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Government Report on the Future, Part 1

A Shared understanding of the transformation of work

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Abstract			
<p>The first part of the Report on the Future of Prime Minister Juha Sipilä's Government builds a shared understanding of the future of work. The report looks for answers to broad questions exploring the future of working and provides information on the consequences of the changes that are taking place.</p> <p>The transition of working life is perhaps the greatest challenge for Finland, and there is no single, simple solution to it. In this transition the traditional links between growth, productivity and wellbeing may be broken. The consequences for the society may be quite dramatic, but the changes will take some time to happen – the work of the future is characterized by diversity and continuous change over longer periods of time.</p> <p>The report raises questions concerning the social policy of the future and opportunities that we should grasp already today. The key questions are concerned with how the transition of work changes the traditional link between work and earning a living and the regularity, coverage and functioning of the social arrangements and safety networks that support this, while also offering additional impetus and significant opportunities for new forms of organization and self-employment, platforms, sharing economy and joint providership.</p> <p>As the borders between employer and employee, provision and consumption, working and non-working, and entrepreneurship and paid employment are fading, this changes many of the key social structures, including tax base and the customer base of the social security system, and pressures are created to reform the competence base, legislation, and the role of trade unions and protection of interests. The advancement of technologies treats different types of tasks in very different ways and at a different pace and the resources of the labour force are highly varied, which means that there is a risk of growing inequality in working life and on the labour market. These questions take us towards the second part of the report, which is concerned with building solutions and policy choices. The second part of the report will be published in summer 2018.</p>			
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FOREWORD

This is Part 1 of the Government Report on the Future, which builds a shared understanding of the future of work. The transformation of work is Finland's greatest challenge, and there is no single clear solution to it. The transformation of work may break the traditional link between growth, productivity and wellbeing. Even the budding economic growth does not necessarily guarantee the same kind of increase in employment as it used to.

The consequences of the transformation in society can be enormous, but the change does not happen quickly. We have the opportunity to influence what the change involves and means and how it can be influenced. Work is pivotal for the social, human and economic sustainability of society. The nature of working life and the way in which work increases social inclusion affect individuals, enterprises and other communities, as well as society. The report highlights the socio-political issues and huge potential of the future, which can – and should – be seized already now.

The key issues are how the transformation of work questions the traditional link between work and income and the regularity, coverage and functioning of the social arrangements and safety nets supporting this link, and on the other hand, how it provides added momentum and great opportunities for new forms of organisation and self-employment and for platforms, the sharing economy and co-production.

When the boundaries between an employee and an employer, a producer and a consumer, work and non-work, or entrepreneurship and paid work are blurred, the central social structures, such as the tax base or the client base of our social security system, will change, and legislation and the roles of the trade union movement and interest groups will be subject to pressures to reform. Since the advancement of technology treats various types of tasks in very different ways and at different paces, and workers have very different resources, both work and labour markets face the risk of inequality.

The solutions needed pertain to factors such as adoption of the platform economy, revision of social security, strengthening of the significance of work, encounters between self-employed people and those working alone, and the building of a comprehensive, flexible and lifelong skills base. We approach these questions in Part 2 of the report, where we start to build solutions and policy options.

Prime Minister Juha Sipilä

Helsinki, 8 June 2017

1 Introduction

The rationale underlying reports on the future is to identify issues that will require attention over government terms and to lay out the Government's shared ambition for building the future.

The theme of the report on the future issued by Prime Minister Juha Sipilä's Government is the transformation and the future of work. Preparation of the report began in March 2016 and the work will be completed in two parts, in 2017 and 2018. The report seeks answers to broad questions focusing on how work will be done in the future, and it generates information on what the change of work means and how Finland can successfully adapt to the change and seize the new opportunities it brings.

This first part examines how work is changing. Underlying Part 1 is the study 'Toward a shared understanding of the future of work'¹, which was conducted as part of the implementation of the Government plan for analysis, assessment and research for 2016 and was published on 3 March 2017. Apart from the analysis conducted by researchers, in 2016–2017 the report was debated in over 40 different workshops, seminars and discussions exploring the future of work and at over 30 meetings with experts.

The current report is prepared in the Prime Minister's Office utilising the national foresight procedures, which are based on the utilisation of continuous and systemic foresight in decision-making. The aim is to shift the Government's foresight efforts towards a model where foresight and future-oriented thinking are part of civil servants' and decision-makers' daily work. Cross-generational thinking is also an essential element of the Agenda 2030 for Sustainable Development.²

1 Dufva, M., Halonen, M., Kari, M., Koivisto, T.; Koivisto, R. and Myllyoja, J. 2017. Toward a shared understanding of the future of work. Publications of the Government's analysis, assessment and research activities 33/2017.

2 Valtioneuvoston selonteko kestävän kehityksen globaalista toimintaohjelmasta Agenda2030:sta. 2 February 2017.

The result is an updated and well-thought-out situation analysis of the future of work over a time span of about 20 years. What is then changing in work? The report presents five central paths of change and clarifies the associated socio-political issues: the contents and practices of work; the relationship between the employer and the employee; income; skills; and attachment to society. Future work is characterised by diversity and long-lasting change.

The first part of the report is followed by the second part, which will be submitted to Parliament in summer 2018. The aim of the second part is to create a view on the solutions and policy measures needed so that Finland and Finnish labour will do well and will succeed in the future.

1.1 The report helps build the future

Expressing the future in words and active building are, by nature, elements of the report on the future. Thus, the report is not only a neutral analysis and estimation of what the future will look like. The purpose of the report is to raise questions about the kind of future we want for Finland. For the transformation of work, this means, for example, questions about the operating models of industrial society and how they are discarded; or redefinition of the link between welfare and economic growth, or work and the value gained from work; and the consequent need for making decisions, e.g. on social security and taxation.

The purpose of the work on the future is not to predict what will happen in the future. Instead, it helps us to prepare for various paths of change and, through these potential changes, to take a critical look at the decisions that need to be made now. It is also important to shake off the present and the solutions that are based on what can definitely be seen at the moment or what has happened in the past. For instance, the polarisation of work, the labour market and the value of work is one of the key uncertainties and risks that one wants to prevent by foresight. Foresight also plays a pivotal role in efforts to improve work ability, the ability to find work and the ability to provide work.

2 The transformation of work is Finland's greatest challenge

The first observation on the transformation of work that should be made is that it does not mean rapid transition from one way of working to another; instead, it means long-lasting transformation towards a more diverse and versatile world of work.

