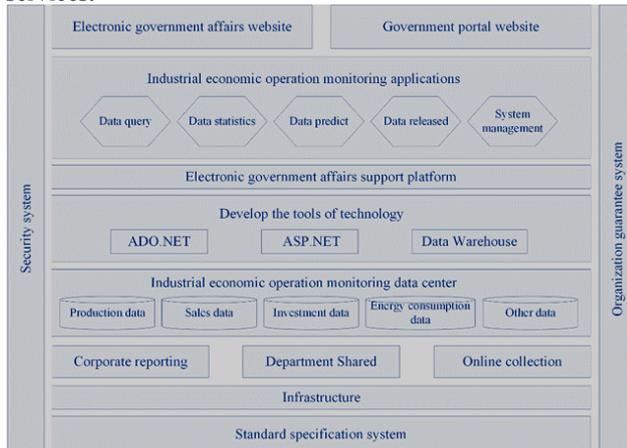


Figure 5. Framework of economic operation monitoring and analysis system.

On the technical architecture, functional requirements based on business economic monitoring and forecasting system to be completed, the system is divided into three design and development, namely the presentation layer, business layer and data warehouse. Wherein the presentation layer mainly, and technology performance event monitor page, the page will be converted into an event request and submit the request to the business layer. Business layer is divided into two small layers, namely business logic control layer and business logic layer, business logic control layer mainly, and other technology to accept service requests from the presentation layer and request distribution, also can accept the processing layer from the business logic results and return to the presentation layer showed; the business logic layer accepts requests from the distribution control layer, the object encapsulates access to the database and associated database operations. In addition, the business logic layer components by traffic control feedback to request distribution component, and then optimize the distribution of requests. Data layer is the main achievement of persistent data storage through the use of database software, data security, access control and rollback to complete part of the business. The system uses Microsoft's database software, the software can be more stable and secure lasting storage of data.

VI. CONCLUSION

Build industrial economic operation monitoring and analysis system, to promote the development and expansion

of information network systems, providing specialized and standardized services, to promote the use of information technology, monitoring and analysis of industrial economic operation quality and posture, and gradually perfect the county industry information service, the system will build a network of government services effective business and economic information released by authoritative platform for government services is developing innovative ways of working and means business is the integration of information technology and industrialization actively explore effective ways. The realization of the principle issues step by step implementation of the process of adoption, in accordance with the by-system module to complete the construction, and local conditions, integration of resources, make full use of existing government information technology achievements, communication networks and monitoring network and other infrastructure, to ensure that existing investments The full use of the time, as well as the realization of economically feasible. Object-oriented approach to economic indicators and economic operation system analysis, system analysis and design. Using browser / server (B / S) mode, N-tier architecture client, application server, database, and users do not need to install additional software, just browse access to the system to use the various functions. Developed using Web-based technology, Web technology as a build large, complex distributed information systems mature route, in all walks of business applications has accumulated a wealth of success stories. System is divided into infrastructure, and business applications supporting platform three levels of progressive levels of realization of economic data collection, send, organize and analyze the process clear and technically feasible.

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