Digital Strategy of Reykjavik City

1. SCOPE AND OPERATION

The digital strategy of Reykjavik City encompasses the entirety of the city's activities. When referring to Reykjavik City or the city in this strategy, it includes the municipality of Reykjavik City, all its departments and divisions, majority-owned companies and institutions, councils and committees, and elected representatives.

The purpose of this strategy is to emphasize the city's focus on digital matters for the next five years. A digital strategy in a public context refers to elements such as websites, information, data, artificial intelligence, new information systems, software and other system solutions, cloud services, user software, internet security, and information technology infrastructure such as networks, databases, backups, and access controls.

The strategy is built on the city's existing core strategies, i.e. the service strategy, human rights and democracy strategy, and human resource strategy. It also incorporates the city's information strategy, document strategy, and information technology utilization strategy, which are collectively removed from the application alongside the prevailing value-based digital strategy. The strategy can be further detailed into sub-strategies, such as a welfare technology strategy, innovation strategy, and information technology utilization in schools and leisure activities, etc.

Reykjavik City's digital strategy complies with the requirements for the protection of the rights of others, as defined in the laws on personal data protection, information laws, administrative laws, and municipal laws. It is in accordance with the laws on the reuse of public information. Reykjavik City's digital strategy is also in line with the current strategies of the Icelandic state regarding public digital service (Digital Iceland, 2021), Cloud Solution Policy (Digital Iceland, 2022), Iceland's Artificial Intelligence Strategy (Prime Minister's Office, 2021), the Technology Strategy of Island.is (Digital Iceland, 2021), the Government’s Information Strategy (Prime Minister's Office, 2022), Cybersecurity Strategy (Ministry of Universities, Industry and Innovation, 2022), and the state's recommendations on data classification.

Finally, the strategy aligns with the declarations of the Nordic countries and Eastern Baltic countries regarding Digital North (2020-2024) and Digital rights declaration, Data Act, Digital Service Act, Rules of Artificial Intelligence, and EU Cybersecurity Strategy (CEMR).

The strategy was approved by the Digital Council on [X.X.XXX], City Council on [X.X.XXX], and the City Board on [X.X.XXX].

2. CURRENT STATUS AND MAIN CHALLENGES

The strategies discussed here include the Information strategy (2015), Document strategy (2015), Service strategy (2016), and the Information technology utilization strategy (2018). All of these strategies belonged to individual departments and offices within the Mayor's Office and City Secretary's Office of Reykjavik City, the first one belonging to the information and communication department, and the last three to the service and operations office. An attempt was made by the service and operations office to introduce the city's Web strategy (2017), but an agreement could not be reached regarding its content and responsibility for its implementation. All of these strategies

have now run their course, the first ending in 2020 and the last one at the end of 2022. Only the service strategy has been renewed.

Upon the establishment of the Department of Innovation and Service on June 1st, 2019, responsibility and execution of the document strategy, service strategy, and information technology utilization strategy were transferred to the division, alongside the discontinuation of the service and operations office. Concurrently with the department’s establishment, a new digital Reykjavik office, data services office, and a service and reformation office were set up. These new units were responsible for executing most aspects outlined in the city's information strategy while remaining under the jurisdiction of the Mayor's Office and City Secretary's Office.

During 2020-2022, the perception of the purpose, role, and objective of information technology and digital services changed quickly worldwide due to COVID-19. Like other public entities, the activities and services of Reykjavik City were no exception. Measures that were approved by the city council in mid-2020 in response to COVID-19 and initiatives in the digital road map that were approved in December 2020 as part of the city's Green Plan accelerated the introduction of the digital road map considerably and with it the of development of digital infrastructure. Securing funding for these key initiatives became part of the government's response to the pandemic and rebuilding, and it ensured the support that the city needed to maintain its services to the public and businesses during those challenging times.

At the same time, significant changes have occurred in the landscape of the Icelandic government, which has, over the past three years, published the Digital Iceland Technology Strategy 2020, Green Book, a part of the strategy in the field of cloud computing, basic rules, and information affairs in 2020, a public digital service strategy in 2021, artificial intelligence strategy in 2021, cloud solution utilization strategy in 2022, a cybersecurity strategy in 2022, and draft for the state’s information strategy as well as a plea for data security classification. The government's consultation platform has also announced plans regarding legislation on the implementation of information technology in the state's operations. Implementation refers to the formal framework designed to ensure that investment and operation in information technology support the daily operations of state authorities and services.

