The Optimization Mechanisms for Intelligent Tax and Finance Systems in Small and Medium Enterprises (SMEs)

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Abstract: In the current wave of intensified development of the digital economy, smart tax and finance systems have already become an indispensable tool that increases the effectiveness of taxation governance. But when it comes to their use, three critical issues are living in the way of successful implementation: high costs of compliance, low inclusion in the range of offered services, and low adaptability of systems. The problems are more evident in the case of SMEs and also in the case of cross-border trade. This paper draws a multi-dimensional analysis of intelligent tax and finance services based on technological architecture, policy environments and socio-economic factors to understand precisely what bottlenecks are on the ground in terms of using intelligent tax and finance services. It offers the possible avenues to improvement, which are reduction of technical barriers, improvement of policy adaptability, and fortification of inclusivity. The results of the research allow offering theoretical grounds to solve the issue of implementation problems and presenting actionable methods of the further digital transformation of fiscal and tax management.

1. Introduction

The digital economy today still transforms the whole industrial environment in the world, and the key drivers of transforming tax governance intend to become intelligent tax and finance systems. Nevertheless, their real-life application is being limited considerably. Deloitte (2023) claims that 67 percent of the SMEs are unable to undergo intelligent transformation because they are driven by the cost of system deployment. OECD reports indicate that issues such as mismatches between international taxation make enterprises pay duplicate taxes averagely $320,000 each year in the cross-border contexts, a reflection of the technological deficiency of relevance (OECD 2023). According to the studies conducted by Deloitte, 8.2 percent of the expenses incurred by SMEs are related to the tax compliance as opposed to 3.1 percent that is spent by large organizations, which further shows the gap between existing policies and the reality of operations. Moreover, the adoption rate of intelligent tax and finance systems by county-level enterprises only reaches 17 percent, far behind 58 percentage points of central cities (McKinsey 2024), which exposes the major gap of service inclusivity.Current scholarly studies give priority to technological optimization of intelligent tax and finance systems but fail to research differentiated SMEs needs, differentiated design of the model and institutional safeguard. Such a gap is a barrier to technology implementation. Thus, to reinforce the pursued solutions and surmount the major impediments to the possible mainstreaming of the intelligent tax and finance services, the paper under consideration attempts to address the tri-dimensional contradiction of technical hindrances, policy flexibility and all-inclusive instruments. It breaks down the interaction of technical shortcomings, slow institutional actions, and a difference in the ability of the actors to build a synergistic frame of improvement of Technology-Institution-Capability. The results will be influencing tactical approaches to overcoming the digital divide in monetary and fiscal control, give theoretical basis,

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assist the goal of Modernization of Tax Governance in the planning of the 14th Five-Year Plan of the Digital Economic Construction in China.

2. Diagnosis of the Practical Dilemmas of Intelligent Tax and Finance Systems

2.1. Current State of Intelligent Tax and Finance Services

Due to a rapid pace of digital economic development and transformation of enterprise governance, intelligent tax and finance services have emerged. According to the national drive to digital governance, fiscal and tax management is transitioning to becoming intelligent, as a matter of utilising the new-generation technologies, such as those based on big data, artificial intelligence, and cloud computing, in order to optimise the ways of managing the corporate taxation, as well as in order to promote the effective governance and reduce the risk of non-compliance with it. Intelligent systems application is of particular importance in the context of minimizing corporate burden and enhancing tax transparency, especially in the contemporary and even busier world of SMEs and cross-border trade. Internationally there has been great advancement in this aspect. To give an example, the US IRS and a number of EU nations have adopted AI-augmented declaration inspection, risk detection, and compliance observation. The Golden Tax Phase IV project of China is increasingly realizing the nation-wide integration of tax governance information, and intelligent upgrading. Different fiscal program packages offer quite a relief in work flow improvement as the tax burdens are computed smartly and the reports generated automatically and the filing date of the tax returns can be highlighted through the programs reducing the workload of the tax staff. Although conceptual and technological research is currently at a high level, issues of real-life application are still significant, in particular, in relation to the costs of achieving compliance, ensuring the universality of services, and capacity, today urgently requiring the refinement of institutions and enhancement of technology.1.2Diagnosing Core Dilemmas: The Tripartite Contradiction of Compliance Costs, Inclusivity, and Adaptability.[1]