Underlying the transformation are familiar megatrends, such as digitalisation, globalisation, demographic change, urbanisation and climate change. At the absolute core of the transformation are automation, robots and artificial intelligence, as well as development of the sharing economy and the platform economy. These changes are changing the labour force, the contents of work and, above all, the employer–employee relationship. Revenue logic and the financing of work are also undergoing changes. Intelligent robotisation and automation are increasing the capital intensity of the value added generated by work. One possible scenario is the situation where employees receive a smaller share of the company's value added than before. This is already visible on global and national platforms (Uber, Amazon, Wolt etc.). In that case, the themes of inequality, income redistribution and taxation rise to the fore.

At its most painful, the change is crystallised in the separation of economic growth and work from each other. Even high GDP growth no longer necessarily guarantees a high employment rate³. The ideal of an industrial growth period has slowly crumbled during the past decades, and the recessions of the 1990s and the latter part of the period 2000–2009 have also weakened it. Global unemployment is increasing although the world economy, too, is growing⁴. Economists in the United States are debating growth that does not create

3 E.g. The World Employment and Social Outlook (WESO) reports published annually by the ILO: the latest in January 2017; Maxton, G. 2015. Economic growth doesn't create jobs, it destroys them. *The Guardian*, 21 April 2015.

4 ILO, 2016. WESO Trends 2017: The disconnect between growth and employment, ILO Report, January 12, 2017; ILO, 2016. World Employment and Social Outlook: Trends 2016, ILO Report, January 19, 2016; ILO. 2014. Global Employment Trends 2014: The risk of a jobless recovery. ILO Report, January 21, 2014.

work as it used to⁵, and definitely not the same or equally good jobs as before. In addition, digitalisation already has an important effect on the ability of the GDP to depict economic trends with respect to production and, even more, the wellbeing of the population⁶. Along with the digital economy, the indicators for employment and economic growth need adjustment.

Artificial intelligence is perhaps the single biggest force for change. It has a broad impact on economic growth by changing the nature of the work done by people, as well as the relationship between man and machine⁷. The anticipated impact on work is based, among other things, on the fact that the developing artificial intelligence frees people's time for other, more strongly specialised activities and for the division of work contents in a new way. Workers' autonomy and self-direction increase because everyone can organise his or her own work more efficiently and time is used more for deliberation and decisions on what is done and why⁸. If artificial intelligence can be owned and bought (e.g. IBM Watson), the benefits it creates for the owner and the users must be examined critically. On the other hand, as the employer–employee relationship becomes obscured, these types of delineation may no longer be so necessary.

The transformation of work also involves much uncertainty, as evidenced by the threatening titles of the articles written on the topic, such as 'robots are stealing our work', and by simplifying assumptions and fantasies. The dispersion of global forecasts, for instance on the loss of jobs, is great, from less than 10 per cent to well over 50 per cent. The rate of change or regional and sectoral differences are also uncertain. According to the World Economic Forum, the ongoing industrial revolution will lead to the loss of at least five million jobs in industrialised countries by 2020⁹ – a huge number. It has been estimated that merely keeping the number of unemployed people at the present level would globally require an annual growth of about four per cent¹⁰. It can also be admitted that this is not possible within the planet's limits (without a radical disconnection of growth from environmental impacts) and, as was said above, it is not self-evident that economic growth

5 Coibion, O., Gorodnichenko, Y. & Koustas, D. 2013. Ameriscerosis? The Puzzle of Rising U.S. Unemployment Persistence. *Brookings Papers on Economic Activity*, vol. 44(2), p. 193–260.

6 Kotiranta, A., Koski, H., Pajarinen, M., Rouvinen, P. & Ylhäinen, I. 2017. Digitalization changes the world – are new statistics needed to support economic policy? Prime Minister's Office Reports 2/2017; Sinko, P. 2017. Digitalisaatio haastaa talouspolitiikan tavoitteenasettelun. *Talouspolitiikka kirjoitussarja*, 28.4.2017, <http://vnk.fi/talousneuvosto/talouspolitiikka-sarja>

7 Accenture. 2016. Why Artificial Intelligence is the Future of Growth, <https://www.accenture.com/us-en/insight-artificial-intelligence-future-growth>

8 Tikka, T. 2016. Kun kone ottaa ohjat. *EVA Raportti 2/2016*, p. 56–80. Helsinki: Taloustieto.

9 WEF. 2016. The Future of Jobs. <http://reports.weforum.org/future-of-jobs-2016/>

10 Kasvio, A. 2017. Ratkaiseeko talouskasvun nopeutuminen hyvinvointimme ongelmat? 22 March 2017, <http://anttijuhanikasvio.puheenvuoro.uusisuomi.fi/233988-ratkaiseeko-talouskasvun-nopeutuminen-hyvinvointimme-ongelmat>

would guarantee an increase in employment. Making estimates is challenging, and it is not made easier by the fact that the impacts of digitalisation, robotisation or artificial intelligence are not yet reflected in statistics or other data already collected. Nor does research on work often reach those who are in the most vulnerable position, such as refugees.

An important question is how to increase the social inclusion of people, keep them meaningfully occupied and ensure their income and the financial base of society simultaneously with high unemployment. New definitions of both work and unemployment may be needed in the future.

On the other hand, many aspects of work are still fairly permanent. Looking back, for example teleworking or fixed-term work has increased very little in the first decade of the 2000s. Similarly, the structures of working hours and workplaces still largely comply with the 'eight to four' logic of the industrial society¹¹. Statistics indicate that the majority of current wage earners are doing roughly as well as they did before. However, an extensive debate is being conducted on the quality of working life and the transformation of work. The increasing experiences of uncertainty and apprehension, especially among young people, add fuel to the debate¹². At present, the experience of middle-class misery is highly pronounced in the United States¹³. Although in present-day Finland a large proportion of ordinary wage earners do not see a radical change in their working life, the transformation causes constant uncertainty and deprivation to a large number of workers. Finland has a group of about 250,000 wage earners for whom uncertainty keeps accumulating¹⁴. More than 250,000 people are unemployed, and for instance nearly 80,000 men are permanently excluded from working life. In other words, they are not studying nor are they retired or seeking work – and this group is also growing in size¹⁵. Similarly, the number of people who work more than one job has increased clearly during the past ten years¹⁶. Confidence that education would guarantee a secured job, social advancement and good earnings is faltering¹⁷.

However, the loss of jobs is not the same as loss of work. What's at stake here is the *change* of work.

