

# CITY OF TAMPERE'S DIGITAL ROADMAP

Years 2026–2029

# Roadmap for digital development in the City of Tampere

The Digital roadmap brings together the digital development of the City of Tampere for the years 2026–2029. The purpose of the Digital roadmap is to visualise the development needs related to digitalisation on a timeline across the entire city organisation. It links the changes identified in the operating environment with the measures to make the city's services customer-oriented and proactive.

The Digital roadmap aims to create a vision for the future. It can be used to identify common areas for development, to target resources and to develop skills.

Skilled navigators know that without a compass you can navigate, but without a map you can't find your way. Welcome to the future map of Tampere!

*Maria Nikkilä, Executive Director, Digitalisation and ICT*

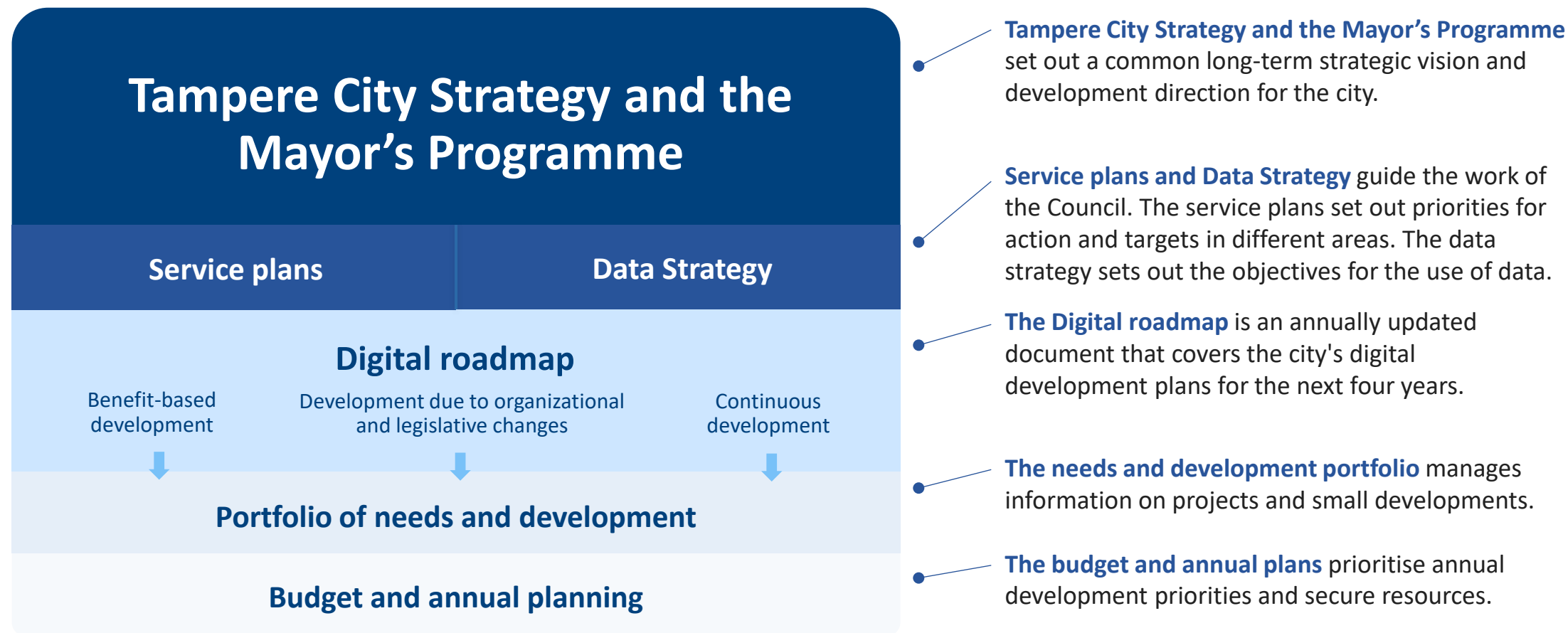
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# 1. Overview of the Digital roadmap

# Digital roadmap as part of city development



# Classification of digital development

## Roadmap for digital development

### Benefit-Based Development

Improving operations through digitalisation, based on service plan actions.

