Investigating the Influence of Informatized Resource Management on the Regional Economy

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DOI: 10.32629/memf.v5i1.1610

Abstract: In response to the escalating demand for integrated regional economic development, this study delves into the increasingly pronounced relationship between resource management informatization and regional economic growth. To elucidate how informatization construction influences the regional economy, this paper analyses the positive role played by informatization construction in optimising the allocation of resources (tourism resources, etc.), enhancing regional resilience, and promoting industrial upgrading, etc., as well as pointing out the negative impacts that may be caused by departmental synergy, data security, etc., and puts forward policy recommendations in strengthening the construction of a unified information platform, establishing a coordination mechanism, and preventing information monopoly, with a view to providing a relevant regional economic construction decision-making.

***Keywords*:** resource management, informatization construction, regional economy

1. Introduction

The interconnection between resource management informatization and regional economic growth underscores a pivotal relationship with far-reaching implications. Despite the recognized importance of this linkage, several regions grapple with challenges, including sectoral division and inadequate data security management, as they endeavor to advance informatization initiatives. In addressing these challenges, this study seeks to delve into the economic dynamics of informatization, shedding light on its positive contributions while delineating potential drawbacks. By elucidating these aspects, the research aims to provide a foundation for informed decision-making and policy formulation, ultimately facilitating the harmonious advancement of resource management informatization alongside regional economic growth.

2. The Essence of Resource Management Informatization

The essence of resource management informatization manifests in the attainment of a heightened integration and intelligent analysis of resource management data [1]. Through the construction of a unified information system platform, the informatization of resource management (e.g. tourism resource management informatization) should not only achieve centralised management of data, but also be closely integrated with the planning and policies of the local government to ensure the sustainability of tourism development, so as to form standardised data interfaces and data dictionaries, to open up the data silos and to enhance the degree of data sharing. Building upon this foundation, the use of big data, artificial intelligence and other technologies to develop intelligent resource demand forecasting, resource assessment, resource optimisation and allocation management systems to assist resource managers in making scientific decisions. In addition, it is necessary to build a resource management network collaboration platform based on cloud computing and blockchain technology to achieve transparent sharing of resource information, optimise cross-regional and cross-sectoral resource deployment, improve resource utilisation efficiency, and introduce digital twin and virtual simulation technology to carry out comprehensive visualisation and monitoring of tourism resource management business processes, in order to promote the digital, intelligent and networked transformation of tourism resource management.

3. Positive Impacts of Resource Management Informatization on Regional Economic Development

3.1 Improving the efficiency of resource allocation and promoting regional economic growth

The implementation of information construction facilitates the integration of disparate resource management data, fostering a high degree of resource information sharing. This enables resource management departments to comprehensively and accurately grasp information pertaining to regional resource reserves and current resource utilization. Consequently, the

reduction of information asymmetry becomes achievable, establishing a robust data foundation for the scientific formulation of tourism resource planning and allocation programs. Simultaneously, information technology construction has realised the intelligence and refinement of resource management. In the contemporary landscape, resource management increasingly relies on data science and intelligent technology, enhancing prediction accuracy and optimizing resource allocation. For instance, the application of deep learning algorithms enables more precise predictions of resource demand and gaps within the region, leading to the development of more scientific and targeted resource allocation programs, thereby improving the relevance and scientific nature of resource allocation [2]. Networked resource (e.g., tourism resources) management platforms have opened up the resource allocation barriers between regions and between sectors, realised cross-regional and cross-sectoral resource sharing and deployment, and greatly broadened the scope of resource allocation [3]. The incorporation of advanced technologies such as cloud computing amplifies the efficiency and flexibility of resource allocation. Furthermore, informatization prompts the restructuring of management processes in the field of resource management, resulting in the simplification of approval processes and online processing. This streamlined approach significantly enhances allocation efficiency, and it contributes to the refined management of planning and project implementation, offering robust support for the effective execution of resource allocation programs and ensuring their implementation.

