Capacity Building in GovTech for Measuring and Achievement of Sustainable Development Goals

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ABSTRACT

The paper explores the challenges that GovTech industry faces and analyses how existing skills frameworks correspond with these challenges. After this comparison authors seek to define the missing from the frameworks skills that can be recommended for GovTech specialists to possess. Given the variety of areas of expertise where GovTech faces challenges it is recommended to design a collective competence framework on a team and/or organisation level.

Keywords: Govtech, Sustainable development goals, Skills framework

INTRODUCTION

Technological transformation is increasing at an exponentially fast pace. The UN Sustainable Development Goals (SDGs) have a variety of targets that digital transformation can help with. As governments attempt to cope with the pace of technological change, they have recognized the utility of GovTech for developing in the direction of the SDGs. For GovTech to be effective and scalable though, there is need for competent employees in the skills and competences which comprise GovTech, especially in data-driven and relatively new technologies.

Because of the high stakes, a framework is necessary to determine relevant skills that employees engaged in GovTech initiatives can learn. Some competence frameworks identify high level skills like critical and systems thinking. However, in addition it is helpful to have a framework that identifies and defines more detailed and specific skills for GovTech professionals, which can be later used for employment and education purposes. European key competence frameworks are expected to be used flexibly and be adapted for the needs of the users (Bacigalupo, 2022).

The fact that GovTech projects have the potential to have a leveraged effect on the populace of a country requires that people employed in creating these solutions are also able to understand the application and that they will be responsible for ensuring that data driven projects empower humans and do not perpetuate historic biases. This creates an environment in which, to follow the guidelines of the SDGs, projects must have the capacity to not only create a solution, but also have the appropriate ethical and trustworthiness audits and data protection controls.

GovTech is at this point an under-researched area of the academic literature. There is no unanimous understanding of the term GovTech (Bharosa, 2022). Whether the definition of GovTech is a private sector company, a technology, or a public approach toward using technology in government this brings certain concerns regarding incentives that have ramifications for the skills necessary for successful public-private partnerships. When a private sector corporation is engaged to produce a project or piece of software for a government entity, there are many issues that are relevant to the ethical and fair treatment of citizens. Any employee of the government or the private sector company in this case should have certain skills to ensure that the project is planned, developed, and implemented in a manner that preserves freedoms, data protection, and reaches across digital divides.

GovTech is expected to strengthen public services in multiple ways transforming education and culture, health and social care and improving public spaces (Kilian et. al., 2022). The estimated global GovTech market size was valued at USD 430,872.4 million in 2021 and is expected to expand at a compound annual growth rate of 15.56% during the forecast period. This means it will reach USD 1,026,110.6 million, which is USD 1.026 trillion by 2027 (Govtech market size with emerging trends 2022). The GovTech Market in Europe in 2022 was estimated to be somewhere in the range of 166 Billion Euro (Allen, 2022). Despite the potential to grow, GovTech is facing a number of challenges related to procurement, protection of digital assets, employing all kinds of modern technologies (Kilian et. al., 2022) and others, which will be explained in more detail further.

Business activities are expected to be aligned with the sustainable development goals. It especially concerns GovTech as these companies are inferred to provide services for common good. One way to make sure that change toward sustainable development is taking place is by having partnerships of government and business that are based on long-term goals, create shared value, and are scalable and transformative (Dauliyeva et al., 2020) (Kilian et. al., 2022). Running a GovTech business in accordance with SDGs requires not only general awareness about sustainability matters, but also more concrete knowledge and skills.

Traditional competency frameworks have some flaws like being disconnected from the job market and excessive granularity of skills (Huneety, 2022). Fast technological development contributes to the necessity to acquire new skills faster and adapt to the changes all the time. Multiple frameworks are developed in order to understand what qualities, knowledge, skills, attitudes and values need to be present in the specialists hired for a specific job. A lot of them end up being too generic and do not reflect the needs of the industry. This paper aims to define recommended skills for GovTech specialists that aid in achieving the SDGs.

Pursuing this aim, the authors address the following research questions:

1. What are the challenges that GovTech face?
2. What skills are required from GovTech professionals given the industry challenges and the necessity to achieve SDGs?

METHODOLOGY

In order to address research question 1, content analysis methodology has been used. Content analysis represents examination of the data to extract pieces of information and make realistic conclusions from it. (Bengtsson, 2016). To map the state-of the-art we consider two sources. First, mapping of the scientific literature on the topic is retrieved from a scientific database Scopus. Second, practitioner sources have been analysed.

