MMM / MANE – MAKERA

MUlti-location, location-INDEPENDENCE, and the rural knowledge economy

Final report Jan 1 2023

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# INTRODUCTION

The knowledge economy has traditionally been an urban phenomenon due to the location there of a skilled workforce, specialised businesses, universities and research institutes and the innovations emerging from the networks between these actors. The diffusion of the multi-location approach and of location independent work as well as the partial reversal of migration patterns from the capital region towards the smaller neighbouring municipalities during the COVID-19 pandemic (source: MDI Demographic forecast 2022) presents an opportunity to develop Finland's regional, demographic and rural economic structures. On the other hand, the lack of structural factors in respect of the knowledge economy (an educated and skilled workforce, modern infrastructure, an efficient innovation system and various other institutional factors) may lead to a situation where the “countryside is easily positioned as a place that enables the key specialists of the global knowledge-intensive economy to try out the lifestyle experiments of living and working, and refreshment” (Moisio 2021). Instead of seeing the countryside solely as a bedroom suburb or a remote work location (so-called exogenous development), one should pay more attention to rural opportunities and ways to utilise the potential of rural knowledge workers, as well as ways to promote sustainability transition, the knowledge economy and innovation ecosystems related to the knowledge economy.

## Background

Urban regions with diverse populations and economic structures have traditionally been at the core of the knowledge economy. Cities have plenty of skilled workers, specialised companies, universities and research institutes whose networking supports the creation of innovations (Koste et al. 2020). Urban areas benefit from the so-called accumulation of benefits that allows for the accumulation of know-how and the location of knowledge-intensive companies.

As a result of the proximity of these skill requirements and the actors, the population has traditionally moved to these growth centres which has further implications for regional development (Ritsilä & Ovaskainen 2001). In addition, public investments in the knowledge-intensive economy have enhanced the placement of the knowledge economy in the cities. Cities are often home to universities and anchor companies that operate at the core of the knowledge-intensive economy. This is how cities attract research and development activities, as well as the financing, insurance and consulting activities that are linked to the knowledge-intensive economy (Moisio 2018).

The emergence of the knowledge economy and the jobs it creates have presented a challenge to rural areas in terms of the population, the need for a skilled workforce, innovation ecosystems and the economic structure. High-tech industries typically locate in urban areas, while in rural areas the economic structure is more focused on the processing of natural resources and primary production. Rural areas that have concentrated on basic production and small-scale business operations have thus become economically disadvantageous from the point of view of the information economy, because rural companies are small and far from the centres of knowledge production (Virkkala & Storhammar 2003).

The strategy of the rural policy programme (Maaseutupoliittisen kokonaisohjelman strategia) outlines the novel idea of a knowledge-intensive rural economy from the point of view of sustainability and equality. In this way, one can perceive the new rural knowledge economy more comprehensively. It is about creating value in general, not just about providing services. For example, nature and immaterial goods, such as silence, are commodities of the experience economy. That is a kind of knowledge economy that increases local vitality and well-being (Kuhmonen ym. 2020).

The research literature has tried to determine whether the information sources of rural companies are mainly located

in the cities or can sources and intermediaries of information, based on the local information, emerge in the countryside as well. Research suggests that there are KIBS (Knowledge Intensive Business Services) that primarily operate in urban nature but is also possible that knowledge-intensive businesses and the information needed by such operations could also emerge in the countryside. However, identifying the information located in the rural countryside may require something of a critical re-evaluation (cf. Shearmur & Doloreus 2021). Thus, it would not only be about transferring the urban knowledge economy to the countryside but cultivating a knowledge economy from the ground up in the countryside.

The starting point of the study was that the countryside is a challenging environment for the information economy due to the population base, the lack of a skilled workforce and of the necessary innovation ecosystems and the economic structure based on basic production and small-scale business operations (Virkkala & Storhammar 2003). However, decision-makers at the policy level see the emergence of the knowledge economy as an opportunity for rural areas, especially when combined with remote and/or location-independent work.

## Goal

The main goal of the project was to generate information on the effects of the multi-location approach and location independence on a sustainable rural knowledge economy. The research themes of the project were the rural sustainable knowledge economy, the multi-location approach and location independence. The project answered the following research questions: **How do multi-location and the development of location independence affect the rural sustainable knowledge economy? In which ways could location-independent entrepreneurship be promoted?**

## Materials and Methods

The research process included a literature review and the definition of concepts, as well as a comprehensive quantitative overview of the current state of the knowledge economy in rural areas (based on separate data from Tilastokeskus (Aro and Ruokonen 2022).