11 Pyöriä, P. (ed.). 2017. Työelämän myytit ja todellisuus. Helsinki: Gaudeamus.

12 Myllyniemi S. (ed.) 2017. A Look to the Future. Youth Barometer 2016.

13 Smialek, J. 2017. 'Deaths of Despair' Are Surging Among the White Working Class. 23 March 2017, <https://www.bloomberg.com/news/articles/2017-03-23/white-working-class-death-rate-to-be-elevated-for-a-generation>

14 Pyöriä, P. Ibid.

15 Pyykkönen, J., Myrskylä, P., Haavisto, I., Hiilamo, H. & Nord, U, 2017: Kadonneet työmiehet. Helsinki: Finnish Business and Policy Forum EVA

16 Taskinen, P. Sivutyöt ovat yleistyneet. Tieto&Trendit 1/2017, 21.3.2017.

17 Siitälä, J. 2017. Keskiluokan nousu, lasku ja pelot. Otava.

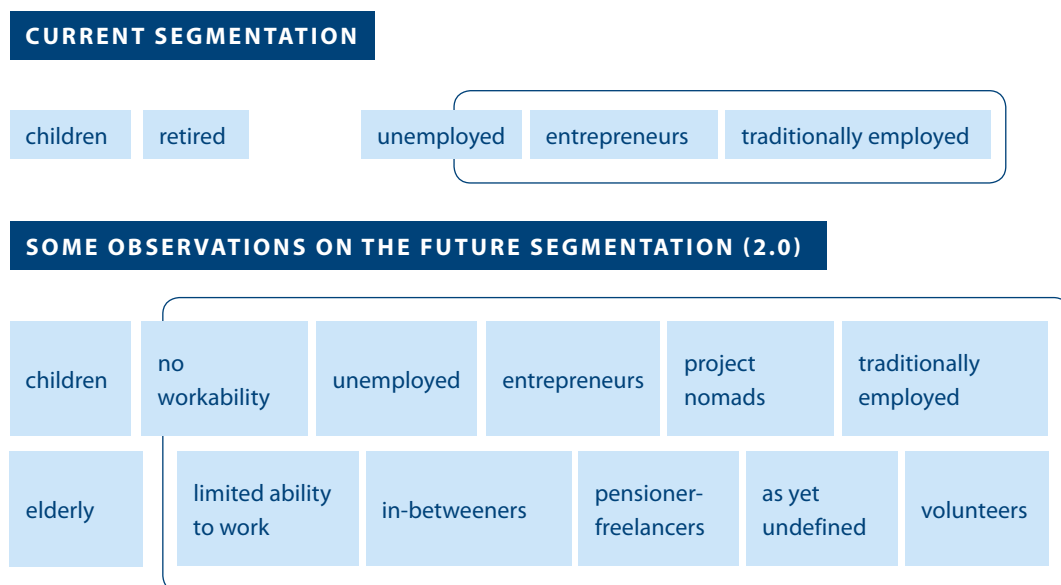
2.1 Consequences of the transformation of work

The change in the global division of labour and its impacts are already well known. Finland's weaker growth prospects and, on the other hand, visions based on sustainable growth were discussed widely, for instance, in the previous report on the future in 2013¹⁸. This report focuses more closely on work, but it is clear that the transformation of work must be examined in a broad social context.

The consequences of the transformation of work are immense and they challenge the very basis of the welfare society, which has traditionally relied on the growth of productivity to increase wellbeing. Apart from the economy and work, society at large will be reshaped¹⁹. On the other hand, even if jobs were lost faster than new work can be created, these changes are unlikely to take place so rapidly that there wouldn't be any time to react to them. This is exactly where forecasting and foresight efforts are helpful as support to decision-making.

The transformation of work questions the traditional segmentation describing work, skills, income and work ability and many of the operating principles of the welfare society associated with this classification. Figure 1 illustrates the transformation by means of the segmentations applied in the welfare society.

Figure 1. Segmentations in welfare society during the transformation of work²⁰



18 Government Report on the Future: Well-being through sustainable growth. Prime Minister's Office Publications, 20/2013.

19 Hautamäki, A., Leppänen, J., Mokka, R. & Neuvonen, A. 2017. Katse ylös kuopasta mahdollisuuksiin. Uuden ajan työ ja toimeentulo. Sitra 2017.

20 Adapted from A. Koivula. 2017. Presentation on the transformation of work, 9 March 2017. Finnish Institute of Occupational Health.

In order to manage the transformation of work, it is essential to revise the segmentation model illustrating work, income and work ability and to take a critical look at the related social functions.

This is a major challenge, and meeting it requires a new kind of understanding of both work and income and also of value formation. Although transformation may also include difficult decisions on relinquishing old patterns of thought and operation, it is still basically an opportunity, not a threat. New forms of work, activity and income open up brand new and meaningful worlds of value creation.

2.2 Debate on the future of work requires a shared understanding

A review conducted for this report examined 86 recent reports and studies on the future of Finnish work in greater detail²¹. The analysis sought factors affecting the change of work, descriptions of changes, images of the future and assumptions about the present. Two lines of debate were identified on the basis of the analysis: a debate concentrating on productivity and the development of competitiveness; and a debate relating to the significance of work. Each discourse alone is deficient, and bridge-building is therefore needed.

2.2.1 Work, productivity and competitiveness

The key question with regard to productivity and the development of competitiveness has been how to put new technologies into use quickly and efficiently, how to streamline organisations, and how to make employees work efficiently while maintaining and developing their resources and functional capacity.

Work processes are automated to the extent this is technologically possible and economically viable. For individuals, work opportunities exist in their own field of competence insofar as having the work done by humans is economically viable. Work is done within the framework defined by the employment contract and in accordance with the relevant contracts. In line with the principles of industrial society, the employer has the principal control over the working arrangements, such as working hours, workplace, tools, the contents of work or the ways the work is done. The viewpoint emphasising productivity is in-

21 Dufva, M., Halonen, M., Kari, M., Koivisto, T.; Koivisto, R. and Myllyoja, J. 2017. Toward a shared understanding of the future of work. Publications of the Government's analysis, assessment and research activities 33/2017.

terested in new forms of organisation, the opportunities brought by digitalisation, and the significance of work mainly as aspects increasing productivity and efficiency.

2.2.2 Work, meaning and the individual

Alongside the debate on productivity and profitability, another ongoing debate emphasises the new forms of labour, significance and open, network-like work. The definition of work is questioned and new definitions are offered, for instance work as meaningful interaction²². The forms of future work differ significantly from the present ones and, for instance, the distinction between the employer and the employee becomes blurred or even disappears completely. Income is obtained from multiple streams, organisations are temporary and changing. Work as routine activity and production of goods is outsourced to machines, and people concentrate on using the machines for problem-solving.

The debate on meaningful work and on the redefinition of work is linked, in particular, with the change in knowledge work brought about by digitalisation and the platform economy. The underlying assumption is that in the future, at least in the Western world, everyone is a knowledge worker to a greater or less extent. In other words, the importance of knowledge in all work will increase. Then the key question is how the prevalence of knowledge work, the frictionless transmission of knowledge enabled by it, and the outsourcing of data processing to machines help people to do something more meaningful. Thus, the definition of work reverts in part to the pre-industrial concept of work as a way of existing in the world.

