Recoding the tax system – Toward a Collaborative Digital Infrastructure

*Drawing on Pahlka's* Re-Coding America*, this article analyzes structural reasons for the frequent failure of public-sector IT projects, with a focus on tax administration. Combining theory and practice, it outlines a vision for a cloud-based, inter-agency investigative platform that facilitates cross-jurisdictional collaboration and offers application-oriented solutions through shared access to data, methods, and resources.*

# I. Introduction

## 1. We do not have a problem of knowledge in tax law, but an implementation problem

Continuous reforms in tax law at international and national level have become increasingly important in recent years. Several countries have recently introduced or enacted corporate tax reform bills aimed at stimulating economic growth, enhancing competitiveness, or aligning with international tax standards. But despite numerous legislative adjustments and reform initiatives, however, the hoped-for benefits of many measures fall short of expectations. A central phenomenon that is becoming increasingly apparent is the so-called *implementation problem*.

This is particularly evident in the international context in the implementation of key projects such as the Global Minimum Taxation. In theory, this "reform of the century" may (arguably) represent an attractive vision[1] and correspond to the legalistic preference and expertise in international organizations, national parliaments or even ministries and departments. However, even taking aside the shifting geopolitical landscape and an often unclear or at least ambigious overall strategic direction,[2] a major concern lies in the significant implementation costs to translate this reform into practical and effective solutions, often disproportionate to the potential benefits.

These costs are especially pronounced in countries that have actively advocated for or committed to enforcing the new rules.[3] Despite their political will, these jurisdictions are now grappling with the complex administrative, technical, and legal infrastructures required to bring the system into practice.[4] The need for new IT systems, inter-agency coordination, capacity building, and legal adjustments places a considerable burden on tax administrations and companies alike.[5] This raises the question of whether the anticipated benefits—such as increased tax fairness and reduced profit shifting—will outweigh the immediate costs and complexity of implementation.



[1] Schön, World Tax J. 2021, 357.
[2] *Janeba/Schjelderup*, Journal of International Economics 2023, 103837; *Schjelderup/Stähler*, Int Tax Public Finance 2024, 935.
[3] *Wolf*, Die Wirkungsweise der steuerlichen Forschungs- und Entwicklungsförderung innerhalb der GloBE Model Rules, S. 64 ff.; *Cordes/Geißler*, FinanzRundschau 2024, 213 (213 f.); *Richter/Welling*, FinanzRundschau 2024, 798.
[4] See *Winterhalter*, Beck.Digitax, 2023.
[5] Implementing the global minimum tax poses major challenges for companies and tax authorities. The rules require hundreds of new data points, many of which were not available in ERP systems, making system upgrades or additional tools necessary. The administrative burden is high, with complex calculations across jurisdictions and increased documentation needs. Implementation is costly, involving software updates, process changes, and data improvements. Staff must be trained on the new rules, which demands time and resources that are often needed elsewhere. These efforts divert focus from other strategic or operational priorities and increase compliance risks, especially given varying national implementations.

This is not only a problem of global political decision-making, but rather a structural problem of administrative implementation. Taking the example of tax administrations, the bon mot is that it is not the problem of knowledge, but the problem of implementation that is the real obstacle.[6]

## 2. The introduction of automated systems as a solution?

There is an increasing tendency to praise technical innovations such as process mining, blockchain and artificial intelligence as supposed panaceas in tax law reforms.[7] But the core of the problem lies not only in digitization or the application of new technologies, but in the structural and organizational deficits of implementation[8] to finally develop the long lasting dream of an automated tax return.[9]

At the same time, the implementation of automated systems – that is, the error-free introduction of hardware and software for the independent execution of human actions – represents a pivotal point for the successful implementation of legislative initiatives.[10] This is especially true in a national and global environment that is increasingly characterized by uncertainty. The development and implementation of robust, scalable and error-free IT infrastructures is therefore not only a technical challenge, but an essential building block for mastering the constantly growing complexity and dynamics of the interconnected tax landscape. Only through an efficient and reliable implementation of these systems can the complex requirements and the increasing unpredictability of the environment be mastered.

## 3. Recoding the Tax System – Barriers and Solutions

*Recoding America* by Jennifer Pahlka explores why bureaucratic processes in the U.S. are often inefficient and how technology can be used to improve administration.[11] *Pahlka*, former deputy chief technology officer of the USA, argues that the main problem is not outdated technology, but rigid administrative structures and regulations.[12]

For example, the lack of expertise in (business) informatics at the legislative and executive level and the resulting too narrow focus on legalistic preferences are a significant barrier to the modernization of the administration.[13] In addition, unused synergies between authorities involved in themselves (or even units within authorities) are cited as a further obstacle. Particularly relevant to the context of tax law (and not surprising for a consultant) is her plea for agile management that promotes flexibility and adaptability in the implementation of reforms. With a historical view of the beginnings of computerization in the USA and the authority structure there, she argues that – with the right approach – state-implemented projects and thus applications can also be just as successful as the easily accessible offers of large digital corporations tailored to the user experience.

Against this background, this article focuses on the question of why tax law reforms, especially in the area of IT infrastructure, so often fail due to the challenges of implementation. Through a detailed analysis of the existing problems and the consideration of possible solutions, it is shown that the

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[6] *Leinker*, Wirtschaftsdienst 2023, 430. Winterhalter, Recoding the (Tax) System, Beck.Digitax 2025.
[7] Winterhalter/Seiling, Tax Notes International 2024; *Bräutigam/Kirchhoff*, FinanzRundschau 2025, 17. *Attayah/Alshater*, The International Journal of Digital Accounting Research 2021, 95; *Okunogbe/Santoro*, The World Bank Research Observer 2023, 295.
[8] *Bjerke-Busch/Aspelund*, in: Schallmo/Tidd, Digitalization: Approaches, Case Studies, and Tools for Strategy, Transformation and Implementation, S. 277.
[9] *Winterhalter/Seiling*, Tax Notes International, 2024.
[10] *Wang*, International Journal of Finance and Investment 2024, 42.
[11] *Phalka*, [Re]Coding America, 2024.
[12] Cf. *Shafer*, Journal of Health Politics, Policy and Law 2024, 11672675.
[13] *Phalka*, [Re]Coding America, 2024, 134.

"implementation problem" is by no means inevitable, but can be significantly reduced through targeted adjustments in administration and the use of agile methods.

Based on theoretical considerations on the introduction of IT systems in e-government (theory),[14] the article uses the findings from the practical work of *Pahlka (*practice*)* to show the central challenges in the introduction of IT systems in public administration and applies them to the tax administration (adaptation).

This contribution uses Germany as a primary example to illustrate the challenges and opportunities associated with the implementation of large-scale public-sector IT systems.[15] Germany's experience is not presented as a one-size-fits-all model, but as a detailed case study that highlights structural barriers and practical solutions in a complex federal system. While contextual differences exist, many of the insights drawn are applicable to other countries—particularly the United States.

Germany's decentralized governance features multiple layers of administration, diverse auditing practices, fragmented political responsibilities, and a highly heterogeneous IT landscape, including legacy systems and limited interoperability between jurisdictions. These factors lead to delays, cost overruns, and coordination issues. Similar challenges exist in the U.S., where federalism, decentralized structures, varying IT maturity across states and the long-lasting legacy system, as well as political heterogeneity create comparable obstacles to digital modernization. However, the German case also offers actionable lessons—such as promoting standardized data interfaces, building modular and scalable IT architectures, enhancing cross-agency collaboration, and investing in digital competencies—which can be adapted to improve the success of IT implementation in the U.S. public sector and worldwide.

The main approaches to solutions include the formalization of knowledge and the associated knowledge management. This is not only necessary to compensate for demographically induced departures in the administration, but also enables tasks to be processed in a more targeted and efficient manner.[16] A more formal knowledge base is often more effective than the mere evaluation of large amounts of data, as it provides the relevant information in a structured form and thus significantly simplifies decision-making processes. New applications, especially in tax law, must therefore be made more user-friendly.[17] Complex systems that are difficult to access and not very intuitive inhibit the acceptance and success of reforms. The user must be put at the center for technology to truly add value.

Another important aspect is the promotion of synergies between different authorities. Interdisciplinary collaboration and the exchange of best practices can help increase efficiency and lead to reforms being implemented faster and with less effort. These synergies make it possible to make better use of existing resources and avoid duplication of effort.

