The knowledge transfer readiness: can technology provide a solution?

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Abstract: This paper presents a technology-based experimental design for knowledge and evidence transfer between research/consultancy and policy practice. Evidence adoption problems are abundantly documented in the literature. They emerge on both the supply and the demand side: sometimes research fails to answer the policy-makers questions, it is often complex and does not clearly outline the best alternative intervention. Also, when there is no sufficient demand, there will be misalignment. Above all, knowledge transfer requires changes in the receiving organization. Success is significantly impacted by organizational and individual factors and barriers may include limited resources, poor communication, skills gaps, weak engagement and resistance to change. The experimental design presented here uses as a base the institutional excellence concept and its meaning in today's reality, which demands new capabilities from institutions to be able to respond to the dynamic environmental changes. The hypothesis that the study is testing is that institutional excellence is rooted in the ecosystem approach, i.e. it is inherently holistic. And the research question is whether technology could provide a functional solution. Thus, we assume that constructing a virtual ecosystem can provide the operational insights necessary for a successful knowledge transfer. Preliminary conclusions show that a technology-based design has the potential to eliminate at least some of the barriers and to consider the interconnected aspects of the entire system of institutions.

Keywords: knowledge transfer, technology, smart solution

1. Introduction

This research was undertaken to test a hypothesis through an experimental design of a solution to an identified problem and in order to provide evidence as to whether technology can make this solution functional. The experimental design refers to a new manner of knowledge transfer to public institutions, which involves importation of data, knowledge and expertise to inform what we refer to as institutional excellence, i.e. organisational status that allows better policymaking, improved service delivery and management, and new ways of doing things. At the moment, in the Bulgarian context the largely dominant way of knowledge transfer is procurement of consultancy and advisory services where external experts from the professional consulting and academic communities provide specialized knowledge, solve specific problems or guide policy.

Knowledge transfer to the government generally occurs through a mix of formal, contractual mechanisms and informal, collaborative interactions with academia, private firms, and public research entities. In the past decade the public institutions' demand for knowledge has been predominantly focused on functional solutions to emerging problems caused by the changing environment, responses to highly complicated situations or wicked problems, as the EU Technical Support Instrument[1] demonstrates. To cater to this demand, public institutions try to capture and apply intellectual assets such as expertise, data and research.

To facilitate the process, which is neither smooth nor straightforward, various policies are implemented by both sides of the transfer: knowledge providers and knowledge receivers. For instance, universities and public research institutes create knowledge transfer offices, support is being provided for open publication under the rubric of

[1] EU's SG REFORM TSI helps member states design and implement resilience-enhancing reforms by providing expertise to national authorities on demand

"open science", which make knowledge publicly available at little or no cost[2] etc. One of the questions researchers are trying to answer is how the success of these policies should be evaluated in terms of producing results. The causes of both successes and failures of knowledge transfer is a prominent topic in the literature. The Oxford University Press book *"A Translation Theory of Knowledge Transfer"*[3] outlines seven research traditions that study the influence on knowledge processes and outcomes of (1) formal organizational structure, (2) absorptive capacity, (3) social networks, (4) geographical distance, (5) cultural distance, (6) institutional distance, and (7) characteristics of the transferred knowledge. It also identifies white spots in our understanding of why border crossing knowledge transfers vary in processes and outcomes. The Cambridge University Press book *"Harnessing Public Research for Innovation in the 21st Century"*[4] explores the role of public R&D and public research organisations in innovation, provides a conceptual framework and metrics for evaluation of the knowledge transfer policies and practices, and accentuates intellectual property mediation in it.

Studies on the transfer of knowledge have been undertaken by scholars from various disciplines and on this basis Mansour Abinbuhaybeha of the Swiss Business School[5] outlined three main approaches: psychological, sociological, and socio-cultural. In the psychological approach the context of the knowledge being exchanged and the surrounding environment have a significant impact on the knowledge transfer strategy for any given situation. The successful transmission is highly dependent on the motivational temperament of both the source and the beneficiary of knowledge, while its usefulness is a function of the receiver's capability to internalize it[6]. The psychological approach tends to portray knowledge transfer as a one-way process from a source to a receiver. In the sociological approach[7] knowledge transfer is described as *"the process through which an individual or an organizational unit (group, department, and division) is influenced by the 'experience' of another individual or unit which becomes apparent by changes that are produced in the knowledge base or results of the individual or recipient unit"*. The transmission is viewed as a process rather than a physical transfer of an object[8]. Researchers study the underlying processes of knowledge transfer across social units like teams, other organizations, routines, and technologies[9]. Their goal is to assess the outcomes of the transferring process, meaning that the transfer can be measured. In line with that, researchers apply approaches such as analysing variations in an individual's or recipient unit's level of knowledge and evaluating the success of the transferring process based on characteristics such as efficiency, efficacy, and economic return[10].