The second step was checking if existing skills frameworks address the challenges that GovTech industry is up against. Since GovTech embraces several spheres like public service, entrepreneurship and technology which demand varied skills, and also taking into account the necessity to address sustainability issues, the authors have picked four skills frameworks, Skills for a High Performing Civil Service by OECD, EntreComp, DigComp and GreenComp under the aegis the European Commission. GreenComp with its wording of skills can be applicable to the sustainable development goals in general.

Researchers analysed the skills frameworks and compared them against the specific challenges facing GovTech professionals. Based on the defined gaps in skills frameworks that can address the specificity of the work of GovTech professionals, the search of the European skills, competences and occupations classification (ESCO)was conducted to understand if there are any existing defined skills that could fill in the skills gaps.

After that the authors suggested the skills corresponding with the challenges that have not been addressed by any of the analyzed frameworks.

Table 1. The list of documents selected for content analysis.

Author	Title
Bharosa N.	The rise of GovTech: Trojan horse or blessing in disguise? A research agenda
Public	GovTech in the Netherlands: building a leading GovTech nation
World Bank	GovTech Maturity Index
Joint Research Centre	GovTech Practices in the EU
Bennett Institute for Public Policy Cambridge	Thinking about GovTech: A Brief Guide for Policymakers
Nordic Council of Ministers	GovTech in the Nordic-Baltic region

RESULTS

As a result of content analysis 15 challenges have been identified. After that the four selected skills frameworks have been checked to understand how they address the current needs of the GovTech industry. Only five of the identified challenges had corresponding skills in the existing skills frameworks, which confirms that skills frameworks often do not go in line with the requirements of the industry.

After searching ESCO classification researchers have found skills that correspond with four other challenges (Table 3).

Table 2. Comparison of the GovTech challenges with the skills frameworks.

Challenge	Corresponding skills	Skills framework
Knowledge and skills	Continuously learning	Skills for a High
	Teaching lessons	Performing Civil Service
	Learning through Experience	EntreComp
Culture mismatch	Building alliances	Skills for a High
	Working with unusual partners	Performing Civil Service
	Teamup, collaborate and network	EntreComp
	Working with others	EntreComp
	Ability to interact, communicate and collaborate with others through the use of digital technologies, taking into account cultural and generational diversity	DigComp
Funding and resource allocation	Mobilizing resources	EntreComp
	Financial and Economic Literacy	
	Mobilizing others	
Fear of failure	Trying things out that might not work	Skills for a High Performing Civil Service
Risk mitigation	Taking risks, but not with time and money	Skills for a High Performing Civil Service
	Coping with Uncertainty, Ambiguity and Risks	EntreComp

Table 3. Skills from ESCO that correspond with the GovTech challenges.

Challenge	Skill	ESCO description
Procurement	Implement sustainable procurement	Incorporate strategic public policy goals into procurement procedures, such as green public procurement (GPP) and socially responsible public procurement (SRPP). Contribute to reducing the environmental impact of procurement, to achieving social goals and to improving value for money for the organisation and for society at large.
Trust	Build trust	Express intentions and behaviour in a coherent and transparent manner, inviting reciprocity and establishing the grounds for a trusting and reliable connection between people and teams
Strategy	Apply strategic thinking	Apply generation and effective application of business insights and possible opportunities, in order to achieve competitive business advantage on a long-term basis.
	Develop strategy to solve problems	Develop specific goals and plans to prioritise, organise, and accomplish work.
Scalability	Strive for company growth	Develop strategies and plans aiming at achieving a sustained company growth, be the company self-owned or somebody else's. Strive with actions to increase revenues and positive cash flows.

Table 4. Recommended additional skills for GovTech professionals.

Legacy Technology	Legacy systems migration and integration skills
	Applying legacy systems modernization strategies
Accountability for the service provisions	Interacting with government institutions
	Managing legal and other documentation that defines accountability
Dealing with competition especially from well-established IT companies	Identifying competitors
	Defining competitive advantages
	Presenting solutions that meet requirements of procurement procedures and documentation
	Finding and forming strategic alliances across spheres
Effective regulation	Participating in government decision-making and legislative processes
	Presenting the position of the company in government agencies in a way understandable by government officials
	Making use of existing preferable regulations and legal sandboxes
Fragmentation and duplication of effort, services, processes, and systems	Breaking down organizational siloes
Cross-border harmonisation	Knowledge and application of cross-boundary interoperability legislation/models

As there were challenges that existing frameworks and classifications did not address, the authors have constructed recommendations through their analysis that helps to mitigate issues related to the challenges faced by GovTech companies.