The importance and development of multi-location and location-independent working and the knowledge economy in rural areas were studied further by means of expert interviews, an online survey for the municipalities, companies and Leader groups; a Nordic benchmark review (Teräs and Turunen 2022), and three case studies. The case studies looked at different types of rural areas and forms of multi-location (remote work, remote work vacation and moving to the countryside in Kittilä, remote work and commuting out in Vesilahti; and commuting in and remote work in Vieremä (Sinerma et al. 2022).

The future of multi-site knowledge work was mapped using scenario work. Based on various scenarios three case areas were used, with probable futures drawn up from future work (an expert workshop and youth workshops in Lempäälä and Kittilä) (Ruokonen 2023). In addition, the best ways in which to promote multi-locational and location-independent knowledge work in rural areas were mapped through interviews, documents and a workshop.

## Implementation

The effects of multi-location and location independence on the rural information economy (MATTI) project was

carried out by Regional Development Consultants MDI Public Oy with Norrum Oy as a subcontractor.

Research was carried out by MDI specialists Sari Rannanpää (responsible researcher), Samuli Manu, Rasmus Aro, Henrika Ruokonen, Janne Sinerma and Sebastian Hovi. Jukka Teräs and Eeva Turunen participated in the work undertaken by Norrum.

The MATTI project took place from August 15, 2021, to December 31, 2022.

The project was financed by the Ministry of Agriculture and Forestry in Finland, based on a request from the rural policy council (Maaseutupolitiikan neuvosto). The funds were received from Makera (rural development fund).

# Defitinions

## What does multi-location mean?

At its simplest, the multi-location approach means that people live in more places than before and that their lives include moving and interacting between those places (Rannapää et al. 2022). As such, multi-location consists of living, working, having hobbies and moving between different places (Haukkala 2011). Multi-location can be forced or voluntary while the temporal and spatial rhythms of multi-location can var, often taking different forms. Multi-location can be short-term or long-term, regionally restricted, or extensive. When talking about multi-location, the expansion of meaningful habitats and regional interaction can also be factors here (Haukkala 2011).

Work-related multi-location, such as remote work and commuting, is the most common form of multi-location as well as multi-location related to leisure, such as leisure living and tourism. In addition to this, multi-location can mean e.g., seasonal work, remote care, remote ownership, forced multi-location, children’s cohabitation or study-related

multi-location (Rannanpää et al. 2022). As a phenomenon, multi-location is very broad and includes a variety of rhythmic forms. In this paper, multi-location is understood as work-related multi-location, such as remote work and commuting.

Multi-location is strongly linked to major societal developments, such as globalisation, increased labour market flexibility, household prosperity and changes in family structures. In general, flexibility and the increase in individual freedom in terms of life choices have enabled a more versatile and multidimensional habitat for many. Digitisation and the rapid development of the digital environment has undoubtedly also positively impacted multi-location (Vihinen & Lehtonen 2020).

As a phenomenon, multi-location is not new. It has impacted the Finnish operational environment for years, shaping both living environments and societal functions into what they are today. Despite this, multi-location is still not recognised comprehensively enough in statistics and in decision-making. In the official statistics, every Finn is assigned to one place of residence, regardless of how much time they spend there. The Finnish single-residence statistical system means that these statistics are not able to create a comprehensive picture of the actual situation in the regions (Vihinen & Lehtonen 2020). The actual extent of multi-location has however been captured through Telia's mobile data (Rannanpää et al. 2022), Google's mobile data (Randall et al. 2022) and electricity consumption data (Raun et al. 2022). From the point of view of an individual, multi-location means new kinds of place identities and community roles (Haukkala 2011). Multi-location thus has clear and often significant effects on our social reality. Through multi-location, new forms and norms of community emerge. It is to be expected then that we will look for new best practices of community models and norms in this light.

