



DIGITAL LITERACY



PUBLIC GOVERNANCE



INNOVATION

Think Tank on Digital Competencies Development
in public administration with a special focus on the
Croatia



20th March 2026

National School for Public Administration, Croatia, Zagreb



Executive summary

In this report we compare the digital competence development journeys of Finland and Croatia, moving beyond the question of whether such development has been "sacrificed on the altar of productivity growth" to reveal a more complex reality. Finland's global leadership in digital public services coexists with hidden fractures: hybrid work erodes social cohesion and informal learning, while its vaunted "Agentic State" risks leaving some civil servants behind. Croatia, meanwhile, has built an impressive strategic architecture—the Digital Croatia Strategy, a sophisticated Competency Model, and a National Roadmap with substantial investments—yet faces an implementation gap where policy has outpaced operational reality.

The central insight from this report is that productivity gains without corresponding human investment create an illusion of efficiency. The real challenge is not a binary choice between productivity and people, but a failure to integrate them. This is vividly illustrated by the findings from the Croatian think tank and World Café discussions (Chapter 5), which provide a practitioner-led roadmap for closing this gap.

Key Findings from Practitioners:

- **The Competence Gap is Strategic, Not Basic:** While basic digital skills are present, Croatian civil servants identified a critical shortage of AI literacy, data analytics, and digital service design capabilities. This is not a training pipeline issue but a strategic gap to aligning competency development with the demands of a digital-first administration.
- **The Implementation Gap is a Leadership Gap:** Practitioners revealed that a manager's mindset is the single most critical variable. The perception of unbalanced investment in technology over people stems from a lack of leadership that fosters a learning culture, moves beyond compliance-driven training, and champions the practical application of new skills.
- **E-Learning Must Be Practical, Not Just Accessible:** While e-learning is efficient, it is widely criticized as being too theoretical and compliance-oriented. Practitioners call for a shift from course completion to practical application, using AI to create personalized, job-relevant learning paths that build demonstrable capabilities.
- **The Enduring Importance of Human Competencies:** As AI is integrated, practitioners strongly emphasized that critical thinking, ethics, empathy, and creativity are not just desirable but essential. The future role of civil servants, trainers, and managers is to complement AI by focusing on uniquely human judgment, ethical reasoning, and relational skills.

The think tank concludes that closing Croatia's digital competence gap requires a fundamental shift from viewing digitalization as a technical upgrade to treating it as a profound organizational and cultural transformation. The key to this transformation lies in a new set of priorities:

- **Managers as Active Leaders:** The single most critical factor is moving from managers as administrators to managers as active leaders who are responsible for translating strategic goals into individual competency development and for creating an environment where people feel safe to learn and experiment. They must be the "torchbearers" of change.
- **From Compliance to Strategic Competence:** Institutional training must move beyond traditional, procurement-driven needs assessments to a strategic competence planning model. Competencies must be defined by the organization's strategic goals, not the latest trend.

- **Making E-Learning Practical:** The success of e-learning will be determined by its direct link to real work tasks, interactivity, and continuous updating based on evolving needs. AI should be used to make this learning personalized and applied.
- **Implementation Over Ideas:** The report distinguishes between the "Aristotelian manager," who cares about how things work and takes responsibility for execution, and the "Platonic manager," who is satisfied with the idea of a solution. Digital transformation demands the former.

In essence, the think tank concludes that Croatia has built the house. The challenge now is to teach people how to live in it. This requires a deliberate focus on human-centric leadership, practical learning, and a relentless commitment to implementation, ensuring that digitalisation serves as a tool to empower people and not as a master that overcomplicates their work.

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Remark: The views and opinions expressed in this document can in no way be taken to reflect the official opinion of the Croatian Ministry of Justice, Public Administration and Digital Transformation or National School for Public Administration.

Acknowledgements

This report is the result of a collaborative think tank process examining digital competence development in public administration, jointly organized by the Ministry of Justice, Public Administration and Digital Transformation of the Republic of Croatia, National School for Public Administration and the Finnish experts. We extend our sincere gratitude to all contributors whose expertise, insights, and dedication made this publication possible.

Special appreciation goes to the chapter authors who brought both depth and tone to this comparative analysis: **Ari Sihvola** for initiating the think tank and giving overall insights from global and Finland perspective as well **Riitta Paalanen** for her framework connecting strategic goals to individual competences in the Finnish context.

We wish to thank the experts and practitioners from Croatia who participated in the think tank discussions and world café sessions, sharing their practical experiences and critical reflections on the challenges and opportunities of building digital competencies in public sector environments. Their truthful contributions, reflected in the survey data and world café insights throughout Chapter 5, form the empirical backbone of this report.

We acknowledge the invaluable logistical support of the Croatian National School for Public Administration (NSPA) which institutional knowledge and training expertise informed multiple sections. The AI Index Research Report 2025, conducted by NSPA, provided critical empirical grounding for understanding Croatia's AI readiness challenges.

Zagreb and Helsinki, March 2026

1. Scope of analysis

By benchmarking the experiences of the Finnish digital competence development in public governance, the scope is to:

- Analyse, whether in the current EU and Croatian public governance, the staff's digital competence development has been sacrificed on the altar of productivity growth;
- Analyse the efficiency measures in the administration that have yielded good value for money in terms of developing staff skills;
- Formulate a reasoned opinion on how the now visible disruption can be linked to a new competence development policy in the Croatian PA and in the EU.

And considering the following background information:

According to the **European Commission's "State of the Digital Decade 2025,"**¹ COM(2025) 290 final, Finland continues to lead the EU in several key indicators:

- **Digital Public Services:** Finland scored nearly **100/100** (Croatia 75,2/100) for digital services provided to both citizens and businesses.
- **Human Capital:** Finland has the highest proportion of ICT specialists in the labor force and leads in basic digital skills (approx. **79%** of the population, compared to the EU average of 55%). Croatia 63%.
- **Connectivity:** While Finland is a world leader in 5G and mobile data, the report notes that fixed fiber-optic (VHCN) coverage still lags behind the EU average. For Croatia, area for improvement: The digitalisation of businesses (especially the adoption of AI and cloud services) is Croatia's most significant bottleneck.

In the **2025 IMD World Competitiveness Ranking**², Finland (ranked 14th globally) is ranked **4th in the world** for overall **infrastructure** (ref. Croatia 41st). Key strengths:

- **Technological Infrastructure:** Finland ranks among the best globally for R&D intensity and the availability of skilled engineers.
- **Health and Environment:** Finland's scores are bolstered by high environmental standards, air quality, and universal access to healthcare.
- **Education Infrastructure:** The quality of the education system and its alignment with the digital economy remain world-class.
- **Digital Connectivity:** While mobile data usage is the highest in the world, the report notes that the rollout of high-speed fixed fiber-optic networks is the only minor drag on an otherwise perfect score.

According to the Transparency International's **Corruption Perceptions Index (CPI) 2025**³, Finland ranks 2nd (88/100), Croatia 63rd (47/100), out of 182 countries.

¹ <https://digital-strategy.ec.europa.eu/en/library/state-digital-decade-2025-report>

² <https://www.imd.org/centers/wcc/world-competitiveness-center/rankings/world-competitiveness-ranking/>

³ <https://www.transparency.org/en/cpi/2025>

In the **2025 World Happiness Report**:

Finland remains the **#1 happiest country in the world** (Source: University of Oxford & UN Sustainable Development Solutions Network)⁴ for the 9th consecutive year, with a score of **7.70 (10=max)**.

Croatia 46th with a score of 6,12.

- The report highlights Finland's strong social support, trust between citizens, the freedom to make personal life choices, and low levels of corruption. Additionally, a deep connection to nature and highly functional public services support this overall well-being. Its success is attributed to high social trust, personal freedom, and a stable welfare state.
- Finland's advanced **digitalisation** is considered a core part of its "infrastructure of happiness."
- **Efficiency**: Digital services simplify daily life, reducing bureaucratic stress.
- **Trust**: High-quality e-government minimizes corruption and builds institutional trust.
- **Equity**: Public access to high-tech tools (e.g., in libraries like Oodi) ensures digital equality.
- **Flexibility**: Leading connectivity allows for a better work-life balance, directly contributing to Finland's #1 ranking for the 8th year in a row.

The E-Government Development Index (EGDI)⁵ is a composite measure used in the UN E-Government Survey to assess the digital government performance of Member States, calculated as the weighted average of three normalized components: the Online Services Index (OSI), the Telecommunications Infrastructure Index (TII), and the Human Capital Index (HCI). Based on the 2024 Survey data, here is a comparison of Finland and Croatia:

- Overall EGDI Group and Rank: Finland is in the Very High EGDI group, ranking 9th globally, while Croatia is also in the Very High EGDI group, ranking 32nd globally.
- **EGDI Value**: Finland has a significantly higher EGDI value of 0.9575 compared to Croatia's 0.8818.
- **Online Services Index (OSI)**: Finland scores 0.9097 on the OSI, which is higher than Croatia's score of 0.8735.
- **Human Capital Index (HCI)**: Finland leads with an HCI of 0.9836, while Croatia records 0.8538.
- **Telecommunications Infrastructure Index (TII)**: Finland also outperforms Croatia in TII, with values of 0.9791 and 0.9180, respectively.
- Regional Subregion: Both countries are situated in different subregions of Europe, with Finland in Northern Europe and Croatia in Southern Europe.

The **2023 OECD Digital Government Index (DGI)**⁶ benchmarks the efforts of 33 member countries and several accession and partner countries to establish the foundational elements necessary for a coherent and human-centred digital transformation of the public sector, based on data collected between January 2020 and October 2022. The index assesses maturity across six key dimensions: Digital by Design, Data-driven Public Sector, Government as a Platform, Open by Default, User-driven, and Proactiveness, with the overall OECD average score being 0.605.

- **Overall Composite Score**: Finland achieved a composite score of **0.639**, ranking **12th** among all countries, placing it above the OECD average of 0.605. Croatia scored **0.358**, ranking **34th**, significantly below the OECD average.

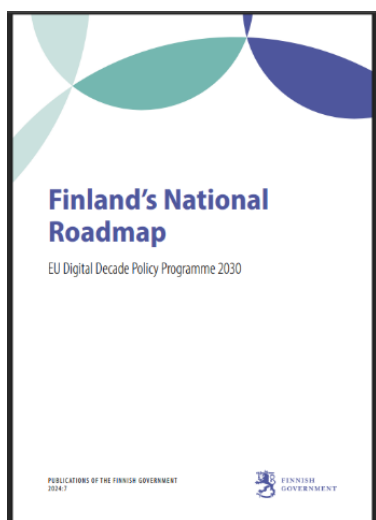
⁴ <https://worldpopulationreview.com/country-rankings/happiest-countries-in-the-world>

⁵ <https://publicadministration.un.org/egovkb/en-us/Reports/UN-E-Government-Survey-2024>

⁶ https://www.oecd.org/en/publications/2023-oecd-digital-government-index_1a89ed5e-en.html

- **Top Performers:** Finland is a top performer in the Proactiveness dimension (score 0.663) and shows balanced strength across most dimensions, though its Open by Default score (0.428) is a relative weakness. Croatia's highest score is in Data-driven public sector (0.535), but it struggles significantly in Proactiveness (0.063) and User-driven (0.269) dimensions.
- **Dimension-Specific Performance:** Finland outperforms Croatia in every dimension, with the largest gaps observed in **Proactiveness** (0.663 vs. 0.063), **User-driven** (0.667 vs. 0.269), and **Digital by Design** (0.721 vs. 0.496). Croatia only approaches Finland's level of performance in the **Open by Default** dimension (0.428 vs. 0.380).
- **Key Qualitative Findings:** Finland is consistently mentioned among the top-ten performers in Proactiveness, indicating a strong capacity to anticipate user needs using data and AI. Croatia, with a composite score of 0.358, falls into the group of countries whose overall indicator value is significantly below the average, independent of weighting schemes, highlighting major challenges in establishing foundational digital government policies.

2. Development of digital skills and public governance in Finland



The Finnish Government's white paper (VNS 10/2022 vp of 20 Oct 2022): Finland's Digital Compass 2030 or Strategic Roadmap⁷ - this is the national strategic roadmap, based on the European Union's Digital Compass. Ref. 2030 Digital Compass: the European way for the Digital Decade" (COM(2021) 118 final of 9 March 2021). Finland was the first EU member state to establish its own national version of this strategy.

- **Target Year:** 2030
- **Core Vision:** Digitalization must serve the people, strengthen economic competitiveness, and support the green transition.
- **The Four "Cardinal Directions" (Strategic Pillars):**
 - **Skills:** A digitally literate population and world-class experts.
 - **Digital Infrastructure:** Secure, high-speed connectivity (such as 5G and fiber optics).
 - **Digital Transformation of Businesses:** Enhancing the AI and data capabilities of SMEs in particular.
 - **Digital Public Services:** The full digitalization of public administration services.

2.1. Key Initiatives and Documents for 2025–2026

The Ministry of Finance⁸ and the Digital and Population Data Services Agency (DVV) are implementing the roadmap through several major programmes:

- **Digital-First Government Communication⁹ (2026):** Starting in early 2026, official government correspondence (such as decisions and invoices) will be primarily digital-first for those who use digital services. This is backed by a formal Government Proposal and a legislative project prepared by the Ministry of Finance.
- **European Digital Identity Wallet:** Finland is currently developing a national "identity wallet" app, scheduled for launch in 2026.
- **Life-Event Driven Services¹⁰:** A strategic paper titled *Target 2025 – Human-centric, Efficient, and Secure Public Administration* outlines that services should be built around a citizen's life events (e.g., "birth of a child" or "death of a loved one") rather than based on individual government agencies.

⁷ <https://julkaisut.valtioneuvosto.fi/server/api/core/bitstreams/c193a20b-672a-4314-bc7a-fe6908b0dc8c/content>

⁸ <https://vm.fi/julkisen-hallinnon-ict>

⁹ <https://dvv.fi/en/digital-first-project>

¹⁰ <https://vm.fi/elamantapahtumalahtoinen-digitalisaatio>

2.2. Key insights for developing digital competencies within the constraints of productivity growth requirements in Finnish public governance

a) Insights related to the question, whether in the current EU and Croatian public governance, the staff's digital competence development has been sacrificed on the altar of productivity growth.