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[2] Cohen, W., Nelson, R., and Walsh, J. (2002). "Links and impacts: The influence of public research on industrial R&D." Management Science, 48, 1–23.CrossRefGoogle Scholar

[3] Kjell Arne Rovik. 2023. A Translation Theory of Knowledge Transfer: Learning Across Organizational Borders. Oxford University Press.

[4] Anthony Arundel, Sasha Wunch-Vincent. 2021. Harnessing Public Research for Innovation in the 21st Century. Cambridge University Press. https://doi.org/10.1017/9781108904230

[5] Abinbuhaybeha, Mansour. 2023. Knowledge Transfer: A Critical Review of Research Approaches. International Journal of Global and Academic Research, Vol.2, No 1. DOI:

https://doi.org/10.55938/ijgasr.v2i1.37

[6] Iftikhar, R. & Ahola, T. 2022. Knowledge sharing in an Interorganisational Setting: empirical evidence from the Orange Line metro train project. Journal of Knowledge Management, Vol. 26, No. 4. pp. 854-872

[7] Argote, L. and Ingram, P. (2000) Knowledge Transfer: A Basis for Competitive Advantage in Firms. Organizational Behavior and Human Decision Processes, 82, 150-169. Open Journal of Business and Management, Vol.3 No.1, January 22, 2015

[8] Sveiby, K-E.2001. Knowledge Management – Lessons from the Pioneers.

[9] Argote L. & Fahrenkopf E., 2016. Knowledge Transfer in Organisations: The roles of members, tasks, tools and networks. Journal of Organisational Behaviour and Human Decision Processes, Vol. 136, pp.146-159 https://doi.org/10.1016/j.obhdp.2016.08.003

[10] Ibid.

Underscoring knowledge automation through the use of knowledge management systems, along with interpersonal communication and communities of practice is prominent in the literature (McNabb 2007[11], Mills& Smith 2014[12], Xue 2017[13], Susanty 2019[14]). This research is part of the exploration of the role of automation and technology as far as knowledge use in public institutions is concerned, but it is also part of a larger debate concerning the capabilities of technology to eliminate certain tensions created by the way people perform activities/tasks. It has implications for both the academic debate and the policy practice.

In this case study the central argument is that a technology-based design has the potential to eliminate at least some of the barriers and to consider the interconnected aspects of the entire system of institutions. It is structured as follows: presentation of the research methodology, literature review that links the case to existing literature and the current state of research, explanation how we draw on the appropriate theory to understand the case in depth, description of the case, formulation of hypotheses, analysis and verification of the hypotheses, conclusion and discussion of the case study contribution. The research question outlined by this case is "Can technology provide a functional solution to challenges to knowledge transfer?", and the applied approach is a combination of exploratory (discovering) and explanatory (justifying). The research aims to identify and classify the known barriers to knowledge transfer, analyse these barriers, uncover how technology transforms the picture, assess its potential to overcome barriers and explain the limitations.

2. Research Methodology

Our work on the methodology of an innovative service that essentially transfers knowledge from the professional consulting and/or academic community to public sector organisations confronted us with the quoted research question. The research philosophy was operationalised along the path to investigating how technology acts as an agent of transfer and what it changes for the recipient and the provider. The innovative service is rooted in the concept of institutional excellence, which in the dynamically changing world needs new capabilities. These new capabilities or at least their products are commonly provided through knowledge transfer.

The research design is a case study with an emphasis on describing where and how technology fits into the knowledge transfer process. Since the aim here is to optimize a process, the chosen case study type is the case-problem method where we have a known case, a known problem and try to evaluate a solution through outlining its advantages and disadvantages, assessing its effectiveness and explaining its limitations.