## Definitions of multi-location work

The definitions of remote, local and hybrid work are linked to the relationship between work and the employer’s location. Remote work takes place outside the actual office. According to the definition by Statistics Finland, the location of remote work is not regulated and it can be done from home, from a leisure residence, a work hub, a co-working space, a library, a café, or even from transportation (Statistics Centre). The essential aspect of remote work is that it takes place in an employment relationship and therefore, all employment legislation and contracts cover remote work. In addition, remote work includes the use of information technology. Remote work can also be undertaken at the employer’s location, meaning that remote work can be defined as working at the actual office as well. In recent years, interest in hybrid work, i.e., a combination of office work and remote work, has grown. It is expected that hybrid work will become a permanent part of the work culture after the COVID1-pandemic. Table 1 outlines the differences between local, hybrid, and remote work and location-independent work.

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| --- | --- | --- | --- | --- |
| **Table 1. The relationship between office and nature of work (on-site work, hybrid work and place-independent work)** |  | *Work performed at the office* | | |
|  |  | **Yes** | **Sometimes** | **No** |
| *An office exists* | **Yes** | on-site work | hybrid | remote work |
| **No** | - | - | place-independent work |

Location independence refers to being independent of time and place in respect of work, with this work able to be undertaken from any location. Location-independent work differs from remote work as remote work refers to work performed outside the office while location-independent work is not tied to any physical workplace (Kotavaara et al. 2020). Whether it is about the place or the time dimension, the idea behind location-independence is arranging work in the most appropriate way. For an individual, location-independence increases the possibilities inherent in multi-location housing and leisure time. The distribution of living environments between different towns will be enabled in a new way in the future when at least some parts of the job can be done independently of place and time (Kotavaara et al. 2020). Digi-nomads are a specific group of location independent people as they combine remote work with traveling (Hannonen 2021). Digi-nomads are often independent workers, such as freelancers or the self-employed.

The definition of multi-location working is not fully established. Depending on the definition, it can either mean working in different offices or co-workspaces provided by an employer (Määttä 2021) or arranging digital work so that it can be done online from several different places (Pekonen et al. 2021). In the first definition, multi-location working is on-site work in different locations, while in the latter definition, multi-location working may include hybrid and/or remote work.

Refining the concepts of multi-location and location-independent working and establishing the definitional terms is important in order that the phenomenon can be viewed analytically and thus that information can be more effectively gathered on it.

## What does the knowledge economy mean?

The knowledge economy refers to that part of the economy formed over the past decades, where information has become a significant production factor and the basis of economic growth (Virkkala & Storhammar 2004). Simply put, the knowledge economy is based on the acquisition, production and distribution of knowledge and on the use of knowledge to generate productivity and growth. The foundation of the knowledge-based economy consists of an educated and skilled workforce, modern infrastructure, an efficient innovation system and various other institutional factors. As a phenomenon, the knowledge-intensive economy is often linked to technology and technological development which can, at its best, lead to strong growth and to the strengthening of national competitiveness (Moisio 2018). Technological transition and the development of technologies are some of the most crucial factors that have created the infrastructure required for the operation of the knowledge-based economy.

Knowledge in the knowledge economy is, however, not always based on technology, as it can also be artistic or aesthetic in various forms (Virkkala & Storhammar 2004). The concept of the information economy has faced criticism for being too simplistic. One can interpret the knowledge economy as a learning economy, where learning and the ability to respond to changing situations are emphasised instead of processing the information (Lundvall & Borras 1998). In other words, in a learning economy knowledge is not an absolute value and resource, while the ability to process and utilise information in ever-changing situations is most important.

The knowledge economy is strongly based on information-intensive work which means work that is based on the processing and production of information and problem-solving. Therefore, in information-intensive work, information is both a tool and a result. Information work is often characterised by independence from place and time making it quite flexible. In the context of knowledge work, the blurring of the dimensions of place and time intertwine, with work becoming a comprehensive part of a person's use of time and daily rhythm (Sutari 2009). Work, independent of time and place, has many effects on the individual.

Information work has the potential to change the entire nature of work and of work careers. Knowledge workers often work in the field of ICT, they have high education levels and their jobs include significant levels of autonomy (Ojala & Pyöriä 2017). Information-intensive work involves the idea of deep and personal input and also of the fragmentation of work (Koivunen et al. 2018).

It is important to note that information-intensive work cannot be directly equated with, for example, remote work. Information work refers to working with information and processing and producing information, while remote work

refers to the way of organising work outside the main worksite (Lemetyinen 2002). Information work can therefore be remote work, but remote work does not fundamentally entail information work.