- OECD frequently emphasizes that while digital tools are implemented to boost productivity, the "human factor" is often treated as a secondary operational cost rather than a strategic asset. Short-term fiscal targets often kill long-term skill building.
- In the EU's modernisation & cohesion policy, infrastructure gets the budget; people get the leftovers.
- Finnish public administration (Ministry of Finance) emphasizes *well-being at work* as a prerequisite for productivity, yet the social and health care reform SOTE (2022) and municipal reforms show that rapid system changes can outpace staff's ability to adapt.
- In Finland, the aging demographic of the workforce means that if productivity pressure increases too sharply, the "digital leap" (*digiloikka*) may leave a significant portion of the staff behind, leading to attrition rather than growth.
- During the 2010's and on, Finland has transitioned from "digitising paper" to an "Agentic State" model, where AI and automation act proactively.
- Productivity paradox in Finland: while aggregate public sector growth is modest, specific agencies (e.g. FIN Tax Administration) show massive efficiency gains. Taxpayers thank!
- Finland ranks #1 in the EU for Digital Public Services (DESI/Digital Decade 2025).

b) Insights related to the efficiency measures in the administration that have yielded good value for money in terms of developing staff skills

- The Finnish Government's launched in 2018 an e-learning platform (eOppiva) for all civil service (80.000 staff). By 2025, a total of 919.581 training courses have been completed and 316 programmes published. Unit price for one training is 3,8 €. A staggering improvement in productivity compared to the old training day price of 500 €/participant in 2018!
- Feedback from training participants: NPS (Net Promoter Score) 61 (100=max). Another excellent result!
- However, no study has been conducted on the effectiveness of e-learning (e.g., according to Kirkpatrick's model).
- With the pandemic in 2020, all Finnish government training went virtual, using Teams. Financially, this was a jackpot for HAUS Finnish Institute of Public Management: course costs became minimal, while agencies continued to pay the pre-pandemic participation fees.
- Virtual training was implemented as planned for classroom training, including group work. Results improved, but dialogue during group work remained formal, with no real engagement emerging. However, the staff gradually got used to virtual learning, since, after all, there was no other option available during the pandemic.
- The concept of designing e-learning programmes dates to 2018, though. Eight years is a long time in the evolution of digitalisation.
- Due to the evolution of work caused by artificial intelligence, the old concept of e-learning program design will inevitably have to be changed. The objectives, structures, and content of training must be designed to be compatible with the competence development requirements set for staff by the 'Agentic State' policy.

c) Insights related to the formulation of a reasoned opinion on how the now visible disruption can be linked to a new competence development policy in the Croatian PA and in the EU.

- Competences development of staff must be derived from the organisation's strategic plans. Individuals have their own development needs, though.
- In the era of AI, we need data scientists, machine learning engineers, service designers, AI ethics and compliance officers, platform owners, specialists, legal experts, and strategic analysts.
- Altar of productivity: If digital tools are used only to monitor performance or speed up repetitive tasks without reducing the overall workload, it leads to exhaustion.
- Short-term productivity gains achieved through intensification often lead to long-term systemic failure due to high staff turnover, sick leaves, and the loss of institutional memory.
- It is the manager's responsibility to foster a culture of success. When employees excel in their roles, they are justifiably entitled to anticipate positive outcomes.
- Due to the pandemic, Finland's public administration switched entirely to remote working (2020). Digitalisation made this possible. After the pandemic, employers have found it difficult to get employees back to the office. At the same time, property management has reduced the size of government offices. Today, workspaces are sized for 28 percent of employees. Several agencies are located on the same premises and offices. In early 2026, the government issued a recommendation that employees should be in the office 12 working days per month (an average of 3 days per week). Agencies are resisting, as employees consider remote work to be an acquired benefit. Hybrid work is commonplace. The employer has effectively lost part of its right to supervise work (known as the right of direction).
- Remote work has increased productivity and flexibility in balancing everyday life and work obligations. On the other hand, remote work has weakened learning from others at work and the collaborative development of the organisation's operations. Remote work has also been reported to increase feelings of loneliness and isolation (Ref. The Finnish Institute of Occupational Health¹¹, Tampere University¹², and HelsinkiMissio 2024 and 2025¹³).
- According to studies (University of Turku 2025¹⁴), remote work has reduced employees' daily physical activity. People walk less at home than at the office, commuting has disappeared, and teams meetings keep employees glued to their chairs for long periods of time. On average, remote workers get 24 minutes less light physical activity than office workers and 7 minutes less vigorous physical activity than before.
- According to studies (Statistics Finland and University of Turku¹⁵, Finnish Institute of Occupational Health, and University of Eastern Finland¹⁶), women work remotely more than men on average in order to balance work and family life. With remote work, physical activity at work has decreased and eating habits have become less healthy¹⁷.

¹¹ <https://www.ttl.fi/sites/default/files/2026-03/miten-suomi-voi-tuloskooste-maaliskuu-2026.pdf>

¹² <https://www.tuni.fi/fi/ajankohtaista/tutkimus-paljastaa-etatyon-vaikutukset-yhteisollisyyteen-ja-sosiaaliseen-tukeen>

¹³ <https://www.helsinki-missio.fi/mielipide/pakko-vain-parjata-tyoyhteisojen-on-aika-valittaa-nuorten-tyoyksinaisydesta/>

¹⁴ <https://www.utu.fi/fi/ajankohtaista/mediatiedote/etatyo-passivoi-tyontekijaa-turun-yliopiston-tutkimus-kannustaa>

¹⁵ <https://stat.fi/tietotrendit/artikkelit/2025/Etaetyoen-tekeminen-vaeheni-vuonna-2024-mutta-vain-aavistuksen>

¹⁶ <https://erepo.uef.fi/server/api/core/bitstreams/289a1ac2-fe36-4e1d-bd5c-f0449cd97d0a/content>

¹⁷ <https://www.medrxiv.org/content/10.1101/2025.11.11.25339977v2.full>

2.3. From Strategic Goals to Individual Competences: A Framework for Competence Development in Finnish Public Administration

To effectively link strategy to individual performance, an organisation must first ask itself fundamental questions about its **current state and future needs**. It must understand what it currently knows about its workforce and how it maps and monitors competences within the organisation. It must identify what competences are present now and what will be required in the future. Finally, and most critically, it must determine if competences are actively led within the organisation and by whom.

A business strategy only becomes reality when its objectives, projects, and required competences filter down to the individual employee level. This is achieved through **three aligned channels**. First, strategic objectives cascade down to the unit level, then to the group level, and finally shape the objectives and job profiles of individual employees. Second, strategic competences are defined for the organisation, then specified for each unit and group, ultimately defining the competences required of each individual. Third, strategic development programs are created to directly support the achievement of these goals. In essence, strategic goals are achieved only when they become real on the individual level.

Effective competence development is built on a foundation of four key elements. The vision and strategy provide the long-term direction and goals of the organisation. Changes in the working environment, both external and internal, create new demands. The rules of procedure establish the formal structures and guidelines of the organisation and its departments. Finally, the active leading of competence development, including regular performance appraisals, is essential to guide growth. A key reminder in this process is that teaching is not the same as learning; providing training does not guarantee that competence is acquired.

Successful competence management is a shared responsibility across the organisation. Top management is responsible for defining strategic objectives and setting priorities. The Human Resources unit handles overall HR planning, including employee numbers and structure, supports recruitment, coordinates resource allocation, and maintains HR statistics such as training data. The training unit or service provides relevant competence development services based on identified needs, utilising various pedagogical tools and methods while conducting annual training needs appraisals. Superiors or managers are directly responsible for achieving their unit's objectives and for the competences of their employees, with a key task being the carrying out of regular performance appraisal discussions. Ultimately, employees are responsible for their own work performance and their own professional development.

To ensure the system is working, organisations must regularly ask critical questions. Regarding communication, how does top management communicate strategic objectives to employees, and is there a clear process for this? Concerning middle management, do they fully understand their role in ensuring competences within their own activity, and what methods are they using? On the topic of key competences, is there a clear understanding of the competences needed for various activities now and in the near future? In terms of action and delivery, what steps are being taken to ensure new competences are developed, and who is delivering the necessary training? The challenge of digital government is particularly pressing, as it requires new ways of working for the majority of public administration employees. While some skills are relevant to all, others require highly-skilled professionals, and organisations must determine how to ensure that all relevant competences are present.

Training Needs Analysis, or TNA, is a systematic process that analyses the current skills and competences in an organisation against its key objectives. TNA supports the organisation in meeting its business goals and is an essential element of the annual planning cycle. It requires the active participation of various stakeholder groups for the best possible outcome. A competence is defined as a combination of knowledge, skills, and attitude—in other words, what an employee knows, what they can do, and the mindset they bring. This combination is what is needed to carry out one's tasks effectively. The TNA process involves several key elements. It begins with planning, which includes agreeing on the roles and timetable for the process. The analysis phase involves examining the vision, strategic objectives, and operational tasks of the organisation both now and in the future. This phase also links performance appraisal discussions with the TNA process, analyses current competency needs of different job profiles, and identifies the key competences for each role. Following this, a gap analysis is conducted to compare current and future competency requirements. The final stage is action planning, where the organisation plans concrete steps for competency development, creating a competence development plan. This includes the strategic decision of whether to obtain emerging new competences by training current staff or through new recruitments.

According to Professor Satu Lähteenmäki from the Turku School of Economics, **competence management is an ongoing cycle** that connects organisational strategy with individual growth. The cycle is driven by the organisation's vision, values, and strategy. At the organisational level, competency needs are defined. This leads to the mapping of current competencies and the planning of individual career paths, taking into account an individual's objectives in work and private life, their strengths and weaknesses, and their motivation. From there, action is taken through strengthening the characteristics of a learning organisation and providing training and other means of competency development. The cycle is formalised through a development agreement and plan based on shared objectives and needs.

This entire cycle is influenced by the organisation's core tasks, strategic objectives, and changes in the working environment. It ultimately seeks to answer fundamental questions: Where are we aiming at? What is going to change? And what competences are needed as a result?

Managers play a crucial role in navigating a dynamic landscape where some tasks remain the same, new tasks evolve, and some tasks are no longer needed. They must also address the challenge of skills being lost through e.g. retirement even when those skills may still be needed. Furthermore, the interplay between an employee's skills and the challenges they face directly impacts their motivation and wellbeing. As described in a model by Markku Ojanen in 2005, when an employee has good skills but faces only minor challenges, they may experience boredom. When good skills are matched with a major challenge, they enter a state of flow and engagement. Conversely, weak skills combined with a minor challenge can lead to apathy, while weak skills facing a major challenge result in anxiety and stress. This model shows that for employees to be in a state of flow, managers must work to ensure their skills are matched to a significant but manageable challenge, avoiding the extremes of being overwhelmed or under-stimulated.

Developing skills and managing competences is a continuous process rooted in the organisation's foundation. The basis for this work is the organisation's vision and strategies, changes in the operating environment, and its rules of procedure. This requires active leadership in the management of skills development, including performance reviews. It also demands a variety of methods, grounded in the understanding that teaching is not the same as learning. The ultimate goal is to create a clear map of competences—encompassing knowledge, skills, and attitude—that shows a definitive path from the organisation's highest strategic goals to the daily reality and development of every individual employee.

2.4. Wellbeing at Work: A Foundation for Competence Development

Wellbeing at work is a multifaceted concept that extends beyond simple job satisfaction. According to the Finnish Ministry of Social Affairs and Health, it consists of the work itself, its meaningfulness, the health of the employee, work safety, and the overall wellbeing of the employee. This state of wellbeing is not achieved by chance; it is actively increased by good and motivating management and leadership, a positive working atmosphere, and crucially, the competences of the employees. When employees feel that their skills are valued and they are capable of meeting their job's demands, their overall wellbeing is enhanced.

The growing interest in employee wellbeing over the past 20 years is backed by scientific research and practical projects that have developed methods for monitoring and evaluation. The business case for focusing on wellbeing is clear: **employees who feel well are more productive, take fewer sick leaves, and have fewer other absences from work.** For organisations, this translates directly into more consistent operations and retained institutional knowledge, which is essential for long-term competence management.

A wellbeing employee is the product of several interconnected factors. Work must be motivating, which requires that the employee's competences match the requirements of the work. This fit is fundamental; when there is a gap, it leads to stress and inefficiency. Wellbeing is further supported by the possibility to develop oneself, ensuring that work-safety and occupational health are taken care of, experiencing fair and motivating management and leadership, enjoying an open and good working atmosphere in the team, and maintaining a healthy balance between work and private life. The opportunity for continuous learning and self-development is a key driver of this overall sense of wellbeing.

A comprehensive model of wellbeing at work, drawing from sources such as Docendum.fi, Marja-Liisa Manka (1999-2016), and Luomala, Manka & Nuutinen (2008), illustrates the various forms of capital that contribute to it.

Structural Capital (Organization & Work): This includes a goal-directed organisation with a clear vision and flexible structures that allow for knowledge exchange and participation. A functional and safe work environment is also key. Regarding the work itself, structural capital means providing employees with opportunities to influence decisions, ensuring the work has incentive value through learning and versatility, and offering fair external remuneration, such as rewards for good work and possibilities for career advancements.

Social Capital (Leadership & Work Community): This involves involved and encouraging leadership, where managers guide, instruct, and listen to their employees with fairness and trust. Performance management through giving feedback and encouragement is vital. Within the work community, open interaction, mutual help, appreciation, and trust form the basis for a functional group that takes responsibility for achieving objectives.

Psychological Capital ("I myself"): This refers to the employee's own health, physical condition, life management skills, and attitudes. It is the internal resource an individual brings to their work.

All these factors, including external influences like customers, interact to determine an employee's overall wellbeing. Notably, competence development is woven throughout this model—from the organisational learning infrastructure and rewarding for learning, to the individual's own desire to learn and accomplish.

National legislation, such as the Acts on Working Time, Occupational Health and Safety, and Non-discrimination, serves to guarantee a certain minimum level for wellbeing at work. These laws support employee safety and aim to minimise or remove ill-being, providing a foundational baseline upon which organisations can build a positive culture of development and wellbeing.