3.2 Mitigating transaction costs and augmenting regional economic dynamism

Through achieving a heightened level of sharing and transparency of resource information, information technology construction has played a pivotal role in significantly diminishing the transaction costs associated with resources in the region, concurrently elevating the vitality of the regional economy. The accessibility of information on resource reserves, utilization plans, and land transactions in the region for enterprises and the public has substantially reduced search costs. As highlighted by Fenech (2019) in the Journal of Management Information & Decision Sciences, digital and networked management platforms not only simplify the resource transaction process, thereby reducing time and labor costs, but also augment the dynamism of the regional economy through the implementation of data-driven decision support systems and enhanced market adaptability [4]. Moreover, intelligent allocation and virtual simulation technologies empower enterprises to simulate and evaluate resource utilization options without incurring high trial-and-error costs. This capability further optimizes the efficiency and scientific nature of resource allocation. The symmetry and transparency of supply and demand information also expedite the marketization of resource allocation, effectively reducing the information search and negotiation costs borne by the government and enterprises in resource transactions. This injection of efficiency and transparency breathes new vitality into the development of the regional economy.

3.3 Promoting industrial transformation and upgrading and fostering a new impetus for the regional economy

The implementation of an intelligent resource management system plays a pivotal role in advancing scientific resource planning and layout by accurately predicting the evolving trends in the regional resource environment. Such a system not only judiciously allocates resource elements to bolster the high-quality development of strategic emerging industries but also employs big data analysis to guide precise resource inputs, propelling high-tech industries towards the upper echelons of the industrial chain. The open and shared resource information platform reduces the threshold of enterprises' access to resources, especially for the growth of small and medium-sized enterprises, which has a significant role in promoting the growth of small and medium-sized enterprises [5]. In addition, the abundance of resource and environmental information acts as a catalyst for entrepreneurship, giving rise to numerous innovative projects and entrepreneurial ventures grounded in resource and environmental data, and these emerging undertakings have become new growth points of the regional economy. The resource synergy platform of cross-border integration breaks regional barriers, promotes cross-regional flow of factors, and resources and industries achieve a higher level of integration and matching, accelerating the process of industrial transformation. The in-depth integration of cutting-edge technologies with the resource environment has fostered a number of strategic emerging industries with core competitiveness, which have become new regional economic pillars.

3.4 Stimulating employment growth and reinforcing regional economic resilience

Resource management informatization has played a pivotal role in unleashing the untapped potential for regional economic growth. It not only elevates the level and efficiency of resource utilization but also catalyzes the expansion of relevant industrial chains through resource development, offering substantial support for economic recovery post-epidemic [6]. Intelligent demand prediction and scientifically grounded resource allocation, facilitated by big data, serve as a linchpin for the stable development of downstream industry chain enterprises. The synergistic effect between the upstream and downstream segments of the industry chain leads to the creation of numerous jobs. The emergence of new industries,

empowered by information technology, further diversifies employment channels for labor transfer and absorption [7]. Open and shared big data on resources and environment, as well as convenient and efficient management services, have greatly stimulated the enthusiasm of regional entrepreneurs and innovation and entrepreneurship teams. This heightened enthusiasm has resulted in the proliferation of small and micro-enterprises, with a notable increase in the proportion of local entrepreneurship and those returning to their hometowns. These nascent small and micro-enterprises not only infuse vitality into the economy but also fulfill employment needs, establishing themselves as a crucial force for economic recovery while simultaneously taking root in the local community.

4. Exploring the Negative Impact of Resource Management informatization on the Regional Economy

4.1 Disconnection of resource informatization between resource management departments and its negative impact on coordination

China's resource management encompasses various sectors, including tourism, municipal, land, minerals, forestry, water conservancy, and more. However, there exists pronounced heterogeneity in the adoption of information technology across these departments, leading to substantial barriers concerning data interfaces, system compatibility, and business synergy. These barriers exacerbate the costs associated with inter-departmental coordination. For instance, the digital mapping and registration capabilities of the land department far surpass those of the forestry and grassland departments, resulting in ineffective integration of relevant spatial data and hindering the development of a unified spatial planning program [8]. Significant disparities in regulatory standards for mining activities between the mineral resources sector and the water resources sector further complicate effective water resource protection in mineral development. The approval process for major projects and planning is protracted due to intricate communication challenges. Moreover, the inconsistent enforcement of information system security standards across different sectors emerges as a critical factor impeding data sharing and collaborative efforts [9]. Solving the information gap between resource management departments and improving system compatibility and security are important measures to promote deep resource synergy and enhance the efficiency of resource utilisation.