Annually updated benefit-oriented development consisting of a number of selected development themes. The development themes are based on the objectives and sets of measures defined in the service plans. As larger sets of needs and projects become ongoing activities and small-scale development, the development focus shifts to ongoing digital development.

### Continuous Development

Maintaining the service level, optimising the ICT environment, continuous improvement and ensuring continuity

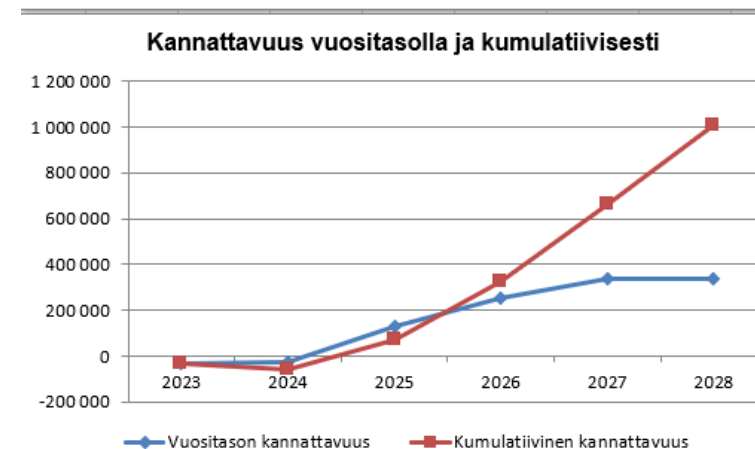
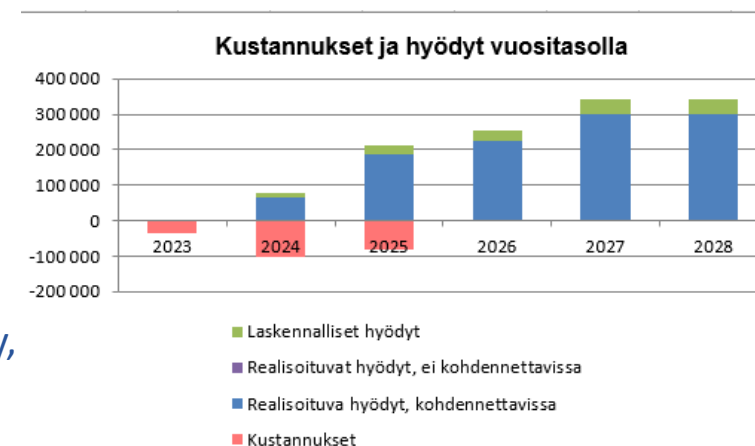
### Digital Development due to Organisational and Legislative changes

CT development resulting from organisational changes or required by legislation, for example.