Leading wellbeing is a systematic and strategic operation to manage and develop wellbeing by influencing the organisation, its human resources, and the competence and know-how of its employees. Top management commitment is crucial, as it forms the basis for looking after competence management. This includes solving situations arising from retirements and sick leaves, making operations goal-directed, and assessing the achievement of goals as part of strategic leadership. When leaders prioritise wellbeing, they create an environment where competence development can thrive.

Ultimately, wellbeing at work is a key driver of organisational success. (Source: Ojala, Leenamajja 2003). An organisation that systematically develops its employees' competences while simultaneously fostering their wellbeing creates a virtuous cycle. Skilled and well employees are more engaged, innovative, and committed, leading to better performance and achievement of strategic goals.

Various tools are available to measure wellbeing at work. Surveys provide a snapshot of the situation at a particular time, acting like a thermometer. However, the crucial step is planning what will be done after the results are published. Other indicators of wellbeing include the amount of sick-leaves, the number of people leaving the administration, and the general atmosphere at the workplace.



HenkilöstöBaro

In Finland, the Ministry of Finance provides public sector institutions with a common tool called **VMBaro**¹⁸ to measure employee wellbeing annually. Regular surveys make it possible to monitor changes in wellbeing and the results of actions taken. Crucially, after the results are published, a process is started together with the employees to create a Wellbeing at work development plan. Objectives are prioritized, and concrete plans are made to achieve results. This directly links the measurement of wellbeing to a planned development process. If no actions are taken after the survey, the motivation to answer the next one drops radically. The VMBaro survey includes 40 questions grouped into categories such as management, content of work, pay, and critically, "Skills and competencies, learning and updating." By including this category, the tool directly measures employees' perceptions of their own competence development opportunities, making it a key data source for HR and management.

The importance of wellbeing at work is multi-faceted, especially in the context of competence development. Workforce availability and the competition for talent on the labour market mean that organisations must be attractive employers. Wellbeing, which can have different meanings for different age groups, increases in significance in such a competition. An employee who feels well is more productive, satisfied, and innovative. In contrast, exhausted employees may not be willing to utilize their competences and know-how to the fullest to benefit the organisation. This reluctance eventually becomes visible in customer service, both inside and outside the organisation. Therefore, investing in wellbeing is not just a nice-to-have; it is a strategic imperative to ensure that the organisation's full range of competences is actively and enthusiastically applied to its mission.

¹⁸ <https://palkeet.fi/palvelut/henkilostobaro-ja-tutka/>

3. Croatia's Strategic Framework for Digital Competence Development: Policies, Instruments, and Implementation Challenges

This chapter contains key Croatian strategic and legislative documents concerning public administration reform and digital transformation, with a focus on the development of digital competencies for civil servants. The chapter traces the evolution from high-level strategic vision to concrete implementation tools, creating a comprehensive framework for understanding Croatia's approach to building a digitally competent public workforce.

Digital Croatia Strategy until 2032 – The umbrella national strategy defining four strategic objectives for digital transformation across society, public administration, and economy. It allocates approximately HRK 10.7 billion (EUR 1.4 billion) and establishes priority areas including digitalized public administration and developed digital competences for working and living in the digital age.

National Roadmap for the Digital Decade 2030 – Croatia's contribution to EU digital targets, defining national trajectories across twelve goals. It allocates approximately EUR 970 million in investments and includes Measure 10.3 specifically dedicated to strengthening human capacities and training digital competency officers with a budget of EUR 230,929.90.

National Public Administration Development Plan (2022-2027) – The foundational strategic document establishing the vision of a modern, user-oriented, and efficient public administration. It identifies digital transformation and human potential development as twin pillars of reform, with specific targets including increasing e-service users to 75% of internet users and achieving 5.8 billion HRK in administrative relief for businesses.

Civil Servants Act – The legal framework governing employment relationships in state bodies, establishing the centralized recruitment system, competency-based job classification, performance evaluation mechanisms, and provisions for continuous professional development through the National School for Public Administration.

Competency Model – A unified framework defining knowledge, skills, abilities, and expected behaviors across all public administration bodies. It structures competencies into three types (general, managerial, specific) across 14 work areas and 10 job levels, with digital literacy as a required general competency at progressive levels aligned with the ECDL framework.

Guide for Digital Literacy Competency Testing – A practical implementation tool providing a structured, three-level methodology for assessing digital skills based on the European DigComp 2.2 framework. It establishes four testing areas (Information Literacy, Digital Technology, Communication/Security, Digital Content Creation) with 15-item tests and a passing threshold of 8 points.

Ministry of Justice, Public Administration and Digital Transformation organizational decree creating the institutional architecture for digital transformation, including three dedicated directorates and a specific Sector for the Development of Digital Competencies responsible for monitoring policies, implementing programs, and promoting digital skills across society and public administration.

AI Index Research Report 2025 – A critical self-assessment of AI readiness based on responses from 44 institutions and 6,518 employees, calculating Croatia's AI readiness index at 41 (capacity under construction phase). It reveals that while 75% of employees want to use AI, systematic implementation is nearly absent, with 71% lacking knowledge of the EU AI Act and 70% unable to implement AI in their work processes.

3.1. The Digital Croatia Strategy for the period until 2032

The Digital Croatia Strategy for the period until 2032¹⁹ represents Croatia's comprehensive strategic framework for digital transformation across society, public administration, justice, and the economy. Aligned with the European Digital Decade targets and the National Development Strategy 2030, the document establishes four strategic objectives: developing an innovative digital economy, achieving digitalized public administration, deploying very high-capacity networks, and developing digital competences for working and living in the digital age. The strategy emphasizes the application of advanced technologies including 5G/6G networks, artificial intelligence, machine learning, cloud computing, big data analytics, and blockchain technologies across both public and private sectors. With an indicative financial framework exceeding 1.4 billion EUR, the strategy prioritizes user-centered digital services organized around citizens' life events and business needs, full interoperability of public registers through the Government Service Bus, comprehensive 5G and VHCN coverage, and systematic development of digital skills from basic literacy to advanced ICT specialization, while adhering to cybersecurity principles, environmental sustainability, and the "once-only" principle for data provision.

The strategy addresses **civil servants' digital competencies** through comprehensive organizational and individual capacity building measures within the digitalized public administration objective. Priority area 2.1 focuses on strengthening organizational and institutional capacities by training and strengthening digital competences of public officials for digital transformation needs, acquiring competences necessary for agile operations, and managing projects requiring specialized digitalization methods across all public authorities. **The National School for Public Administration** is designated to develop and introduce training programs on preparing and implementing digitalization activities, initiatives, and projects, potentially through cooperation with NGOs and private sector actors. The strategy mandates continuous investment in officials' acquisition of digital competences, including advanced training in ICT, new technologies, and digitalization project management skills for those working on digital transformation. A competence model will be introduced for redefining knowledge and competences necessary for performing public administration tasks, accompanied by new training programs for developing digital and green competences. The e-Citizens system development requires establishing permanent interinstitutional agile teams for maintaining and upgrading services, necessitating ongoing digital skills development. Special attention is given to training frontline officers to instruct citizens, particularly vulnerable groups, in using digital public services. Cybersecurity training for public officials is integrated into infrastructure development plans, ensuring comprehensive digital competence building across all levels of public administration.

¹⁹ https://mpudt.gov.hr/UserDocImages//RDD/SDURDD-dokumenti//Strategija_Digitalne_Hrvatske_final_v1_EN.pdf



Based on the Report for implementation of the Digital Croatia Strategy for 2023/24²⁰, regarding the development of digital competencies for civil servants in the RRP project: **Introduction of a hybrid work model ("SmartWorking") in public administration**²¹, Ministry of Justice, Administration and Digital Transformation conducted online education for more than five thousand civil servants. Topics covered were digital literacy and IT security. The training was designed to equip civil servants with the necessary skills for hybrid work (a combination of work in the office and remote work), which is always conducted using ICT equipment. The report notes that by introducing this model, the Croatian state administration is confirming its

ability to successfully use digital skills and respond to digital challenges to improve business processes and ensure quality public services.

3.2. National Public Administration Development Plan for the period 2022-2027

The National Public Administration Development Plan for the period 2022-2027²² represents Croatia's strategic framework for transforming its public administration into a modern, efficient, and user-oriented system guided by good governance principles. The plan addresses key challenges including insufficient digitalization, administrative burdens on citizens and businesses, fragmented human resource management, and weak policy-making capacities. Built upon the National Development Strategy 2030 and aligned with the Recovery and Resilience Facility, the plan establishes five specific objectives: user-oriented public administration and efficient service delivery; digital transformation of public administration; development of human potential; strengthening capacities for policy formulation and implementation; and improving the functionality and sustainability of local and regional self-government units. With an indicative budget, the plan emphasizes process optimization before digitalization, the "once-only" principle for data provision, interoperability of registries, and enhanced transparency and accountability mechanisms across all administrative levels.



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<https://mpudt.gov.hr/UserDocImages//dokumenti/Digitalna%20transformacija/Strategije%20digitalne%20Hrvatske//Izvjec%5%A1%C4%87e%20o%20provedbi%20Strategije%20digitalne%20Hrvatske%20za%20razdoblje%20do%202032.%20za%202023.%20i%202024.%20godinu.pdf>

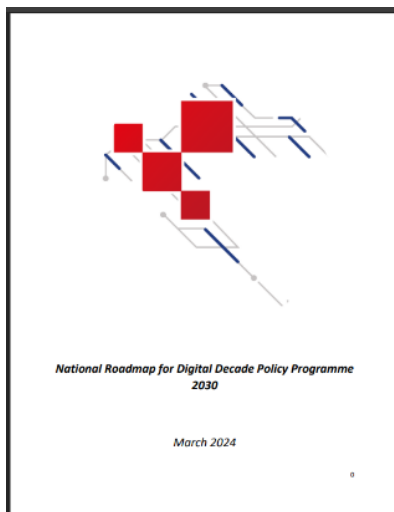
²¹ <https://mpudt.gov.hr/c2-2-r2-i2/27146>

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<https://mpudt.gov.hr/UserDocImages/dokumenti/Strategije,%20planovi,%20izvjec%5%A1%C4%87a/Nacionalni%20plan%20razvoja%20javne%20uprave%20za%20razdoblje%20od%202022%202027.pdf>

The development of digital competencies is addressed through targeted training programs for both civil servants and specific user groups, including the elderly and persons with disabilities who demonstrate lower levels of digital literacy. The plan introduces e-learning platforms for state exam preparation and professional development, replacing traditional frontal teaching methods with interactive multimedia content accessible remotely. A comprehensive competency framework will be established to define required digital skills for various job categories, while new e-learning programs will support continuous professional development. The digitalization of the state examination system through computer-based testing ensures objective, standardized assessment of candidates' knowledge. Additionally, the plan promotes **hybrid work arrangements** requiring both technical infrastructure and digital skills development for effective remote collaboration. These measures aim to build the digital capacity of public administration employees while ensuring citizens can equally benefit from and interact with increasingly digitalized public services.

3.3. The National Roadmap for the Digital Decade Policy Programme 2030



The National Roadmap for the Digital Decade Policy Programme 2030²³ represents Croatia's strategic contribution to achieving the European Union's digital transformation targets by 2030, as established by Decision (EU) 2022/2481²⁴. Building upon the Digital Croatia Strategy until 2032, the document defines national trajectories and targets across twelve digital goals aligned with the EU Digital Compass: digital skills, ICT specialist employment, gigabit and 5G connectivity, semiconductor production, edge nodes, quantum computing, business technology adoption (cloud, big data, AI), SME digital intensity, unicorn growth, online public services, electronic health records, and secure digital identification. The roadmap outlines comprehensive measures totaling approximately EUR 970 million in investments across multiple sectors including education, infrastructure, healthcare,

justice, public administration, and economy. Key initiatives include developing citizens' digital competences, increasing ICT specialists from 3.7% to 7% of the workforce, achieving full VHCN and 5G coverage, digitalizing all public services, establishing a central interoperability system, creating a digital mobile platform, introducing digital identity cards, and participating in eight multi-state projects under the European Digital Infrastructure Consortium framework covering areas such as cancer imaging, genomics, language technologies, blockchain, and local digital twins.

The roadmap addresses civil servants' digital competency development through Measure 10.3 (Strengthening human capacities and training of digital competency officers), which focuses on training officials for public e-service provision and implementing a comprehensive competency model for knowledge and skills redefinition. Drawing from strategic documents and training needs assessments, the measure emphasizes developing digital competencies across five areas: **information processing and IT literacy, communication and collaboration, digital content creation, security, and problem-**

solving. The National School for Public Administration will deliver education programs on digitalization activities, initiatives, and projects, potentially partnering with private and non-governmental sectors. A dedicated budget of EUR 230,929.90 is allocated for 2027 within the National Plan for Public Administration Development's Action Plan. The competency system introduction involves analyzing necessary competences, establishing key competences for job categories, and parallel IT solution development. This systematic approach aims to enhance public administration productivity and efficiency by equipping officials with essential digital skills for successfully implementing e-services for citizens and entrepreneurs. Additionally, the digitalization of the state examination system and centralized employment processes under Measure 2.1 directly supports civil servants' digital competency development through modernized recruitment and assessment procedures.

3.4. The Civil Servants Act

The Civil Servants Act²⁵ (Zakon o državnim službenicima) establishes the comprehensive legal framework governing employment relationships in Croatian state bodies, regulating the rights, obligations, and responsibilities of civil servants and auxiliary staff. The Act covers fundamental principles including legality, prohibition of discrimination, hierarchical subordination, and accountability for results. It details employment procedures through a centralized recruitment system, job classification based on competency models, performance evaluation with five grading levels (from "excellent" to "does not meet expectations"), disciplinary procedures for light and severe breaches of official duty with corresponding penalties, and conditions for service termination. The legislation establishes key institutions including the Civil Service Committee for second-instance decision-making and the Civil Service Court for disciplinary matters, while introducing modern concepts such as hybrid work arrangements, protection for whistleblowers reporting corruption suspicions, and standardized competency-based recruitment and promotion processes.