Finally, the implementation of IT infrastructure projects in the public sector must also be made more agile. The use of agile management methods, like digitization itself, is not a panacea and (rightly) the

[14] In particular, reference is made to the opinion of the *Regulatory Control Council*, Bündelung im Föderalstaat [Consolidation in the Federal State], 2025, available at NKR - Expert Opinion - Bundling in the Federal State - Contemporary Task Organization for an Efficient and Resilient Administration. as well as the interim report of the Initiative for an Effective State by Jäkel / de Maizière / Steinbrück /Voßkuhle, 2024.

[15] This contribution is based on Winterhalter, Recoding the Tax System, Beck.Digitax, 2025.

[16] *Bellmer/Becker*, Digital Competencies in Public Administration. "Change experts" urgently needed for the administrations, available at https://www.haufe.de/oeffentlicher-dienst/digitalisierung-transformation/modernisierung-und-digitalisierung-oeffentlicher-verwaltungen_524786_641840.html.

[17] *Winterhalter / Seiling*, Beck.Digitax, 2024. *Schaebs*, Lack of digitization in the tax administration | Taxes | Haufe, 2025.

target of criticism. However, it can help to divide reform processes into manageable, well-defined steps and to enable faster adaptations to new circumstances.

Using the example of (partially automated) risk management systems, the vision of an inter-agency investigative partnership is then developed, which enables the exchange of knowledge, resources and data across different administrative boundaries and offers application-oriented solutions for cross-jurisdictional problem areas.

Insofar, Germany's experience offers relevant lessons not just for the U.S., but for other countries facing similar modernization challenges. One of the key takeaways is the lack of cross-agency, user-centered risk management systems—a gap not unique to Germany. Around the world, tax administrations and other public bodies often follow a top-down approach to IT reform, focused more on legal compliance than on integrated, risk-based or data-driven administration. The German case highlights how siloed structures, limited reuse of data, and insufficient operational alignment across agencies can hinder the creation of intelligent and adaptive systems.

# II. How Tax Authorities Could Solve Key Challenges in Adopting Automated Systems

## 1. Why the introduction of automated systems in tax law fails

### *a) Automated systems in the eGov – not an easy task*

#### aa) Theory: Implementation of the eGov as a central challenge

E-government is often praised as the key to modern administration.[18] At the heart of this modernisation concept for state structures, which is also closely linked to the concept of rationalisation, is the process of digital transformation and the intensive use of information and communication technologies in the computer era.[19] The benefits of this form of digitization of public administration relate primarily to improvements in efficiency, quality, effectiveness, accountability, and trust.[20] Although controversial in the academic debate, the prevailing view is that digital administration should not be seen as a panacea for governments' problems and that the introduction of digital technologies does not automatically lead to *better* administration or governance only if a few conditions are met.[21]

Therefore, although digitization efforts in the public sector have been going on for decades, administrations still struggle to implement e-government services, and quite a few initiatives fail. With the further development and scope of e-government services, the challenges of implementation have also become more extensive.[22] However, while most studies on the digitalisation of the public sector have focused on the practical results for the quality of public services and the quality of work in public administration, in some cases even less has been investigated as to how these changes actually come about in practice.[23] In fact, it is precisely this practice that paints an ambivalent picture: it is true that administrative digitization demonstrably increases efficiency, for example through faster case processing, elimination of postal routes and automated data exchange. But in everyday work, duplication of work due to parallel analogue processes and new tasks such as scanning and software maintenance act as obstacles.[24] Internal digitization is often neglected, although e-files, automated data exchange and interoperable specialist software connections make processes possible without media discontinuity.[25]

In this respect, it is important to remember that identifying potential benefits is one thing – actually realizing them is another.[26] Parallels can be seen with the introduction of new technologies, the

[18] *Andersson and Others*, Government Information Quarterly 2022, 101662. For other challenges, especially the reduction of quality in digitization projects, see *Lindgren et al.*, Government Information Quarterly 2019, 427 and *Wirtz et al.*, International Journal of Public Administration 2019, 596 (604 ff.).
[19] *Terlizzi*, The Italian Journal of Public Policy 2021, 5 (5). Terli, The Digitalization of the Public Sector: A Systematic Literature Review, The Italian Journal of Public Policy 16(1):5-38, 5
[20] *Terlizzi*, The Italian Journal of Public Policy 2021, 5 (19). Terli, The Digitalization of the Public Sector: A Systematic Literature Review, The Italian Journal of Public Policy 16(1):5-38, 19
[21] *Terlizzi*, The Italian Journal of Public Policy 2021, 5 (19). Terli, The Digitalization of the Public Sector: A Systematic Literature Review, The Italian Journal of Public Policy 16(1):5-38, 19 mwN.
[22] *Müller/Skau*, International Journal of Electronic Governance 2015, 136.
[23] *Andersson u. a.*, Government Information Quarterly 2022, 101662.
[24] Gräfe, Philipp; Wehmeier, Liz; Bogumil, Jörg; Kuhlmann, Sabine (2024), Administrative Digitization in Germany: Effects on the Enforcement Level and Lessons for Practice, Working Paper Research Funding, No. 346, Hans Böckler Foundation, Düsseldorf, 5
[25] Gräfe, Philipp; Wehmeier, Liz; Bogumil, Jörg; Kuhlmann, Sabine (2024), Administrative Digitization in Germany: Effects on the Enforcement Level and Lessons for Practice, Working Paper Research Funding, No. 346, Hans Böckler Foundation, Düsseldorf, 6
[26] *Regulatory Control Council*, Bündelung im Föderalstaat [Consolidation in the Federal State], 2025, 24: "Previous reforms have not solved the structural problems of the administration."

disruptive character of which is expected at any time, but usually takes place incrementally and iteratively.[27] Indeed, in the implementation phase, several obstacles to the successful deployment of new technologies in public administration may arise, ranging from infrastructural deficiencies that could affect technical feasibility to policymakers or civil servants with a lack of ICT knowledge and expertise.[28]

Proximity to policymakers, technicians and users at the local level is an important factor in developing more effective solutions than those originally developed at the national level.[29] In this regard, even if information systems are technologically advanced and successful, they can fail if the intended recipients do not use them or even understand them.[30] This coincides with the results of the report of the National Regulatory Control Council[31]: deficits in the public performance of tasks are mainly due to the lack of service orientation. In this respect, the organisation of tasks is not geared to the needs of the users, and digital administrative services for users and recipients are complicated and not user-oriented.[32]

### bb) Practice: Big Bang & Top Down as Obstacles in the eGov

Unsurprisingly, therefore, a central problem that *Pahlka addresses* in *Recoding America* is the inefficient digital implementation in administration: Many IT projects fail because they are overly complex in planning, expensive and inflexible. Authorities tended to formulate detailed requirements for new systems to cover all eventualities. However, this leads to rigid solutions that are often outdated when they are introduced. Instead of improving software iteratively, the administration relies on "big bang" approaches, in which huge systems are developed at once. As a result, errors are only detected late, which makes correction expensive and time-consuming. A prominent example is the website *Healthcare.gov*, which had massive technical problems when it was launched because developers and administration did not work closely enough together. This points to another problem: IT teams often work in silos, while administrative staff who know the real needs of citizens are not involved in the development process.

### cc) Adaptation: Introduction of automated systems in the German tax administration

However, this example of rigid implementation in the sense of "Big Bang & Top-Down" is not only an anecdotal example, but can also be seen in the introduction of automated systems in the German tax administration. In principle, the federal state structure and the consensus-oriented institutions of the German government system create a high need for coordination and make it difficult to integrate new technologies and policies into existing structures.[33] In this respect, federal IT heterogeneity and, increasingly, the shortage of skilled workers prevent the development and implementation of IT projects in the tax administration. *Schaebs* also mentions, among other things, the necessary interdisciplinary expertise, the cumbersome and lengthy standardization processes, the diversity and the lack of understanding to compensate for the organization-related differences, the multitude of constellations of interests and actors, the increased need for cooperation and the intra-organizational

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[27] See Winterhalter / Seiling, BB, 2024, 471-475.
[28] See, for example, *Di Giulio/Vecchi*, Policy Sci 2019, 119 (120 et seq.).
[29] *Natalini/Stolfi*, Public Administration 2012, 529.
[30] *Terlizzi*, The Italian Journal of Public Policy 2021, 5 (22).
[31] National Regulatory Control Council, officially known as the Nationaler Normenkontrollrat, is a regulatory oversight body in Germany. It plays a key role in improving the quality of legislation and reducing unnecessary bureaucracy.
[32] *Regulatory Control Council*, Bündelung im Föderalstaat [Consolidation in the Federal State], 2025, 17-18. NKR, 2024, 17-18
[33] *Hustedt/Train*, in: Klenk/Nullmeier/Wewer, Handbuch Digitalisierung in Staat und Verwaltung, p. 1.

deficits.[34] The large number of decision-makers, for example, makes it difficult to adapt quickly to IT, as capacities are tied up by long-term projects and a culture of innovation is missing.[35]

These challenges are evident in lengthy procedures such as KONSENS – the central reform project aimed at standardizing and centralizing the IT systems of the federal and state tax administrations –[36] in which an ever-increasing catalogue of requirements combined with a constantly increasing need for coordination in strict hierarchical structures prevent the implementation of joint federal-state projects.[37] The state responsibility in the tax administration thus makes a clear digitization strategy difficult – and without coordinated goals, IT projects often remain ineffective or stagnate.