The viewpoint emphasising significance does not really take a stand on macroeconomic aspects or success in global competition. The significance of work is typically examined from the point of view of a single actor.

2.2.3 How to explain future work?

The discourses summarised above also have many things in common. Both discourses understand that human labour is not coming to an end, but its contents, conditions and goals will change. The future lies in the increasingly deep and seamless collaboration of work done by machines and humans.

In addition, productivity and the significance of work or wellbeing at work do not conflict with each other, even if the debates on them sometimes do. Solutions improving produc-

22 Kilpi, E. (ed.). 2016. Perspectives on new work. Exploring emerging conceptualizations. Sitra Studies 114. <https://www.sitra.fi/julkaisut/perspectives-new-work/>

tivity often produce meaningful work as well. Good management practices that generate productivity, significance and wellbeing at the same time are important²³.

Nor is there anything new in the division of debate lines concerning the future of work. Especially social scientists (Arendt, Dahrendorf, Beck, Gorz, Rifkin, etc.) have discussed the crisis of work-based society, the alternative economy, the dual economy and other similar topics for decades²⁴. For a long time there have been two qualitatively different concepts of work, in which work is realised as two qualitatively different practices. For the individual and society, the problem has been that there is a gap between these concepts and the practical forms. More specifically, the challenge arises from the fact that these concepts and practices do not meet, and there are no transmitting connections between these practices and worlds of meaning.

In type 1 work, goods and services having exchange value are produced in formally managed work organisations, to be used by others. Work in this case means labour that is recognised and rewarded socially in the form of pay, career development and various social benefits (occupational health, earnings-related pension). For the worker himself or herself, the work is manifested as performance. Work is materially rewarding performance that secures the continuity of income.

In type 2 work, benefits and use values are produced for oneself, one's family and peers. For the worker himself or herself, the work is manifested as purposeful and meaningful activity and craft. This also includes voluntary work that is carried out for instance within the family, at home, in kitchens, gardens, sports clubs, hobby circles, clubs, choirs or garages. The work represents meaningful activity in its own right – even without social recognition and career development prospects.

Entrepreneurship and self-employment are included in both types. Entrepreneurship has always gained more importance especially during transitional periods when circumstances become volatile and unpredictable²⁵. Entrepreneurship is often presented as an alternative to static and hierarchical paid work and as an illustrator of new models of action. It has been introduced as an element of all work for example through the concept of intra-

23 Bloom, N., Kretschmer, T. & Van Reenan, J. 2009. Work-life balance, management practices and productivity. In: International differences in the business practices and productivity of firms (p. 15–54). University of Chicago Press.

24 E.g. Beck, U. 2000. *The Brave New World of Work*. Polity Press; Kasvio, A. 1994. *Uusi työn yhteiskunta*. Suomalaisen työelämän muutokset ja kehittämismahdollisuudet. Helsinki: Gaudeamus; Kasvio, A. 2008. *Kestävä työ ja hyvä elämä*. Gaudeamus; Aho, S. 1985. *Työyhteiskunta kriisissä?* In: Kyntäjä, Timo (ed.): *Talouden kahtiajako. Mykät pakot ja vapauden visiot*. Jyväskylä, Gummerus, 75–85; Aho, S. 1988. *Palkkatyö yhteiskunnallisen järjestyksen perustana. Tutkimus palkkatyön normalisoinnin historiasta ja "työyhteiskunnan kriisistä"*. Gummerus;

25 Nurmi, T. 2004. *Yrittäjyyden edistäminen: Yrittäjyyden uusi kuva 2020*. Finland Futures Research Centre, Turku School of Economics.

preneurship. None of these factors alone, or even in combination, can exhaustively explain future work.

New technology and digitalisation are also driving the development of enterprises. The scaling of companies (up and down) takes place considerably faster in the digital economy than in the economy based on industrial manufacture. An investment that develops production, such as an algorithm or cloud service, can be taken into use almost without delay a marked difference to the delay in the acquisition of, say, a new paper machine. In a world of this kind, socio-political questions ask for instance whether the goal is to accelerate or slow down creative destruction²⁶, or how to ease the finding of new work for an individual and the starting of new operations for an enterprise.

26 Creative destruction refers to how the old enterprises, products, sectors and occupations in society give way to new ones. Schumpeter, J. 1942. *Capitalism, Socialism, and Democracy*. 3rd ed. New York, Harper and Brothers, 1950.

3 Central paths of change in the future of work

When it is said that work is undergoing transformation, what does it actually mean? The aim is not to discuss which work or which occupations will disappear and which will not. Instead, the idea is to shed light on a deep technological and economic change that continues over generations²⁷. The principal changes are examined in this chapter.

1. **Changes in the contents, practices and ways to organise work**
2. **Change in the employer–employee relationship**
3. **Change in livelihood**
4. **Change in skills**
5. **Change in the social importance of work**

The time span of the report is long and not all changes necessarily seem tangible yet. However, the aim of foresight work is to open possible futures and to analyse the future critically but with an open mind.

27 See, e.g. Mokka, R. 2017. Entä jos lamasta toivutaan vasta 2050-luvulla? Column, 28 February 2017, <http://yle.fi/uutiset/3-9481664>

3.1 Changes in the contents, practices, places and organisation of work

If nearly everything can be automated and digitalisation and platforms change the ways of organising work and reduce costs

Jobs are lost and professional profiles become blurred, the importance of work is emphasised, economic growth is generated without traditional work, temporary organisations and communities are established

The contents of work, i.e. the tasks and meaning of work, change slowly in step with economic cycles, creative destruction and technological revolution. The first basic idea is that the number of routine tasks is reduced when technology replaces work. Then the number of tasks requiring expert thinking, networking, and innovative and creative cooperation will increase²⁸. On the other hand, at the same time it is exactly these types of tasks and contents associated with knowledge work that will change the most visibly. The second basic idea is the diversification of work into mixed work, which does not mean wider self-employment or gig work but increased variety in the contents of work and the blurring of professional profiles within paid work.

One development path presented is that if no limits to the use of technology are set, all tasks that can be automated will be automated²⁹. Work will be redistributed so that machines do the components that are natural to them while humans do tasks that are difficult for machines³⁰. On this development path, artificial intelligence also supplements highly skilled work and non-routine mental work, and can give legal advice, make diagnoses and even write reports on the basis of data analysis. Technological development also includes many expectations and promises that support economic growth. In visions, machines are capable of doing such a large part of human work so cost-effectively that economic growth without work becomes normal³¹.