The Act addresses **digital competency development** through several interconnected provisions. The centralized recruitment system (Centralizirani sustav za zapošljavanje – selekcija.gov.hr) conducts electronic testing of general and position-specific competencies, with results valid for three years and reusable across different recruitment procedures. Competency models, developed by human resources units, define required knowledge, skills, and behaviors for successful job performance, serving as the foundation for identifying additional training needs. Civil servants have the right to paid or unpaid study leave for specialized education programs abroad or domestically, with the requirement to remain in service for twice the duration of the education period. The Act mandates continuous professional development through joint training programs organized primarily by the National School for Public Administration and special programs by line ministries. Training participation is considered part of work obligations, with costs covered from the state budget, ensuring systematic enhancement of digital and professional competencies aligned with service needs and strategic goals.

²⁵ <https://www.zakon.hr/z/108/zakon-o-drzavnim-sluzbenicima>

3.5. The Competency Model

The Competency Model²⁶ (Kompetencijski model) establishes a unified framework of knowledge, skills, abilities, and expected behaviors required for successful job performance across all Croatian public administration bodies, including state bodies, local and regional self-government units, and legal persons with public authority. Developed under ESF project, the model is structured around the fundamental value of serving the public

interest with integrity and comprises three competency types: general competencies required for all employees regardless of position; managerial competencies for leadership positions; and specific competencies tied to particular job groups and work areas. The document categorizes public administration work into three main groups—expert-creative work, administrative proceedings, and horizontal support functions—further divided into 14 distinct work areas. Jobs are classified into 10 subcategories across non-managerial and managerial levels, with competency requirements specified for each level using a five-tier proficiency scale (A through E). The model serves as a horizontal tool for human resource management, enabling consistent job profiling, recruitment, performance evaluation, and professional development planning throughout the public administration system.

Digital competency development is systematically addressed through the model's "digital literacy" general competency, which is required for all public administration employees at varying proficiency levels aligned with the ECDL (European Computer Driving Licence) framework. The competency encompasses five progressive levels: from basic computer operation and office software use (Levels A-B) through advanced proficiency in multiple areas including presentations, online collaboration, databases, web design, project planning, and IT security (Levels C-E). Higher-level positions require advanced digital skills, with senior experts and managers expected to possess the capability to propose improvements to existing applications and define functional requirements for business process digitalization. The model integrates digital competencies into job profiles for all work areas, including horizontal support functions, ensuring systematic assessment and development of digital skills through recruitment processes, training programs, and career development planning. This structured approach supports the broader public administration digital transformation goals by ensuring employees possess the necessary digital literacy to effectively utilize e-services, participate in process digitalization, and deliver modern digital public services to citizens and businesses.

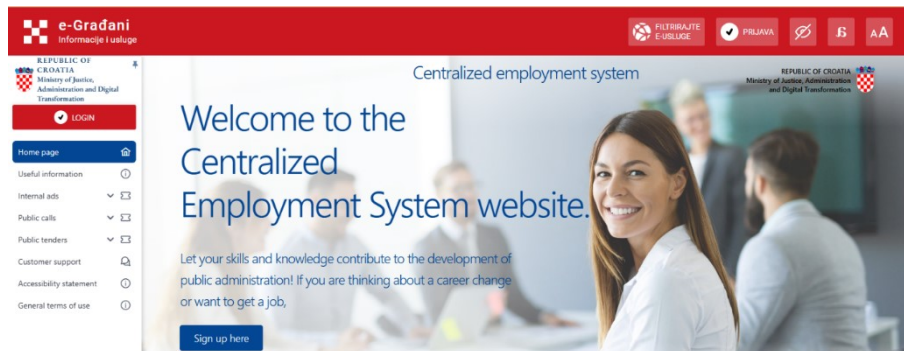
Competencies in public administration represent the set of all **knowledge, skills, abilities, and behaviors** of employees in public administration bodies necessary for the successful performance of tasks for a purpose of achieving organizational goals.



²⁶ <https://mpudt.gov.hr/istaknute-teme-11/projekti/eu-projekti/razvoj-kompetencijskog-okvira-za-zaposlene-u-22-javnoj-upravi/22402>

3.6. Digital Literacy Competency Testing in the Centralized recruitment system

The Guide for the Preparation and Implementation of Digital Literacy Competency Testing²⁷ (Vodič za pripremu i provedbu ispitivanja kompetencije Digitalna pismenost) provides a comprehensive framework for assessing digital literacy among candidates in Croatian public administration. The document establishes a testing structure based on the DigComp 2.2 European Digital Competence Framework, organizing the assessment across four main areas: Information and Data Literacy, Digital



Technology, Communication/Collaboration/Security, and Digital Content Creation. Each area is broken down into specific learning outcomes with three cognitive complexity levels. The guide specifies three examination levels corresponding to job position requirements, with each level containing 15 test items administered via computer over 25 minutes. A passing threshold requires correctly answering more than 50% of questions (minimum 8 points). The document includes detailed methodological guidelines for constructing multiple-choice, true/false, matrix, and dropdown questions, along with metadata requirements for maintaining a robust item bank and ensuring standardized, objective testing across different examination administrations.

The guide systematically addresses digital competency development through a structured, progressive assessment framework aligned with European standards. Digital literacy is defined as the set of knowledge, skills, and attitudes necessary for using ICT and digital media to perform tasks, solve problems, communicate, collaborate, manage information, and create and share content. The competency is developed across three examination levels corresponding to job complexity: basic level (recognizing internet services, computer components, and basic security), intermediate level (applying search rules, operating system tools, and basic functions in office software), and advanced level (critically evaluating information sources, analyzing computer network usage, applying complex software functions, and understanding intellectual property rights). The framework ensures systematic competency building by establishing clear learning outcomes, cognitive complexity levels, and standardized assessment criteria that enable candidates to progressively develop digital skills aligned with their professional responsibilities. This structured approach supports the broader public administration goal of ensuring employees possess the necessary digital competencies to effectively utilize e-services and contribute to digital transformation processes.

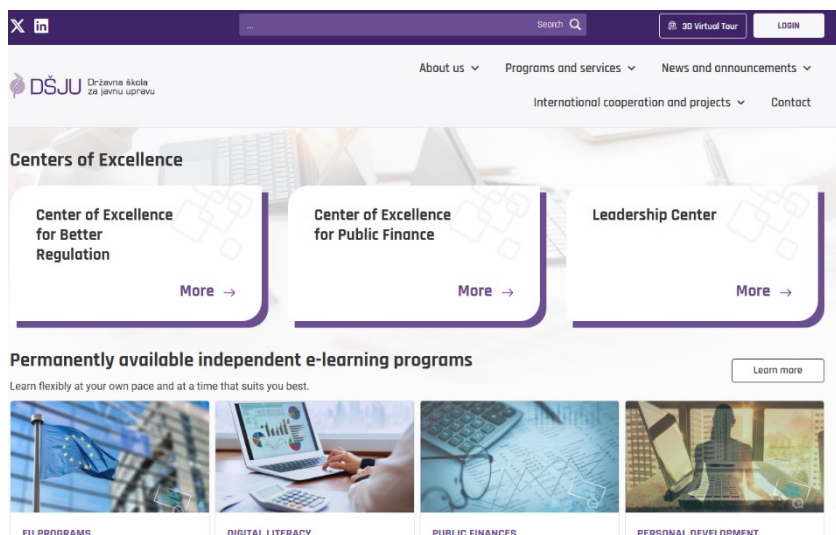
²⁷ <https://selekcija.gov.hr/korisne-informacije>

3.7. Digital competence development – policy, standards, and implementation

The Decree on the Internal Organization of the Ministry of Justice, Administration and Digital Transformation²⁸ (Uredba o unutarnjem ustrojstvu Ministarstva pravosuđa, uprave i digitalne transformacije) establishes the comprehensive organizational structure of the ministry following its expanded mandate. The decree establishes digital competency development as a formal responsibility through the newly created Directorate for the Digital Economy (Uprava za digitalno gospodarstvo), which contains a dedicated Sector for the Development of Digital Competencies (Sektor za razvoj digitalnih kompetencija). This sector is tasked with monitoring and implementing policies and programs for digital competency development, proposing measures for improvement, monitoring the implementation of national strategic documents in this area, and collaborating with other institutions to design measures for promoting digital skills. The sector's Service for Monitoring and Implementing Digital Competency Policies and Programs (Služba za praćenje i provedbu politika i programa razvoja digitalnih kompetencija) monitors EU and international documents, creates analyses, and participates in shaping public policies. The Service for Popularization of Digital Competencies and Digital Accessibility (Služba za popularizaciju digitalnih kompetencija i digitalnu pristupačnost) conducts systematic promotion of digital competencies, organizes training programs, raises awareness about accessibility requirements, and coordinates with public sector bodies. Additionally, the Ministry's internal human resources units manage professional development for civil servants, while the Centralized Employment System conducts competency testing for recruitment, ensuring systematic assessment and development of digital skills aligned with job requirements.

3.8. National School for Public Administration digital transformation training programmes

National School for Public Administration - NSPA (Državna škola za javnu upravu)²⁹ is the central institution for coordinating the professional training and development system for employees in the Croatian public sector. Its core mission is to continuously raise the knowledge, skills, and competencies of civil servants, public employees, and officials to create a professional, efficient, and effective public administration. By aligning its programs with the principles of good governance—such as transparency, accountability, and lawfulness—the NSPA aims to help transform public administration into a functional service that meets the needs of citizens and the economy. Its vision is to contribute to a competent and effective public sector that protects the public



²⁸ https://narodne-novine.nn.hr/clanci/sluzbeni/full/2024_06_72_1224.html

²⁹ <https://www.dsju.hr/>

interest, provides quality services, and reduces business costs, particularly within the context of EU membership.

The NSPA activities include developing and implementing training programs based on the priorities of public administration reform, analyzing the specific needs for professional development, and strengthening a network of trainers and experts. Beyond maintaining regular programs, its strategic focus is on coordinating the development of new, priority curricula. This is especially important for helping civil servants acquire the necessary skills for modern governance, including those related to digitalization and improved business processes. The NSPA is dedicated to increasing the accessibility of its programs and raising awareness about development opportunities, ultimately working to enhance national capacity for the continuous professional growth of all public sector employees.

3.8.1. Current NSPA digital transformation training programs

The NSPA provides a comprehensive range of training programs—from foundational Excel skills and digital accessibility to advanced AI literacy, cybersecurity protocols, and project management—all designed to equip civil servants with the essential digital competencies needed for a modern, secure, and efficient public administration.

The **Digital Accessibility** training is designed to enable the correct application of the Act on Accessibility of Websites and Software Solutions for Mobile Devices, ensuring that digital public services are inclusive and accessible to all citizens. This program is delivered in the format of self-paced e-learning course, allowing participants to complete the module at their own pace within an estimated duration of four hours.

The **Industry 4.0 Academy - Key Topics of the 4th Industrial Revolution** provides an intensive overview of the transformative digital technologies reshaping modern governance as well as business trends that define the modern industrial age, empowering participants to understand and apply these advanced concepts within the public sector, fostering an environment that keeps pace with global technological shifts and innovative governance models. The curriculum focuses on how these innovations can be integrated into public administration to automate processes, enhance data-driven decision-making, and improve the efficiency of public services. The program is organized as a classroom-based training spanning four days, with a total of sixteen hours of intensive learning and practical insights.

The module **AI Literacy: Understanding Artificial Intelligence Systems** introduces participants to the European legal framework and standards for the responsible use of AI, raising awareness about ethical and legal compliance. This program offers flexibility in delivery, as it is conducted both as classroom-based training and live webinar, lasting one day for a total of six hours.

Focusing on local and regional government, the program **AI Literacy: Alignment with the AI Act and Urban Resilience** connects the application of smart technologies with the context of urban management and resilience. This education is delivered as a one-day classroom training session that lasts six hours, specifically tailored for officials in local administrative bodies.

The program **AI Literacy: Alignment with the AI Act and Comparative Experiences in Public Administration** provides insight into global best practices for AI implementation in the public sector. It

is conducted as a classroom-based workshop that lasts for one day, with a total duration of six hours, helping organizations adopt proven strategies for digital advancement.

The workshop **AI Literacy: Practical Application of AI Tools** is designed to demystify artificial intelligence by focusing on the hands-on use of generative AI and automation tools in a professional environment. Participants learn how to utilize large language models and other AI utilities to streamline administrative tasks, draft documents, and optimize workflows while maintaining a critical view of the outputs. This program is conducted as classroom-based training that lasts one day, for a total of six hours.

The program **Secure in Cyberspace** addresses the critical need for digital hygiene and the protection of sensitive information in an era of increasing online threats. It covers key topics such as identifying phishing attempts, securing digital identities, and understanding the social engineering tactics used by cybercriminals to compromise government systems. This essential security training is held as a one-day classroom session lasting seven hours.

The program **Cybersecurity in the Business Environment** is designed to provide civil servants with essential knowledge for recognizing and preventing modern digital threats within an organizational context. The curriculum focuses on identifying sophisticated cyber-attacks, such as social engineering and advanced phishing, while teaching participants the critical protocols for protecting institutional data and maintaining system integrity. This proactive training is delivered as a one-day classroom-based session with a total duration of eight hours.

The training on **Measures and Standards of Information Security in Government Bodies** focuses on the technical and regulatory frameworks necessary to safeguard the integrity and confidentiality of state data. It provides civil servants with a clear understanding of national and international security standards, as well as the mandatory protocols for handling digital assets and responding to security incidents. The program is delivered in a classroom format over one day, totalling eight hours.

The program **Microsoft Office 365 Excel - Basic and Intermediate Level** is designed to strengthen essential digital skills for precise data management and reporting. Participants learn to efficiently navigate workbooks, apply best practices for data entry, and utilize mathematical and logical formulas to ensure accurate calculations. The curriculum also covers data visualization through charts, table formatting, and advanced preparation for professional printing using the Office 365 suite. This program is delivered in the format of self-paced e-learning course, allowing participants to complete the module at their own pace within an estimated duration of 40 hours.