An empirical examination of information-intensive work is challenging because the TOL2008 classification can describe the phenomenon only partially. It is known that not all work performed in the knowledge work fields is actual information work and that information work is also carried out in fields outside the knowledge work classification. It would therefore be interesting to review how much and what kind of information work is being left outside the examination because of the rigid statistical classifications ( Aro et al. 2021).

Knowledge-intensive organisations and information work (e.g., Muller & Doloreux 2007, Vaillant 2012, Moisio 2018,

Ojala & Pyöri 2017, Henderson 2015) have been widely researched, while little research has actually been done on rural information work, much of which was undertaken some twenty years ago, in the early 2000s (Lemetyinen & Kahila 2003, Virkkala & Storhammar 2003, Virkkala & Storhammar 2004).

Academic research has not covered the sustainability (social, economic and ecological) of the knowledge-based economy, but the research has focused on the effects of the knowledge economy on sustainable development (CantuMartinez 2017, Rezny et al. 2019). Moreover, the premise of this study is the need to develop the competence and awareness required to undertake the green transition. Thus a sustainable knowledge economy is a knowledge economy that promotes sustainable development.

# The current state of multi-location and place independent work

Commuting is quite common in Finland. About a third of those employed work outside their hometown, while about a tenth work elsewhere in their sub-region. Commuting between municipalities is most common between municipalities in the capital region, within urban regions and between large cities (Rannanpää et al. 2022).

Finland has already been a leader in remote work in Europe for a number of years. The pandemic accelerated development tremendously. In 2018, 21% of those employed regularly worked remotely while 14% did so occasionally (TEM 2019). By 2021, 25% of those employed regularly worked from home (14% full time, 11% at least half of the time) (Leskinen 2022). According to the TOL classification, in 2021 the remote job was most common in J – Information and communication, K – Financial and insurance activities, M – Professional, scientific and technical activities, and O – Public administration and national defence. A regional review shows that most remote work was done in Uusimaa Region, where such work was already quite common before the corona pandemic. More than one third of employees in Uusimaa worked from home regularly, while in Lapland the share was only around 15%. The pandemic then clearly made remote work more common, Indeed, in those regions where remote work had, traditionally, been less common (i.e., Northern Karelia, Lapland and Kainuu), it increased the most (Leskinen 2022).

It is however important to note here that not all work can be done remotely. The ability to engage in remote work varies regionally due to differences in economic structure, occupational structure and occupational groups. In addition, organisational structures and work cultures may limit remote work opportunities (Heinonen & Saarimaa 2009). Skilled information work or traditional information work, that can be done digitally (managers, specialists and office and customer service workers), are the most suitable occupations for remote work (Lönnqvist and Salorinne 2022.)

According to Nordregio, 37% of Nordic jobs could, theoretically, be done remotely (Randall & Norlén, 2022) and in Finland the highest remote work potential is in Helsinki, Espoo, Tampere and in Jyväskylä (Randall et al. 2022). According to a Finnish study, Helsinki and Espoo offer greater remote work opportunities than other large cities, due to their prevailing job structures (Lönnqvist and Salorinne 2022).

On-site work is not recorded in the national statistics, nor is hybrid work, but remote work statistics provide indications of these too. In 2018, about two-thirds of those employed did not work remotely (TEM 2019), while in 2021 slightly more than half did not work remotely at all (Leskinen 2022). Those who do not fully work remotely or at the site, work in hybrid mode. According to Statistics Finland, about 27% of those employed worked in hybrid mode (at least half of the time remotely 11%, less than half 16%) (Leskinen 2022).

Location-independent work is increasing, but no solid statistical based is currently available to prove this. According to research from the University of Turku, 30 – 34-year-old specialists, senior officials, or officials with higher education in Helsinki and Uusimaa region are the most active in terms of place independent work (Kovalainen et. al 2021).

As multi-location and location-independent working become more common, the opportunity to work remotely in the countryside has, theoretically, increased. Remote work in Finland takes place mostly in cities, though during the pandemic a lot of remote work was done in peri-urban areas and in the countryside in proximity to these urban areas (Rannanpää et al. 2022).