28 Kauhanen, A. 2014. Future Labour Markets ETLA Reports No 30. <https://www.etla.fi/wp-content/uploads/ETLA-Raportit-Reports-30.pdf>

29 The Millennium Project. 2016. Future Work / Technology Scenarios 3. <http://www.millennium-project.org>

30 Pajarinen, M., Rouvinen, P. & Etlatieta Oy. 2014. Uudet teknologiat ja työ. Background memorandum for the Future of Work seminar organised by the Ministry of Economic Affairs and Employment in Finlandia Hall on 5 May 2014. <http://docplayer.fi/356185-Uudet-teknologiat-ja-tyo.html>

31 Brynjolfsson, E. & McAfee, A. 2014: The second machine age. Work, progress and prosperity in a time of brilliant technologies. London: W.W. Norton & Company. <http://secondmachineage.com/>

It is often assumed on this development path that, alongside automation, mass unemployment will become a normal state in society. On the basis of the current situation alone, the ILO estimates that 600 million jobs more would be needed globally by the year 2030³². Automation visions require radical rethinking of work, since it is unlikely that a sufficient number of new jobs in the traditional sense would surface. If it is not possible to be attached to society meaningfully other than through work, society may have a whole new ‘useless class’ by 2050³³.

The second development path starts with a more positive setting: the automation of work enables concentration on resolving problems that are really significant. The world won’t run out of work but its nature will change³⁴. Machines and automation support meaningful work. In contrast, jobs and professional profiles, as we understand them now, will change, decrease or disappear. It is essential what one does, not where one works.

The automation of work makes it possible to concentrate on the solution of wicked problems in cooperation with other people and making use of machines. In fact, in the future, the content of work will be determined more through networked interaction and problem-solving.

For organisations, the change will be dramatic: organisations will be placed in the background and significant activities will be raised to the focus. Jobs will become temporary structures dictated by changing needs. Organisations and work practices will move away from permanent hierarchies towards temporary and mobile communities. In this vision, the progression is from work that is clearly bound to a set time, place and employer towards versatile, self-steering work carried out in a multispace environment. In such case it no longer pays to conceptualise work through working hours or places of working or through the employer. Instead, the focus should be on the networks of work and on activities and results. These are worth examining even if at present the elimination of working hours or workspaces is not manifested radically in the ordinary wage-earner’s daily life.

The transfer from hierarchies emphasising control and coordination or from organisations stressing goals handed down from above towards self-organising work communities requires completely different attitudes towards employees, as well as new practices. The employee is not a resource that could be steered and controlled; instead, the employee is an

32 ILO. 2015. The Future of Work Centenary Initiative. Report of the Director-General. ILC.104/DG/1. http://www.ilo.org/wcmsp5/groups/public/@ed_norm/@relconf/documents/meetingdocument/wcms_369026.pdf

33 About the term ‘the useless class’, Harari, Y.N. 2017. The meaning of life in a world without work. The Guardian, 8 May 2017.

34 Kilpi, E. (ed.) 2016: Perspectives on new work. Exploring emerging conceptualizations. Sitra Studies 114. <https://www.sitra.fi/julkaisut/perspectives-new-work/> Koponen, J. & Leppänen, J. 2015. Suomi työpaikkojen jälkeen. In: Haikonen, J. (ed.): Työn murros. STTK Pamflettisarja. <http://www.sttk.fi/files/tyon-murros/>

actor bearing responsibility for the organisation together with its other members³⁵. Thus, instead of individual employees, attention is drawn more to communities and networks, in other words, to how people function together and agree on their roles among themselves³⁶.

It is often considered that the fundamental reason for forming organisations is to reduce the costs of arranging collaboration between people. However, as digitalisation and platforms focusing on the organisation of work have become more common, these costs have been cut considerably. In consequence, the benefits of a relatively permanent organisation of the current type are not necessarily greater than the resulting costs³⁷. That is why future organisations appear as temporary and episodic³⁸. The second alternative is that development shapes organisations so that they become quickly changing and continuously learning.

Future work can be done in virtual space, cafés, at the kitchen table, in public transport or in mobile container factories, and also still in offices and anywhere as necessary. This also poses new challenges for ensuring wellbeing everywhere where work is done³⁹. The workspace is not just a place for hunching over a lathe, a computer or a patient, but a pleasant space where attention is paid to health and wellbeing. Multi-location work requires better common game rules and constant planning of one's own activities. When work can be done anywhere and at any time, employees must know how to ensure their own coping, wellbeing and in part also their knowledge of occupational safety and occupational health. On the other hand, the employer and the work community must also look after coping within the community. If the employer–employee relationship changes (see section 3.2), ensuring coping is divided among increasingly many parties.

Work and leisure already blend with each other more and more in this era of knowledge-intensive work. Instead of working hours, attention is paid increasingly to achievements. When people can connect to data networks and their work anytime and anywhere,

35 Laloux, F. 2014. *Reinventing organizations: a guide to creating organizations inspired by the next stage of human consciousness*. Brussels: Nelson Parker. <http://www.reinventingorganizations.com/>

36 Järvinen, P. 2012. Muuttuvan työelämän tila ja tarpeet Suomessa. TEM raportteja 13/2012. <http://docplayer.fi/15973147-Tem-raportteja-13-2012.html>; Kilpi, ibid.

37 Kilpi, ibid. Laloux, ibid.

38 Andersen, C., Haavisto, I., Kangasniemi, M., Kauhanen, A., Tikka, T., Tähtinen, L. & Törmänen, A. 2016. Robotit töihin. Koneet tulivat – mitä tapahtuu työpaikoilla? EVA Raportti 2/2016. <http://www.eva.fi/wp-content/uploads/2016/09/Robotit-t%C3%B6ihin.pdf>

39 Department for Occupational Safety and Health 2015. *Working Life 2025 review. Effects of the changes in working life and the working environment on occupational safety and health and wellbeing at work. Reports and Memorandums of the Ministry of Social Affairs and Health 2015:16*. <http://www.julkari.fi/handle/10024/125724>

the importance of measuring and monitoring working hours shrinks⁴⁰, is transformed and may even disappear altogether.

All the development paths presented must be reviewed critically. It should be noted that the above descriptions are principally associated with expert work and knowledge work. The transformation of work is very different in different sectors and occupations. Similarly, the adoption of new technology entails various time lags.

As the contents and practices of work are changing, work, working life, workers and jobs are subject to new kinds of pressures. When economic growth comes to a halt and, on the other hand, technological transformation matures, both workers and organisations are expected to be continuously learning, innovative, flexible, mobile and networking.

It is often assumed in this discussion that people are automatically active, capable and interested in the management of common affairs and ready to participate fully in the development of new organisations and networks. Similarly, it is assumed that flexible work of a new kind can include compromising over the pay level, constant preparedness both to move in pursuit of work and to accept freelancer-type work, and, for instance, easier dismissal processes. In self-organising communities, workers must also be able themselves to determine the workplace and working hours. Future work may be mentally more taxing at the same time as it is physically lighter and involves more freedom with respect to time and space. There is also the unanswered question of how work emanating from significance, constantly developing skills and networks affects inequality.