The workshop **MS Excel in Everyday Work** is a practical, task-oriented course aimed at optimizing the use of spreadsheet software for routine administrative operations. It emphasizes time-saving shortcuts, automated calculations, and efficient data organization techniques that directly apply to the daily responsibilities of civil servants. This training is held in a classroom setting and lasts two days, with a total duration of twelve hours.

The program titled **Digitalization: Project Task - A Guarantee of Project Success** focuses on strengthening the competencies of civil servants to ensure the effectiveness and achievement of expected results in digitalization projects. After completing the workshop, participants are equipped to define clear project requirements and tasks, which serves as a fundamental prerequisite for the

successful implementation of digital transformation. This program is conducted as a classroom-based training and lasts for one day, totalling eight hours of interactive training.

3.8.2. Planned NSPA digital transformation training programs

To support the ongoing digital transformation, a comprehensive AI training curriculum has been planned, structured into three distinct levels to meet the specific needs of different civil service roles.

The **Level 1 – Basic AI Literacy** program is planned for civil servants who use digital tools in their daily activities. The primary objective is to build a foundational understanding of artificial intelligence while ensuring the safe and efficient use of AI tools in everyday tasks. Participants will develop key skills in



document processing and communication, as well as the ability to recognize AI risks and limitations. This training is organized as a 10-hour program consisting of lectures, case studies, and practical workshops.

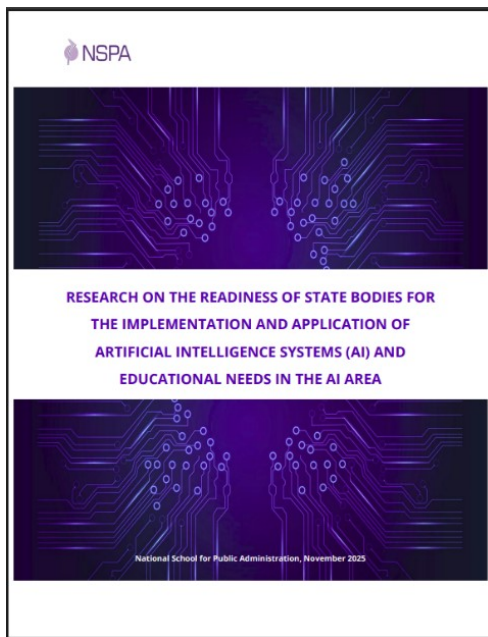
For specialists, analysts, and IT staff, the **Level 2 – Advanced AI for Analysis and Digital Transformation** program focuses on data-driven optimization of administrative processes. The goal is to develop capabilities for interpreting AI results and applying them to the analysis of public policies. This intensive curriculum covers data analytics, automation of administrative tasks, and AI ethics. The program is intended to be delivered through practical exercises and case study analysis, totalling 18 hours of instruction.

At the executive level, the **Level 3 – AI Leadership program**, held within the Leadership Centre, targets decision-makers involved in strategic planning. Participants will undergo comprehensive training on AI strategy, organizational change management, and the EU AI Act. The final phase of the program involves developing a concrete AI implementation concept for their specific institution under expert mentorship. This advanced leadership training comprises 22 hours of intensive workshops and project presentations.

To finalize the NSPA strategic overview, the successful implementation of these AI programs relies on a collaborative ecosystem of institutional and technical partners. The strategic foundation is built upon **government institutions** that define digital transformation policies and oversee the professional development of the civil service workforce. Academic expertise is provided by the **academic and**

research community, ensuring that the training modules are grounded in the latest advancements in data science and artificial intelligence. Furthermore, the initiative plans to leverage **Digital Innovation Hubs** to provide specialized technical support in fields such as robotics and advanced AI applications. This multi-sector approach ensures that the training is both policy-aligned and technologically current.

3.9. The AI Index Research Report 2025 by the National School for Public Administration



The AI Index Research Report 2025³⁰, conducted by the National School for Public Administration, assesses the readiness of Croatian state administration bodies to implement artificial intelligence and identifies employee training needs. Based on responses from 44 institutions (85% response rate) and 6,518 employees (15% of the workforce), the research calculates Croatia's AI readiness index at 41, placing the country in the "capacity under construction" phase where foundations exist but systematic implementation is still developing. Key findings reveal that while management support for AI initiatives is relatively strong (70%), most institutions lack formal AI strategies (57%), dedicated funding (73%), internal regulations (84%), and project management procedures (75%). The research identifies significant gaps in regulatory alignment with the EU AI Act, with 98% of respondents indicating no activities have been initiated toward

compliance. Despite these structural weaknesses, employee willingness to use AI is exceptionally high (75%), though current usage remains sporadic, primarily limited to basic tasks like translation and text refinement rather than systematic integration into business processes.

The report reveals a **polarized landscape of digital competency development** where basic AI tool usage for summarization, translation, and visualization is relatively common (42% have basic knowledge), while strategic, regulatory, and technical competencies remain severely underdeveloped. Strikingly, 71% of employees report no knowledge of the EU AI Act, 70% lack understanding of AI implementation in business processes, and 61% cannot recognize AI application opportunities in their work. Technical areas like machine learning and data processing show 48-57% complete knowledge absence. Age-based analysis confirms a generational gap, with younger employees demonstrating higher functional knowledge while older colleagues more frequently report competency deficits. Employees strongly prefer practical, short-format training (64% favor specialized online workshops) over traditional classroom education, with time constraints (69%) and unclear application pathways (53%) cited as primary participation barriers. The most valued educational resources are practical templates, sector-specific guidelines, and hands-on experimentation tools. Recommendations emphasize developing modular training programs combining basic AI literacy, practical tool usage, legal-ethical frameworks, cybersecurity awareness, and specialized sectoral applications, while establishing formal AI competency development within strategic planning and assessment systems.

³⁰ <https://www.dsju.hr/novosti-i-objave/novosti/istrazivanje-o-spremnosti-drzavnih-tijela-rh-za-uvodenje-i-primjenu-sustava-umjetne-inteligencije-ui-te-potrebama-za-izobrazbom-u-podrucju-ui/>

3.11. Digital Competence Development in Civil Service in Croatia – key challenges

Despite the ambitious strategic frameworks the Croatian public sector faces a profound "implementation gap" that threatens to derail its digital transformation. While high-level goals have been set, their translation into tangible outcomes is obstructed by a confluence of critical barriers. As highlighted by the AI Index Research, these obstacles range from a severe lack of operational capacity and a deficit in strategic and regulatory knowledge, to a polarized workforce and fundamental structural weaknesses within institutions. Bridging this gap between strategic intent and operational reality requires confronting these deep-seated challenges head-on to ensure that the vision for a digitally advanced public administration does not remain an unfulfilled aspiration.

From Policy to Practice (The Implementation Gap): The most significant challenge is translating ambitious strategic goals into tangible outcomes. The AI Index Research Report starkly illustrates this, showing that while 75% of civil servants want to use AI, actual systematic use is almost non-existent, with 65% of institutions reporting no AI-integrated business processes. This is compounded by a severe lack of implementation capacity: 73% of institutions lack dedicated funding for AI projects, 84% have no internal guidelines, and 75% have no project management procedures. The ambitious targets of the Digital Croatia Strategy and the National Roadmap must overcome this profound gap between strategic intent and operational reality.

Strategic and Regulatory Knowledge Deficit: There is a critical shortage of knowledge in strategic and regulatory areas necessary for a mature digital transformation. The AI Index Research found that 71% of employees have no knowledge of the EU AI Act, and 70% lack understanding of how to implement AI solutions in their own work processes. This means that even as the infrastructure is built, the workforce lacks the foundational knowledge to use it effectively and legally, creating a major barrier to achieving the goals of the National Roadmap.

The Generational and Skill Polarization Divide: Digital competency development is not a uniform challenge. The research reveals a clear generational gap, with younger employees possessing higher functional knowledge of AI tools. Furthermore, there is a polarization of skills: basic tool usage is relatively common, but strategic, analytical, and technical competencies (like data processing and machine learning) are severely underdeveloped. This creates a two-tiered workforce and hinders the development of specialized teams needed for advanced digital projects.

Structural and Institutional Weaknesses: The institutional framework itself poses a major challenge. The AI Index Research highlights that 57% of institutions lack a clear AI vision, 48% believe their IT infrastructure is insufficient, and 57% are unsure if their systems can integrate with new AI platforms. The Competency Model and the new Ministry Decree provide the structure, but the challenge lies in populating that structure with competent people, securing sustainable funding, and fostering a culture that moves beyond isolated pilot projects to systematic, whole-of-government implementation, as envisioned in the National Plan.

4. Digital Competence Development in Civil Service in EU – current state of play

This chapter examines the European Union's frameworks and member state practices for developing digital competencies in public administration, establishing the context for Croatia's efforts. The newly launched **DigComp 3.0** framework maintains its established structure of five competence areas and 21 competencies while introducing transversal integration of AI across all areas, with revised proficiency levels and learning outcomes. A complementary 2024 JRC report on AI in the public sector provides comprehensive competence and governance frameworks, categorizing 56 skills into technical, managerial, and policy/legal/ethical dimensions while identifying that public organizations struggle to attract diverse talent due to salary disparities and slow hiring processes.

The chapter's comparative analysis of EU member states reveals universal investment in digital and AI skills, with emphasis on analytical thinking, leadership, and ethical AI use. Countries cluster into six groups based on their approaches: those with strong national frameworks (Austria, Latvia), e-learning focus (Croatia, Finland), AI specialization (Denmark, Greece), hybrid learning (France, Slovenia), leadership development (Finland, Spain), and targeted programs for vulnerable groups (Slovakia, Sweden). Croatia emerges as strongly committed to e-learning but notably lacking in structured competency frameworks, AI-specific training, and leadership development programs—gaps that must be addressed to achieve Digital Decade ambitions.

4.1. Digcomp 3.0

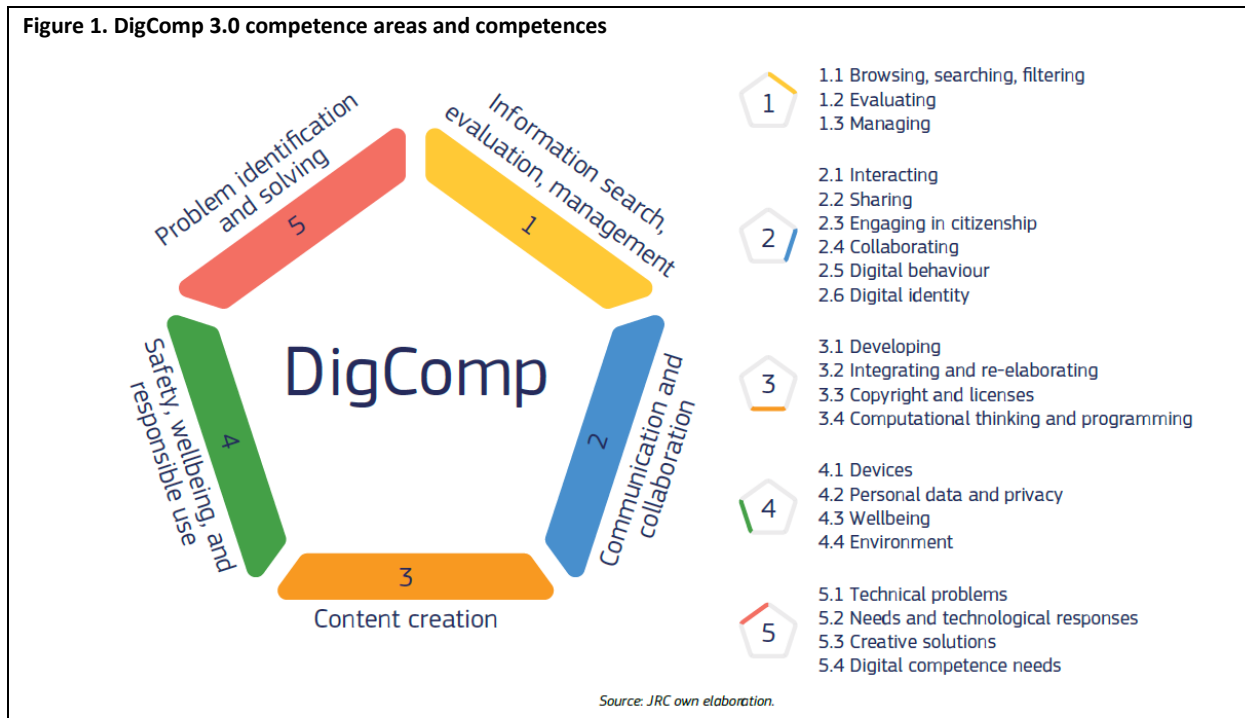
The European Digital Competence Framework (DigComp)³¹ defines the digital skills needed to participate confidently in today's society, supporting individuals of all ages in a rapidly evolving digital landscape. The framework is developed by the European Commission's Joint Research Centre (JRC), in collaboration with the Directorate-General for Employment, Social Affairs and Inclusion (DG EMPL). In November 2025, the European Commission launched DigComp 3.0, updating the framework to reflect technological developments since 2022 and their impact on digital competence.

DigComp in general is considered as a starting point, to be adapted to fit a specific purpose, for example in employment contexts: professional digital profiles, design of training, assessment and certification, matching employer needs to VET training among workforce groups or in education and training contexts: links to National Qualifications Frameworks, mapping of education and training offer, design of education and training (formal, non-formal and informal), assessment and certification.

It consists of 5 areas (e.g., Information and Data, Content, Communication, Security, Problem Solving), 21 competencies, and 4 proficiency levels (from basic to highly advanced) - also see Figure 5: DigComp 3.0. competence areas and competences.

³¹ COSGROVE, J. and CACHIA, R., DigComp 3.0: European Digital Competence Framework - Fifth Edition, Publications Office of the European Union, Luxembourg, 2025, <https://data.europa.eu/doi/10.2760/0001149JRC144121> .

Figure 1. DigComp 3.0 competence areas and competences



DigComp 3.0 is the fifth version of the framework and supports EC priorities and policies and enables coherence in policymaking across the EU. In DigComp 3.0, compared to the previous version, there are:

- No changes to the overall structure of the framework
- Updates to the wording of competence areas and competences
- Revised proficiency levels
- New learning outcomes
- A transversal integration of AI competence
- An extended Glossary that explains the words and terms used
- Multiple formats, for easier tailoring and adaptation of the framework.