## 2. Overview and Roadmap of Benefit-Based Development

# Benefit-based digital development

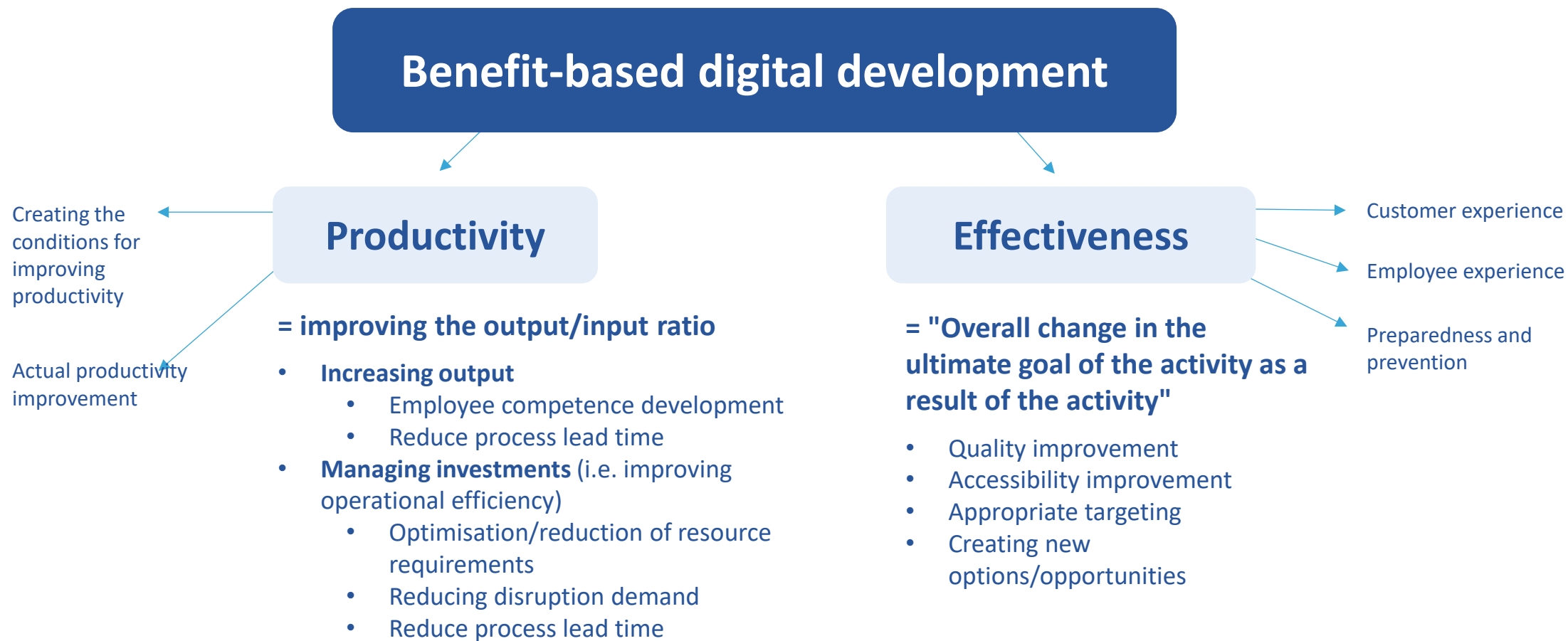
- The starting point for benefit-based digital development is the benefits of change
- At the top level benefits are divided into productivity and effectiveness - Both are important.
  - At the moment, the City of Tampere places particular emphasis on productivity, without forgetting effectiveness
  - It should also be noted that productivity and effectiveness can be promoted simultaneously
- In benefit-oriented digital development, the critical factor is the balance between the anticipated benefits and the resources required to implement the change.
  - All ICT project proposals exceeding €200,000 in the City of Tampere undergo a benefit assessment, based on which the portfolio steering groups decide whether the project proceeds to the planning and implementation phases.



*Diagrams are examples of a project proposal benefit estimate*



# Classification of development needs



# The overall picture of benefit-based digital development themes

## Education and Culture

Developing the digital competence of staff in early childhood education and teaching

Knowledge-based management in early childhood education and teaching

A functional digital path for learners

Digital competence and multi-literacy as part of early childhood education pedagogy

Digitalisation and automation of early childhood education and pre-primary education processes

Development of digital enterprise resource planning and service paths in primary education

Renewal of the City Library's digital platform and digitalisation of logistics services

Digital services for culture, sports and youth services

Increasing physical activity among residents

Supporting inclusion and community engagement

Virtual experience services

## Economic Development & Competence

Development of digital guidance and training services for upper secondary education

Promoting safety in educational institutions

Effective digital solutions in employment and growth services

Development of land use information management and processes

## Urban environment and Infrastructure

Sustainable, functional and safe urban mobility

Development of public transport payment and information systems

Smart urban development and maintenance

Recipes for sustainable urbanisation

## Citywide themes common to the service areas

Supporting the development of digital services

Digitalisation of procurement

Citywide data lifecycle management

A city perceived as safe

Utilising customer data to develop automated and predictive services

Digitalisation of human resource management

Building the Citiverse prerequisites

Automation, integrations and robotics

Strategic business policy and the data economy

Digital development of economic processes

Digital solutions for event development

Data analytics and artificial intelligence

Digital security

# Cross-cutting themes of the Digital Roadmap



## Digital Services

- Improving the customer experience with new digital service solutions
- Streamline work by optimising and digitising background processes