As it is shown in Table 2, GreenComp does not address specifically any of the challenges. The reason for that may lay in the fact that GreenComp comprises very high-level skills, like, for example, systems thinking and exploratory thinking. Also, it is worth noting that even though GreenComp does not address the current GovTech challenges, it can still be useful in determining the competences needed by GovTech professionals.

Literature that would connect GovTech to SDGs is almost entirely missing. Recent research has identified that some SDGs like zero hunger (SDG 2), quality education (SDG 4), and life below water (SDG 14) are left out in the digital government literature (Medaglia, Misuraca and Aquaro, 2021). Digital government instruments are proven to inform targets from seven SDGs, namely, no poverty (SDG 1), quality education (SDG 4), gender equality (SDG 5), affordable and clean energy (SDG 7), decent work and economic growth (SDG 8), industry, innovation and infrastructure (SDG 9), peace, justice and strong institutions (SDG 16), partnerships for the goals (SDG 17) (Marcovecchio et al., 2019). The UN e-Government survey is expected to provide a deeper exploration of how digital government influences all SDGs in addition to focusing on SDG 16 and SDG 17 (Misuraca, Medaglia and Aquaro, 2021).

Taking into account the imbalance in how GovTech addresses different SDGs, the most relevant competence that GovTech professionals are likely to

need is systems thinking, which according to GreenComp is "to approach a sustainability problem from all sides; to consider time, space and context in order to understand how elements interact within and between systems".

The list of challenges and potential skills suggests that it is reasonable to look into collective competences framework as the skills belong to different areas of expertese from technology to law and marketing.

As for sustainable development skills and their place in the set of competences of GovTech specialists, in the way they are listed in the GreenComp, they can serve to connect and complement the other skills. At the same time, sustainable devlopment skills can potentially be defined in a more granular way that addresses issues connected with specific goals or going into more details and explores the interconnectedness of SDGs.

DISCUSSION AND CONCLUSION

Competence and skills frameworks are viewed as the tools to define and evaluate an individual's performance, guide employers in describing jobs and employees on potential development. The problem of skills frameworks is finding the balance between going too much into detail when describing skills and being too broad and use the skills that are applicable to any person in general regardless of their profession. This also leads to the problem of skills and competences frameworks being not in connection with the modern requirements of the industry.

In attempt to connect the requirements of the GovTech industry with the existing skills and competences frameworks, it has been demonstrated that existing frameworks do not address a lot of the issues or are using the wording of skills that is too abstract to help either employers or employees. The authors suggested a list of skills that addresses the challenges of GovTech, which, however, need to be in the future embedded into a more comprehensive framework that would include more general skills as well.

Taking into account the multitude of areas of challenges the industry faces, it is impossible to have a single employee that would be able to address all of them. Therefore, collective skills frameworks on the team level and on the organizational level should be considered. Some skills will be required from any GovTech specialist, for example those related to the problem of culture mismatch between public and private sector employees and the fear of failure.

REFERENCES

Allen, P. (2022) *The rise of GovTech: Why startups should work with governments (sponsored): EU-Startups*, *EU*. Available at: https://www.eu-startups.com/2022/08/the-rise-of-govtech-why-startups-should-work-with-governments-sponsored/ (Accessed: January 30, 2023).

Bacigalupo, M., 2022. Competence frameworks as orienteering tools. *RiiTE Revista Interuniversitaria de Investigación en Tecnología Educativa*, pp. 20–33.

Bengtsson, M (2016) *How to plan and perform a qualitative study using content analysis, NursingPlus Open*, Volume 2, 2016, Pages 8-14, ISSN 2352-9008, https://doi.org/10.1016/j.npls.2016.01.001

Bharosa, N. (2022). 'The rise of GovTech: Trojan horse or blessing in disguise? A research agenda', Government Information Quarterly, DOI: 10.1016/j.giq.2022.101692

Dauliyeva, G, Yeraliyeva, A, Sadykhanova, G, Bimendiyeva L 2020 *The partnership of governments for sustainable development.* Proceedings of the 1ˢᵗ International Conference on Business Technology for a Sustainable Environmental System (BTSES-2020) (BTSES-2020) viewed January 30, 2023

Dener, C. *et al.* (2021) *GovTech Maturity index*, *Open Knowledge Repository*. Washington, DC: World Bank. Available at: https://openknowledge.worldbank.org/handle/10986/36233 (Accessed: January 30, 2023).