The point of departure is the research objective, which is to explore whether technology is a possible solution to the barriers identified in the knowledge transfer to public institutions. The case begins with the barriers to knowledge transfer as identified in the literature, then describes the details of the case, formulates two lead

[11] McNabb, D. E. (2007). Knowledge Management in Public Sector: A Blueprint for Innovation in Government. New York: M.E. Sharpe, Inc.

[12] Mills, A. M., & Smith, T. A. (2014). Knowledge Management and Organizational Performance: a decomposed view. Journal of Knowledge Management, 156-171.

[13] Xue, C. T. (2017). A Literature Review on Knowledge Management in Organization. Research in Business and Management, 30-41.

[14] Susanty, A.I. et al. 2019. Knowledge management practices and innovation performance. A study of Indonesian Government apparatus research and training centre. Journal of Science and Technology Policy Management (2019) 10 (2): 301–318. https://doi.org/10.1108/JSTPM-03-2018-0030

hypotheses and verifies them against the case findings. The hypotheses verification uses mapping results against theory and other research findings.

3. Literature review

The literature on knowledge transfer is so abundant and diverse that a good part is actually dedicated to summarizing and synthesizing the research findings. These reviews shed light on process and outcomes, examine factors contributing to the performance, explore successes and failures, try to improve understanding and analyse the role of knowledge transfer professionalization.

One of the most comprehensive theoretical perspectives is presented in *"A Translation Theory of Knowledge Transfer: Learning Across Organizational Borders"* mentioned above, in particular the chapter *What We Do and Do Not Know: A Review of the Knowledge Transfer Literature*, which elucidates the expressions and causes of both successes and failures and sums up consistent as well as mixed and inconsistent findings. A study by Graham (2008)[15] gives an extensive idea of the variety of different resources on knowledge transfer in the literature and organises the concepts, models, tools and categories of research. It is designed as a guide that takes the user through four generic (instrumental, conceptual, symbolic and interactive) and three specific models (dissemination - Science Push; translation – Linear; and Ottawa Model for Research Use). Graham divides empirical research into two categories: 1) standard research methods or processes used to evaluate knowledge transfer; and 2) special tools devised specifically with knowledge transfer as their focus. He also makes a special reference to a core set of policy tools for transferring knowledge, classified into 4 major groups: communication tools, context assessment tools, policy influence tools and research tools where the main approach is the "context, evidence, links" framework. As a final point he mentions that information technology can empower those doing knowledge transfer. A version of the "context, evidence, links" framework was proposed by Peachey et al.[16] in the form of a three-dimensional model consisting of organizational level, context, and channel richness. The model captures the spectrum perspectives uncovered in the literature review in consistently emerging themes. It demonstrates what areas current research in knowledge transfer has addressed and which interactions between the three major areas are most commonly explored.

The literature also devotes attention to the promotion of the professionalisation of knowledge transfer through specialised structures such as the Knowledge Transfer Offices (KTO) but notes the limited evidence regarding their role and associated evolution in managing new academic, economic, social and environmental challenges. Compagnucci and Spigarelli[17] for example investigate the challenges and the good practices of higher education institutions to improve knowledge transfer and innovation and propose a conceptual framework for improving KTO services based on a multi-country analysis of a project financed by the European Institute of Innovation and Technology.

[15] Graham, P. 2008. Knowledge Transfer in Theory and Practice: A Guide to the Literature. Academia

[16] Peachey, A. and Withnail, G. 2013. A Sociological Perspective on Negotiating Digital Identities in a Community of Learners in Warburton. Digital Identity and Social Media. USA. IGI Global

[17] Compagnucci, L and Spigarelli, F. 2024. Improving knowledge transfer and innovation services: A roadmap for Knowledge Transfer Offices. Journal of Innovation and Knowledge, Vol. 9, issue 4. https://doi.org/10.1016/j.jik.2024.100577

There are also studies specifically focused on barriers and facilitators of knowledge transfer, as well as reports trying to provide explanation of the difficulties and complexities of the process, where one of special interest to this case study is the report of Directorate Science and Technology at the Science and Technology Council of Australia and New Zealand, written by the University of Auckland[18].