### *b) The penchant for more laws in legislatures and ministries*

#### aa) Theory: Legalistic preference in Germany and worldwide

This shows a preference for problems through a formulaic setting of law. This legalistic preference for solving problems is not only a phenomenon in Germany, but generally reflects the tendency towards legalism. Legalism refers to a legal positivist view, according to which only written law is decisive and must be strictly applied.[38] Irrespective of the criticism of such a formalisation of law without economic or social considerations, the trust that the problem can already be solved by the mere enactment of law is particularly strong in the field of new technologies[39] or in cross-border situations[40] .

The reason for this is (also) the historically grown state practice of lawmaking, which is coming under increasing pressure. For example, lawyers are disproportionately represented in German public authorities, especially in leading positions.[41] This is due to the fact that many key positions require a state examination in law, as the administration is strongly bound by laws and regulations. *Hammerschmid / Husted* accordingly work out that this 'lawyers' monopoly' or a 'lawyers' dominance' has a long tradition in Germany and arises from a view in which the state is first and foremost regarded as the "producer and guardian of general legal norms".[42] This shapes administrative decisions and leads to a strong orientation towards compliance with norms and legal positivist interpretation, often at the expense of pragmatic, interdisciplinary solutions.

This is also understandable insofar as authorities act according to the principle of legality, which favors a legal perspective. The consequence is not only that administrative and ministerial careers are often tailored to lawyers, while other disciplines are less likely to reach leadership roles. The consequence can also be that the focus on formal legality displaces pragmatic solutions. Technical, economic or social aspects are also given less weight than legal evaluations.

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[34] *Schaebs*, The Digital Transformation of the German Tax Administration, p. 28.
[35] *Schaebs*, Lack of digitization in the tax administration | Taxes | Haufe.
[36] KONSENS (Koordinierte neue Software-Entwicklung der Steuerverwaltung) seeks to harmonize software development, improve data consistency, and reduce duplication across jurisdictions..
[37] Cf. Feldhaus, Die Finanzverwaltung und ihre Algorithmen, 2025, 44-55
[38] *Ben-Asher*, Legalism and Decisionism in Crisis, SSRN 2010, 701-702.
[39] *Winterhalter / Seiling*, in: Digitalisierung im Steuerrecht – ein Handbuch, chapter "Steuerrecht als Phänomen".
[40] *Posner*, The rise of global legalism, 2008, 11ff. ; *Ben-Asher*, Legalism and Decisionism in Crisis, SSRN 2010, 702 et seq.; with reference to the EU and its emphasis on "the rule of law", see *Malleghem*, European Law Open 2024, 50.
[41] *Quint*, Staatsreform: Juristdominanz bremst die Verwaltung, 2025; see also the studies on legal dominance as a brake on a digital transformation by *Kroll et al.*, Verwaltung & Management 2012, 75, 76, 78, according to which Germany is classified as a particularly traditional and closed system, especially in a European comparison as well as in an OECD comparison.
[42] *Hammerschmid / Husted*, Querwechsler als Impulsgeber für die Verwaltung von morgen Kurzstudie über Potential, Kompetenzen und Erfahrungen von Querwechsler, 2010, 9; *Schmid/Treiber*, Bureaucracy and Politics. On the Structure and Function of Ministerial Bureaucracy in the Federal Republic of Germany 1975, 205.

Despite this fixation on regulations and the lack of an interdisciplinary perspective[43], however, legislation and its preparation have remained almost unchanged since the founding of the Federal Republic of Germany - in the meantime, however, the world has changed fundamentally and at an increasing pace. It is becoming increasingly challenging to develop effective and practical laws.[44]

### bb) Practice: Lack of trust and knowledge of new technologies

*Pahlka* refers to such bureaucratic structures when she argues that risk aversion caused by legalistic character and preference hinders modernization processes. Another major obstacle to the modernization of the administration is the lack of trust in technological innovations. Many civil servants and administrators see technology less as an opportunity and more as a potential risk. In practice, this is reflected in a deep-rooted fear of making mistakes. Since public administration is geared towards working "according to the law" as error-free as possible, people often prefer to stick to old systems – even if they are inefficient.

This may also be explainable by a pragmatic restraint, caused by the ever-new promises of "new", "revolutionary" or even "disruptive" technologies.[45] Tax officials remain understandably cautious in the face of repeated political promises and the recurring vision of a fully automated tax return. Years of ambitious reform announcements—often accompanied by tight timelines and insufficient resources—have led to a degree of skepticism within the administration. Many civil servants have learned to temper expectations, given the complex realities of data quality, legal ambiguity, and the fragmented nature of IT systems in practice. However, according to *Pahlka*, it is also likely to be since many purely legal decision-makers lack the technical knowledge to correctly assess digital solutions, which often leads to bad investments or overly cautious decisions.

Strict regulations would then do the rest: data protection and security regulations are important, but are often interpreted so rigidly that they block innovation, especially in the EU.[46] According to her, a vivid example is the use of digital signatures or online forms. Although practicable solutions have long existed, many authorities continue to insist on paper-based processes – not for technical reasons, but for cultural reasons. *Pahlka* argues that administrations must become more willing to experiment and see technology not as a threat, but as a tool for better citizen services.

This culture of separating law and (technical) implementation and deprioritizing the operational level while at the same time rejecting the implementation of information technology then leads to an artificial separation of law and reality, which, to be successfull, would have to be thought of together. Especially in the area of the introduction of automated systems, even if it is only pure software, the sentence "culture eats technology for breakfast" applies.

### cc) Adaptation: Lawyers in tax law

A legalistic understanding is likely to prevail - despite facts requiring interpretation - especially in tax law and its multitude of norms and links. Tax law is strongly influenced by formalism and the obligation to comply with legal regulations. This is mandatory under the rule of law and, drawing from the example of Germany, reflects the case-law of the Federal Constitutional Court to orient itself to the principle of legality, uniformity, welfare state aspects or the limitation of tax access via the principle of

[43] Cf. *Hammerschmid / Husted*, Querwechsler als Impulsgeber für die Verwaltung von morgen Kurzstudie über Potential, Kompetenzen und Erfahrungen von Querwechsler, 2010, 3-4.
[44] *Regulatory Control Council*, Bündelung im Föderalstaat [Consolidation in the Federal State], 2025, 8.

[45] On the harnessing of new technologies with a focus on Germany, see *Winterhalter/Seiling*, BB 2024; with a focus on the USA, including global perspectives, see *Winterhalter/Seiling*, Tax Notes International, 2024.
[46] See *Rudolf/Kovac*, Automated Decision-Making in Administrative Procedures: Impact on Administrative Law & Data Protection Principles, EGPA annual conference 2024.

proportionality. However, it also promotes a focus on legal compliance and court-proof interpretation, rather than focusing on economic efficiency or tax simplification.

Even though recruitment practice is slowly changing, top positions in the ministry are still predominantly occupied by fully qualified lawyers, while economists or business economists often only take on advisory roles and IT specialists are available in very small numbers. In the Federal Ministry of Finance in particular, lawyers thus dominate tax policy, administrative practice and legislation. Similar measures can also be found in other federal or state authorities. This leads to a norm-centred design of tax law with ever more detailed rules by lawyers for lawyers, which often treats practical, economic and, above all, technological aspects as subordinate.

