

## Supporting and motivating employees in the adoption of AI in the municipal technical sector service production in Finland

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# Background

## Utilization of Artificial Intelligence in Municipal Land Use Planning and Construction Supervision

Finnish municipalities are simultaneously facing several structural pressures: a declining working-age population, a shortage of skilled professionals, and shrinking funding.

AI technologies are considered one way to address these challenges as part of the digitalization process, but a large proportion of municipal staff have not yet adopted AI in their work.

### **Research Gap**

There is a need for knowledge on AI adoption in municipal land use planning and construction supervision, as research has focused on the private sector and, in the public sector, on healthcare and education.

Municipal technical services in Finland are responsible for tasks that directly affect residents' daily lives and the quality of the living environment: land use planning, construction supervision, municipal engineering design and maintenance, property management, and environmental services.

### **Land Use Planning**

- Master plans, detailed plans, shoreline detailed plans, plot divisions
- Where and how to build?
- Balances different interests

### **Construction Supervision**

- Processing of permit applications
- Supervision of construction work
- Ensuring safety

In Finland, an estimated 3,000–4,000 people work in land use planning and construction supervision. There are dozens of job titles, such as land use planning architect, detailed planner, GIS engineer, permit inspector, technical manager, and permit secretary.

The aim is to increase national-level knowledge and understanding of AI adoption in municipal land use planning and construction supervision

**1** How does AI use appear in municipal technical services from the employees' perspective?

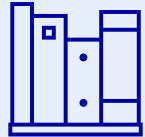
**2** What kind of support do employees feel they receive for AI adoption, and from which sources?

**3** What factors motivate (or would motivate) employees to utilize AI in their work?

## AI = Support Intelligence

- AI (Artificial Intelligence) refers to technologies that mimic human capabilities, such as natural language processing and machine learning, which can function as standalone applications (e.g. Copilot or ChatGPT), as part of software (e.g. in land use planning software), or in data repositories (e.g. predictive models)
- Nobody knows where the AI train is heading, but much is about to change
- Utilizing AI has been particularly challenging in the public sector (legislation, resources, competence, etc.)
- AI (ICT) is just a tool! People are at the centre of operations, both in service production and in services

## Data collection was carried out through a national online survey



**Previous research literature  
and design of the online  
questionnaire**

Spring–Summer 2025



**Email survey sent to  
approximately 2,600  
employees**

September 2025



**Online questionnaire  
(mixed-method) was  
open for three weeks**

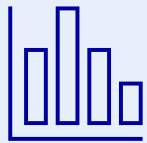
September 2025



**Data analysis  
and results**

September 2025–February 2026

## Aineisto



### **Quantitative data**

Consisted of structured responses, 4/5-point Likert scale.

Use/non-use, reasons for non-use, what is used, how often, competence self-assessment, motivation factors.

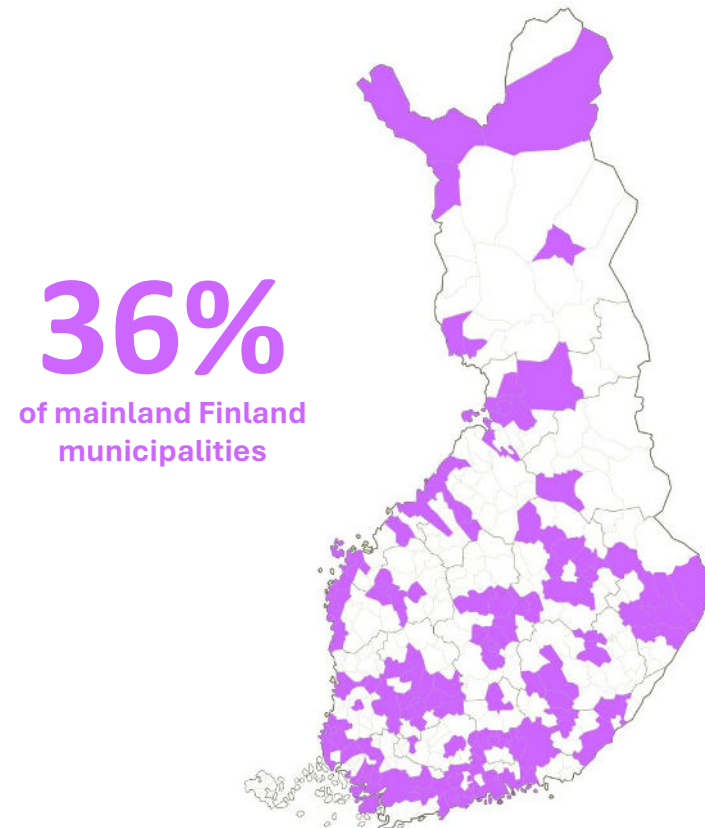


### **Qualitative data**

Consisted of responses to open-ended questions (n=69).

Contained approximately 2,000 words (approximately 7 A4 pages).