4. Description of the case

This case study is testing a hypothesis formulated in empirical research, which postulates that technology may provide solutions to some of the numerous barriers in the knowledge transfer process. It fits into the array of research that strives to make a contribution to the exploration of functional ways of addressing the obstacles that weaken the efficacy of the transferred knowledge. And like other studies it builds on experimental work on an innovation-development project that involves data and digitalisation.

Digitalisation has become one of the pillars of public administration modernisation in the past decade. In line with the trend this project is digitalising a consultancy service to deliver it with the use of technology. This development is an advancement of a larger conceptual project named Smart Profiling[19] which developed operational analytics for private sector organisations with application of the (latent) digital twin notion. Essentially, it is a platform hosting (latent) digital replicas of public institutions constructed on the basis of a large and diverse pool of structured and unstructured data on public institutions indicatively named a Hybrid Assistant. The majority of this data comes from publicly accessible national and international sources; others are generated by the research project. The purpose is to particularise to the extent possible the state of play at the institution according to internationally established indicators. Acknowledging the conclusions of behavioural science and the bureaucratic management theory, we focus on the indicators used by the European Commission in its efforts to evaluate the effectiveness of EU member states' administrations in delivering on good governance. This means the choice of indicators is grounded in the research insights that the civil servants trust and are likely to respond to performance indicators that they are familiar with and advise coming from authoritative sources. We explore the use of data and analytics to monitor the operational state of public institutions through established indicators for various aspects of their performance, as well as the influence of factors of the external environment on it. The goal is to give Bulgarian public institutions access to this platform, which generates their institutional profile and delivers information about their functioning and performance through the selected indicators based on the collected data. In this way, knowledge is transferred through technology.

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[18] Submissions, reports and publications | Science and Technology Australia

[19] Project BG16RFPR001-1.001-0446 Hybrid Assistant for Institutional Excellence supported by the Competitiveness and Innovation in the Enterprises Programme 2021-2027 co-financed by the European Union through the European Regional Development Fund https://2020.eufunds.bg/bg/0/0/Project/BasicData?contractId=qE1y3XkkIrlokt0f9rbNEw%3D%3D&isHistoric

Project BG-RRP-2.006-0009 "Organisational Development of SME supported by the Programme for Accelerated Economic Recovery and Transformation Research and Innovation (Investment 1, К2.И1, part of the National Recovery and Resilience Plan co-financed by the European Union through the Recovery and Resilience Mechanism https://2020.eufunds.bg/bg/0/0/Project/BasicData?contractId=8UQGeUPNSRAsni2AOZFihA%3D%3D

Research project Integrated Consultancy Service for development of public and private sector organisations, funding agreement № 6ИФ-02-8/15.12.2012., 2012-2015

An important point is to explain why we claim transfer of knowledge and not data and information. The data and information form the foundation of the provision, but they undergo extensive processing and analysis along pre-set axes before they are delivered to the user. These actions transform the information resources into decision-making resources. The case study is checking the value of this delivery mode by testing hypotheses of gaining control over some of the difficulties that stand in the way of productive application of the generated knowledge.

5. Hypothesis testing and analysis

The case study is testing two hypotheses: a time compression (H1) and a cognition facilitator (H2) hypothesis.

5.1 ***H1:*** *Technology compresses the stages of the knowledge transfer process into a single stage of direct interaction with the knowledge.*

The knowledge transfer process is generally aimed at creating a lasting impact, ensuring that knowledge remains within the public sector even after the external engagement ends. The traditional process includes a string of activities starting with problem identification, followed by detecting and capturing of the necessary knowledge through documentation or expert consultation and finally sharing and eventual implementation within government workflows. When the transfer is technology-based as in the Hybrid Assistant case, a volume of curated knowledge is already stored on the web platform and will be directly accessible by a user in the public administration when they register. The knowledge receivers can access their institutional profile, or digital replica, which contains structured information about the institution's organisational status, as well as parameters and indicators that disclose various aspects of its functioning and performance.

The structuring of the information and knowledge is a key component of the platform because it is subject to the substantive logic that institutional excellence has the capacity to produce better results. The knowledge transfer process in this format undergoes a pivotal transformation, which curtails the activities down to checking the current status, spotting issue(s), which would be visible and spelled out, and considering the suggested solutions. In other words, in this format the knowledge is readily available, organised and properly visualised to make it easily interpretable. It is grounded in theory and established metrics, and states facts rather than perceptions, which makes it unbiased.