40 Ahtela, J. 2016. Työaika, tietotyö ja tulevaisuus: esimerkkinä ohjelmistoala. Publications of the Ministry of Economic Affairs and Employment. 34/2016.

3.2 Change in the employer–employee relationship

If work is done without the traditional employee–employer relationship

Central social structures and processes, such as taxation, social security, labour legislation or the trade union movement, will be subject to pressures for change

In the transformation of work, much of the regularities associated with work become more obscure and negotiable. For instance, the contents and objectives of employment legislation have varied with time and can be altered. On the other hand, it should be remembered that the Constitution of Finland and international conventions include provisions, for instance, on protection of the labour force and on the right to earn one's livelihood through the employment of one's choice.

In the current statistics, the reduction of regularity is visible only slightly, but teleworking, multi-location work, self-employment and part-time work are increasing slowly but surely⁴¹. The view on the reduction of regular and contract-based work is based on estimates of the impacts of emerging phenomena, such as the platform economy and learning artificial intelligence, and on people's experience of work becoming chopped into small pieces⁴².

Production methods, processes and jobs are created and disappear, and in a networked society people are moving increasingly often from one workplace and task to another. Along with global value chains, work and tasks seem to be splintered into smaller and smaller entities all over the world. For example the following are associated with future work: multi-location work; moving in the middle ground between the employee–entrepreneur position; on-demand economy; mixed-work economy; the precariat; freelance work and working as a private trader. However, none of these is a complete description of the nature and revenue logic of future work.

41 Ojala S., Pyöriä P. & Nätti J. 2015. Ansiotyötä ajasta ja paikasta riippumatta? In: Anttila A-H., Anttila T., Liikkanen M. & Pääkkönen H. (ed.) Ajassa kiinni ja irrallaan - Yhteisölliset rytmit 2000-luvun Suomessa. Statistics Finland; Pyöriä, P. & Ojala, S. 2016. Prekaarin palkkatyön yleisyys: liioitellaanko työelämän epävarmuutta? Sosiologia 1/2016; Alasoini, T. 2010. Mainettaan parempi työ. Kymmenen väitettä työelämästä. EVA raportti. <http://www.eva.fi/blog/2010/11/16/eva-raportti-mainettaan-parempi-tyo/>; Koramo, M., Keinänen, J., Oosi, O., Wennberg, M. 2017. Self-employment and sharing economy in the changing working life. Publications of the Ministry of Economic Affairs and Employment 13/2017. <http://urn.fi/URN:ISBN:978-952-327-201-9>.

42 E.g. Bläfield, V. 2017. Uusi työ – uudet duunarit. Keskusteluja työn muutoksesta. Kalevi Sorsa Foundation. <http://sorsafoundation.fi/fi/ville-blafield-uusi-tyo-uudet-duunarit/>

Multifarious future work may be manifested as splintered gig work. Income can be collected from several small streams, and work can be done for several clients at the same time. Then the traditional definitions of work and employment relationship do not hold. Is the person an entrepreneur, a temp, a self-employed person, someone with a supplementary sideline or what?

The current discussion emphasises how work is splintered, various roles blend and individual work configurations gain ground. Individualisation applies to the stability of the employment relationship, the places where work is done, the timing and length of working hours, the scope of tasks, working methods and work intensity, the responsibility included in work and career opportunities⁴³. In practice, if the regularity associated with the traditional model of paid work disappears, the relationship between the employer and employee is also blurred. The ‘employer’ may be a client, a collegial community or a distributed blockchain-based platform. The rapid development of the platform, sharing and gig economies also blurs the limit between production and consumption further, as private individuals can be both producers and consumers simultaneously⁴⁴.

Future work can no longer be thought of as being centred around a job or employment relationship. Instead, it is more useful to focus on the activities themselves. The splintered character of work has also given added impetus to new forms of organisation and self-employment, such as cooperatives and platforms, sharing economy and co-production.

The future is largely without employers, which will dramatically change key social structures and processes, such as the tax base and the client segmentation of our entire social security system⁴⁵. Legislation will also be widely challenged⁴⁶.

The role of the trade union movement is also in transition. The critical paths of change are associated with the adoption of the platform economy, encounters between the self-employed and those working alone, virtual communities, peer support, the reconciliation of work and education, and strengthening the significance of work⁴⁷. New directions are

43 Mattila, A. 2015. Taustaselvitys digitalisaatiosta johtuvista muutoksista työympäristössä, osaamisvaatimuksissa ja työn tekemisessä valituissa rooleissa. Confederation of Finnish Industries (EK). <http://ek.fi/wp-content/uploads/Taustaselvitys-digitalisaatiosta-Anssi-M.pdf>

44 Kotiranta, A., Koski, H., Pajarinen, M., Rouvinen, P. & Ylhäinen, I. 2017. Digitalization changes the world – are new statistics needed to support economic policy? Prime Minister’s Office Reports 2/2017.

45 Koivula, A. 2017. Työn murros. National seminar for occupational safety and health committees in the sectors of responsibility of occupational safety and health. 9 March 2017. Finnish Institute of Occupational Health.

46 Koramo, M., Keinänen, J., Oosi, O., Wennberg, M. 2017. Self-employment and sharing economy in the changing working life. Publications of the Ministry of Economic Affairs and Employment 13/2017. <http://urn.fi/URN:IS-BN:978-952-327-201-9>.

47 Presentation by Jarkko Eloranta, President of the Central Organisation of Finnish Trade Unions – SAK, at the Economic Council on 22 February 2017, <http://vnk.fi/talousneuvosto/kokoukset>

sought, for instance, by organising community structures through virtual communities and peer support, but in many respects the transformation of the movement is still in its infancy.

3.3 Change in livelihood

If the income is made up of several small streams

People need new types of meaningful ways to earn a living and new types of safety nets to support the fragmentary income; particular attention must be paid to the polarisation trend of income and productivity

Work has many meanings – from attachment to society to cultural capital – but earning a living can still be considered to be the primary purpose of work. Along with industrialisation, earning a living through regular paid work became a standard. Any jobs deviating from this standard are still often called ‘atypical work’. The social welfare system secures people’s health and income in cases where the acquisition of regular earnings is impossible or limited.

The transformation of work challenges the aforementioned acquisition of income and the regularity, coverage and functioning of the social security nets supporting this income. In practice, the multiplicity of work is crystallised in the question of how social security can be made more flexible⁴⁸.