## Knowledge-based management

- Increasing anticipation and readiness for change
- Ensuring timeliness and customer targeting in digital services
- Enhancing governance and promoting data analytics



## Utilisation of Artificial Intelligence

- Applying new smart technologies in services and administrative work
- Experiential in services, learning and events



## Safety

- Ensuring digital security
- Exploiting new digital opportunities in urban and educational institution security

# Education and Culture Services

# Drivers of digitalisation – Early Childhood Education and Pre-primary Education

- **Changes in the operating environment**
  - The number of children, and especially the number of multilingual children, is increasing in Tampere
  - Diversification of children's support needs
  - Realisation of equality in digital services poses challenges
  - Poverty in families with children has increased
  - Increasing the number of devices and equality in the different areas of early childhood education and pre-primary education
    - Challenges include the number of devices available to staff and the age of the existing equipment
  - Improving the digital skills of our staff
  - Two-year pre-primary education may enter into force within three years
    - Creates requirements for systems, facilities and possibly school paths
  - The digital safety of staff and customers is becoming even more important
- **Priorities for the renewal of operations (service plan)**
  - Process development utilizing digitalisation
  - Knowledge-based management
  - Competence development

# Drivers of digitalisation – Basic Education

- **Changes in the operating environment**

- The number of children continues to grow moderately, but groupings become more diverse
  - Multilingual, special and preparatory groups
- Personal equipment purchases for basic education
  - Between 2024 and 2028, all pupils in grades 6–9 will have a personal device
  - The number of teachers' devices will be increased: in autumn 2026, all teachers will have a personal device
- The operating environment is becoming more digital
  - Staff and pupil competence development
  - Utilisation of the pioneering school concept of digitalisation (Ahvenisjärvi school)
  - Regional harmonisation of application usage patterns
- Further emphasis on digital security for staff and customers

- **Priorities for operational renewal (service plan)**

- Developing processes using digitalisation
- Knowledge management
- Competence development



# Drivers of digitalisation – Culture, Sports and Youth Services

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- **Changes in the operating environment**
  - Growing customer expectations, increasing customer numbers
  - Addressing the needs of different customer segments, age/language skills/competence/financial situation/accessibility
  - Improving staff digital skills to meet the challenges of technological change
  - Increased insecurity
  - The expanding city of Tampere and the development of new residential areas
  - Immobility of people
- **Priorities for operational renewal (service plan)**
  - Improving processes through digitalisation
  - Improving the quality and content of services
  - Everyone has access to hobbies and experiences
  - Strengthening inclusion
  - Knowledge-based management