To explain how technology acts as an agent of transfer we will first provide some conventional practice background. We will look at three implemented consultative projects targeting reformative measures to achieve improvements in the central government administration that the Council of Ministers' Administration commissioned to STRATEGMA in the past 5 years. The first one was implemented through the Technical Service Instrument of SG Reform of the European Commission within 13 months (10 months regular deadline + 3 months COVID extension). The project reviewed the model for organisation of the central government administration to assess the compliance of its administrative structures with the established legal model. The second one was implemented through Operational Programme Good Governance within 5 months (with extension). The project did extensive research of the joint regulation and self-regulation practices to identify opportunities and prepare a concept paper for possible improvements. The third one was implemented through Operational Programme Good Governance within 7 months (with extension). The project reviewed the published information of all administrations in the country for compliance with the normative acts on the administrative services. All three

projects included collection and processing of large amounts of data to complete the tasks and accomplish the objectives.

In the Hybrid Assistant mode all these data, which are publicly available but not in a systematic and structured format, are already stored, cleaned and verified, and accessible in a machine-readable format. Not only can they be immediately processed for the purpose of the principal task, but they can also be approached in various ways on an as-needed basis. In effect, this compresses the time necessary to solve the problem from between 5 and 12 months, as demonstrated above, to between hours and a couple of days.

The core of the Hybrid Assistant concept is the digital replica conceptualisation. A digital replica is a virtual, dynamic representation of the physical entity which aims to mirror its structure, features, organisation, resources and practices. It uses data analytics to simulate the entity's behaviour and monitor its performance and allows for analyses, forecasts and evidence-based optimisation. The generated data serve as the digital thread between the entity and the digital model. The Hybrid Assistant contextualises the entity's digital replica in a digital version of its environment. It is continuously updated using multimodal data streams that provide better observability and allow for visualization and understanding in greater detail. The purpose of maintaining this up-to-date context is to increase the organisations' certainty of the outcomes of their decisions. As experts put it, *"digital twins can drive value across an organization by increasing visibility into real-time and predicted performance, while derisking and optimizing product development, operations, customer relationships, and more."* However, there are certain limitations that should be considered here. The value of the insights is heavily dependent on the data availability and quality. It is probable that an issue will fall outside the factors covered by the existing data, in which case it will not be captured by the data-based technological tool. Still, possible reasons for weaker performance will be suggested to look at outside the analysed aspects.

So far, the hypothesis that technology compresses the stages of the knowledge transfer process into a single stage eventuates, but it does not verify unconditionally. As pointed out, an imperative condition for its validity is a high-quality data infrastructure that delivers reliable data. Only when this condition is accomplished, the possibility will emerge for seeing the environment and/or the outcomes in new ways and for potential issues and opportunities to become more visible.

Institutional excellence – the Hybrid Assistant's foundational concept - is considered a holistic, strategic approach that aligns people, processes, and culture to consistently deliver excellent performance and value, rather than relying on isolated cost-cutting or corrective measures. The Assistant's methodology for measuring and assessing institutional excellence includes parameters and indicators on three levels: international, European and national. These parameters and indicators create a digital contextual environment allowing the institution to position itself on the general map in terms of its performance and get a good idea of its capacity and effectiveness.

The speed of changes in the environment in which institutions perform has been accelerating for quite some time and in order to remain relevant, effective, and legitimate, they need to adapt to them. In many instances, adaptive efficiency relates to robust system design because sometimes institutions have to alter citizens' behaviour. An implication of the Hybrid Assistant is that by employing improvement methodologies institutions can identify and eliminate non-value-added activities and make their operations faster, at lower cost and of higher quality. With the help of data analytics, the institution can track performance and identify root causes of issues, leading to proactive

rather than reactive management. Identified issues can be mapped against historical data to drive predictive propositions. Since they are the source of authority responsible for ensuring and maintaining the public interest, their preparedness will inform targeted interventions to this end.

The Hybrid Assistant experimental case does not merely present a "nice-to-have" solution; it demonstrates endowment of employees at public institutions with a real-life "superpower": the ability to use large amounts of data processed in real time, eliminating a series of repetitive works. The enabled combination of smart puissance and human judgement has the capacity to deliver quick and defensible returns.