At the same time, there is a lack of positive incentives for innovative behaviour and further training, although retraining and additional workloads are necessary. However, *Schaebs* vividly describes that without the involvement of employees, there is a risk of staff absences, longer processing times and a higher error rate.[47]

### *c) Why a lack of infrastructure coupled with the departmental principle prevents the classic synergy effects of automated systems*

#### aa) Theory: Each divison has its kingdom

Another important point in the literature for deficits in the public performance of tasks is the fragmentation of the authorities and their responsibilities. In combination with a lack of cooperation between administrative bodies, these lead to additional effort on the part of the users (e.g. if existing data is not reused across authorities and evidence has to be provided several times). At the same time, regulatory complexity is increasing, which not only increases the requirements and costs for the administration to implement low-cost, unbureaucratic solutions, but also overloads the administration.[48]

This is due in particular to the departmental principle (so called Ressort-Prinzip). The departmental principle is a fundamental organisational principle of the executive branch, which gives each ministry or department independent decision-making powers over its area of responsibility.[49] This clear delimitation of competencies serves efficiency, specialization and personal responsibility. However, the principle poses considerable structural problems, especially in an increasingly networked and digitalised administration.

In practice, the strict separation of specialist departments leads to business and technical silos, which make coordinated and service-oriented administration more difficult.[50] The sole competence of the federal states exacerbates this problem, since standard-setting and implementation are institutionally



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[47] Schaebs, Lack of digitization in the tax administration | Taxes | Haufe; see also Gräfe, Philipp; Wehmeier, Liz; Bogumil, Jörg; Kuhlmann, Sabine (2024), Administrative Digitization in Germany: Effects on the Enforcement Level and Lessons for Practice, Working Paper Research Funding, No. 346, Hans Böckler Foundation, Düsseldorf, 6, which point out that significant barriers to the digitization process are technical problems and tight personnel capacities and that these factors not only have a significant negative impact on the quality, speed and efficiency of administrative procedures, but also on the employee satisfaction.

[48] *Regulatory Control Council*, Bündelung im Föderalstaat [Consolidation in the Federal State], 2025, 17-18.

[49] *Regulatory Control Council*, Bündelung im Föderalstaat [Consolidation in the Federal State], 2025, 20, analysing that the departmental principle exists not only on the federal level. Comparable regulations exist also in the respective state constitutions. At the municipal level, the municipal ordinance of the states regulates the separation of the departments.

[50] *Regulatory Control Council*, Bündelung im Föderalstaat [Consolidation in the Federal State], 2025, 20.

separated. This prevents administrative experience from being integrated into legislation at an early stage and makes it more difficult to develop uniform processes and IT infrastructures.[51]

In addition, the large number of small local authorities with limited IT support and location-based service provision places tight limits on productivity growth. Public services are rarely bundled, while the fragmentation of responsibilities intensifies political and administrative competition for scarce skilled workers between authorities.[52] As a result, implementation in the municipalities of the 16 German federal states is carried out according to different procedures, the IT solutions are heterogeneous and available with a time lag, and there are high costs for the states and municipalities.[53] The current modus operandi is therefore neither scalable nor long-term and not crisis-proof.[54] This creates an administrative apparatus in which "each division of a department has its kingdom" instead of ensuring the coherent fulfilment of tasks.

### bb) Practice: Island knowledge within the authorities

*Taking this point, Pahlka* also criticizes the lack of exchange between different authorities as one of the central causes of inefficient administrative processes. She describes how authorities often work in isolation and hardly communicate with each other, even though they have similar or even interlinked tasks. Instead of sharing information and resources, each agency develops its own systems, processes, and policies, leading to unnecessary duplication, inconsistencies, and delays.

An example of this is the administration of social benefits: citizens often have to submit the same information to different offices several times because there is no central, shared database. Instead of linking the data efficiently, many authorities insist on their own bureaucratic processes, which makes it difficult to access government services. *Pahlka* also mentions cases in which different authorities have contradictory requirements or block each other because there is no clear mechanism for coordination.

Another problem is that important findings and experiences from individual projects are not systematically passed on. Even when an agency develops an innovative solution, that knowledge is often confined to one department, rather than helping other agencies solve similar problems. As a result, time and money are continuously wasted by starting from scratch everywhere instead of adapting existing solutions.

### cc) Adaptation: Decentralized ecosystem "taxes"

The tax administration forms a complex ecosystem consisting of various actors, regulations and technical systems. Processes and regulations have often grown over the years and are elaborately coordinated among all federal states involved.[55] In addition to federal and state tax authorities and ministries, it also includes IT service providers, tax consultancies as well as citizens and companies as taxpayers. The tasks range from tax collection to audit processes and law enforcement. The central aspect of this ecosystem is the interaction between the administrative level, legislation and technological infrastructure.

However, the tax administration suffers from a strong insular knowledge – expertise that remains isolated within individual authorities or departments, making it difficult to implement new procedures

[51] *Regulatory Control Council*, Bündelung im Föderalstaat [Consolidation in the Federal State], 2025, 20-21.
[52] *Regulatory Control Council*, Bündelung im Föderalstaat [Consolidation in the Federal State], 2025, 21.
[53] *Regulatory Control Council*, Bündelung im Föderalstaat [Consolidation in the Federal State], 2025, 21-22.
[54] *Regulatory Control Council*, Bündelung im Föderalstaat [Consolidation in the Federal State], 2025, 19

efficiently. Subject-specific knowledge is often limited to individual authorities, departments or even just individual units, which hinders the exchange of best practices and the harmonization of processes. Since each state tax authority maintains its own processes and IT solutions, there is a lack of overarching standardization. However, automated systems, for example for tax audits or the processing of assessments, require standardised data bases. Different terminology and processes prevent uniform technical implementation. The transfer of knowledge between the federal and state governments also remains limited, which promotes inefficient duplicate structures.

## 2. How we could solve these barriers and risks

### *a. What a knowledge offensive and the active management of knowledge can (and cannot) achieve*

The idea of progress and the use of new technologies has been a constant companion of tax law and tax science since the introduction of the computer in the 1960s, and was already the basis of the founding idea of the actual German tax code implemented in 1976 as the (arguably) most modern tax law in history.[56] It is therefore not sufficient to look for structural failures over decades, especially on the part of the employees of the tax administration. The introduction of modern technologies is associated with considerable capital and personnel costs, and this effort will not be reduced by supposedly disruptive new technologies.

In the past, inter-agency cooperation has been tested in various pilot projects, but the success has been critically assessed in some cases in terms of implementation time and operational added value.[57] At the same time, the basic idea must be followed that coordinated knowledge management could significantly strengthen synergies in the tax administration, especially in audit procedures, risk management systems and the use of empirical values. Knowledge management refers to the systematic collection, storage, distribution and use of knowledge within an organization.

For example, a comprehensive exchange of audit results between tax offices enables a more targeted selection of audit cases, which avoids multiple audits and uses resources more efficiently. Uniform risk management systems (rms) could detect suspicious patterns in tax returns across countries and promote standardized audit mechanisms.

At the level of data selection for risk management systems, however, it is less appropriate to develop a "master AI" as a solution to all problems:[58] Data procurement can be carried out with a large number of different actors, be they governmental or non-governmental, who manage structured, machine-readable and, above all, open data silos. It could then be the task of the (federal) tax administration to integrate these data silos into an interoperable, common information management system. For individual problems, however, new software does not necessarily have to be developed (several times).

In addition, empirical values from tax audits can be systematically recorded in order to optimize future audit strategies. A human-centered approach, for example, relies on specific solutions for auditors instead of all-encompassing AI, corresponding to human-machine interaction:[59] This is because pure

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[56] *Winterhalter / Seiling*, Digitization in Tax Law – a Handbook, Chapter "Tax Law in the Context of Digitization, Virtualization and Cybernetics".

[57] *Möhlenbrock / Hoeck*, StuW, 97 (2), 2020, 180-186.

[58] *Winterhalter / Seiling,* Einsatz automatisierter Systeme in der Steuerverwaltung, Beck.Digitax 2024.