In DigComp 3.0. AI is one digital technology among a range of digital technologies. AI is transversally integrated across all 21 competencies: "AI-explicit" (directly relevant to AI), "AI-implicit" (understanding AI systems and their ethical implications), or non-AI. AI is treated as one of many digital technologies, with a focus on ethics, labeling, and everyday applications (e.g., recognizing biases).

4.2. Competences and governance practices for artificial intelligence in the public sector



The 2024 report by the European Commission's Joint Research Centre³² investigates the essential competences and governance practices required for effectively adopting and using artificial intelligence (AI) within the European public sector. Based on a synthesis of literature, an expert workshop, and 19 interviews across seven case studies, the report introduces two comprehensive frameworks. The competence framework categorizes 56 individual skills into technical, managerial, and policy/legal/ethical dimensions, further divided into attitudinal (know-why), operational (know-how), and literacy (know-what) clusters. The governance framework organizes 34 organizational practices into procedural, structural, and relational dimensions, applied across strategic, tactical, and operational levels. The study concludes with six key recommendations and 18 actionable steps to help public administrations develop these necessary competences and implement robust AI governance to

generate public value.

The report emphasizes that developing digital competences for AI requires a holistic and interdisciplinary approach that goes **beyond mere technical skills**. It finds that public servants need a blend of competences, including managerial abilities like leadership and risk management, as well as a strong understanding of policy, legal, and ethical implications. The framework highlights three cross-cutting competence clusters: attitudinal (e.g., technology inquisitiveness, ethical awareness), literacy (e.g., understanding machine learning fundamentals, AI procurement), and operational (e.g., data management, algorithm training). A key challenge identified is the difficulty public organizations face in attracting and retaining talent with this diverse skill set due to salary disparities and slow hiring processes. Consequently, the report recommends creating focused, interdisciplinary training programmes, promoting applied research, and establishing dedicated hiring strategies to cultivate this broad spectrum of AI competences within the public workforce.

4.3. Overview of the Development of Digital Competencies in the EU member states

During the Polish Presidency of the EU, a document³³ was produced showing how different European countries (and the European Commission) are developing the digital competences of their civil servants and which tools and methods are the most effective.

All countries are investing in digital and AI skills as essential for modern administration. The emphasis is on analytical thinking, leadership, change management, understanding of new technologies, digital transformation projects, and the ethical use of AI. The combination of e-learning, practical workshops and work-based learning proved to be the most effective. There is a clearly visible shift towards the

³² <https://publications.jrc.ec.europa.eu/repository/handle/JRC138702>

³³ https://www.eupan.eu/wp-content/uploads/2025/06/PL-PRES_EUPAN-eNews_Digital-competences-.pdf

development of soft skills needed for the digital environment — critical thinking, leadership, resilience, problem solving. Most countries use competency frameworks and individual development plans.

The document states that Croatia is developing digital competencies through the National School of Public Administration. The focus is on information and data literacy, digital content, communication and cybersecurity. The best method is e-learning, due to flexibility, accessibility and the possibility of independent learning rhythm. Croatia is one of the few countries that clearly states that e-learning is the most effective form (e.g. Finland and France emphasize work through practice, while many countries mix methods). Croatia does not have a national competence framework specific to digital skills, such as Austria, Poland, Latvia.

EU Countries can be divided into 6 main groups:

- f) Countries with a **strong national digital competence model/framework**. Focus: specific formalized frameworks (DigComp adaptations, national strategies). Countries: Austria – DigComp 2.3 AT model, 27 competencies in 6 areas; Latvia - Comprehensive Digital Skills Competence Framework; Poland – National Digital Competence Strategy; Switzerland – national competency model with levels; Romania – develops dig. framework (TSI 2024). Comparison with Croatia: Croatia does not have such a structured model, the emphasis is more on programs, less on the systemic framework.
- f) Countries with an **emphasis on e-learning as the primary method**. Focus: flexibility, accessibility, self-paced learning, digital platforms. Countries: Croatia – e-learning-is the most effective due to flexibility and accessibility; Portugal – dominant learning through the NAU platform (asynchronous); Poland – courses through MS Teams and Moodle; Bulgaria – a wide variety of digital online courses; Finland – a strong national-e-learning platform eOppiva. Comparison with Croatia: Croatia fully fits into this group, as it considers e-learning-to be the most successful method of developing digital competencies.
- f) Countries with a **focus on AI competencies**. Focus: AI literacy, ethical use of AI, application of AI solutions in work, data analytics. Countries: Denmark – technological, practical and ethical AI skills; Greece – certified AI programs in collaboration with Microsoft and Google; European Commission – AI and generative AI among the key priorities (including GPT@EC); Luxembourg – AI Fundamentals and MOOC Elements of AI; Netherlands – AI integrated into national digital strategies; Latvia – AI included in the Digital Academy. Comparison with Croatia: Unlike the countries mentioned, Croatia does not emphasize the development of AI competencies in this document and is noticeably lagging behind in this area.
- f) Countries that **prefer hybrid and hands-on learning methods**. Focus: experiential learning, simulations, workshops, blended teaching models. Countries: France – serious games, simulations and hybrid methods; Belgium – a combination of e-learning, workshops and communities of practice; Greece – mixed models and practical laboratories; Netherlands – Communities of Practice, Innovation Programmes and Modular Learning; Hungary – blended learning and e-simulations; Slovenia – practical workshops and work on real cases. Comparison with Croatia: Croatia relies less on experiential and practical methods, and the primary focus remains on e-learning.
- f) Countries with an **emphasis on leadership, future skills and soft skills**. Focus: leadership, analytical skills, change management, socio-emotional competencies. Countries: Finland – leadership, resilience and crisis management; Lithuania – analytical and financial skills as future competences; Slovenia – Digital Leadership and Personal Development; Romania – development of managers in the context of digital transformation; Spain – innovation and

collaborative competences. Comparison with Croatia: Croatia does not emphasize leadership programs or the development of "future skills", but focuses mainly on digital skills.

- f) Countries with a focus on specific target groups (elderly, vulnerable, small institutions). Focus: digital inclusion, reducing the digital divide, supporting users with weaker digital capacities. Countries: Slovakia – a large state project for civil servants 55+ and vulnerable groups (13,643 participants); Sweden – supporting smaller agencies and strengthening AI readiness. Comparison with Croatia: Croatia does not have a specific target group (e.g. senior employees), but uses general programs without segmentation according to digital vulnerability.

5. Practitioners Speak: What Croatian Public Administration Needs for Digital Transformation (Innovative Digital Competence Development in Croatia – survey, think tank discussion and proposed actions)

Building upon the strategic frameworks and comparative insights presented in previous chapters, Chapter 5 shifts focus from analysis to action, exploring how Croatia can move beyond current implementation challenges toward innovative, future-oriented approaches for developing digital competencies in public administration. While the preceding chapters have documented Croatia's ambitious strategic vision—from the Digital Croatia Strategy 2032 to the National Roadmap for the Digital Decade—they have also revealed a persistent implementation gap: ambitious goals remain inadequately translated into operational reality, structural weaknesses persist, and the workforce shows a polarized skills landscape where enthusiasm for new technologies (75% of employees want to use AI) coexists with significant knowledge deficits (71% lack awareness of the EU AI Act).

This chapter addresses a central question emerging from the think tank's analysis: **How can Croatia design and implement digital competence development that is not merely formal or compliance-driven, but genuinely transformative—capable of equipping civil servants with the practical capabilities needed for the AI era?** Drawing upon survey data collected (see Annex 2.) from public administration professionals (n=22) and insights from world café³⁴ discussions conducted during the think tank, this chapter presents practitioner perspectives on six interconnected themes that together form a comprehensive agenda for innovation.

Chapter 5.1 (Digital transformation and competence gaps) identifies the most critical digital competencies currently lacking in Croatian public administration, revealing urgent needs in AI literacy, data analytics, digital service design, and strategic project management. The survey data visualization (Picture 1) provides empirical grounding for understanding where interventions are most urgently required.

Chapter 5.2 (Productivity, digital tools and people) examines whether investments in digitalization and automation have been matched by corresponding investments in human capital development. Through analysis of survey responses and concrete examples of Croatian digital tools that have successfully

³⁴ **The World Café method** is a structured, conversational process for facilitating dialogue among large groups, [34](#) designed to foster collaborative thinking and knowledge sharing. It typically involves small groups of 4–5 people discussing focused questions at café-style tables, rotating to new tables every 20-30 minutes to cross-pollinate ideas.

enhanced both efficiency and competencies (from e-Citizens to shared services infrastructure), this section explores the relationship between technological and human development.

Chapter 5.3 (E-learning, AI and new learning models) critically evaluates whether current e-learning approaches in Croatian public administration build practical capabilities or remain largely formal and theoretical. Survey results (Picture 3) reveal practitioner perceptions, while discussions explore how AI-supported learning solutions—personalized learning paths, AI mentors, and adaptive content—could revolutionize competence development by offering individualized, flexible, and job-relevant education.

Chapter 5.4 (Digital governance, leadership and organizational culture) addresses the crucial role of managers in leading digital transformation. Survey data identifies the competencies managers most need (Picture 4) and the optimal learning methods for developing these capabilities (Picture 5), while exploring how leaders can foster motivation, collaboration, and wellbeing in increasingly digital and hybrid work environments.

Chapter 5.5 (Human roles in the age of AI) investigates which uniquely human competencies remain essential as AI systems are integrated into public administration processes. Survey results (Picture 6) highlight the enduring importance of critical thinking, ethics, empathy, creativity, and contextual judgment—competencies that must be deliberately cultivated alongside technical skills to ensure AI augments rather than diminishes human potential.

Section 5.6 (Enablers for future development) synthesizes findings into a coherent framework of enabling conditions for successful digital competence development, organized around continuous learning, cultural transformation, practical application, strategic approaches, critical thinking, and motivational leadership.

Together, these chapters provide not only a diagnosis of current challenges, but a forward-looking agenda and actions grounded in practitioner experience and needs. The chapter aims to inform the reform agenda presented in Chapter 6 by offering evidence-based insights into what Croatian public administration professionals themselves identify as priority areas, effective approaches, and necessary enablers for building the digitally competent workforce that Croatia's strategic ambitions require.

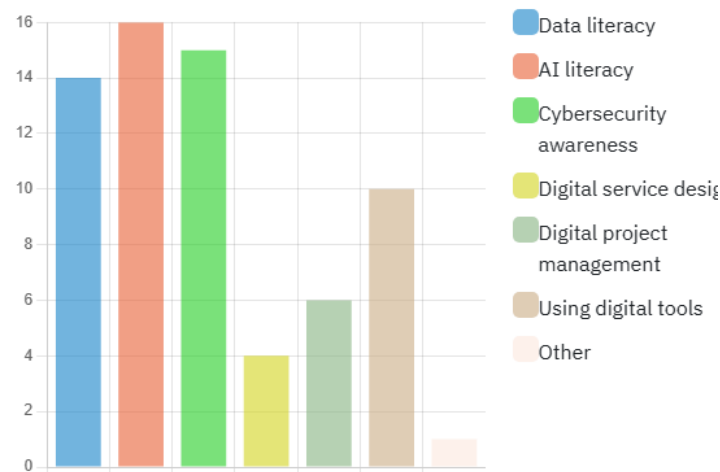
5.1. Digital transformation and competence gaps

This chapter identifies the most critical digital competencies lacking in Croatian public administration, with survey respondents highlighting urgent needs in AI literacy and automation, data management and analytics, digital service design and project management, and innovation competencies. The findings reveal that while basic digital skills are relatively common, strategic and technical capabilities—particularly those related to AI implementation, data analysis, and agile project management—remain severely underdeveloped, creating a significant barrier to achieving Croatia's digital transformation ambitions.

Key questions that we are looking for answers are:

- Which digital competencies are currently most critical in public administration (e.g. data literacy, AI literacy, cybersecurity awareness, digital service design)?
- Where are the most visible digital skills gaps in Croatian and EU public administration today?

Picture 1. Digital competences most lacking in Croatian public administration



Source: MJPADT – Survey with invitation on Think-tank (n=22)

Areas with greatest need for improving digital competences in Croatian public administration:

AI and Automation

- Education about AI and security
- AI literacy to speed up business processes
- Application of new technologies (especially AI)
- Use of digital and AI tools with data security and protection

Data and Analytics

- Better use of data and digital tools for more efficient work
- Data management and analysis
- Data literacy, recognizing trends in data
- Working with data, analytics, common document registry

Digital Services and Projects

- Development and management of digital services (agile methods)
- Design of digital services
- Project management and reporting
- Analysis of problems and turning them into project ideas
- Strategic planning and project management

Digital Competencies and Innovation

- Development of digital competencies and digital workplaces
- Decision-making processes, creativity, and agility
- Knowledge of innovation processes in digital technologies
- Practical preparation of digital tools

Infrastructure and Legislation

- Implementation of existing legislation (digital signature/seal)
- Relieving services, easier and faster information flow
- Digitalization of public administration (horizontally, at all levels)

Key discussion points:

- The gap between widespread basic digital skills and the severe lack of strategic, technical capabilities (AI, data analytics, agile project management) – is this a pipeline issue, a training issue, or a cultural issue?
- How can we ensure that "mandatory" training plans are not just a compliance checkbox but a genuine tool for competency development?
- The role of management responsibility: how to hold leaders accountable for defining, monitoring, and enforcing skill development within their teams?
- Is the current onboarding process sufficient to equip new employees with the necessary digital tools and workflows, or is it too generic?
- The gap between institutions: how to prevent a two-speed digital administration where some agencies advance rapidly while others lag behind?