5.2 H2*: Technology mediates between the different cognitive worlds of knowledge providers and knowledge receivers.*

To approach this hypothesis, we will first introduce the idea of different cognitive worlds and its justification. Many researchers have concluded that the cognitive world of the academic community and that of the government administration differ fundamentally in their purpose, time horizons, and definition of success. Professional consultancy companies fall somewhere in between these two parties. This is also described as a divide between practical problem-solving and theoretical analysis. Academics as a rule try to create generalised knowledge and dig into the way things happen while civil servants focus on context-specific, actionable solutions to immediate problems.

The London School of Economics for instance pins down the problem-solving approach: academics seek problems to study through specialisation while public administrations must solve specific, often messy, sometimes wicked problems. In his influential book Power to Persuade[20] Richard Haas points out that academics work on long-term, deliberate research timelines while public administrations operate on short-term horizons requiring immediate responses to political or organisational demands. A publication of Times Higher Education, University of Pittsburgh[21] asserts that academia values theory, deep analysis and identifying patterns across many cases while public administrations prioritise implementation, programme management and understanding the real-world context of a case. In a nutshell, academics aim to produce peer-review publications and advance theoretical understanding while the government administration is driven by concrete results, efficiency and programme execution.

Additionally, inside the provider party, which traditionally includes academics and professional consultants, approaches and practices differ since their situations of performance pose different demands While academics typically engage in curiosity-driven research, theory-building, and long-term intellectual contribution as already specified, consultants tend to focus on problem-solving, action-oriented solutions, and immediate value for clients. It is more often academics who fill gaps in knowledge and contribute to theoretical frameworks. Consultants are more concerned with making things work better and coming up with tangible, actionable plans. Since their focus is on depth and comprehensive analysis, academics work on a slower, more deliberate schedule. Consultants need to operate on a fast-paced, deadline-driven schedule, which is why they pursue immediate applicability. With

[20] Haas, Richard. 1994. Power to Persuade. Houghton Mifflin

[21] Wasser, R. The Economics of Academic "Values". *Hu Arenas* 8, 643–654 (2025). https://doi.org/10.1007/s42087-023-00327-9

academics, failure is considered part of the learning process while consultants have a preference for the 80/20 rule (getting 80% of the results from 20% of the effort) as solutions must work promptly and reliably.

Thus, on the provider side we also have two interconnected but distinct cognitive worlds whose measures of success are not the same.

Table 1: Differences between academics and professional consultants

Academics	Consultants
Theory-building, long-term impact	Problem-solving, action, immediate value
Focus: Ask why things happen, explore gaps in knowledge and contribute to frameworks that guide future generations	Focus: Ask how to make things work better, design solutions for organisations facing real-time challenges
Output: values depth, rigour and peer-reviewed validation	Output: value clarity, efficiency and measurable outcomes
Impact: contribute to understanding and intellectual legacy	Impact: tangible change and practical impact

Both roles demand critical thinking and evidence-based insight. Traditionally but not exclusively, the academia creates the knowledge, and the consultancy applies it, but both need to be aware when to theorize and when to implement. Despite the common topic and the common drive for novelty, they are often critical of each other's approaches.

Routinely, consultants work long hours under pressure and do not make a priority of keeping up with the latest academic findings, although most are familiar with the classic papers. They have a keen appreciation of how the client thinks, which can sometimes lead to sharing the same flaws. Managers in the institutional setting are typically under pressure to take decisions in the face of incomplete information and do not often take decisions on the basis of the best available evidence. They would rather use experience, which inevitably is limited; knowledge that may be obsolete; ideology and sometimes a not very critical imitation of top performers and their successful solutions without understanding the underlying mechanisms. In situations of time and budget pressures they may be tempted to take shortcuts that can lead to suboptimal results. Taken all the described circumstances and specificities, we posit that a data-based technology can facilitate the use of evidence-based approaches and bind the dispositions of the parties in the knowledge transfer exercise.

A further complication we find in the literature is the difference in the use of language between the two ends of the transfer where the academic narrative is not designed for rapid practical application while civil servants focus on actionable, plain-language insights to guide decisions. And while both narratives use evidence, they are not of the same type since *academics rely on rigorous objective methodologies and practitioners on experience, political feasibility to act fast and sometimes intuition*[22].