2.2.1. Inefficient Compliance Costs: Technical Barriers Are Costly to the SMEs

Although intelligent tax and finance systems can provide technical compliance management, the practical threshold in many cases would be high in the case of SMEs. On the one hand, SMEs do not have employee-specific tax workforce, which takes much time and resources to train and adapt to the system. In the one hand, there is the initial deployment costs such as hardware buying, software licenses and supporting systems which are a heavy financial requirement. The enterprises that develop cross-border trade are also complicated by the fact that systems are forced to accommodate several currencies and differing national tax rules at the expense of their fiscal management responsibilities.

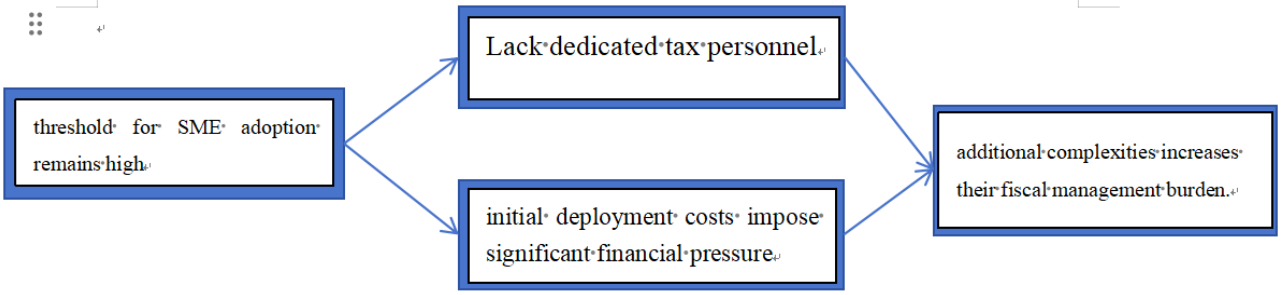

Figure 1 Multifaceted Factors Influencing Tax Management Challenges in SMEs.

Figure 1 systematically illustrates the critical barriers hindering SME adoption of intelligent tax/finance systems. It reveals how fundamental resource constraints—specifically the absence of dedicated tax personnel and prohibitive upfront deployment costs—collectively elevate the adoption threshold. These primary challenges subsequently amplify fiscal management complexities, particularly when handling multi-currency transactions and divergent national tax regulations. The

flowchart thereby visually validates the core argument presented in Sections 3.1 and 3.4: that structural limitations force SMEs into suboptimal trade-offs between operational adaptability and fiscal responsibility.

The visual narrative begins with the high adoption barrier (left), branching vertically to pinpoint twin causative factors: workforce specialization gaps and financial constraints. This divergence converges at the rightmost node, where compounded pressures culminate in heightened administrative burdens—directly reflecting OECD 2023 findings on SME pain points. The arrows establish an unambiguous causality chain, aligning with the paper's Technology-Institution-Capability framework by demonstrating how technical access barriers (cost) and institutional voids (skills gap) jointly impair organizational capacity. This model provides empirical grounding for Chapter 5's proposed interventions, including scalable cloud deployments and cross-jurisdictional policy harmonization.

2.2.2. Excessive Exclusivity: The Digital Divide Limit Service growth in the regions

The existing smart tax and finance solutions have an increased penetration among the large and medium-sized businesses in urban and developed regions and low penetration in small and medium-sized companies and micro, small, and medium enterprises (MSMEs) in underdeveloped regions. Some of the factors adding to this include poor infrastructure implementation of IT and poor awareness of such systems by enterprises. Such inclusiveness deficiency results in cases when businesses are not able, not knowing how to use, or being afraid to use the systems, and this is an objective source of inequality in digital governance, when the policy benefits remain unrealized to their full extent.