[59] See in detail Winterhalter, Seiling, Einsatz automatisierter Systeme in der Steuerverwaltung, Beck.Digitax 2024.

automation through dashboards carries the risk of an apparent audit density that is practically impossible to verify. In addition to an already complex tax audit, there is now the challenge of selecting suitable methods and software solutions. Human strengths such as intuition and experience could remain largely unused, as AI works differently than the human brain. However, centralized AI is unlikely to be able to compete with the decentralized, individual processing of information by tax auditors – unless this knowledge is formalized. Expert systems and hypothesis tests are a good way to map thought processes in a structured way, demanding rather standard statistical approaches[60] or knowledge graphs found in methods of so-called logical AI[61] than by pure subsets of machine learning approaches we see now arising as the solution for everything in the dawn of generative ai.

Instead of ineffective "top-down" approaches, this human-centered approach should take into account the need for operational testing and provide sufficient room for new methods. Without such knowledge management, however, relevant insights remain in silos, increasing inefficiencies and duplication of effort. A central knowledge platform could remedy these deficits and make the tax administration fit for the future through coordinated knowledge transfer.

### *b. How we reconcile operations with legalistic preference*

*Pahlka* therefore also advocates creating a better culture of cooperation within the administration. These include transparent data structures, interfaces between systems and a stronger focus on interdisciplinary collaboration. She argues that administrations should learn from the agile way of working in the tech world, where teams collaborate across departmental and company boundaries to develop better and more efficient solutions.

In concrete terms, this would mean a greater mix of specialist disciplines, interdisciplinary training and further education for administrative officials, as well as a more pragmatic approach to law.[62] This could manifest itself, for example, in more economists, technicians and social scientists in decision-making positions, a combination of legal and practice-oriented approaches for better problem solving, and a path from pure compliance with norms to more flexible, solution-oriented decisions.

In addition to the often-mentioned attractive monetary incentives or family-friendly "work-life balance", an easier switch to administration from the economy could lead to a break with legal silo thinking. *Phalka*, for example, reports vividly of a gap year program in the USA, which enables technology experts from the private sector to contribute their innovative strength to public administration. At the same time, authorities benefit from fresh know-how in areas such as AI, cloud,



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[60] In many cases, it is more appropriate to find pragmatic solutions to problems, such as in tax audits. These practical approaches often involve standard statistical methods designed to address specific issues efficiently. For example, identifying anomalies usually does not require complex machine learning–based AI, but can be better and faster achieved using simple one-dimensional distributions or multiple regressions. A fun fact: most so-called AI systems currently used by tax authorities are actually just multiple regression models with a limited number of parameters—typically between 9 and 20. These methods work well but are fundamentally different from large language models like LLaMA 70B, which have around 70 billion parameters.

[61] Logical AI is an approach to artificial intelligence that uses formal logic to represent knowledge and reason about it. It enables machines to perform deduction, inference, and problem-solving based on symbolic rules and facts. This contrasts with statistical or neural methods.

[62] On the challenges, motivations and opportunities for this, see: *Hammerschmid / Husted*, Querwechsler als Impulsgeber für die Verwaltung von morgen Kurzstudie über Potential, Kompetenzen und Erfahrungen von Querwechslern, 2010, 16-21.

cybersecurity or agile software development.[63] The aim is then to break down barriers to innovation, promote interdisciplinary exchange and accelerate administrative modernisation.

However, the advantages of such an incarnate "outside-the-box" approach for the administration are not only in the access to state-of-the-art technologies and a fresh culture of innovation. Non-juridical experts also gained a practical insight into administrative processes and could have a social impact as ambassadors. Society, in turn, would receive more efficient digital administration and accelerated modernization.

Forms for such an approach could be as follows:

| Intrapreneurship | Rotational system | Tandem | Exit strategy |
|---|---|---|---|
| A testing environment for disruptive ideas with reduced bureaucracy. | Cross-sector mobility between ministries, digital innovation agencies, and local revenue administrations. | Technology experts collaborate with public administration staff on concrete digitalization projects. | Option for permanent placement or return to the private sector with valuable public-sector experience. |

*Illusatrion 1: Overview of a management track program; own source, based on Winterhalter, Beck.Digitax, 2025.*

This new culture of cooperation could be used as a starting point to use the culture of *an agile management* that *Pahlka* often envisions. Such a program could be structured as follows:

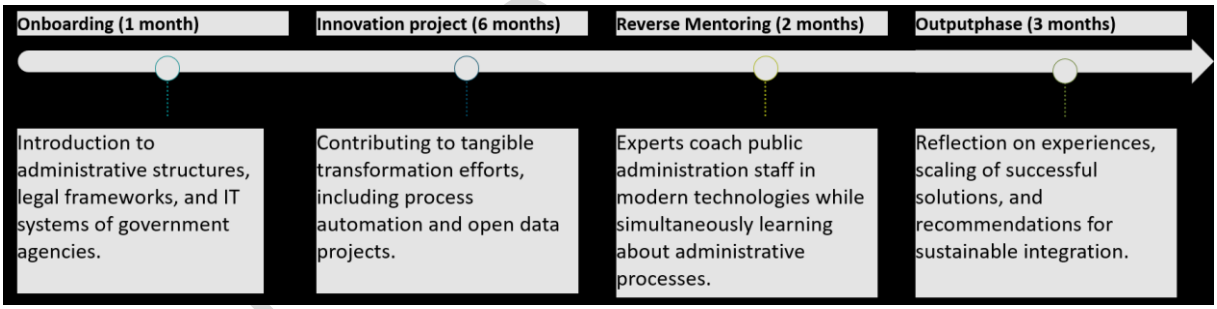


*Abbildung 2: Roadmap for an inhouse management program; own source, based on Winterhalter, Beck.Digitax 2025.*

Legal design could be a further support for breaking up the legal silo mentality. Legal Design uses interdisciplinary methods from law, design thinking and technology to make laws clearer, more understandable and more user-friendly. At its core, all approaches are about understanding facts and data, complex relationships, the mechanisms and logics that link them as well as interactions even more deeply and comprehensively and making them transparent and comprehensible for oneself and others.[64]

However, there are limits: Agility comes up against formal hurdles such as lengthy legislative procedures, while legal design is often difficult to integrate into the strict legal system. Too much user-centricity could also jeopardise legal clarity and regulatory coherence if legal precision is neglected in

[63] Cf. Querwechsler Network, 5 Demands for a Modern Administration, available at https://querwechsler-netzwerk.de/forderungen/.
[64] PD, Requirements and Methods in Legislation, ed. BMJI, 2024, 67. See also Work4Germany Methods | DigitalService; Federal Office of Administration, Organizational Handbook - Methods & Techniques. PD, Requirements and Methods in Legislation, ed. BMJI, 2024, 67.

favour of simple language or visualisations. Also, the "agile approach" is anything but new, and requires knowledge and experience for successful implementation.[65]

Nevertheless, a well-thought-out use of both approaches can help to make laws (and their implementation) more understandable without compromising their legal quality.

### *c. How synergy effects enable significant advantages of automated systems (and digitization itself)*

In order to use the advantages of digitization in the context of the use of automated systems, it makes sense to use the platform idea and the associated bundling of information, experience, knowledge and competence as the core of a reform idea.[66]

The background to this is that automated systems such as BI tools, data-based forecasts, risk management systems or even ETL pipelines and compliance software can fundamentally modernize tax administration. However, such systems only unfold their full advantages through consistent standardization, structuring and networking with the help of platforms.

Platforms and their associated business models are often referred to as the "factory of modernity"[166] and are considered central organizational forms of the information economy.[167] They create synergies by connecting different actors, resources and technologies. The bundling of competencies, e.g. in logistics, production or data collection, analysis and use, creates efficiency gains, innovations and economies of scale. This strengthens the competitive advantage and maximizes the added value for all parties involved. It should also be borne in mind that platforms are connected to new technologies and enable it effectively in the first place.[67]

Concepts such as Government-as-a-Platform (GaaP) show how bundling can be structured and used. The approach developed from this leads to a holistic operating model of the administration, which serves as the basis for the redesign and optimization of administrative processes.[68]

Insofar, bundling should take place in three forms: spatial, technical and functional. As a counterpart to fragmented task fulfillment, it thus generates economies of scale, specialization advantages, and synergies.[69] This increases the efficiency of the administration and creates scope for a service-oriented and resilient transformation.



[65] Scherm, Agile Is Dead—Long Live Agile, in: Scrum for Sales, 2021, 243–244.