# The current state of the rural knowledge economy

The urban nature of the knowledge economy identified in the literature is clearly visible in the statistics. A large number of the information workers and knowledge-based jobs are in urban areas, where the share of knowledge-based jobs is higher than average (Aro & Ruokonen 2022). Information work is characterised by its positioning in cities and urban areas. Information work clusters to the biggest cities and particularly to the central city areas where the share of growing knowledge fields (e.g., IT) is high.

The importance of cities here is reflected in the type of countryside are that is successful in terms of attracting such jobs: the closer the rural area is to the city, the more information work there is with a similar structure to that found in the city. Correspondingly, the spillover effect takes place at the regional level, as circles of information work emerge around the large cities. Information work is rarest in those e municipalities which are located furthest from cities.

When it comes to information work, there are notable differences between the regions. This can be explained by the prevailing economic structure and the proximity of or distance to universities. In general, the rural information economy is rather monotone since the importance of education and public actors in rural areas is significant. The closer you get to the cities, the more versatile the structure of the information economy is (e.g., financial services and administrative and support services for business).

Some parts of the rural information work remain hidden due to the TOL-2008 classification. In order to examine the information work within those fields that are not classified as information work (such as industry), more information on the degree of knowledge is required.

According to the online survey carried out in the project, actions aimed at developing the information economy

in rural areas have tried to diversify rural activities and livelihoods, develop companies already located in rural areas, and renew the rural business structure. The target groups of these development activities are primarily those companies operating in the area, the residents of the area and the developers of the area.

# The future of the rural knowledge work

According to the online survey carried out in the project, tourism and restaurant services, primary production and manufacturing industry are the most important industries from the perspective of the rural knowledge industry. Respondents to the survey expected that knowledge economy jobs would be created in rural areas in the next five years, especially in IT, consulting and HR and advertising and marketing. Respondents also thought that the most important requirements related to the development of the rural knowledge economy in rural areas are telecommunications connections, digital skills, enabling multi-location living and attracting companies and networks.

Rural areas play an important role in achieving Finland's sustainability goals in several strategies (e.g., national bioeconomy strategy, climate and energy strategy, circular economy strategy). Similarly, knowledge increase and digital services also have a recognised role in these strategies. There have not been specific strategies targeting the rural knowledge economy however, e.g. bio-economy production services (forest industry and primary production).

# Instruments of multi-location and location-independent work

Multi-location, location-independent work, or the development of the rural knowledge economy have not been specifically pursued by any public policy in Finland. In the other Nordic countries, more ownership of the topic does however emerge through municipal profiling and marketing. Finland has not however produced an active (regional or national) developing approach to multi-location or location-independent work in the countryside. Given this, there are no instruments to directly promote them. Rather, indirect means have instead been recognised (Rannanpää et al. 2022). These means are different in scope and target (e.g., travel expense reimbursement and tax deductions for employees, R&D funding and laws on work time for companies, as well as higher education policy and regional presence policy for state actors). However, it is companies’ own practices that generally affect remote and location-independent work. Therefore, it is not that meaningful to discuss instruments when instead the focus should be on means, as there is no single actor who could direct the development of the multi-locality or location-independence in rural areas, particularly when the baselines and conditions in different rural areas are not the same.

The knowledge base in terms of rural multi-locational and location-independent information work is currently incomplete in respect of information, multi-locational and place-independent work. **Statistics on these three phenomena should therefore be developed at the national level.** The knowledge base should be comprehensively expanded in order to improve familiarity with the concepts with a view to enhancing decision-making. In addition to the overall picture in respect of the information work, more detailed information on special features in the countryside is required so that it is possible to target development programmes effectively and to the right subjects.

A conceptual challenge for the development of rural multi-locational and location-independent knowledge work is that it is related to livelihoods, knowledge workers and the attractiveness of rural areas for working and/or as a place of residence. The phenomenon is difficult to analyse, as companies, workplaces and knowledge workers can be multi-located. To be clear, the concept should be divided into parts and the basic requirements of these parts should be analysed in greater detail. Table 2 lists the prerequisites for information work, information-intense workplaces, and multi-location and location-independent work, that have already been identified in the literature.