Possible actions:

- Develop and mandate a structured, tiered training plan for each institution, with a general digital literacy core and job-specific technical modules.
- Introduce a standardized "digital profile" for every civil servant, clearly outlining the available tools and required competencies for their role.
- Establish mandatory onboarding training for all new employees, covering core tools (e.g., Teams, Centrix, OneDrive) and job-specific systems, with continuous access for refreshers.
- Require annual institutional work plans to include a detailed training schedule, specifying in-person sessions, mandatory e-learning, and post-system-upgrade training.
- Create a mechanism for regular digital competency testing to track progress, identify gaps, and inform future training priorities.
- Launch a targeted program to reduce the digitalization gap between institutions, focusing on process alignment, tool adoption, and AI readiness.

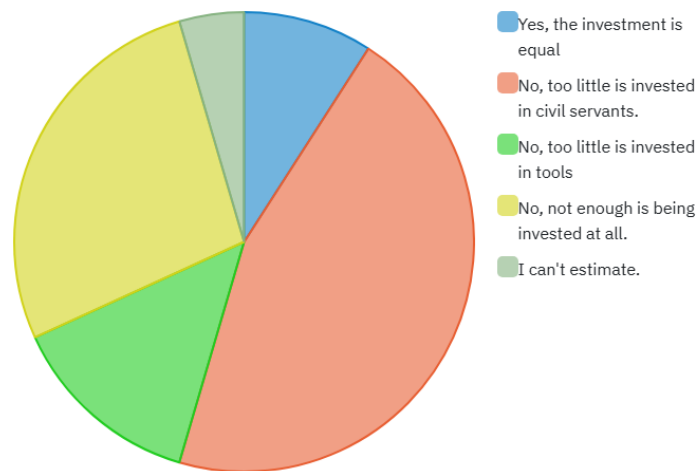
5.2. Productivity, digital tools and people

This chapter examines whether investments in digitalization have been matched by corresponding investments in human capital development, with survey results showing mixed perceptions—while some respondents see balanced approaches, many believe competency development lags technological investment. The section identifies Croatian digital tools that have successfully enhanced both efficiency and competencies, including shared services infrastructure (CDU state cloud), e-Citizens system, e-Employee portal, and data analysis tools like Power BI, demonstrating that well-designed digital solutions can simultaneously improve productivity and build workforce capabilities when implemented with deliberate attention to skill development.

Key questions that we are looking for answers are:

- Has the push for productivity through digitization and automation been matched by sufficient investment in developing staff's digital competencies?
- Which digital tools or reforms have improved efficiency and strengthened digital skills at the same time?

Picture 2. Investment in the development of digital competencies of employees compared to investment in digitalization and automation



Source: MJPADT – Survey with invitation on Think-tank (n=22)

Examples of a digital tools or reforms from Croatia that has both improved efficiency and strengthened the digital competencies of officials:

☁ Centralized Infrastructure & Shared Services

- Implementation of the Shared Services Center (CDU - state cloud)
- e-Citizens (e-Građani) system³⁵
- e-Employee (e-Službenik) portal
- Centrix (document management system)

📁 Financial and Administrative Systems

- e-Tax (e-Porezna)
- e-Fina
- Office operations through digital tools

📊 Data Analysis and Tools

- Power BI
- Quality management system (kvaliteta.gov.hr) – developing efficiency through digital tools

🏠 Remote and Hybrid Work

- Smart working investment (funded by NPOO)³⁶
- Permits during COVID-19

🧑💻 Digital Skills and Education

- Project "Strengthening digital skills of civil servants and modernizing the digital environment of public administration"
- Mandatory annual IT education
- AI digital tools needed for specific tasks of individual officers

³⁵ <https://gov.hr/hr/postanite-e-gradjanin/2090>

³⁶ <https://mpudt.gov.hr/c2-2-r2-i2/27146>

- Specialized digital tools for specific tasks of individual officers

Citizen vs. Employee Perspective

- e-Citizens (e-Građani) – noted as an excellent example of increasing public services, but from the perspective of end users, not civil servants.

Key discussion points:

- The perception gap: why do some respondents see a balanced investment in technology and people, while many believe competency development lags behind? Is it a matter of visibility, communication, or actual resource allocation?
- The dual nature of tools like e-Citizens: they improve public services but may not directly build civil servants' competencies – how can we leverage such tools to also upskill the workforce?
- The noted resistance from leadership and management to invest in learning and development – is this a cultural issue, a resource issue, or a misunderstanding of ROI?
- How can we systematically capture and scale successful internal training models (like CARNET's) across all institutions?
- The role of remote/hybrid work (NPOO-funded) in building digital skills – is it being used to its full potential, or is it primarily an operational adjustment?

Possible actions:

- Leverage CARNET/SRCE e-trainings (e.g., cybersecurity, network security) and make them mandatory for all civil servants, not just those in technical roles.
- Expand successful e-training modules to citizens to raise overall digital literacy and create a more digitally competent society.
- Review and update the Rulebook on internal systematization to ensure required competencies for civil servants are aligned with digital transformation priorities.
- Introduce competency requirements for "process owners" in change management and project management to lead digital transformation initiatives effectively.
- Develop and disseminate a "Guideline for catalogue of services"³⁷ as a tool for value-for-money digital transformation, ensuring services are prioritized based on strategic goals.
- Establish quality management system and process management standards with accompanying training, positioning them as core digital competencies.
- Create a joint catalogue of digital competency training programmes (led by CARNET and NSPA) to harmonize offerings and avoid duplication.
- Develop a methodology for measuring ROI on learning and development to build a stronger business case for investment.
- Reinforce a learning culture by introducing a new policy for continuous learning, including rolling three-year training programmes based on competency needs and strategic priorities.

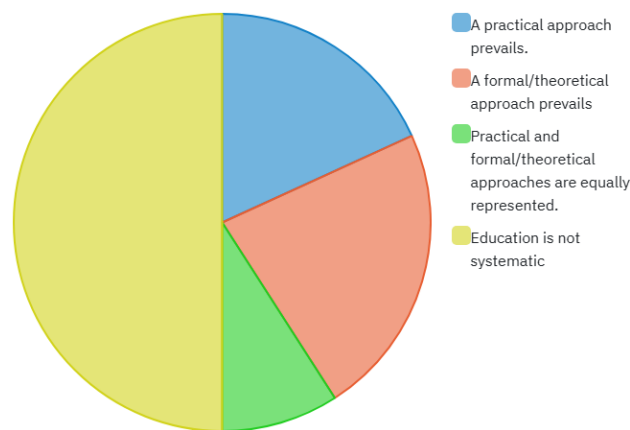
5.3. E-learning, AI and new learning models

This chapter critically evaluates whether current e-learning approaches build practical capabilities or remain largely formal and theoretical, with survey responses indicating that training is often compliance-driven rather than competency-focused. The section explores how AI-supported learning solutions—personalized learning paths, AI mentors, and adaptive content—could revolutionize competence development by offering individualized, flexible education tailored to specific job roles, while emphasizing that AI must be used as a tool to enhance rather than replace human judgment, with civil servants retaining responsibility for verifying and contextualizing AI-generated outputs.

Key questions that we are looking for answers are:

- Has e-learning in public administration been designed to build practical digital capabilities, or has it remained largely formal and compliance-driven?
- How can AI-supported learning solutions (e.g. personalized learning, AI tutors) improve digital competence development of public servants?

Picture 3. Training of officials in institutions focused on creating practical digital skills or is it formally/theoretical oriented



Source: MJPADT – Survey with invitation on Think-tank (n=22)

AI-assisted learning (e.g. personalized learning, AI mentors) assist the development of digital competences in public administration:

Accelerating Business Processes

- Business processes would be improved and accelerated
- AI can speed up the work of civil servants
- Faster problem-solving in daily work
- Acceleration of business processes
- Shortened time for specific tasks

Personalized and AI-Powered Learning

- AI-assisted learning accelerates the development of digital competencies in public administration by providing personalized education.

- AI-powered learning is tailored to each individual civil servant, enabling targeted development of their competencies.
- It would provide an individualized approach to learning and addressing specific workplace challenges.
- An individualized approach is essential.
- AI mentors could track and motivate employees, giving them recommendations for education tailored to their specific job.

Modernizing Education Delivery

- It would accelerate education and attract a new number of participants to offered educational programs.
- Through the establishment of short, targeted courses on a specific topic.
- Through self-paced e-learning.
- It would help by allowing learning to be planned alongside work obligations, broken down into smaller parts, and made practical.

Critical Use and Responsibility

- AI should be used as a tool to enhance knowledge and skills, not as a substitute for the work of civil servants.
- The goal is not for AI to write emails or make decisions instead of civil servants, but to be used where it can truly improve productivity.
- It is important to develop critical use of AI.
- In practice, it is increasingly common for results from AI systems to be used without sufficient verification.
- Responsibility always remains with the civil servant.
- Results need to be understood, verified, and assessed in their context before application.

Practical Needs and Resources

- There are many possibilities; what is missing are paid licenses.

Key discussion points:

- The current state of e-learning: is it primarily compliance-driven? How do we shift from "course completion" to "practical application"?
- The tension between AI as a tool to enhance human work versus AI as a replacement – how to embed this distinction in both training and daily practice?
- The need for critical AI literacy: how to ensure civil servants verify, contextualize, and take responsibility for AI-generated outputs?
- The practical barrier of paid licenses – is this a significant obstacle, and if so, how can it be addressed at a systemic level?
- The role of employee motivation: can AI-assisted learning help by making learning more engaging, personalized, and directly relevant to work tasks?
- How to ensure e-learning content is kept up-to-date with rapidly evolving AI tools and technologies?

Possible actions:

- Redesign e-learning content to be more interactive, practice-oriented, and based on real-life public administration examples.
- Link learning directly to job tasks, with mechanisms to monitor and support the application of new skills in daily work (e.g., assigning more complex tasks that require newly acquired skills).
- Use AI to build competency frameworks linked to KPIs, ensuring learning is aligned with organizational goals.
- Develop individualized learning plans for each employee, using AI to tailor content to their role, skill gaps, and development needs.
- Introduce AI-powered assistants or tutors to provide on-demand, personalized learning support, making learning more flexible and user-centered.
- Implement continuous monitoring of employee progress through practical task assessments rather than traditional testing.
- Establish a process for automatic updating of learning content using AI to ensure relevance in a rapidly changing digital environment.
- Secure funding or centralized licensing for AI tools that support learning and development, removing the barrier of individual or institutional budget constraints.

5.4. Digital governance, leadership and organizational culture

This section examines the critical role of leadership in driving digital transformation within Croatian public administration, revealing that effective digital leaders require a blend of strategic vision, technological literacy, people management skills, and adaptability—competencies best developed through practical, experience-based learning methods such as workshops, mentoring, and peer exchange rather than theoretical instruction. The findings emphasize that public sector leaders face unique challenges in balancing innovation with accountability and legal compliance, requiring them to build trust in hybrid work environments, model continuous learning, proactively address employee wellbeing, overcome institutional risk aversion, and foster collaboration across traditional silos. Ultimately, the chapter concludes that skilled, empathetic, and digitally literate leadership is the essential catalyst for successful digital transformation—without it, even sophisticated technological investments risk failure due to poor implementation, low adoption, and employee disengagement.

Key questions that think tank is discussing are as follows:

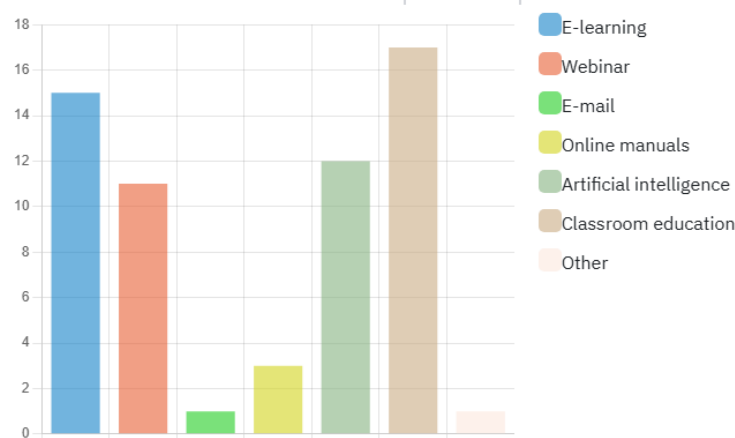
- What does digital governance and leadership mean in public administration and which competencies do managers need to lead in AI- and data-driven environments?
- How can leaders foster motivation, collaboration and well-being in increasingly digital and hybrid workplaces?
- How to support leadership that invests in people's motivation and well-being at work?

Picture 4. Competencies needed for management to effectively lead digital transformation



Source: MJPADT – Survey with invitation on Think-tank (n=22)

Picture 5. Optimal learning methods optimal for managers to effectively lead digital transformation



Source: MJPADT – Survey with invitation on Think-tank (n=22)

Key discussion points:

- The polarised environment within institutions: how to address the inconsistency where openness to digital tools depends on the individual manager rather than a unified institutional strategy?
- The unique challenges for public sector leaders: balancing innovation with accountability, legal compliance, and risk aversion – how to support them in navigating this tension?
- The finding that effective leadership competencies are best developed through practical, experience-based methods (workshops, mentoring, peer exchange) rather than theoretical instruction – how to institutionalize these methods?

- The role of leaders in modeling continuous learning and building trust in hybrid work environments – is this currently being practiced or just preached?
- How to foster collaboration across traditional silos and overcome the rigidity of the system?

Possible actions:

- Develop and mandate a leadership development program focused on digital transformation, using practical methods: workshops, mentoring, peer exchange, and exposure to good practices from other countries.
- Introduce a requirement for leaders to demonstrate their own openness to new tools and processes, setting an example for employees.
- Establish a mechanism for cross-institutional collaboration where leaders can share challenges and solutions, potentially including partnerships with start-ups and small businesses to co-create solutions.
- Create a "safe space" for experimentation within institutions, encouraging leaders to pilot new approaches without fear of punitive consequences for failure.
- Integrate AI and digital literacy into leadership competency frameworks and performance evaluations, ensuring it is a recognized and rewarded skill.
- Offer tailored, time-efficient live training sessions for managers (e.g., short, focused workshops) that respect their schedules, alongside optional e-learning.
- Implement a mentoring program where digitally-savvy leaders support those who are less confident in adopting new technologies.