[66] *Regulatory Control Council*, Bündelung im Föderalstaat [Consolidation in the Federal State], 2025, 29.
[67] Hoffman / Bencsik, New Ways of Providing Public Services: Platforms of Service Provision and the Role of Artificial Intelligence: In the Light of the Development of the Hungarian Public Administration, 2023.
[68] *Regulatory Control Council*, Bündelung im Föderalstaat [Consolidation in the Federal State], 2025, 27.
[69] *Regulatory Control Council*, Bündelung im Föderalstaat [Consolidation in the Federal State], 2025, 33.

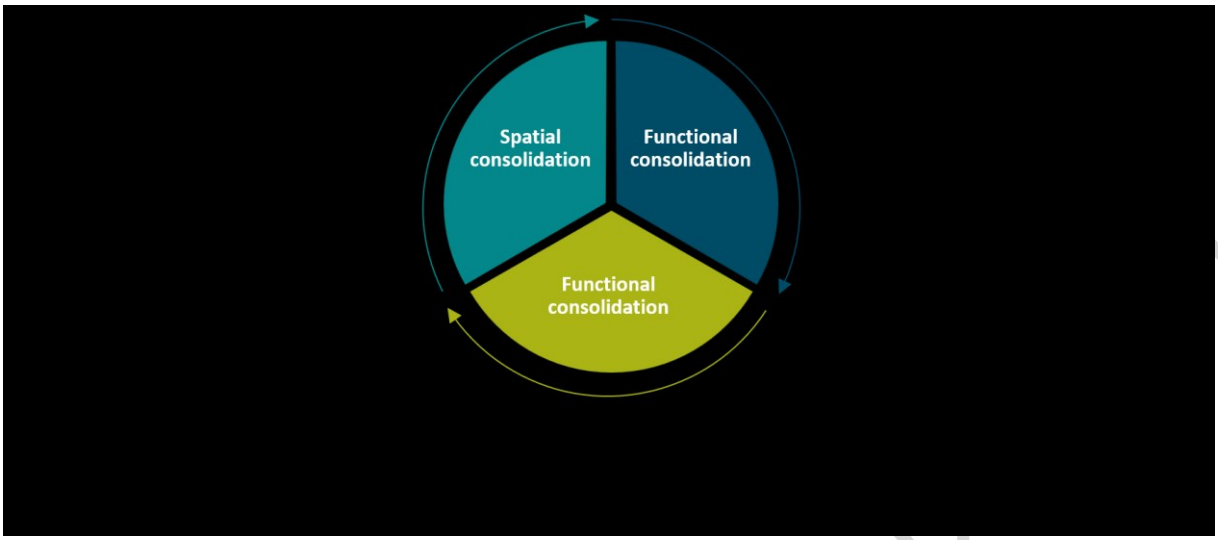


*Illustration 3: Overview of the GaaP concept and its different consolidation forms; own source.*

The GaaP concept mentioned is based on a platform model with a focus on the infrastructure level and promotes networking inside and outside the administration.[70] It represents a nationwide platform model that organizes the provision of public services centrally via platforms and can be used internally as well as externally: This means that public data and services are available to all participants across all levels. For example, users can track the processing status of their concerns and administrative departments can work better together. Basic components form the reusable building blocks that can be used flexibly. The interoperable core of specialist procedures, on the basis of which the various specialist process manufacturers create individual solutions for specific administrative services, ensures the compatibility of the specialist procedures with other elements of the platform.[71] The advantage lies in the fact that, instead of developing isolated IT systems and services for each authority, a common platform can be created through common components and an interoperable specialist procedural core. This means that the recommendations from the GaaP concept also have organisational consequences for the redesign of the performance of tasks. The state as the owner operates, controls and develops the platform."[72]

## III. The vision of a human- and technology-driven platform in the field of risk management systems

The following vision of a cross-agency, human- and technology-driven platform in the field of risk management systems is based on the concept of *Government as a Platform* and is based on the TOGAF framework. The aim is to bundle competencies through a common architecture that creates synergies and enables cross-agency cooperation. The aim of such a platform is to enable effective fact-finding, which is crucial both in day-to-day mass business and in the fight against asset and income concealment.

[70] *Regulatory Control Council*, Bündelung im Föderalstaat [Consolidation in the Federal State], 2025, 33, 61, 63.
[71] *Regulatory Control Council*, Bündelung im Föderalstaat [Consolidation in the Federal State], 2025, 63.
[72] *Regulatory Control Council*, Bündelung im Föderalstaat [Consolidation in the Federal State], 2025, 33-35, 64-67, according to which GaaP is pursued by some states as a model for administrative digitization and has also been discussed in Germany for some time as a target image for administration.

## 1. Using synergy effects – same problem, same solution, cross-agency

### *a) Using synergy effects – same problem, same solution*

Many agencies face identical challenges in the area of financial investigations and risk management. In particular, tax offices at state and federal level often analyze comparable facts, but often use different methods and systems. A uniform platform enables the standardization of processes and tools, which opens up efficiency potentials and avoids redundant developments.

In tax law, for example, similar issues often arise in different areas. For example, the distinction between entrepreneurial activity and private activities can always become a challenge in various tax contexts – be it VAT, income tax or corporate tax. Especially in the field of transfer pricing, a clear identification of functions and risks along the value chain is crucial for determining an arm's length price and, consequently, for allocating profits appropriately. Only when sufficient economic substance is present can the existence of a permanent establishment be justified—an issue of particular relevance in the taxation of the digital economy.

A uniform approach can help, immediately resulting in synergy effects: Once identified, solutions and principles can be applied to similar issues in other areas. For example, a problem that originally arises with the question of sales tax could also play a role in corporate tax (e.g., the determination of a permanent establishment). By considering these parallel issues, a consistent and efficient solution can be developed that can be applied in several areas of tax law.

An important aspect of this consideration is the key question that tax authorities must ask in order to assess economic activities: Does there really be an economic activity as it has been declared or not? This question runs like a red thread through many tax law issues. It forms the basis for assessing whether there is a tax liability and what tax obligations a company or natural person has to fulfil.

In this context, risk management systems (RMS) are becoming increasingly important in the financial administration.[73] RMS are used to optimize tax audit processes by striking a balance between the efficient handling of mass proceedings and the targeted identification of tax fraud. An overly restrictive assessment could disproportionately increase the administrative burden and place an unnecessary burden on economic activity, while overly generous handling could encourage fraudulent structures.

The challenge is to use RMS to develop risk-based audit approaches that enable largely automated processing on the one hand, but on the other hand specifically identify suspicions. This requires continuous adaptations to changing economic structures as well as technological developments in order to detect manipulation at an early stage and minimise tax losses.

### *b) Structured problem solving according to the scheme*

A collection of possible factual investigation methods under RMS, which can be used in isolation or in combination to audit this economic activity in a clear and comprehensible way, can help tax authorities not only increase their efficiency but also increase legal certainty for taxpayers by identifying and applying similar solutions to recurring problems in different tax areas.

One way to bundle these methods is to provide a standardized, modular platform. A uniform framework then allows problems to be solved according to proven patterns by using standardized data

[73] *Winterhalter / Seiling*, Beck.Digitax, 2024.

sources, analysis methods and technology supported tools. This ensures greater consistency of investigations and simplifies access to relevant information for all authorities involved.

### *c) Inter-agency cooperation to combat concealment*

The determination of the "correct" facts and the resulting effective fight against income and asset concealment requires an intensive exchange between various institutions, in particular between local tax authorities, central fraud identification offices of the state and the federal government, and other relevant organizations. To foster this collaboration, a connected platform can be crucial.

Such a platform could, for example, offer common data models that make it possible to integrate and exchange information efficiently, regardless of the institution that provides it. By providing standardized interfaces, the different authorities can communicate seamlessly with each other. In addition, the platform can provide analytics capabilities from other agencies, allowing authorities to quickly identify suspected cases and make informed decisions. The coordinated use of such technologies then improves not only efficiency but also precision in the fight against financial crime. Even in the absence of data exchange, the sharing of data analysis methods and the underlying practical experience can be significantly more important for identifying economic activity. In such cases, data silos may remain in place, yet meaningful insights can still be generated through methodological cooperation.

## 2. Why User Stories Are Necessary for the IT Architecture Vision

The development of a networked platform for efficient fact-finding and combating income and wealth concealment requires a clear IT architecture vision. This vision must ensure that the different authorities – from tax audits to special VAT audits to tax investigations – can work together optimally.

User stories are essential in this context because they integrate the specific requirements of the various actors from practice into the development process. They make it possible to design the IT architecture from the perspective of the end user instead of acting purely technically. In doing so, they help to precisely define needs and use cases, set priorities, promote interdisciplinary cooperation and increase efficiency and acceptance.