4.2 Imperfections in the Resource Allocation Efficiency Evaluation System: Challenges in Effective Monitoring of Resource Allocation Efficiency

Although my country's resource management departments have established a digital system for resource monitoring and evaluation, the real resource allocation efficiency evaluation system has not yet been fully established, The absence of systematic efficiency benchmarks, evaluation methods, and incentive mechanisms poses challenges in obtaining an accurate assessment of resource allocation efficiency through local supervision and evaluation. Notably, in many regions, there exists a disparity in the quality of data in resource surveys and assessments, coupled with simplistic and extensive evaluation methods that fail to capture the true level of resource allocation efficiency. In certain instances, some departments and local governments prioritize increasing the quantity of resources without establishing scientific models for analyzing resource output efficiency. Additionally, the absence of a robust allocation efficiency evaluation index system and an incomplete efficiency supervision mechanism in project approval and planning preparations exacerbate the challenges [10]. The existence of these problems limits the improvement of resource allocation efficiency and the scientific nature of resource management. They urgently need to be solved by formulating a more systematic and scientific evaluation system.

4.3 The data security management system is weak, and important regional resource data faces the risk of leakage

In the realm of regional resource management, data security has emerged as a critical concern, particularly in pivotal domains such as tourism, land, minerals, and water conservancy. Despite the crucial nature of this data, some regions inadvertently neglect the importance of data security in the pursuit of promoting resource management informatization, thereby elevating the risk of data leakage [11]. Specifically, resource management departments in some regions have weak security awareness, have incomplete data security management systems, inadequate data classification and authority management, security vulnerabilities in key systems, and data operation audit mechanisms that are just a formality. At the same time, the regulatory authorities have not established a data security risk assessment and emergency plan system. Once a data leakage occurs, there is a lack of quick and effective disposal mechanism.

4.4 Insufficient open sharing of resource information, monopoly of resource information and data abuse

In the domain of regional resource management, the open sharing of critical resource information, encompassing sectors such as tourism, land, minerals, and water conservancy, holds immense significance due to its direct connection to public interests. Regrettably, some regions have faltered in establishing effective mechanisms for information disclosure and sharing during the promotion of resource management informatization. This deficiency may result in the monopolization of resource information by specific departments or institutions, elevating the risk of information misuse or exploitation for commercial purposes.

For instance, certain departments impose restrictions on access to vital resource data and implement intricate approval processes, severely curtailing public access to information. This not only increases the difficulty of public supervision, but may also lead to resource information being controlled by specific interest groups, exacerbating the unfair distribution of resources.

5. Impact and Policy Recommendations for Advancing Resource Management Informatization on the Sustainable Development of the Regional Economy

5.1 Establish a unified resource management information system to achieve centralized management of regional resource data

To achieve centralized and unified management of regional resource management data, it is recommended to coordinate tourism, land, minerals, water conservancy, forestry and other relevant departments and local governments in the region, pool financial and material resources, adopt cloud computing and blockchain technology, and build a regional-oriented A unified resource management public information platform. This information platform will harmonize various resource data by adhering to unified data standards, culminating in the creation of a consolidated regional resource database. The platform should be accessible at multiple levels, offering services such as basic geospatial data, resource extraction and utilization plans, and resource transaction information. Simultaneously, it should enforce permission controls on core data, institute a robust data security protection system, tightly regulate data interfaces, and ensure secure data sharing [12].

Moreover, the platform's provision of high-quality basic data support is integral for regional scientific decision-making on resources. It also extends essential information services for related industries and contributes to public supervision decisions.

5.2 Strengthen coordination and cooperation between resource management departments and relevant departments to form a resource management coordination mechanism

To enhance coordination and collaboration among resource management departments and with pertinent entities such as development and reform, tourism, finance, and ecological environment, the establishment of a regional resource management coordination leading group and working agency is strongly recommended. This initiative aims to clearly define coordination matters and mechanisms, thereby crafting a robust resource management collaborative system. Coordination efforts should primarily focus on key aspects, including the site selection and layout, formulation of industrial policies, and financial support arrangements for major resource development and utilization projects within the region.

An essential facet of this coordination strategy involves establishing a project evaluation and information-sharing system to mitigate potential conflicts arising from departmental interest demands. Furthermore, coordination efforts should extend to aligning relevant regulatory standard systems, thereby enhancing the efficiency of resource supervision. Initiatives such as regional strategic resource planning and the promotion of optimal resource allocation should be undertaken to harmonize and streamline resource management processes. To facilitate timely problem resolution in resource management and utilization, regular communication and special coordination mechanisms should be instituted. Leveraging collaborative platforms and digital tools, such as cloud services and video conferencing, is crucial to ensuring the efficient operation of coordination efforts. Additionally, improving the assessment and evaluation system for coordinated operations is vital, with a focus on strengthening process supervision and reinforcing result accountability [13]. Through the above multiple measures, we will promote the formation of an institutional mechanism for collaborative governance of resource management.