2.2.3. Weak System Adaptability: Limited Responsiveness to Policy Changes and Cross-Regional Compatibility

Marked changes in tax policies require a great deal of dynamic flexibility of intelligent systems. Most of the current systems have low update rates in that they do not feature quick integrations of new regulations hence effecting on time compliance. Moreover, there is a high level of local management of finances that leads to different tax policies in the regions. In the course of cross-regional activities, the absence of harmonized data standards and a sufficient mechanism of sharing creates barriers. The challenge to incorporate the multinational taxes information in the context of globalization of business indicates that the systems lack the flexibility to handle complex taxation cases.

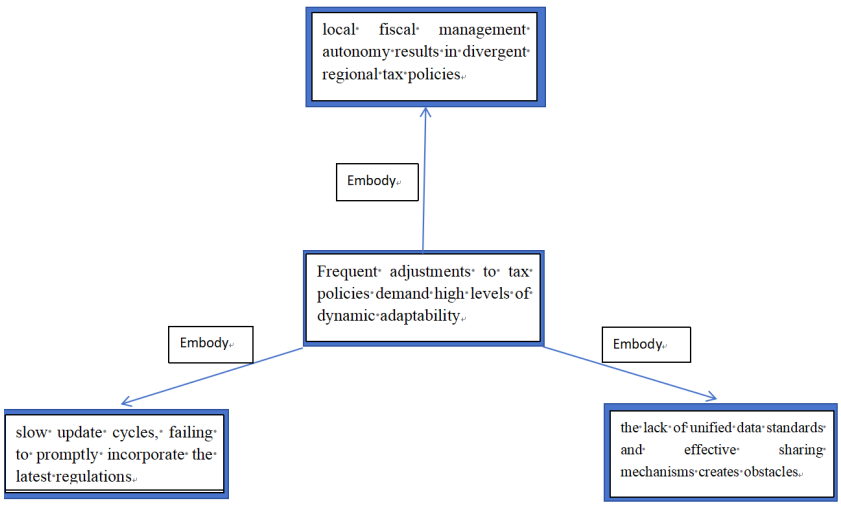

Figure 2 Institutional Barriers Embodying Fiscal Autonomy-Induced Tax System Fragmentation

Intelligent tax/finance systems face critical adoption barriers among SMEs due to technical complexity misaligned with user capabilities. As documented in Section 3.1, elderly users and rural enterprises struggle with intricate interfaces, resulting in disproportionate compliance costs (8.2%

revenue burden vs. 3.1% for large firms). This technical gap fuels the urban-rural digital divide, evidenced by stark adoption disparities: 58% in metropolitan areas versus 17% in counties (McKinsey 2024). Modular redesign prioritizing voice-command functionality and localized rule engines could bridge this accessibility chasm.

Figure 2 anatomizes fiscal autonomy-driven fragmentation through interdependent layers: Policy Stratification : Provincial tax autonomy creates conflicting thresholds (e.g. Zhejiang vs Guangdong exemptions), triggering Section 3.2's "regulatory update lag". Data Silos: Incompatible invoice standards obstruct cross-jurisdictional data sharing (validating Section 3.4's collaboration barriers). SME Compression : Enterprises absorb $320,000 annual duplicate taxes (OECD 2023) while facing 35% hardware reinvestment costs.