*Illustration 2: Overview of the identification of nees, priorities, collaboration approaches and acceptance of user; own source, based on Winterhalter, Beck.Digitax, 2025.*

In the following, three fictional *users* of a platform are outlined:

*a) Auditor*

*As an auditor of a local tax authority, I would like to have access to a central platform that offers me a structured overview of company data, tax incidents and already known risk assessments, so that I can analyze potential anomalies in a targeted manner during my audit and detect discrepancies at an early stage. I am particularly interested in how other authorities and colleagues work. In particular, I would like to learn more about which new analytical methods are not only possible, but actually in use. If I know that certain methods already exist, I would approach the IT department together with my supervisor to get the same tools here as well.*

**Acceptance criteria:**

- Access to standardized data models from various sources (e.g. VAT returns, balance sheets, pre-audit reports).
- Overview of semi-automated risk analysis options to support audit planning.
- Best practices and procedures for actual implementation in the authority.

*a) Special VAT auditor*

*As a special VAT auditor, I would like to receive information on VAT carousels and already identified risk profiles via a central platform, so that I can specifically investigate companies or transactions where there is an increased suspicion of tax evasion by bogus companies or fraudulent input tax refunds. A lot of data sources are less important to me. Rather, I want to find out what types of fraud are currently in vogue and how other colleagues deal with them. I am particularly interested in best practices.*

**Acceptance criteria:**

- Direct connection to fraud identification points at state and federal level.
- Overview of current types of fraud for your own specialization
- Access to already known cases of similar patterns to support case analysis.

*b) Tax Investigation (SteuFa)*

*As a tax investigator, I would like to use a networked platform to view suspicious patterns and information from other tax audits and financial investigations so that I can take up cases of tax evasion in a targeted manner and efficiently initiate investigative measures. I am particularly interested in which procedures and procedures exist in other federal states, and whether I can continue my training there or through the BfA.*

**Acceptance criteria:**

- Access to cross-system risk profiles and fraud analysis.
- Access to procedure descriptions of other countries
- Training opportunities for analytical methods

| ***Data and Technologies*** | ***Methodological Knowledge*** | ***Networking and Structure*** | ***Development and Training*** |
|---|---|---|---|
| Access to standardized data models and an overview of semi-automated capabilities. | Best practices, approaches for practical implementation, and case knowledge. | Direct connection to state and federal levels and access to procedural descriptions from other countries. | Opportunities for skill enhancement in analytical methods and continued development. |

*Table 2: Summary of the different nees and interests of user within the tax administration; own source, based on Winterhalter, Beck.Digitax, 2025.*

These user stories contribute to the development of a practical and efficient IT architecture for tax and tax administration that optimally integrates both technical and functional requirements.

## 3. Architectural vision of a human- and technology-driven investigation platform

In the following, a human- and technology-driven platform is outlined that integrates different technologies and actors in a holistic approach. It is based on a scalable, service-oriented architecture that is based on the user stories outlined above. The architecture is based on the TOGAF principles in its form.[74]

### *a) TOGAF Framework and Core Elements of the Architecture Vision*

The TOGAF framework provides a structured approach to architecture development, ensuring that the platform is both flexible and sustainable. The approach comprises four central architectural domains:

- Business Architecture: Definition of the platform's business processes and strategic goals.
- Data Architecture: Standardization and interoperability of data structures to optimize the flow of information.
- Application Architecture: Providing modular, interoperable applications to support regulatory investigations.
- Technology Architecture: Leveraging modern cloud and AI technologies to increase scalability and efficiency.

Core elements are uniform data storage, interoperable interfaces and analysis tools already in use or under development.

### *b) AWS as a model for a user-friendly platform*

An exemplary implementation of the platform could be based on the user-friendliness and scalability of Amazon Web Services (AWS). Investigators and analysts would have access to an intuitive, web-based user interface with modular tools that they could activate as needed (and access by state and agency). These include not only an overview of possible analysis methods for solving certain situations, but also process and procedure descriptions, best practices, assistance and comments from colleagues from past or similar cases, as well as reference to opportunities for further training or networking.

[74] TOGAF | www.opengroup.org.


*Illustration 5: A fact-finding platform for tax authorities in the form of a mock-up, recreated from AWS, here called "RMS Central"; own source.*

A concrete example of a cloud-based fact-finding platform can be structured along the four TOGAF domains:

| Business Architecture | Data Architecture | Application Architecture | Technology Architecture |
|---|---|---|---|
| The platform facilitates inter-agency cooperation and standardized procedures for case investigation. With role-based access control, various stakeholders (such as auditors from different countries) are able to carry out their specific responsibilities efficiently. | A centralized data platform consolidates both structured and unstructured data sources. Automated workflows provide a standardized and reliable data base for analytical purposes. | Users access the platform through a web-based, intuitive user interface, enabling easy sharing of knowledge, resources, and methods. The platform also supports customizable dashboards and real-time updates to keep users informed and engaged. | The platform is built on a scalable cloud infrastructure using microservices. An API-driven architecture ensures easy integration with external systems, while containerized applications enable flexible scaling. |

*Illustration 6: Overview of the business architecture of the platform according to the TOGAF framework or rather their methodological approach (ADM); own source.*

Part of the so-called "application architecture" could then be to make available various methods for determining the facts, for setting priorities in audits or, in principle, for supporting operational work, for example by auditors, in order to create an inter-agency investigation house of the future.

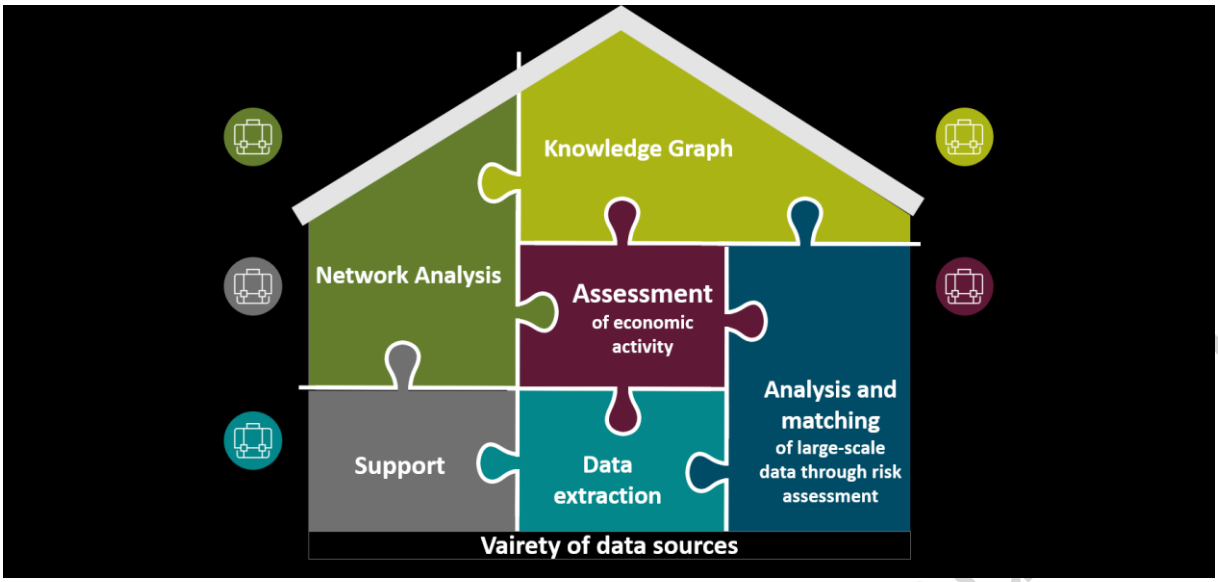


*Illustration 7: Investigation platform for future tax audits and more; own source, based on Winterhalter, Beck.Digitax 2025.*

In addition to the core functions, the platform could provide other offers to promote inter-agency cooperation, as mentioned above:

- **Best Practices Database:** Collect and share best practices for discovery and analysis.
- **Education and training:** Provision of online courses and workshops
- **Forums and discussion platforms:** Enabling a continuous exchange between internal and external
- **Automated workflows:** Streamline government processes with predefined, rule-based workflows.
- **AI-powered case analysis:** Automated recommendations based on past investigative cases.
- **Interactive dashboards for trend analysis: Visualization** of current developments
- **Data Marketplace:** Exchange of structured data between authorities for more efficient analysis.
- **Cloud-based document storage:** Secure access to investigative documents via an encrypted cloud environment.
- **API gateway:** Connection of external systems to integrate new data sources in real time.