# Digital development themes of education services

Digital map theme	Measures of the service plan	Brief description of the theme
DEVELOPING THE DIGITAL COMPETENCE OF EDUCATION AND TEACHING STAFF*	Process development using digitalisation, knowledge-based management, competence development	The growth of digitalisation creates a need to increase the digital competence of education and teaching staff from early childhood education to the upper secondary level. The use of new technologies, such as immersive technology, the metaverse and artificial intelligence, will become commonplace as experiments are conducted.
DIGITALISATION AND AUTOMATION OF EARLY CHILDHOOD EDUCATION AND PRE-PRIMARY EDUCATION PROCESSES	Process development utilising digitalisation, knowledge management	Customer processes and ERP systems of early childhood education and pre-primary education are being developed. The city is involved in creating a national digital service platform and building an education ecosystem around it.
DIGITAL COMPETENCE AND MULTILITERACY AS PART OF THE BROAD-BASED PEDAGOGY OF EARLY CHILDHOOD EDUCATION AND CARE	Process development using digitalisation, knowledge management, competence development	The increase in digitalisation and the number of personal devices creates a need to increase the digital competence of staff and pupils. To meet this need, a training model needs to be developed to increase the competence of the staff. At the same time, new immersive technologies and artificial intelligence are becoming more commonplace.
KNOWLEDGE-BASED MANAGEMENT OF EDUCATION AND TEACHING*	Process development using digitalisation, knowledge management, competence development	The development of knowledge management and knowledge guidance responds to changes in the environment. The need for information and the number of people using it have increased. New technologies, such as artificial intelligence, bring new tools to knowledge management. Knowledge management is not only about technology and data, but it also requires a cultural change and a commitment to continuous learning and development.
DEVELOPING DIGITAL ENTERPRISE RESOURCE PLANNING IN BASIC EDUCATION AND STREAMLINING USERS' SERVICE PATHS	Process development utilising digitalisation, knowledge management	Customer processes and ERP systems in basic education will be developed. Processes are being digitalised, and efforts are being made to enhance knowledge-based management and the effective utilisation of data warehouses.
A FUNCTIONAL DIGITAL PATH FOR LEARNERS*	Process development using digitalisation, knowledge management, competence development	Establishing a comprehensive digital skills training model. Defining training levels and the requirement for minimum levels, training provision and enrolment, needs mapping and channels for enrolment and training. More extensive use of external partnerships. Experimenting with the use of artificial intelligence in basic education.

\* The theme is shared with the Economic Development, Competence and Real Estate Services , each with its own theme cards

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# Digital development themes of Culture, Sports and Youth Services

Digital map theme	Measures of the service plan	Brief description of the theme
RENEWAL OF THE DIGITAL INFRASTRUCTURE OF THE CITY LIBRARY AND DIGITALISATION OF LOGISTICS SERVICES	Knowledge management, service quality and process development using digitalisation.	Modern systems make it possible to improve the quality of service. Improving processes strengthens both the employee and customer experience. Better management of information and assets will improve resource efficiency.
DIGITAL SERVICES FOR CULTURE, SPORTS AND YOUTH SERVICES	Developing processes by utilising digitalisation, Access for all to leisure activities and experiences, Developing support for the activities of organisations and communities.	New service channels and forms will increase the accessibility and quality of services. Better management of information and assets will improve resource efficiency.
INCREASING PHYSICAL ACTIVITY AMONG LOCAL RESIDENTS	Opportunities for everyone to hobbies and experiences	The aim is to make it easier to start a sports hobby and access sports services.
SUPPORTING INCLUSION AND COMMUNAL ACTIVITIES	Strengthening inclusion	Creating a coherent and structured model for the digital development of inclusive activities.
VIRTUAL EXPERIENCE SERVICES	Improving the quality and content of services	Developing innovative ways to make cultural and artistic content available to citizens using the latest technologies.

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# Economic Development, Competence and Real Estate Services

# Drivers of digitalisation – Tredu

- **Changes in the operating environment**
  - Security-related requirements are increasing: surveillance, access control, information security
  - The need to develop learning environments is increasing
    - Virtual learning environments
    - Improving the efficiency of online teaching
      - Individual learning paths
      - Developing the use of existing tools
  - Increasing emphasis on the use of artificial intelligence in teaching and process development
  - The need to expand guidance and customer service (24/7) is emphasised and requires the digitalisation of guidance services
  - Regional reform of employment
  - The need to utilise data in decision-making and guidance is increasing.
  - The need to develop the overall planning of operations will increase and the possible launch of an ERP experiment
    - Foresight and anticipation
    - Small competence entities and their management (micro credentials)
    - Versatile use of resources (learning environments, staff, booking facilities, registration of attendance)
- **Priorities for the operational renewal (service plan)**
  - Future competence needs and promotion of matching
  - Providing predictive and automated services using data and artificial intelligence
  - Learning environments of the future
  - Developing customer experience and services through knowledge-based management

# Drivers of digitalisation – General Upper Secondary Education

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- **Changes in the operating environment**