[22] Héritier, A. 2016. "Rigour versus Relevance"? Methodological discussions in political science. Politische Vierteljahresschrift. Published by Springer Nature. Vol. 57, No. 1 (2016), pp. 11-26

Creating a mindset that blends the two dispositions of theoretical rigour with the hands-on experience of public management is a task of significant complexity. When comparing the features of academic and public administrations' languages along several lines, we see that:

- in terms of tone, academic language is objective, analytical and cautious while the language of public administrations is formal, clear (as a norm) and authoritative.
- in terms of sentence structure, academic language is complex and nuanced while the language of public administrations is direct.
- in terms of norms, the academia requires impersonal language, focusing on evidence, evaluating of evidence, critical analysis and comparing perspectives while the language of public administrations uses active voice.
- academic writers use tentative language to acknowledge the limits of their findings and rely heavily on structured arguments and rigorous citation to build on existing knowledge while the language of public administrations is straightforward and categorical.

All those nuances originate from the key distinction that academic writing seeks to add a new perspective, while the administration seeks to accurately implement laws and legal regulations or programmes. In the knowledge transfer process this can produce lack of understanding in what happens to be an asymmetrical communication.

A well-structured summary of the cognitive discrepancies related to knowledge transfer can be found in the Auckland University report referred to earlier, which is the result of targeted research on this topic. It demonstrates clearly in what ways the cognition of the parties differs. This report of Directorate Science and Technology at the Science and Technology Council of Australia and New Zealand summarises the reasons for the insufficient effectiveness of the use of scientific and technological achievements in the government decision-making. It focuses on the differences in the features and behaviour of the government institutions and those of the scientific community that form the basis of the difficulties emerging in the transfer and transformation of scientific information into policies and governance decisions. The report outlines ten formative differences.

Table 2: Differences between government institutions and the scientific community

Science	State governance
probabilities are accepted	pursuit of security
inequality is a fact	pursuit of equality
science is anticipatory	The period ends at the next elections
flexibility	conservatism
problem-oriented	service-oriented
discovery-oriented	mission-oriented
Failure and risk are acceptable	Failure and risk are not tolerated
Innovation is rewarded	Innovations are regarded with suspicion

Reproduction is key to credibility	Credibility is situational
The clients are scattered, diverse or non-existent	The clients are specific, immediate and urgent

This table illustrates the different cognitive worlds that the two sides - the knowledge producer and the knowledge user – operate in. The discrepancies are substantial enough to impede the transfer, and we will try to verify if technology can intervene in a way that mitigates them.

The cognition facilitator hypothesis focuses on 3 distinctive features of public institutions: conservatism and pursuit of security, mission and service orientation, and the situational character of credibility (as opposed to flexibility and accepting probabilities) that oppose them to . Institutional conservatism is indisputable and their pursuit of security and inherent structure can result in slow decision-making. However, it is also necessary since institutions must maintain public value by keeping practices consistent even though this can mean being slow to adapt. Their conservative nature is actually a functional requirement to maintain legitimacy and provide the social stability that a functional society needs. It is the primary purpose of public institutions to provide stability, manage risk, and maintain public trust. These tasks require consistent, predictable, and sometimes slow-moving processes and therefore they are not naturally inclined to change their practices in response to new scientific discoveries, which from the outside has the appearance of a conservative approach to operations. Nevertheless, the approach is aligned with enforcement of the rule of law and making the mitigation of potential threats a central mandate.

Against this background the hypotheses presumes that the critical pain points in the divergence of conservatism versus innovations are purpose, focus, and style. Regarding *purpose*, the public administration's knowledge needs are usually related to the fear of a "performance deficit", i.e. the gap between public expectations and actual performance. Thus, the knowledge providers are counted upon to offer objectivity, precision, and critical analysis and the requirements to this knowledge include clarity, efficiency, and accountability, as well as avoiding value judgements in arguments. An argument in favour of the technological solution's digital replica design is that it does not imply a fixed purpose. It provides verified information on the institutional parameters and indicators in a structured manner that has the potential to produce organisational and performance insights. These insights may serve various purposes and inform a variety of decisions. Regarding the *focus*, the Hybrid Assistant solution does not postulate a single focus. Its holistic approach concept draws attention away from a fixed problem to the whole picture of the institutional situation that contains as many aspects as the data availability allows. In this way the trap of focusing on something which may not be the root cause of misperformance can be avoided, and different or related flaws can be spotted. Regarding the *style*, in the mode of knowledge delivered through a technological tool it is factual by default without being circumstantial. The information presented on the platform is based on the data and evidence that it stores. It is accurate and objective because it is derived from authoritative official sources and verified. Beyond the weighed opinions implied in composite indices, it does not incorporate individual author opinion or fictional elements.