3. Deconstructing the Root Causes of Intelligent Tax and Finance Dilemmas

3.1. Adaptability Gap in Technical Design

The design philosophy behind intelligent tax and finance systems is complex and, in many cases, the actual implementation does not entirely consider the various needs of different users of these systems, especially the dynamics of the adaptability issues arising among SMEs and low-digital-literacy groups. Due to resources and comparatively low tax awareness, SMEs generally display enormous differences in their needs to use the systems and their technical understanding. Existing platforms presuppose the basic financial knowledge and technical abilities of the user which is not very realistic in most of the cases and is the step backward to large-scale use. In addition, features such as interface design, functional setting, and technical assistance have not been well customized in terms of differences in size of the enterprises, its operating industry, and even the geographical location. In the case of micro and small enterprises, advanced functions and complicated configuration swamp the user in a lack of easy-to-use and user-friendly operations. This makes learning and adapting more difficult and systems cannot reach the full potential. Also, in cases where the user is elderly or of low digital literacy, the current systems cannot provide sufficient assistive functionality like voice recognition or simplified interface, further reducing use of such systems in such groups.

3.2. Root Causes of Lagging Institutional Response

The everchanging tax policies subject smart tax and finance systems to strict requirements. To begin with, lack of agility in the system causes a major time delay in the delivery of the real-time policy updates. To SMEs in their day-to-day operation, non-availability of up to date tax information in real time poses a threat to the compliances and a possible legal exposure. Second, the lag implied in the policy design process poses significant challenges to the system upgrades and implementation. The tax reforms and the complex policies which are rapidly brought in usually keep up with the system updates. As an example, the appearance of new business models such as digital money and cross-border online business induces constant changes in policies and the current systems fail to implement them in a timely manner leading to unfavorable responses. Moreover, considerable geographical differences in the tax policy require high flexibility of the systems. Lastly, the low implesmentation grants of the tax chairs speaks of the inadequacy of policies in terms of inclusiveness and flexibility. Complexity of execution of national innovation policies such as those that guide the use of intelligent tax services results in poor implementation at local level hence inadequate practical experiences. Therefore, the change in policy lags far behind in the system design update, which hurts the usability significantly.

3.3. Capability Gap Among Economic Actors

SMEs are an important component of the economy but often experience capital, technology and human deficits. Sound technical assistance and considerable tax expertise is needed to be tax compliant. A large number of SMEs do not have specialist finance personnel often using outside accountants or simple manual procedures. This poses big barriers to implementation of smart tax

and finance systems. But though these systems have benefits attached to them such as simplified filing of tax and identification of risk also, not much SMEs are able to use them efficiently. Lack of appreciation of the logic behind tax policies denies the enterprises an opportunity to unlock the power of data analysis by such systems thus causing unnecessary rise of the cost of compliance. In environments where taxes are highly differentiated between jurisdissions such as cross border e-commerce, the systems fail to adjust sufficiently quickly revealing new business risks and expenses. Furthermore, limited investment capability compels smaller companies to largely depend on third-party agencies to help them adhere to a higher level, which not only adds to cost but also reduces the scope of scaling and technology advancement regarding the integration of the smart system. Closing this gap (to allow SMEs with minimal resources to make intelligent use of tax and finance systems appropriate to their management needs) is a matter of high priority.

3.4. Barriers to Cross-Jurisdictional Data Collaboration

Another tax and finance system bottleneck is data sharing, especially to businesses that cross regions or international borders. The main reason behind ineffective cooperation between localities in terms of inter-tax governance is lack of consistency with regard to enforcement of policy and difference in data standards. On one hand, tax authorities are on the way to informatization, whereas on the other hand, there are no effective mechanisms to exchange data between the agencies located on the same level, and therefore, effective sharing of the tax information becomes more difficult, and cross-regional taxation management is complicated. The problem of coordinating fiscal activities across the border of different countries would be further complicated by varying and diverse national tax policies, legal and technical obstacles to sharing information, among other factors, to multinational enterprises. The difference between the nationalities in terms of data privacy protection and the security issue during the transmission makes the compliant and secured information exchange an extremely important problem. A proper approach to cross-regional and cross-border data sharing will not be taken seriously, which will affect the overall spread of these systems mostly in enterprises that have to cope with the complexities of the globalized economic environment.[1-3]