If regular work was followed by regular income, then splintered and irregular work is followed by splintered and irregular income. This causes concern and uncertainty; for instance, nearly half (47%) of Finnish young people are concerned about whether they will have work in the future⁴⁹. Other features typical of temporary and irregular work include a low income level, the uncertainty of work, poor social protection and few or no personnel benefits⁵⁰. Intermittent working life causes ‘exceptional situations’ for workers and requires

48 Nätti, J. & Pyöriä, P. 2017. Epättyypilliset työsuhteet, epävarmuus ja liikkuvuus. In: Pyöriä, P. Työelämän myytit ja todellisuus. Helsinki: Gaudeamus, p. 26-41.

49 Myllyniemi S. (ed.) 2017. A Look to the Future. Youth Barometer 2016.

50 Research Institute of the Finnish Economy (ETLA). 2015. Muistioita tulevalle hallitukselle. Talouspolitiikan linjaus keväällä 2015. http://www.etla.fi/wp-content/uploads/Muistioita_hallitukselle_2015.pdf

fast reactions, while responsibility for career development and the organisation of work is increasingly often left to workers themselves⁵¹.

As regularity decreases, earning a living becomes an ever-changing jigsaw puzzle where it is necessary to plan alternative courses of action, foresee new opportunities, create connections and develop new applicabilities. The development of skills plays a key role for seizing new opportunities and, for example, for coping with an intermittent career.

Since the advancement of technology treats tasks of different types in very different ways and workers have very different resources, the increasingly individualised jobs also threaten to create more polarised labour markets⁵². The most pessimistic development paths emphasise the sharp division of work between well-paid jobs for a small elite and increasingly common poorly paid service jobs⁵³, and an unequal society with few peaks and many drop-outs⁵⁴. On the other hand, the growth of income disparity has been relatively slow in Finland, at least until now. The polarisation of income is linked with the polarisation of productivity. Technological advancement can enable the increasingly sharp separation of super or hyper-productive people or organisations from the rest. It is still hard to assess the development of hyper-productivity, but it is a phenomenon that will require more attention in the future.

However, the polarisation of productivity, income or working life is neither inevitable nor even the most probable development trend to materialise⁵⁵. In any case, the ongoing profound restructuring of labour markets and working life challenges the labour and industrial policies and forces us to reflect on the roles of society, its safety nets and the public sector⁵⁶. However, the solutions presented now and earlier mainly reflect the operating principles of industrial society and will not probably be able as such to answer the questions of future work and income.

51 Mattila, A. 2015. Taustaselvitys digitalisaatiosta johtuvista muutoksista työympäristössä, osaamisvaatimuksissa ja työn tekemisessä valituissa rooleissa. Confederation of Finnish Industries EK. <http://ek.fi/wp-content/uploads/Taustaselvitys-digitalisaatiosta-Anssi-M.pdf>

52 Obstbaum, M. ja Vanhala, J. 2016. Polarisaatio Suomen työmarkkinoilla, 5.12.2016, <https://helda.helsinki.fi/bof/handle/123456789/14437>

Kauhanen, M. 2014. Yksilön näkökulma: työmarkkina-aseman ja käyttäytymisen muutokset. An article in: Pentikäinen, L. (ed.) 2014. Katsaus suomalaisen työn tulevaisuuteen. MEE Publications, Employment and entrepreneurship 30/2014, p. 63-74. <http://tem.fi/documents/1410877/2859687/Katsaus+suomalaisen+ty%C3%B6n+tulevaisuuteen+09092014.pdf>

53 Demos Helsinki & Demos Effect. 2017. Työ 2040. Skenaarioita työn tulevaisuudesta. <http://www.demoshelsinki.fi/julkaisut/tyo-2040-skenaarioita-tyon-tulevaisuudesta/>.

54 Siltala, J. 2017. Keskiluokan nousu, lasku ja pelot. Otava.

55 Demos Helsinki & Demos Effect, *ibid*.

56 Pentikäinen, L. (ed.) 2014. Katsaus suomalaisen työn tulevaisuuteen. MEE Publications, Employment and entrepreneurship 30/2014. <http://tem.fi/documents/1410877/2859687/Katsaus+suomalaisen+ty%C3%B6n+tulevaisuuteen+09092014.pdf>.

It is in the nature of a foresight report to disengage, to some extent, from current struggles, and therefore we won't get stuck in these discussions. In solutions focusing on competitiveness and efficiency, attention has been drawn to compromising over the pay level and benefits, to mismatch problems between the supply of and demand for labour, and to the preparedness to move in pursuit of work. The high level of safety nets is thought to make labour markets rigid and individuals passive, and to encourage them to drop out of the labour market. On the other hand, it is feared that an increasing segment of society will remain outside traditional work. By contrast, in discussions focusing on innovation and the framework it requires, attention is drawn to the fact that comprehensive and efficient safety nets constitute an effective springboard that helps those affected by changes to return to working life and stay on the labour market for a long time. These are difficult and important issues, but they are examined in part from wrong perspectives that do not reflect the rethinking required by the transformation of work.

It has already been stated innumerable times that, along with digitalisation, technological development and advancing globalisation, we must thoroughly rethink the concept of work and its importance to people's lives. In the same way, the accumulation of income and the mechanisms levelling income will also have to be reconsidered⁵⁷. This is a prerequisite for ensuring that everyone has the possibility for a good life.

Regular paid work will not disappear completely in the future, but many kinds of models for working and earning a living will surface next to it. Then safety nets will no longer be set for weak points in a relatively straightforward income system, but for a wide variety of changing situations. This means that the system must be either very flexible (for instance, portable benefits⁵⁸ and social security accounts have been mentioned in discussions) or very wide in coverage (then the concepts often mentioned are various models for basic income or basic security), or both of these depending on the situation. In any case, a new solution must be conceived for guaranteeing people's income and security.

57 Kiiski Kataja, E. 2016. Megatrendit 2016. Tulevaisuus tapahtuu nyt. Sitra: Muistio 14.1.2016. https://www.sitra.fi/julkaisut/Muut/Megatrendit_2016.pdf.

58 The term 'portable benefits' is used for models that describe various ways of organising safety nets envisioned for the new 'gig economy', platform economy and on-demand type of work. E.g. Aspen Institute, Future of Work Initiative. 2016. Portable Benefits in the 21st Century: Shaping a New System of Benefits for Independent Workers.

3.4 Change in skills

If the changing operating environment requires continuous learning of new things and a broad skills base

Needs for competence change into skills to merge new knowledge into wholes, manage one's own activities and operate with others; particular attention must be paid to the inequality trend of competence

Technological transformation and globalisation have already had a major impact on the balanced supply of and demand for working skills and competences, as the demand for skilled and highly trained labour force has increased⁵⁹.

Competence, education and learning new things are also the most critical means of coping with the transformation of work. At the same time, competence and learning are changing ever more deeply towards continuous learning. The transformation of work requires that people constantly update their skills. In this situation it is natural that studying becomes part of work to an increasing extent and is split into smaller units. The boundaries between work, studying, leisure and the rest of life are becoming blurred.