- The increase in the number of upper secondary school students poses challenges to the use of facilities
  - Increase in the number of multilingual students
  - Opportunities for hybrid teaching will be enhanced: new technologies, virtual learning environments
- Bilingual general upper secondary education to begin in 2025
  - Application for a licence to organise upper secondary education in English, starting in 2026
- A new unit on the Sport Campus or somewhere else, as well as possibly temporary premises – new ways of thinking for the new unit
- Increasing wireless network capacity to meet demand - infrastructure to support digital development
- Increasing requirements for access management and security
- The need for teaching independent of time and/or place is increasing
  - Online, distance and hybrid teaching and future technologies as enablers
  - Different learners
  - Individual learning paths
- Increasing need for learning support - digital solutions
- Digitalisation of guidance services – guidance and customer service (24/7)
- Versatile use of facilities (booking facilities, registering attendance)

- **Priorities for the operational renewal (service plan)**

- Future competence needs and promotion of matching
- Providing predictive and automated services using data and artificial intelligence
- Learning environments of the future
- Developing customer experience and services through knowledge-based management



# Drivers for digital development - Employment and Growth Services

- **Changes in the operating environment**
  - Weakening of public finances puts pressure on digital development
  - Service structural reforms (HYTE, TE25, KOTO) have changed the interfaces of cooperation at all levels of government (municipality-region-state)
  - Increasing public-private cooperation creates a common framework for developing digital solutions
  - The shared view of the employment area and the cooperation with the KEHA Centre that has not yet been structured, as well as the needs of municipalities for digital services
  - Ageing population and the declining birth rate, the growth of the working-age population is increasingly relying on immigration
  - The rapid development of technology (especially AI) brings new opportunities, but also threats (cybersecurity)
  - The polarisation of the digital skills of private, entrepreneur and corporate customers and employees
  - Unexpected and unpredictable factors (e.g. global changes)
- **Priorities for the operational renewal (service plan)**
  - Anticipating future competence needs and securely increasing the (operating environment) data pool
  - Anticipating business needs in relation to workforce skills (using data and AI)
  - Cost-effective digital services using data and artificial intelligence to promote convergence, entrepreneurship and business growth
  - Promoting the integration and settlement of immigrants through effective digital services
  - Attracting international clients / Start-ups -> Promoting visibility through communication and marketing
  - Providing proactive and targeted services to individuals, entrepreneurs and businesses in a timely and multilingual manner
  - Development of service management
  - Smart remote services complementing local services

# Digital development themes of Economic Development, Competence and Real Estate Services

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Digital map theme	Measures of the service plan	Brief description of the theme
DEVELOPING THE DIGITAL COMPETENCE OF EDUCATION AND TEACHING STAFF*	Future learning environments, Equal study opportunities and education leading to employment, Future competence needs and promotion of matching, Provision of proactive and automatic services	The growth of digitalisation creates a need to enhance the digital skills of educational staff from early childhood education to secondary education. The utilisation of new technologies, such as immersive technology, the metaverse, and artificial intelligence, is becoming commonplace through experimentation. In the future, the importance of multiliteracy will also be increasingly emphasised. Additionally, digital security threats are continuously expanding and intensifying. The significance of digital pedagogical skills for educational staff is growing in line with contemporary demands and the increasing number of personal devices among staff and learners.
A FUNCTIONAL DIGITAL PATH FOR LEARNERS	Future learning environments, Equal study opportunities and education leading to employment, Future competence needs and promotion of matching, Provision of proactive and automatic services	Students and those applying to become students increasingly need diverse options to complete their studies. Versatile digital skills and their utilisation are an important part of civic skills, so it is important to promote them in teaching. The development of the learner's digital path responds to changes in the operating environment. Teaching must meet and anticipate the needs of working life. An attractive employer and attractive training services.
DEVELOPMENT OF DIGITAL GUIDANCE AND TRAINING SERVICES FOR UPPER SECONDARY EDUCATION	Future learning environments, Equal study opportunities and education leading to employment, Future competence needs and promotion of matching, Provision of proactive and automatic services	Students increasingly need diverse options to complete their studies, and teaching and effectively utilising digital skills are essential parts of civic competence. This enhances attractiveness, creates smart technology, and promotes a sustainable lifestyle. The overall planning of educational offerings is being developed from enrolment to employment or further studies, enabling more flexible and individual learning paths. Diverse educational offerings address the varying training needs and challenges of the working life. This requires the development of staff's digital skills.
KNOWLEDGE-BASED MANAGEMENT IN EDUCATION	Future learning environments, Equal study opportunities and education leading to employment, Future competence needs and promotion of matching, Provision of proactive and automatic services	The development of knowledge-based management and knowledge-based guidance responds to changes in the operating environment. The need for information and the number of people using it have increased. Education/training must meet and anticipate the needs of working life. There is a need for cooperation with the employment area and higher education institutions in the planning of the education offering and the content of the education.
CROSS-CUTTING THEME OF EMPLOYMENT AND GROWTH SERVICES, EFFECTIVE DIGITAL SOLUTIONS	Developing impactful digital solutions through knowledge-based management	We develop digital solutions for effective employment services, service guidance and the promotion of matching and entrepreneurship
PROMOTING SAFETY IN EDUCATIONAL INSTITUTIONS	Increasing the sense of security in educational institution properties and learning environments.	Strengthening safety in educational institutions, multi-purpose campuses. Increasing the sense of security in educational institution properties and learning environments. Safety expertise.
DEVELOPMENT OF LAND USE INFORMATION MANAGEMENT AND PROCESSES**	Renewal of operations and service processes: digitalisation of land use processes and development of PALM processes and tools for decision-making	The development of land use processes and information management plays a significant role surrounded by the changing urban environment and legislative changes in construction and land use. Planning and construction project management, enterprise resource planning, and data management and use as development priorities.