4. Theoretical Framework for Empowering Intelligent Tax and Finance

4.1. Application of the Technology Acceptance Model (TAM) and Task-Technology Fit (TTF) Theory

Smart tax and financial solutions are on the current subject of group of information technology application; user acceptance is of significant importance in such application in its promotion and adoption. Technology Acceptance Model (TAM) is a theory, which helps one to understand the behaviour of adoption of the technology within the user community. According to this model, the main parameters influencing user acceptance of new technology and based on these two constructs are the "Perceived Usefulness" (PU) and "Perceived Ease of Use" (PEOU). In the case of intelligent systems in taxation and finance but particularly targeting SMEs and senior people, interface friendliness and the operative ease is an important design factor to improve PEOU. Moreover, PU can be enhanced by such capabilities as an intelligent analysis of tax data and recommendations of policies that would best match to individual needs of users and maximize user confidence and their readiness to adopt. The Task-Technology Fit (TTF) theory also focuses on how the characteristics of technologies relate to the needs of the tasks that are done by the user. Task requirements in the intelligent tax and finance scenario differ a lot among user groups. SMEs are concerned on the tax filing efficiency and risk control in tax filing, elderly users are more concerned on simplicity and simplicity of feedback. Thus, tasktechnology fit has to be improved through design of systems. Modular design allows making specific improvements, thus enhancing the user experience and value perception towards the system.

4.2. Designing Behavioral Economics Nudging Strategies

Behavioral economics has a contribution in the humanized plannings of intelligent tax and finance systems. Conventional systems do not take into consideration user behavioral preferences and psychological responses; the factor that results to user resistance to systems that exhibit complex workflows. Using the principles of behavioral economics, the concept of cognitive load and usability could be decreased with the help of the following strategies including such solutions as a default choice option, the increase of the prompting information, and the immediate feedback appearance. In elderly users, as an example, the defaults of the most-frequently used functions may simplify the necessary navigation actions and the guiding words and other graphical solutions may mitigate the risk of incorrect operation. Utilization of the feature of the "instant feedback" will help to support the positive user experiences when using it in the course of operation, whereas it will promote ongoing motives to continue using various features.

4.3. Strategies for Building Inclusive Service Coverage Mechanisms

When it comes to popularizing intelligent tax and finance systems, inclusiveness is valued to ensure that all people are reached, particularly in the rural setting where the internet setup is poor and digital literacy among the users different. The design of the system should emphasize the component of low costs and high accessibility. The use of lightweight applications and mobile-first approach lowers the number of terminal devices needed and maximize the performance of low-configuration settings. Also, enhancement of localized services support, such as through the reach of offlineofline service stations, can fill the gaps in user facing abilities, ensuring even urban-rural development of intelligent tax and finance services.

4.4. Cross-Jurisdictional Data Sharing Driving Smarter Fiscal Governance

Repeated progressions in fiscal and tax policies require superior degrees of discretion of the intelligent systems in terms of dynamic attitude. Systems have to be able to support prompt update of policies, using smart rule engines and policy push to make sure that users are immediately notified of the changes and can change their filing strategies in time. Plastic processes of business rule definition should also be prepared, which will enable local tax agencies to use fast definition of rules within the regional policy differences when dealing with systems. This improves systems adapability and flexibility to multi-policies environment and save cost of manual maintenance.