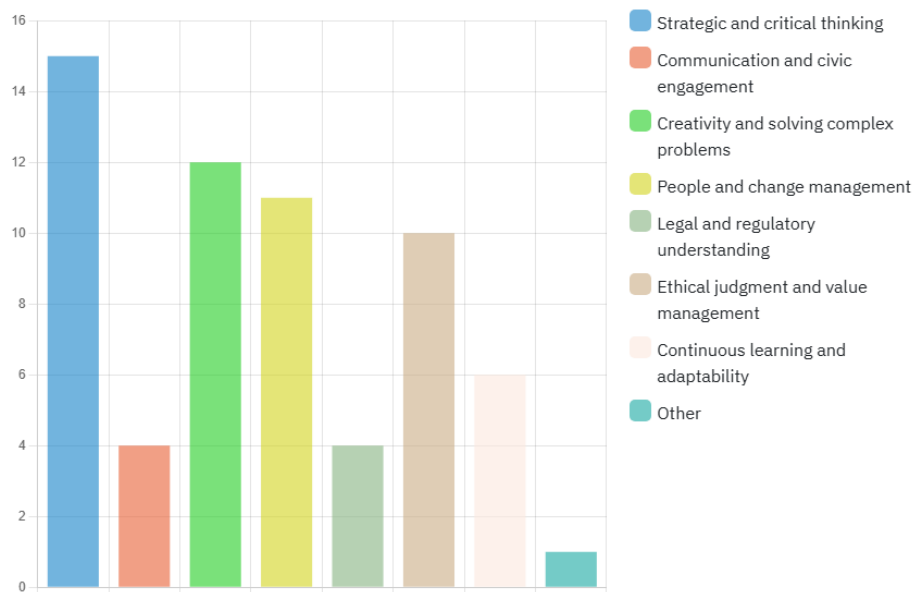
5.5. Human roles in the age of AI

This section investigates which uniquely human competencies remain essential as AI systems are integrated into public administration, with survey respondents prioritizing critical thinking, ethics and moral judgment, empathy and interpersonal skills, creativity and innovation, and contextual understanding. The section argues that rather than competing with AI, public administration must deliberately cultivate these complementary human capabilities, redefining professional roles—including trainers, HR professionals, and managers—to focus on areas where human judgment, ethical reasoning, and relational skills create value that algorithms cannot replicate.

Key questions that think tank is discussing are as follows:

- Which human competencies will remain essential as AI is introduced into public administration processes?
- How should public administration redefine professional roles (including trainers, HR and managers) to complement AI rather than compete with it?
- Can we anticipate the threats and opportunities associated with the impact of artificial intelligence on human creativity in public administration?

Picture 6. Competencies that are crucial despite the introduction of AI in public administration



Source: MJPADT – Survey with invitation on Think-tank (n=22)

Key discussion points:

- The cultural challenge: how to shift from a mindset focused on "production and paperwork" to one that values creativity, critical thinking, and co-creation?
- The systemic rigidity: how to overcome the fear of mistakes and the lack of feedback loops that currently stifle innovation?
- The complementary role of AI: how to redefine professional roles (trainers, HR, managers) to focus on uniquely human competencies (ethics, empathy, contextual understanding) while AI handles routine tasks?
- The potential for AI to enhance, not replace, human creativity – what specific mechanisms (e.g., brainstorming sessions, innovation workshops) can foster this?
- The example of e-Enrollments: how can such successes be used as proof points to build trust in digital systems and overcome resistance?
- The draft plan for AI development and public consultation – how to ensure it addresses not just technology but also organizational culture and human roles?

Possible actions:

- Adopt and implement a self-assessment tool (e.g., the DigComp framework - <https://digcomp.digital-competence.eu/>) for digital competencies in public administration, tailored to different roles and institutions.
- Develop and promote a framework for evaluating digital competencies, moving beyond course completion to practical demonstration of skills.
- Launch a cultural change initiative that explicitly encourages experimentation, proposing new solutions without fear of mistakes, and includes regular innovation workshops and brainstorming sessions.

- Redefine professional roles to emphasize human judgment, ethical reasoning, and relational skills, and integrate these into job descriptions, performance reviews, and training.
- Use AI to automate routine tasks, freeing up civil servants to focus on ideation, creativity, and strategic work.
- Leverage the public consultation on the AI development plan to explicitly address cultural and organizational barriers, not just technical requirements.
- Develop case studies and success stories (like e-Enrollments) to demonstrate the value of well-designed digital systems and build trust among both civil servants and citizens.
- Establish feedback loops for digital initiatives, ensuring that learning from successes and failures is systematically captured and shared across the administration.
- **Let's not just talk — let's take actions!**

5.6. Enablers for future development of digital competencies of civil servants in Croatian public administration

Following the survey results we can group the enablers in following categories:

Continuous Learning and Improvement

- Continuous learning and professional development
- Continuous learning and practical application of digital tools in daily work
- A systematic and continuous approach to learning, not random and sporadic engagement of consultants
- Continuity, alignment with work obligations

Mindset and Cultural Transformation

- The future development of digital competencies lies not just in learning new software, but in a comprehensive transformation of the way of working and thinking.
- Readiness for change
- Faster adaptation to new and better solutions
- Ethics, communication, and collaboration

Practical Application and Skills Development

- Practical application of digital tools in daily work
- Access to digital tools and education on their practical use
- Lots of training and breaking down fears of using digital tools and AI
- Developing programs that combine basic digital literacy, data work, and understanding of new technologies like AI

Strategic and Systematic Approach

- Faster adaptation of existing and development of new educational programs for raising digital competencies
- Introduction of a digital competencies framework

- A systematic approach and fast, timely establishment of new educational programs in line with changes
- Better planning based on required competencies and priorities
- Ensuring sufficient resources and commitment at all levels

Critical Thinking and Responsible Use

- Adaptation to new technologies, continuous skill development, and critical thinking
- Critical thinking and continuous learning
- Strengthening the ability to critically use tools
- Efficient and safe application of AI

Motivation and Leadership

- Motivation
- Desire for change
- Mandatory education
- Leadership role of managers - developing digital leadership to encourage innovation, manage change, and create an organizational culture that supports learning
- Motivation, continuity, alignment with work obligations

6. Conclusion

The development of digital competences in public administration cannot be reduced to a checklist of training or the introduction of new tools. It is fundamentally about people, management, and organisational culture. Several overarching themes have emerged from the analysis and the World Café discussions, pointing to both persistent challenges and clear pathways forward.

1. The crucial role of management

Managers hold the key to successful digital transformation. Being a manager means more than holding a title—it means actively taking care of people, understanding how work is done, setting targets, and focusing on development. A manager’s role includes asking each team member: *How will you develop in the next 12 months?* Development must be seen as a shared responsibility, from staff members to senior leaders. The focus should shift from daily routines to continuous improvement and forward movement.

In practice, this requires managers to move beyond administrative oversight and become true leaders—showing the way, not just enforcing rules. As one participant noted, the Finnish experience with new public management in the 1980s gave managers autonomy and liberty to manage, rather than simply follow regulations. In the Croatian context, managers must become “torch holders”—finding and empowering those who can drive change, and holding them accountable for results.

2. Mandatory vs. voluntary learning – a balanced approach

The term “mandatory” carries a double meaning. On one hand, new employees should be invited—or even required—to participate in training programmes that develop their capabilities. On the other hand, learning is ultimately a matter of free will. If an individual is not willing to learn, no mandate can force genuine competence development. Therefore, while structured onboarding and institutional requirements are necessary, they must be complemented by intrinsic motivation. Learning must be framed as being in the person’s own interest and as a natural part of professional growth.

3. From traditional training needs assessment to strategic competence planning

Institutional work plans for training are often built on traditional training needs assessments (TNA), statistics, or procurement-driven decisions. These approaches rarely reflect the true strategic needs of the organisation. Instead, competencies should be defined based on the organisation’s strategic goals. The role of managers is to translate those goals into concrete competence requirements. As one example, the European Commission conducted a TNA years ago where coaching was identified as a top priority—a reminder that strategic foresight matters more than following trends.

4. E-learning must be practical, not theoretical

A common criticism of e-learning is that it remains too theoretical: “Very good theory, but can it work in practice?” To be effective, e-learning must be directly linked to real work tasks, interactive, and designed for practical application. Moreover, training possibilities need to be continuously updated based on the organisation’s evolving needs. Managers have a duty to ensure that learning content remains relevant and that employees have access to timely, useful information.

5. Beyond fashion: AI, resilience, and strategic agility

Artificial intelligence has become a fashionable term, much like “resilience” or “strategic agility” before it. The challenge is to move beyond the buzzword and define what AI means in practice for public

administration. What concrete problems does it solve? How does it support civil servants in their daily work? The focus should be on meaningful application, not on adopting technology for its own sake.

6. Cybersecurity as a non-negotiable foundation

Cybersecurity is absolutely essential. Awareness of security risks must be embedded in all digital competence development. As one participant pointed out, even advanced countries face new vulnerabilities—for example, the reliance on cloud services based outside the EU creates dependencies and risks. Solving one problem through digitalisation often opens up new challenges that must be proactively managed.

7. Addressing gaps between institutions and rethinking digitalisation

There is a significant gap between institutions in terms of digital maturity. Too often, investment in digital systems merely replaces old systems without addressing underlying process problems. As a result, old inefficiencies are simply transferred into the new digital environment. Productivity gains remain temporary unless the entire system is reformed to unlock the added value of digital tools. A powerful example comes from the Finnish Tax Administration, which designed its services so that citizens no longer need to contact them at all—true transformation, not just automation.

8. Implementation matters – the Aristotelian vs. Platonic manager

Ultimately, implementation is what counts. An “Aristotelian manager” cares about how things work, while a “Platonic manager” is satisfied with the idea of a solution. Digital transformation demands the former: managers who take responsibility for execution, who support their teams, and who ensure that investments in technology and skills translate into real change.

9. Digitalisation is a tool, not the master

Throughout the discussions, one message stood out: digitalisation is a tool to be used, not the master of the organisation. People must remain at the centre. The spirit of learning, curiosity, and optimism should be nurtured, not killed by rigid systems or bureaucracy. Public administration must become an environment where employees feel safe to experiment, learn from mistakes, and continuously improve.

In summary, closing the digital competence gap in Croatian public administration requires more than training courses or technology investments. It demands a fundamental shift in management culture—from title-holders to active leaders, from compliance-driven learning to strategic competence development, and from seeing digitalisation as an end in itself to using it as a means to serve citizens and employees better. The path forward lies in combining clear institutional frameworks with human-centred leadership, practical learning, and a relentless focus on implementation.

Annex 1. Survey for think tank on digital competencies

Think Tank on the development of digital competences in public administration - DŠJU - 20/3/2026

Think Tank on the development of digital competencies in public administration, with a focus on Croatian public administration

March 20, 2026, from 10:00 to 13:00 at the premises of the State School of Public Administration (Medulićeva 36, Zagreb).

The presenters are Finnish experts in competence development, good governance and public administration Riitta Paalanen and Ari Sihvola.

The goal of the event is to discuss and reach conclusions about the challenges of digitalization and artificial intelligence in public administration, the importance of human resources and the future of learning and development in a digitalized world.

Please register your participation via the online questionnaire no later than Tuesday , **March 17, 2026** .

The online questionnaire, in addition to registration, will also serve us to prepare material for the group discussion, and we invite you to answer all questions.

1. General information

Please enter your answer(s) here:

- Name
- Surname
- Institution
- Work
- E-mail

2. Digital competences and challenges in public administration

2.1. What digital competencies do you think are most lacking in Croatian public administration? (tick up to 3)

Please select 3 answers.

Please select **all options** that apply to you:

- Data literacy
- AI literacy
- Cybersecurity awareness
- Digital service design
- Digital project management
- Using digital tools
- Other:

2.2. Where do you see the greatest need for improving digital competences in the Croatian public administration? (short answer)

Please enter your answer here:

3. Productivity, digital tools and employees

3.1. Do you think that enough is invested in the development of the digital competences of officials in relation to the investment in digitization and automation?

Please select at most one answer.

Please select **all options** that apply to you:

- Yes, the investment is equal
- No, too little is invested in civil servants.
- No, too little is invested in tools
- No, not enough is being invested at all.
- I can't estimate.

3.2. Give an example of a digital tool or reform that has both improved efficiency and strengthened the digital competencies of officials.

Please enter your answer here:

4. E-learning, AI and new learning models

4.1. Is the training of officials in your institution focused on creating practical digital skills or is it formally/theoretical oriented?

Please select at most one answer.

Please select **all options** that apply to you:

- A practical approach prevails.
- A formal/theoretical approach prevails
- Practical and formal/theoretical approaches are equally represented.
- Education is not systematic

4.2. How could AI-assisted learning (eg personalized learning, AI mentors) advance the development of digital competences in public administration? (short answer)

5. Digital management, leadership and organizational culture

5.1. What competencies do management officers need to effectively lead digital transformation? (check up to 3)

Please select a maximum of 3 answers.

Please select **all options** that apply to you:

- Strategic digital thinking

- Knowledge of state information infrastructure
- Change management
- Financial management
- Communication and collaboration with stakeholders
- Team motivation
- Ethical decision-making in an AI context
- Other:

5.2. Which learning methods are optimal for executives to effectively lead digital transformation? (choose up to 3) *

Please select a maximum of 3 answers.

Please select **all options** that apply to you:

- E-learning
- Webinar
- E-mail
- Online manuals
- Artificial intelligence
- Classroom education
- Other:

6. Human roles in the age of AI

6.1. Which competencies remain crucial despite the introduction of AI in public administration? (check up to 3)

Please select a maximum of 3 answers.

Please select **all options** that apply to you:

- Strategic and critical thinking
- Communication and civic engagement
- Creativity and solving complex problems
- People and change management
- Legal and regulatory understanding
- Ethical judgment and value management
- Continuous learning and adaptability
- Other:

7. What do you think is key for the future development of digital competencies of civil servants in public administration? (free answer)

8. With what experience, proposal or challenge in the development of digital competences are you coming to this event?

Please enter your answer here:

Thank you for your honesty and time!

Confirmation of participation will be sent to you by email by March 13, 2026.

Your answers will help shape events, reforms and guidelines for the development of digital competences in public administration.