Additionally, the Association of Icelandic Municipalities plans to establish a digital strategy for all municipalities. One of the thirteen main objectives found within the Capital Region’s Action Plan is to enhance the importance of digital governance and the utilization of digital technology in the operation of municipalities in the Capital Region.

The city needs to adapt to these strategies, recommendations, and laws as they all affect the city's operations in some way. This development reflects changes in the international environment and the requirements that are now being placed on the public sector worldwide, concerning information technology infrastructure and its security, modern and flexible working environments, and digital services to residents and businesses.

In light of the fundamental changes that have occurred in the global information technology environment and the exponential growth in the development of digital services due to COVID-19, the emphasis that the Icelandic government has put forward and passed in parliament, and how long it has been since most of the strategies falling under the new digital strategy were approved and/or expired, it was considered reasonable to take a different approach when evaluating the city's current status, rather than assessing the impact of previous strategies in this category.

Hence, the evaluation undertaken by Intenta ehf. provides a comprehensive overview of the state of digital transformation in Reykjavik City. The evaluation was conducted for the city in the fall of 2022 to summarize valuable input into the formation of a digital strategy for Reykjavik City and to identify what aspects are important to ensure that such a strategy serves its purpose and delivers the intended benefits. Suggestions were made for potential main objectives of such a strategy and proposals for the composition of specific supporting strategies that must be in place. These suggestions included alignment with the currents, strategies, and priorities in the technology environment that the city should adopt, the city's priorities, and other existing public strategic planning, as appropriate.

The summary indicates that Reykjavik City is well on its way to a digital transformation. Positive attitudes of leaders, investments in various areas, human resource development, and numerous digital projects are clear signs that the digital transformation is progressing. Many tasks have been accomplished to develop and combine front-end solutions and infrastructure resulting in considerable gain in experience from the initial projects. However, much work still needs to be done, and it is clear that the transformation of services will take more time than a three-year funding campaign can offer.

Digital transformation is a lasting change in how services are provided, tasks are performed, and the city operates within the community. It is accomplished in numerous steps and projects, with the involvement of numerous stakeholders and experts in various fields. Reykjavik City needs to lead its own changes, be open, and work purposefully with the users of the services, the employees, the public sector, and service providers in that area. A digital strategy must continue to be followed by investments that support clear actions and adaptation in all areas of operations.

3. VISION, PURPOSE, AND MAIN OBJECTIVES

A vision of the strategy:

Reykjavik City is a service provider where the majority of the city's operations involve providing services to residents, businesses, and guests in one way or another. Reykjavik's digital strategy is based on the pillars of its service policy, emphasizing that all services should be **accessible, diverse, and exemplary.**

Reykjavik is a democratic city where active public participation in decision-making is the key to successful outcomes and influence within the local community. The core principle of human rights is the rule of equality, which underpins all of its services. Therefore, the city's Democratic Policy is a golden thread in its digital strategy, committing to **conduct democratic processes and giving residents a say** in its operations. Additionally, its Human Rights Policy aims to ensure that **everyone enjoys equal rights and protection**, be it physical or digital.

Reykjavik City is a single versatile workplace that aims for professionalism and progressiveness, with a focus on being an attractive workplace for skilled and passionate individuals working for the benefit of the public. The digital strategy also acknowledges the city's human resources policy, emphasizing that it should be **humane, consistent, reliable, and smart.**

Purpose of the strategy:

To support user-oriented services and facilitate easy access for individuals and businesses to obtain services with minimal environmental footprint and self-service capabilities.

To support Reykjavik as a modern workplace where digital solutions enhance all services, making them more efficient and enabling staff to truly accommodate service recipients.

To support the development of efficient, secure, and flexible data and technology infrastructures while increasing the use of digital solutions.

To support democracy and human rights through equal digital accessibility and fair procedure, where digital rights are integrated and fundamental to the city's services.