4.5. Adapting, Upgrading, and Reducing Costs in Tax and Finance Systems

In the context of building an intelligent tax governing mechanism, the aspect of sharing data across regions is crucial in initiating effective governance. Nowadays, data silos of tax information systems are plaguing the provinces and municipalities, restricting intelligent service applicability levels. The creation of levelled data standards and the mutual exchange of interfaces helps to make tax information interoperable, which helps enterprises that operate in different regions in assess the tax compliance of the organisation, and minimises the ability to detect risks and collaborate in risk governance by tax authorities. Also, the use of technologies such as the blockchain will guarantee the protection of data privacy and allow tracking data sharing, enhancing data flows by improving their safety and reliability.[3-5]

5. Designing Optimization Pathways for Intelligent Tax and Finance Systems

5.1. Development of Elderly-Friendly Tax and Finance Service Systems

With an increase in the aging of the society, there is more need of the intelligent tax and finance services in the old age populace. Most of the current systems were not designed friendly to this population group, with a complicated interface and a lot of barriers to operation. Using such an approach, future research should strive to adjust systems to the needs of the seniors, adhering to their cognitive abilities and the ways they use the system. It may include such measurements as applying voice recognition technology to work in natural language, minimizing text-based

operations; introduction of simplified interface elements, which point at key functions and terminate non-essential information; and customized assistive capabilities, such as large font modes and single-click customer service to raise user assurance and pleasure.

5.2. Construction of an Intelligent Cross-Border Tax Governance Platform

Under the circumstances of the development of the globalization process where the cross-border activity of corporations is becoming moving in general, there is strong evidence of insufficiency in the evolution of the traditional tax system in the regulation of the international tax affairs. Future smart tax and finance systems will have to grow to encompass cross border tax intelligence to enable the organizations to file multinational tax returns, and where tax treaties, or to enable intelligent parsing of cross-border transactional data. The incorporation of multi-language support, the database (tax policy) of international tax authority, and smart engine compliance advisors will better the level of cross-border tax governance, which contributes to corporate compliance. At the same time, the facilitation of data interoperability among international tax regulation authorities and the development of a global system of tax governance cooperation will enhance tax management and governmentation of the transnational tax risks.

6. Conclusion

The present study strictly addresses the practical paradoxes involved in the process of the promotion and adoption of intelligent tax and finance systems in the digital economy. It points out the major key problems as excessive compliance cost, low service inclusivity, and low system adaptability. All these challenges are attributed to the interaction of various factors which include the inadequacy of technical design applicability, institutional and policy delays as well as asymmetries in the responsiveness of economic actors. These limitations are more serious especially to the SMEs and organizations that practice cross border trade. Based on an economic grasp of the problem, the answer to the problem can be found in creating a shared governance system. Technologically, it is required that the user-centered design must be strengthened, task-technology fit must be optimized and various, older-friendly variations must be made to low-digital-literacy segments to make a tangible perceived ease of use and usefulness improvement. Institutional, one should work on improving the policy response elasticity, reducing the gap between the changes in the policy and adaptation to the updated policy, and the harmonization of cross-regional data standards and sharing systems. In terms of social support, it is also necessary to focus on the development of capacity of actors, reducing obstructive factors by improving inclusive design to close the technology gap, and intensifying the diffusion of tax and operating information. In the future, it is difficult to mitigate the existing bottlenecks and pain points of intelligent application of tax and finance without the comprehensive integration and synergetic performance of technological iteration, institutional optimization, and capacity cultivation. This will enable these systems to be truly inclusive mechanisms in increasing efficiency and compliance of enterprises, especially SMEs, facilitate high-quality, modernization of tax governance, and finally achieving the objectives of high-quality development of the digital economy.

References

[1] Ren, L. (2023). Research on enterprise tax risk identification and prevention under the background of 'governing tax with data'. Taxation Research, (5), 45-50.

[2] Li, R. (2023). Reflections on artificial intelligence empowering the modernization of tax collection and administration. Tax Administration, (4), 28-32.

[3] Li, Q. (2023). Research on the intelligent development of financial accounting. Friends of Accounting, (7), 44-48.

[4] Alm, J., & Torgler, B. (2011). Do ethics matter? Tax compliance and morality. Journal of Business Ethics, 101(4), 635–651.

[5] Amara, A., & Khlif, H. (2018). Artificial intelligence and tax evasion. Journal of Financial Crime, 25(2), 444–454.