5.3 Strengthen the talent development of the resource management department and cultivate professional resource information management talents

The first is to increase efforts in universities and scientific research institutes to set up resource management

informatization majors, expand online learning platform resources, and cultivate professional talents through various channels. The second is to establish an industry-university-research strategic cooperation mechanism between resource management system companies and universities in the region to promote the connection between talent training and practical application needs through order training, joint construction of laboratories, project cooperation, etc. The third initiative focuses on building and enhancing the talent introduction and cultivation mechanism within the resource management department. Specifically targeting professional directions like information system design and operation, big data analysis and application, and blockchain technology application, this effort involves various means such as market recruitment, project cooperation, temporary training, and directional training. These diverse approaches aim to continuously optimize the talent structure within the resource management sector. The fourth and final measure is centered on refining the resource information talent utilization and evaluation system. Creating a conducive growth environment and offering development opportunities are crucial components to retain talents in the field. By enhancing the talent utilization and evaluation system, the goal is to provide an environment where individuals can thrive and contribute effectively to the advancement of resource management informatization.

5.4 Develop a management system for resource information disclosure and sharing to prevent information monopoly and data abuse

Firstly, it is recommended to broaden the scope of active disclosure to encompass non-sensitive information such as basic resource information, policies and regulations, and market conditions. Additionally, key documents like major project environmental impact assessment reports and mine geological exploration information should be made public after a specified period. For more detailed resource development and utilization information, especially those involving corporate business secrets, a request-based disclosure system can be instituted. Secondly, establish and improve a resource information sharing platform, broaden public access, and improve the convenience of sharing. Third, improve the information disclosure system, such as establishing a database of information providers and implementing full process monitoring of the sharing process to standardize sharing behavior and prevent information abuse [14]. Lastly, introducing a third-party evaluation mechanism is essential. Regular evaluations should be conducted to ensure the continuous improvement of the information disclosure and sharing system, promoting transparency and responsible information sharing practices.

5.5 Increase the evaluation of resource allocation efficiency and establish and improve the resource allocation assessment and supervision system

The first initiative involves the establishment of a unified resource allocation efficiency evaluation index system. This system should integrate factors such as resource types and utilization methods, utilizing quantitative input-output efficiency analysis models to standardize and quantify efficiency evaluations. The second measure focuses on constructing an efficiency assessment and monitoring platform, leveraging cloud computing and big data analysis. Incorporating cutting-edge technologies like simulation algorithms and data iteration, this platform aims to achieve multi-scenario simulation comparisons of configuration plans and real-time efficiency monitoring. The third step is to establish a resource project approval and planning mechanism closely linked to efficiency assessment. This entails incorporating assessment results into the decision-making process, ensuring that efficiency considerations play a pivotal role in resource project approval and planning. The fourth initiative advocates for the formulation of a unified responsibility assessment method for resource allocation efficiency. This method should accurately identify responsible departments and individuals, promoting accountability in the resource allocation process. Fifth, third-party evaluation agencies are encouraged to participate in efficiency evaluation to improve the fairness and authority of the assessment.

6. Conclusion

The profound integration of information technology with resource management has propelled the digital, networked, and intelligent construction of resource management systems into a dynamic realm requiring continuous innovation and refinement. This imperative calls for the establishment of a robust and scientifically grounded supervision and incentive mechanism. Concurrently, efforts must be directed towards fostering the creation of a policy system conducive to promoting high-quality regional economic development. This policy framework serves as a cornerstone, offering vital assistance in the optimal allocation of national resources, catalyzing industrial transformation and upgrading, and fostering coordinated regional development. In addition, government departments need to actively translate relevant policies into practical applications and strive to promote the formation of systematic policy measures to provide strong support for the high-quality development of our country's economy. In doing so, a harmonious synergy between policy formulation and practical implementation will be instrumental in navigating the intricacies of the contemporary resource management landscape,

ultimately contributing to the sustainable and resilient growth of the nation's economy.

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