DigComp (no date) *EU Science Hub*. Available at: https://joint-research-centre.ec.europa.eu/digcomp_en (Accessed: January 30, 2023).

ESCO (no date) *The European Commission*. Available at: https://esco.ec.europa.eu/en (Accessed: January 30, 2023).

Govtech in the Nordic-Baltic region (no date) *Nordic cooperation*. Available at: https://www.norden.org/en/publication/govtech-nordic-baltic-region-part-1 (Accessed: January 30, 2023).

Govtech market size with emerging trends 2022: Top key players updates, business growing strategies, competitive dynamics, industry segmentation and forecast to 2027 (2022), Digital Journal. Available at: https://www.digitaljournal.com/pr/govtech-market-size-with-emerging-trends-2022-top-key-players-updates-business-growing-strategies-competitive-dynamics-industry-segmentation-and-forecast-to-2027 (Accessed: January 30, 2023).

GreenComp: The European Sustainability Competence Framework (no date) *EU Science Hub*. Available at: https://joint-research-centre.ec.europa.eu/greencomp-european-sustainability-competence-framework_en (Accessed: January 30, 2023).

Huneety, S. (2022) *Why traditional competency frameworks don't work*, *Huneety*. Available at: https://www.huneety.com/competency-frameworks/ (Accessed: January 30, 2023).

Kilian, M, Raghavan, P, Alles, A. *Advancing the GovTech trend will strengthen public services* (no date) *World Economic Forum*. Available at: https://www.weforum.org/agenda/2022/12/how-making-the-most-out-of-govtechs-boom-will-strengthen-public-services/ (Accessed: January 30, 2023).

Kuziemski, M. *et al.* (2022) *GovTech practices in the EU*, *JRC Publications Repository*. Available at: https://publications.jrc.ec.europa.eu/repository/handle/JRC128247 (Accessed: January 30, 2023).

Marcovecchio, I., Thinyane, M., Estevez, E. and Janowski, T., 2019. Digital government as implementation means for sustainable development goals. *International Journal of Public Administration in the Digital Age (IJPADA)*, 6(3), pp. 1–22.

Medaglia, R., Misuraca, G. and Aquaro, V., 2021, June. Digital government and the united nations' sustainable development goals: Towards an analytical framework. In *DG. O2021: The 22nd Annual International Conference on Digital Government Research* (pp. 473–478).

Ministerie van Algemene Zaken (2021) *GovTech in the Netherlands: Building a leading Govtech Nation*, *Report | Government.nl*. Ministerie van Algemene Zaken. Available at: https://www.government.nl/documents/reports/2021/06/30/govtech-in-the-netherlands (Accessed: January 30, 2023).

Misuraca, G., Medaglia, R. and Aquaro, V., 2021, October. Re-designing the UN e-Government Survey in light of the 2030 Agenda for Sustainable Development: Towards a post-COVID digital society. In *Proceedings of the 14th International Conference on Theory and Practice of Electronic Governance* (pp. 198–202).

Skills for a high performing civil service (no date) *OECD*. Available at: https://www.
   oecd.org/gov/skills-for-a-high-performing-civil-service-9789264280724-en.htm
   (Accessed: January 30, 2023).

The European Entrepreneurship Competence Framework (EntreComp) (no
   date) *The European Entrepreneurship Competence Framework (Entre-
   Comp) - Employment, Social Affairs & Inclusion - European Commission*.
   Available   at: https://ec.europa.eu/social/main.jsp?catId=1317&langId=en#:
   \protect$\relax\sim$:text=EntreComp%20is%20a%20free%2C%20flexible,pr
   actice%20to%20develop%20entrepreneurial%20skills (Accessed: January 30,
   2023).

Thinking about GovTech: A Brief Guide for Policymakers (2022) *Bennett Institute
   for Public Policy*. Available at: https://www.bennettinstitute.cam.ac.uk/publica
   tions/thinking-about-govtech-brief-guide-policymakers/ (Accessed: January 30,
   2023).