Responses were received from 218 employees across 104 municipalities





# Results

## Adoption at an early stage, support weak, motivation moderate



### Use at an early stage, many barriers among non-users

- 61% have tried or use AI
- Of users, 8% use it daily, 39% weekly
- Most common software: ChatGPT and Copilot
- Most common use cases: text production and information search
- Land use planning professionals used AI slightly more than construction supervision employees (66% in land use planning vs. 54% in construction supervision)



### Perceived support weak, colleagues most important

Perceived support low: mean=0.8 (on a scale of 0–3)

Support sources:

- Colleagues: most important source
- IT support: moderate
- Supervisors: moderate
- Management and other administration: low

Most important support factors are technological:

- Concrete benefit
- Ease of use
- Ethical clarity



### Personal benefits motivate, strategies do not

Motivation mean 1.5 (on a scale of 0–3)

Strong motivators:

- Making work tasks more efficient
- Improving quality of work
- Professional development

## Most Common Use Cases



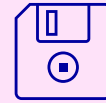
### 1. Text Production, Communication and Administration

- Stylizing texts, improving language, drafting email messages and adjusting tone
- Summarizing extensive reports, agendas, or meeting minutes
- Drafting responses to customer feedback and complaints, as well as preparing bulletins
- Translating texts between Finnish, Swedish, and English, especially in bilingual municipalities



### Information Search and Interpretation of Legislation

- Searching for information and mapping sources
- Searching for and interpreting statutes, regulations, and ordinances
- Checking construction industry terms and concepts in different languages



### 3. Technical Support and Data Processing

- Creating Excel formulas, writing SQL queries for database searches, and Python coding
- Requesting SQL queries from spatial databases and asking for guidance on using QGIS or ArcGIS software
- Editing Excel spreadsheets and routine data structuring



### 4. Domain-Specific Applications

- Using software such as Autodesk Forma for microclimate, wind, noise, and shadow analyzes in land use planning areas
- Building placement and generation and comparison of urban structure alternatives
- Automatic checking of building information models and compliance verification
- Creating illustration images and visual materials



### 5. Prevention and Impact Assessment

- Preliminary assessment of land use planning impacts (e.g. child impact assessment)
- Classification and summarization of resident feedback and opinions

## Qualitative responses support the quantitative findings

*"I don't feel I need support, but I have received tips from colleagues on how AI can be used in content production."*

*"It has been important to receive information from the IT department/the municipality's internal AI team about what is permitted, what data can be processed in AI applications, and what our ethical guidelines are."*

*"My own colleagues and supervisor have been encouraging. Especially seeing colleagues use AI inspires me too, and I get good tips on what they have used it for."*

*"The IT department has answered questions that have been troubling me regarding data security and data protection."*

*"I would like ready-made practices and am not willing to be at the forefront of creating them."*

*"AI seems like a good servant, which should not be made into a master."*



# Recommendations

## Recommendations

### 1. Concrete Pilot Projects and Sharing Successes

The biggest barrier to AI use was the lack of clarity about its benefits. Solving this requires concrete successes that can be shared within the organization.

Municipalities should implement small-scale experiments, selecting motivated employees from different units. For example, construction supervision could pilot preliminary review of permit applications, or land use planning could pilot producing analyzes.

Pilots serve as learning environments where needed support is identified and guidelines are produced for wider deployment.

### 2. Tailored Training and Organizing Peer Support

Insufficient training was a moderate barrier, and staff considered it an important support factor. Training must be task-specific and implemented using a low-threshold approach.

Separate workshops should be organized for planners and construction supervisors, covering concrete use cases during working hours. Internal pioneers within the organization should be utilized as trainers.

To ensure collegial support, an AI mentor can be appointed in each unit.

## Recommendations

### 3. Resources: Time and Tools

Lack of time was a moderate barrier, and staff considered time for learning important. Management must demonstrate support concretely by allocating resources.

Organizations can allocate, for example, 1–2 hours per week for studying digital tools. Necessary software and licences should be procured when the benefit is clear.

Results showed that a paid version provided by the municipality was associated with frequency of use.

### 4. Clear Guidelines and Definition of Responsibilities

Data protection concerns, uncertainty about responsibilities, and lack of clarity on ethical issues were significant barriers. At the same time, ethical clarity was an important support factor.

Organizations should prepare written guidelines covering data protection (what data can be entered), ethical principles (the public official is ultimately responsible), and quality assurance (blind trust should be avoided). Responsibilities and their distribution must be clearly documented.

## Recommendations

### 5. The Role of Management as an Enabler

Although management support did not emerge as the most important support factor, it plays a crucial role in organization-level change. Results showed that supervisors and managers were more motivated than others, which creates conditions for change.

Management should link strategy to concrete actions. Results from successful experiments should be highlighted. Goals should be realistic. For example, a goal where every team tries at least one application within a year provides a clear direction.

Supervisors should also try the technology themselves.

### 6. External Support and Networking

External support from outside the municipal organization also matters. Online communities were the second most important source of support.

For example, the Association of Finnish Municipalities, regional networks, or system suppliers can facilitate AI user groups where staff share their experiences regularly.

Partnerships with companies and research institutions can be utilized in development work. Trade unions can organize training for their members. Municipalities can also jointly produce guidelines and training materials, which shares costs and harmonizes practices.

## Thanks!



We thank the Finnish Work Environment Fund for supporting the research and the municipal experts for their active participation!

We also wish to thank the experts from the following organizations, who provided valuable comments on the questionnaire: City of Joensuu, KT (Local Government and County Employers), Association of Finnish Municipalities, University of Lapland, Finnish Environment Institute, Ministry of Finance, and Ministry of the Environment.

## Full report in Finnish



### Download

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