Main objectives of the strategy:

1. For the service user: The general public and businesses have equal access to exemplary public services delivered through a single digital gateway, tailored to the needs of users efficiently and cost-effectively.

2. For the workplace: Reykjavik's institutions and management possess the latest technology solutions and modern working environments that encourage innovation and flexibility, forming the basis of a better and more efficient work plan.

3. For operations: Information technology is managed in a secure, efficient, and cost-effective manner through reliable infrastructure meeting the public's basic service requirements and contributing to increased flexibility in public services.

4. For society: Security, reliability, data protection, inclusion, fair procedure, transparency, and other rights and protections are integrated and inherent in the design and implementation of digital services, system implementation, and infrastructure development.

4. SUB-OBJECTIVES AND METRICS

Sub-objectives are divided into eight subcategories. Although each sub-category and sub-objective stand independently, it's essential to consider that they are all interrelated, and they mutually influence each other in the implementation and execution of projects and actions under each category.

Sub-objectives:

Cloud Services

1. Service users can access services through self-service, independent of hardware.
2. Service providers share software and resources for staff.
3. The ability to increase or decrease services to respond to changes or meet new requirements.
4. All cloud service usage is measured and analyzed to ensure transparency and control.
5. Workplaces use coordinated office software.
6. The operation offers technical solutions that promote flexibility and more efficient organization.

Software

1. Access to the source code library is open and accessible for the public to review and use.
2. The city's core systems are built on standardized solutions, built with knowledge and experience.
3. All software is continuously improved, and the hosting and operation are efficient.
4. All product development and software design must comply with relevant laws and regulations.
5. The city's IT stack is standardized and transparent.

6. Application programming interfaces (APIs), middleware, and integration are used to connect different systems and solutions.

Websites

1. Open-source web solutions are used in website development.
2. A design standard forms the basis for all design and development, and general design rules apply.
3. Active monitoring of web traffic and content quality, ensuring sustainable content creation.
4. All information about the city and its services is accessible through a single gateway.
5. A robust search engine delivers accurate and secure results.
6. Machine translations are reliable, and translation memories are powerful, independent of language.

Information

1. Registration, preservation, and processing of documents and information are consistent and system-based, ensuring their origin and traceability.
2. Service users' access to information about themselves is secured and supports transparency and lawful due process.
3. Information on municipal operations, policy, and decisions is reliable, accessible, and displayed proactively by the city.
4. Processing of information requests is automated and based on an approved security classification.
5. Long-term data preservation is ensured per data retention rules and approved plans.
6. All information processing must comply with relevant laws and regulations designed to protect the rights and security of others.

Data

1. The city's data is open, unfiltered, and accessible through web services where possible.
2. An overview of data in the city's systems is available.
3. Data integrity, quality, and security during data processing and storage are ensured by traceability, an integrated environment, and encryption.
4. Data is managed as close to its source as possible.
5. Data architecture, configuration, maintenance, and use are consistent across the city.
6. Data is utilized for decision-making in the operations.
7. The city's ownership of its data stored in 3rd party systems is guaranteed in contracts.

Artificial Intelligence

1. The use of artificial intelligence is reliable, legal, and dependable.
2. Systems and models based on artificial intelligence are transparent and access to algorithms is unrestricted where possible.
3. Artificial intelligence systems and models enable people to make informed decisions and live according to their fundamental rights.
4. Artificial intelligence systems are secure and have defined safeguards to address conflicts.
5. Inherent biases or variations in AI decision-making and algorithms are prevented.
6. Appropriate monitoring and oversight of artificial intelligence actions and decisions are in place.

Technology Infrastructure

1. Technology infrastructures are modern and powerful, promoting security and efficiency.
2. Systems, services, and technological innovations support efficient service by the city.

3. The design and composition of all information technology are simple, purposeful, and flexible.
4. User software and technical services at the forefront support diverse activities.
5. The operation of web systems and digital solutions is cost-effective and secure.
6. The network environment is efficient and ensures secure high-speed connectivity.