**Table 2**. Preconditions of information work, information jobs and multi-locational and place-independent work

|  |  |  |
| --- | --- | --- |
| **Information work** | **Information jobs** | **Multi-locational and place-independent work** |
| ● Functional data connections  ● Education and skills | ● Business structure  ● Professional structure  ● Skilled workforce  ● Knowledge-intensive companies  ● Networks with RDI | ● Functional transportation connections  ● Reliable data connections  ● Suitable online programs and tools  ● Remote offices  ● Workplace practices |

The preconditions for multi-location or location-independent knowledge work in rural areas are generally related to infrastructure, livelihoods and workplace practices. **A working data connection** enables information work to take place. In addition, **a workplace,** such as a remote work hub, regional office, home office, or other, is also necessary. **Knowledge-intensive jobs that are either within commuting distance, in rural areas, or totally location-independent** are required also. These preconditions are significantly influenced by the location, attractiveness, and transport connections of the rural areas, as well as by the economic and professional structures of the area, the degree of information work in the economy and the employees’ flexibility with regard to place-independent work. Public authorities can show leadership in multi-location and location-independent work (and recruitment) by promoting location-independence in those jobs where it is possible.

Infrastructure, its adequacy and functionality, are the foundation of multi-location and place-independent work. The preconditions are not met unless there are **functional transportation and data connections**. In terms of rural vitality, it is critical that government funding for the infrastructure of rural areas is also present. For example, access to a fibre optic cable network in the countryside positively impacts vitality and demographic development (Hirvonen et al. 2020). Without functioning data and a fibre optic connection in a second home or summer cottage, it is extremely difficult to perform knowledge work. In addition, data communication connections play an important role in transitioning traditional employment fields in a more knowledge-based direction.

Good transport connections and a working **service structure** are important for multi-location and location-independent employees because critical services like restaurants and grocery stores are often significant factors in location choice. In recent years, co-working hubs, remote work offices, and other working places have increased the attractiveness of the regions. However, **accessibility** remains at the core of everything. Rural areas do not attract multi-locational or place-independent knowledge workers unless the area is accessible. A functioning and well-maintained transport infrastructure is therefore essential for the rural vitality.

Rural multi-locational and location-independent knowledge work can be developed either exogenously, through external factors, or endogenously, through internal factors. Endogenous development emphasises local resources and innovations as well as a common development vision. One can support endogenous development by strengthening the development capacity of an area (Sotarauta 2018).

Rural multi-locational and location-independent knowledge work can be supported exogenously by attracting knowledge workers to rural areas as residents and remote or hybrid workers, or by promoting the location-independent recruitment or remote work practices of rural companies. In this way, more information workers and know-how related to knowledge work would be available in rural areas. Exogenous factors can also include general changes related to working life and its requirements, for example, the Working Time Directive / Working Time Act and other laws and strategies related to working life, such as the remote work strategy. On the other hand, the endogenous development of rural multi-locational and location-independent knowledge work is based on the development of the rural economic structure and information economy, the establishment of information-intensive companies, rural RDI funding and the merging of traditional rural businesses with RDI activities and innovation ecosystems. The development of a sustainable information economy in rural areas would, on the other hand, require the consistent development of rural-specific clusters related to sustainability issues, bioeconomy clusters, research and RDI funding in such a way that development work is carried out from rural standpoints and in rural areas.

The effective development of multi-site and location-independent information work requires strategic decisions and a better understanding of multi-locality and the information economy by both municipalities and regions. Greater effort should be made to promote remote work, for example, by focusing on regionally strong sectors or by combining a certain development mentality such as smart adaptation. In addition, a national alignment or vision on remote, multi-location and location-independent work development would clarify the orientation and design of development activities. Such an alignment could be realised as a national cross-administrative remote work strategy, as is in Ireland (Government of Ireland 2021a). In terms of practical development, best practices and basic terminology should be collected in a guidebook or an online platform. In accordance with Ireland's Right to Request Remote Bill (Government of Ireland 2021 b) the employee's right to remote work is promoted, and the legal issues related to remote work and location-independent work (e.g., remote work insurance, employment contracts and terms and data security) clarified at the national level. Measures in respect of the national remote work strategy could be included in the set of work environments, operating methods and development services (Työ 2.0). The national remote work strategy would thus support the act on the availability of services, the placement of functions and the implementation of the Finnish digitalisation development action plan “Digital compass” (Digikompassi) implementation. This would support more flexible labour market solutions which would also improve workforce availability.

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