# Urban Environment and Infrastructure Service

# Drivers of digitalisation – Urban Environment and Infrastructure Services

## Changes in the operating environment

- Several changes in legislation concerning the built environment, such as the National Built Environment Information System (Ryhti) project, require a change in operating methods and extensive system development by 2029. The scope of the changes will be specified as both legislative amendments and development projects progress. Land use application services are developed as a whole from the perspective of smooth operations and cost-effectiveness.
- Technological development enables a shift towards smarter mobility and housing. Robotisation and artificial intelligence challenge current operating methods, require new kinds of expertise and produce new opportunities to implement existing services more efficiently.
- The growth of the city and the green transition require new kinds of digital solutions, both for the implementation of the transition and for monitoring its realisation.

## Priorities for the operational renewal (service plan)

- Harmonization and enhancement of operating models through ongoing ERP and project management development projects.
- The data produced through the IoT platform can be used to create an even better situational picture and predictability, which improves resident satisfaction, among other things.
- Investing in a customer experience that exceeds expectations. More efficient use of digital and artificial intelligence solutions as part of the customer experience.
- Enabling and managing sustainable growth.
- Development and deployment of the city information model

# Digital development themes

Digital map theme	Measures of the service plan	Brief description of the theme
DEVELOPMENT OF LAND USE INFORMATION MANAGEMENT AND PROCESSES*	Renewal of operations and service processes: digitalisation of land use processes and development of PALM processes and tools for decision-making.	The development of land use processes and information management is important, as both the urban environment and construction and land use legislation are changing. The focus areas of development are land use processes and tools, management of design and construction projects, enterprise resource planning, and data management and use.
SUSTAINABLE, FUNCTIONAL AND SAFE URBAN MOBILITY	Promoting a sustainable transport system and mobility services	A smart and sustainable mobility service chain that meets the needs of a growing city.
DEVELOPMENT OF PUBLIC TRANSPORT PAYMENT AND INFORMATION SYSTEMS	Promoting a sustainable transport system and mobility services; incl. Development of the public transport system	Improving the digital customer experience of public transport, e.g. by developing the payment and information system as well as the park-and-ride service and systems.
SMART URBAN DEVELOPMENT AND MAINTENANCE	Pioneering smart city development and improving productivity	The city information model enables new automated services and the management of the repair backlog of infrastructure assets. The entity will be developed in such a way that it forms a key basis for smart city development.
RECIPES FOR BUILDING A SUSTAINABLE CITY	Carbon-neutral actions, pioneering the future	Utilising sustainability data and new technology (e.g. AI) so that they promote the carbon neutrality goal and the improvement of the state of biodiversity.