Cybersecurity

1. Security arrangements, risk analysis, and high resilience for vital infrastructure are robust, and the city's response capability for cyber threats and damage mitigation are ensured.
2. Security requirements in all software development are in line with international standards and practices.
3. Service users have maximum security and protection of personal or sensitive data.
4. City data that is not stored in the cloud is kept in a high-tech data repository, with data security measures in place.
5. Stringent security requirements are set for the purchase of software and new information systems.
6. Special attention is paid to security threats inherent in the outsourcing and use of third-party information technology services.

Metrics

Each subgoal should ideally be accompanied by no more than three metrics that measure the progress of the goal objectively. It is advisable to present a baseline and benchmarks for, e.g., the next upcoming year and, e.g., the last year covered by the policy/plan. The benchmark is a numerical value on the metric that the aim is to achieve by the end of the relevant year and relates to the goal. A metric can also be that an action is completed.

5. ACTIONS

The Action Plan for Reykjavik City's Digital Policy will be developed following its approval. The plan will be updated annually and its creation will coincide with the city's budgeting and financial planning, both on an annual and five-year basis. Therefore, it will be presented in a separate document for budget and financial planning, outlining actions that are either in progress or planned. These actions will become more detailed through projects approved regularly by the project council of the Service and Innovation Division and confirmed afterward by elected members of the city’s digital council, depending on feasibility and budget allocations.

6. IMPLEMENTATION, ASSESSMENT, AND OVERSIGHT

A digital council, according to the law, is responsible for shaping the policy in its respective category, making decisions, and ensuring compliance with the city's approvals and directives. Thus, the fundamental tasks of the council are to shape the policy for city operations, prioritize the allocation of financial resources for its implementation, actively monitor the implementation, and address emerging issues.

The Service and Innovation Division has the primary responsibility for implementing Reykjavik City's digital policy and as a result the execution and management of measures outlined in the action plan. The Service and Innovation Division serves as the framework for the dynamic work needed to respond rapidly to changes in both the external and internal environments of the city. The

framework facilitates the handling and management of the resources that Reykjavik City and the digital council utilize to achieve their objectives.

In line with the timetable and work plan of the budgeting annually presented to the city council, the digital council, in cooperation with key managers in the Service and Innovation Division, prepares the budget for next year and the next five years based on the current five-year plan. The division is responsible for reviewing the annual action plan, and during work sessions of the council, it reviews the emphasis and prioritization of the committees in their operations and investments for the following year. In addition, the committees submit recommendations on emphasis and prioritization in the categories for the next five years. Finally, the council approves drafts of the work and financial plans in line with the council's set policy in the categories and the committees' decisions on emphasis and prioritization for each year.

The head of the Service and Innovation Division is responsible for defining key figures and performance indicators for the division, conducting performance assessments, collecting measurements, and publishing them in quarterly reports, along with financial plans and status reports submitted every quarter. The success of the actions depends on the correlation between the capacity and expertise of the Service and Innovation Division, the demand in the city's internal environment, and the changes and developments in the external environment.

A digital council is responsible for ensuring that the digital policy is followed in the operations of the Service and Innovation Division in compliance with its legal oversight responsibility. The oversight takes place in various ways, including the presentation of information about the progress of projects and challenges, presentation of briefings, reports, and meeting minutes, submission of accounts and summaries of key performance indicators in the operation, presentation of performance assessments on defined actions, responses to queries and other responses at council meetings.

The strategic management of a digital council always revolves around achieving maximum success based on its understanding of what the city wants to be and become at any given time. Effective targeted management also requires meeting important prerequisites and axioms.

Professional and substantiated information brings out clear choices and supports the sound decision-making of a digital council. Therefore, significant emphasis is placed on ensuring that the council is regularly informed about the development of important aspects in the Service and Innovation Division and the impact of trends and policies in the external environment on the operation, both now and in the future.

In conjunction with this policy, the following rules are reviewed and confirmed by a digital council:

- Rules regarding mobile phones, smart devices, and employee remote access
- Operational rules regarding document management, handling of correspondence, and delivery to the document department
- Rules on general access restrictions and content on the World Wide Web
- Rules on voice recording of phone calls and the processing of personal information generated in digital communication with Reykjavik City
- Rules on computer use at Reykjavik City

Also, the following standards:

ISO27001 Information Security Management System