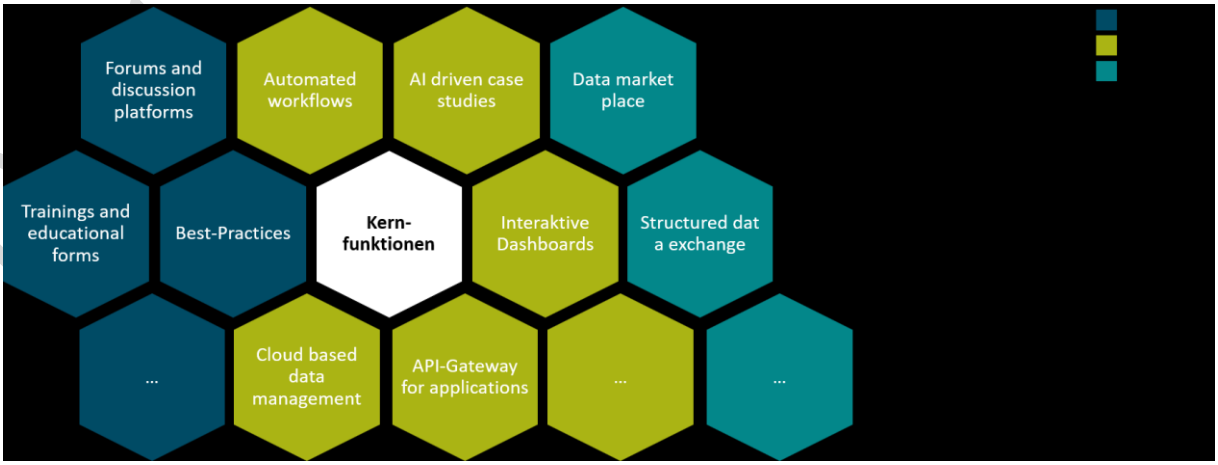


*Illustration 8: Overview of the core function of the platform, ; own source, based on Winterhalter, Beck.Digitax 2025.*

In this case, authorities themselves would enter the information into the system, so that the technical and organisational task would lie with the operators of the infrastructure (e.g. in charge of U.S. Department of the Treasury), while the formal and informal knowledge would come from the operational units of the federal states.

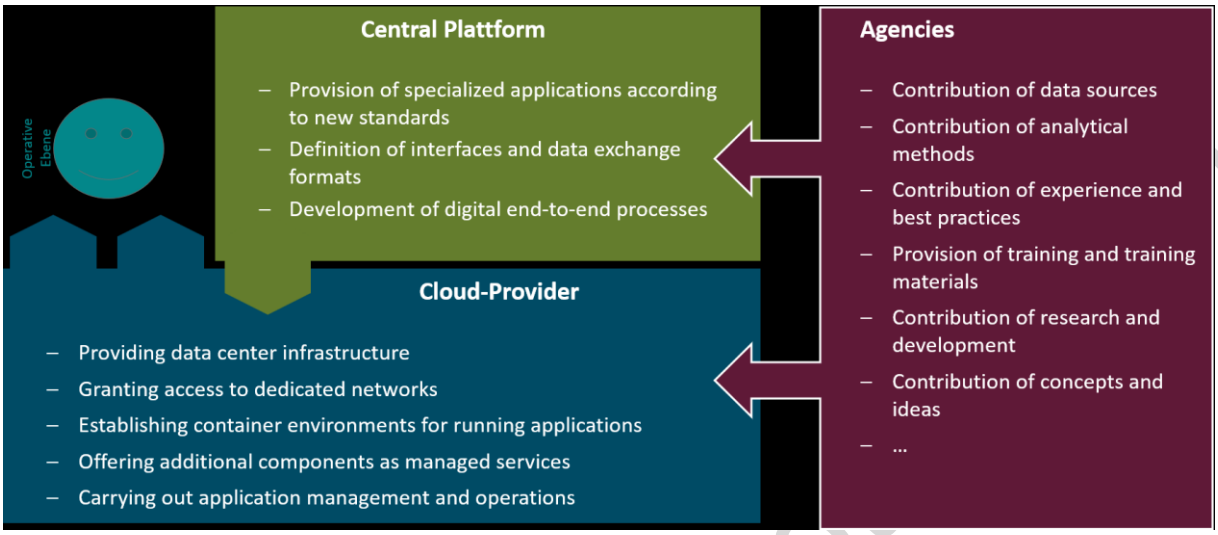


*Illustration 9: Interaction between investigative authorities, investigative platform, and cloud infrastructure.*

This architecture enables an efficient, transparent and coordinated investigation of the facts and ultimately ensures that the concealment of wealth and income is combated. The bundling of competencies promotes an efficient, networked administration that meets challenges with innovative solutions. Sharing sensitive personal information is not necessary. Rather, the focus is on knowledge management, with which formal and informal experiences can be exchanged. This makes it possible to identify needs and necessities and, in the sense of one for all, not only shares the most suitable methods for clarifying the facts, such as certain analyses at RMS, in the chat (or federal-state working groups that are complex to organize and manage), but also to make them accessible to all participants via the cloud infrastructure.

### *c) User-friendliness as a central function*

However, user-friendliness must also be in the foreground in order to ensure the effective use of the networked platform by the participating institutions. A platform that provides complex data models and analysis functions must not become a barrier in its handling. It's crucial that the user interface is intuitive and easy to use so that financial and law enforcement staff can quickly access relevant information without having to deal with complicated systems and processes.

To ensure user-friendliness, the platform should offer a clear, concise structure that makes access to data and functions logical and efficient. This should include easy-to-use features such as dashboards, automatic notifications of suspicious activity, and interactive analytics that minimize workload and enable quick decision-making. An important aspect is also the possibility of creating personalized user profiles in order to adapt the platform to the specific needs of each user group.

User training also plays an essential role in ensuring that employees are able to use all the features of the platform effectively. An easy-to-use system should provide ongoing training and support options that help employees quickly become familiar with the technology and realize its full potential. Through regular updates and feedback opportunities, the platform can be continuously improved and adapted to changing requirements.

## IV. Conclusion and open questions

The conclusion on the implementation of an effective investigation of the facts illustrates the crucial role of exchange between different institutions. However, this also reveals the limits of supposedly effective automation options.

A networked platform can make a decisive contribution here by enabling the integration and exchange of information across institutional boundaries. By providing common data models, different authorities can communicate seamlessly with each other, ensuring a fast and accurate response to suspected cases. Ultimately, a user-friendly platform leads to higher acceptance and more efficient use, which can lead to faster and more precise ascertainment of the facts. By allowing users to work intuitively and effectively, collaboration between institutions is strengthened and the overall performance of the system is optimized. This does not necessarily require data exchange. Rather, such a platform can be the first point of contact for identifying the best methods for determining the facts and making analysis methods already in use accessible to all participating tax authorities via a technical (cloud) infrastructure.

At the same time, the central question of any knowledge management is how formal and informal knowledge should be fed into the system without too much effort. Or, to put it another way: which employees in audit or prosecution have time in their everyday business to actively enter knowledge? This bottleneck can only be solved by a mix of organizational, technical and cultural incentives to solve the problem of "*poor data basis = poor information situation = poor basis for decisions".*[75]

This requires clear political support as well as investment in the creation of political attention and the provision of necessary resources by the federal government or a coalition of the willing. The government should lead the way, keeping in mind that in federal organized nations the restructuring of the public performance of tasks can only be sucasscessful together with the states and municipalities.[76]

It could become truly visionary if we imagine an easily accessible investigative house of the future not only across agencies in the tax realm. Because the question of economic activity and the associated investigation of the facts of the case can also be found in other areas of law or other forms of transactional mass business, such as customs and duty, the enforcement of sanctions, or even the prevention of money laundering, a modern cross-jurisdictional exchange of knowledge, resources and (partial) data – in compliance with (constitutional) legal requirements – could also be forward-looking.



[75] Colloquially, this is also referred to as "shit in – shit out".
[76] *Regulatory Control Council*, Bündelung im Föderalstaat [Consolidation in the Federal State], 2025, 95.