Having accounted of all the listed arguments, experience still warns us that most findings only apply in specific contexts. Oftentimes, good-quality data relating to a researcher's chosen problem is hard to come by and available data is used from published sources, which overlaps to an extent or relates to the information required but does not correspond with it precisely. Oftentimes, good-quality data relating to a researcher's chosen problem is hard to

come by and available data is used from published sources, which overlaps to an extent or relates to the information required but does not correspond with it precisely. This is a recurrent challenge in the process that needs to be handled systematically, and it is just one of many. For example, sometimes complex statistical analysis can lead to rather simplistic conclusions and if structural equation modelling is applied to them, their face validity will be questionable for those who have to implement them. What is more, in the public domain there are genuine practical difficulties in assessing the effectiveness of interventions and measuring value despite the controls applied to subjugate them. And there is of course the caution that a single case study cannot be a proof by itself and can be misleading.

The hypothesis of a technological solution as a cognition facilitator is substantiated as follows: (i) the information and knowledge that it provides does not contradict the public administration's pursuit of security because it takes as a point of departure institutional excellence, which is subject to the reason why institutions were created; (ii) it aligns with its mission and service orientation in accordance with the formative logic that excellent institutions produce excellent performance; (iii) its situational credibility is guaranteed by the use of a combination of current and historical data. Still, the question remains whether a technological solution has the ability to recover the symmetry in the communication between provider and receiver.

The language of data is often called universal in the sense that it transcends human languages and cultural barriers and acts as a common, fact-based medium for analysis. Nevertheless, it is not truly universal in practice. Just as facts and evidence, data can be interpreted either in the academic or in the practitioner tradition. In the Hybrid Assistant case it is interpreted through data visualisation in a variety of formats with the aim of facilitating comprehension. By doing so, it helps to translate scientific knowledge into practice oriented. Concerning the knowledge content, it is subject to the logic of the applied holistic approach. This means that a holistic picture is provided of where the institution stands versus global benchmarks (through the global governance indices), its performance in accordance with the established standards of the governance philosophy of the EU family, to which the country belongs is demonstrated, and its alignment with the public interest of the society it serves is elaborated. To control the complexity, the (sometimes extremely) intricate international indices are recalculated and presented in a manner that is meaningful to and usable by an individual institution.

5. Conclusion

In the contemporary extraordinarily dynamic environment any organisation, no matter whether it functions in the public or private sector, needs support to be able to cope with the continuously emerging challenges. Since those challenges are diverse and highly complex, it is hard for a single organisation to handle them by itself. Therefore, the topic of knowledge transfer is significant and a focus in the literature. Research on this case study confirms the hypothesis that technology can provide solutions to some of the barriers that impede knowledge transfer from the research community, public and private, to the public institutions. In particular, it verifies the time compression hypothesis which claims that a data-based technological solution contracts significantly the time necessary for a knowledge receiver to obtain and operationalise the information necessary for problem-solving or identification of improvements. It also verifies to a plausible extent the cognitive facilitator hypothesis, which posits that a technological solution can be a bonding tool between the different cognitive worlds of knowledge producers and knowledge receivers and has the capacity to mitigate to a certain extent the asymmetry in the communication between them.

6. Discussion

A technological solution used as a mode of transferring knowledge from producers such as the academia or the professional consultancy to public institution is however not without limitations. In order to produce reliable results, it needs the fulfilment of several conditions: systematic data collection, good quality data, robust methodology to convert the data into operational insights. With this, the Hybrid Assistant/Smart Profiling case study joins the larger debate concerning the capabilities of technology to eliminate certain tensions created by the established ways of doing things and the new emerging demands.

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