\*) Common theme with ELPA

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# Citywide themes



# Central Administration – Themes of Digital Services

Digital map theme	Measures of the service plan	Brief description of the theme
SUPPORTING THE DEVELOPMENT OF DIGITAL SERVICES	Promoting digitalisation	<p>Uniform and smooth experience across different service channels (customer experience)</p> <p>The customer's view of the progress of their own case</p> <p>New digital services</p> <p>Customer-oriented management and development of the overall picture of digital services</p> <p>Elimination of manual work in service processes (employee experience), taking the internal customer into account</p>
UTILISATION OF CUSTOMER DATA FOR THE DEVELOPMENT OF SERVICES	Improving the customer experience	<p>Improves the customer understanding of different actors and helps to develop more effective services</p> <p>Improves customer experience</p> <p>Streamlines customer relationship management processes (internal)</p> <p>To enhance the service guidance of residents and the availability of services</p> <p>Development of the collection and processing of municipal data</p>
STRATEGIC INDUSTRIAL POLICY AND THE DATA ECONOMY	Promoting digitalisation	<p>Unified data management, scalable data-driven services, and better collaboration.</p> <p>Digital development and the Citiverse vision are promoted with digital twins, IoT and predictive planning, among other things. Data-based and AI-based solutions enhance decision-making, the use of resources and the effectiveness of services.</p>

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# Central Administration – Themes for Reforming Operations and Service Processes 2/2

Digital map theme	Measures of the service plan	Brief description of the theme
PERCEIVED SAFE CITY	Utilisation of digital twins and the IoT platform as part of design work, modelling and co-creation.	The need for process development and system support was acute, especially in the management of design and construction projects, and enterprise resource planning. Old systems are being phased out.
DIGITAL SOLUTIONS FOR THE DEVELOPMENT OF EVENT OPERATIONS	Creative and innovative > The Most Attractive City in the Nordic countries	Solutions support the development of an attractive city

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# Corporate Governance – Building an enabling technology foundation

Digital map theme	Measures of the service plan	Brief description of the theme
AUTOMATION, INTEGRATIONS AND ROBOTICS	Streamlining governance processes	Streamlining administration by reducing manual work Improving the quality of services Improving the customer's user experience and making it easier to access information
DATA ANALYTICS AND AI	Streamlining guidance processes	Enables automated and predictive services Streamlining administration with the use of artificial intelligence Development of knowledge-based management / dashboard view (finance, HR, operations, decision-making, outsourced services)
DIGITAL SECURITY	Improving digital security	Ensuring continuity

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# 3. Continuous digital development

# Continuous digital development

- Continuous digital development contributes to ensuring the serviceability, cost-effectiveness and reliability of the existing ICT operating environment
- Continuous digital development focuses significantly on small-scale development, but large projects are also carried out under it, such as tendering and deployments of basic information technology that are carried out approximately every seven years
- ICT service managers responsible for small-scale development (each service has an ICT service manager) together with the ICT service coordination group
  - The ICT service coordination group includes users of the ICT solutions included in the ICT service

## 4. Digital development resulting from organisational and legislative changes



# Digital development resulting from organisational and legislative changes

- The development resulting from organisational and legislative changes will ensure that:
  - The ICT operating environment enables the implementation of organisational change and, in particular, supports the operations of the renewed organisation in the best possible way
  - The ICT operating environment ensures and enables operations in accordance with the revised legislation at least within the prescribed time frame
- In recent years, several corporatisations have been carried out in the development category resulting from organisational and legislative changes, as well as the formation of a wellbeing services county and an employment county
  - New projects in this category come quite regularly, so there is plenty of work in this area as well.

# Contact



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# Follow the progress of digitalisation

[tampere.fi/en/digitaldevelopment](https://tampere.fi/en/digitaldevelopment)

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