The familiar main message is that competence must be developed continuously and new things must be learned⁶⁰. Already now, Finns identify the ability and willingness to learn new things as a worker's most central characteristic⁶¹. Lifelong learning is not a new concept, but it is emphasised further in the transformation of work. Another factor speaking for a broad skills base and continuous education is the polarisation of needs for competence. If work is polarised between sectors of high competence and sectors of low competence, ordinary medium-level competence is needed considerably less⁶².

59 Uusitalo, R. et al. 2016. Osaaminen, koulutus ja tulevaisuuden työelämä. Taidot työhön -hankkeen tilannekuvaraportti. Strategic Research, Academy of Finland.

60 Alasoini, T., Järvensivu, A. & Mäkitalo, J., 2012. Suomen työelämä vuonna 2030: Miten ja miksi se on toisennäköinen kuin tällä hetkellä. MEE Reports 14/2012. <http://docplayer.fi/387787-Tem-raportteja-14-2012.html>

61 Association for Finnish Work 2017. Made by Finland –kampanjatutkimus. <http://madebyfinland.suomalainen-tyo.fi/2017/05/22/tutkimus-talta-nayttaa-suomalaisten-mielesta-tulevaisuuden-tyoelama/>

62 Känkänen, J., Lindroos, P. & Myllylä, M. 2013. Elinkeino- ja teollisuuspoliittinen linjaus. Suomen talouskasvun eväitä 2010-luvulla. MEE Publications, Innovation 5/2013. <http://tem.fi/documents/1410877/2864661/Elinkeino-+ja+teollisuuspoliittinen+linjaus+19022013.pdf>; CEDEFOP. 2016. Finland: skill supply and demand up to 2025: country forecast. <http://www.cedefop.europa.eu/printpdf/publications-and-resources/country-reports/finland-skills-forecasts-2025>

In particular, future needs for competence are associated with so-called non-cognitive skills or meta-skills, such as the ability to learn new subject matters, manage one's own use of time, identify the essential and think critically. The value of skills is created in interaction. Then a person does not appear as a concentration of skills for measurement and testing but as a competent and changing actor.

High education, knowledge and investment in competence are important both intrinsically and for wellbeing and growth. Competence has also been recognised as the best security when navigating in an uncertain future⁶³. Ensuring employees' competence, both before and during the career, is highlighted as a means of alleviating polarisation and improving the adaptation of employees and the economy.

However, by maintaining the current competence, we shall hardly be able to meet the challenges posed by complex society and work in the future. Even though the starting points in Finland are good, some signs of the crumbling of the skills base have been identified⁶⁴. It is predicted that future work will also be mentally more taxing than before⁶⁵. The critical skills and competences of the future are also closely linked with the wellbeing of the worker and the work community. We need ways to be well and do meaningful work in an environment coloured by uncertainties.

There are many reviews and listings on the future needs for competence⁶⁶, and as in the case of future occupations, envisioning the future fields of study or subjects is not the most important question. When traditional structures, organisations and operating models are breaking both at work and in school, what is needed, above all, is the ability to manage change and one's own activities and skills in it. In a complex, networked and constantly changing environment, the first task is to ensure coping skills, such as interaction skills, learning new things, flexibility, curiosity, critical thinking, skills supporting internationalisation, and self-management.

63 Presentation by Sture Fjäder, President of Akava, the Confederation of Unions for Professional and Managerial Staff in Finland, at the Economic Council on 13 April 2016, <http://vnk.fi/talousneuvosto/kokoukset>; AKAVA. 2014. Osaava Suomi luo hyvinvointia. Koulutus- ja työllisyyspolitiikan ongelmia ja ratkaisuja. http://www.akava.fi/files/12535/Osaava_Suomi_luo_hyvinvointia_2014.pdf

64 Tiihonen, P. & Hietanen, O. 2014. Tulevaisuusvaliokunnan ja kansliapäälliköiden ensimmäinen tulevaisuuskeskustelu. Publications of the Committee for the Future of the Parliament of Finland 14/2014. https://www.eduskunta.fi/FI/tietoaeduskunnasta/julkaisut/Documents/tuvj_14+2014.pdf

65 Ministry of Social Affairs and Health 2015. Working Life 2025 review. Effects of the changes in working life and the working environment on occupational safety and health and wellbeing at work. Reports and Memorandums of the Ministry of Social Affairs and Health 2015:16. <http://urn.fi/URN:ISBN:978-952-00-3573-0>

66 Alasoini et al. 2012, Känkänen et al. 2013, Aaltonen 2014, Tanskanen & Nenonen 2009, Jääskeläinen 2015, Heino et al. 2012, Lyly-Yrjänäinen & Ramstad 2015, Rouhelo & Trapp 2013, WEF 2016

Future competence consists of both an individual's thinking and learning skills, and skills related to the community's interaction and acting in different environments. The application of an individual's competence is seen more strongly as an element of the whole. Learning communities and organisations support continuous learning through work and an inquisitive culture of learning.

Cooperation and interaction skills are emphasised both between people and between man and machine. These consist of traditional group work, coordination and organisation skills as well as the ability to understand differences and hold meaningful and constructive dialogue. Operating in networks and building communities will become increasingly important skills. The most important aspect for coping with the transformation of work is strong social capital.

The knowledge base of the individual and our society is already broad in scope and being updated quickly. The acquisition and processing of information are constantly easier and more automatic. However, both the increasingly common artificial intelligence applications with learning capabilities and wicked problems require that people have ever more creativity and critical thinking.

Will substance knowledge and deep know-how in some field then be overridden by thinking and interaction skills? No, because technological developments, the solution of wicked problems, innovation and the creation of new business, the interpretation of past and future times, or unravelling the secrets of man and the universe will still require profound study and erudition, as well as human empathy, curiosity and various, increasingly intricate professional skills. As concerns the transformation itself, it is important to understand the actual meaning of, say, digitalisation, globalisation or the exponential development of artificial intelligence (where intelligent machines enable the development of increasingly intelligent machines, often faster than before) and how they will influence society and man. Holistic conceptualisation and systems thinking are emphasised.

The shifting of priorities in competence from a one-off investment to continuous retraining and from the individual level to the community level will require changes in the education system. We need more flexible education that recognises individual study paths, as well as the recognition of on-the-job learning⁶⁷. Training must also be offered actively throughout an individual's life.

67 Pentikäinen, L. (ed.) 2014. Katsaus suomalaisen työn tulevaisuuteen. MEE Publications, Employment and entrepreneurship 30/2014. <http://tem.fi/documents/1410877/2859687/Katsaus+suomalaisen+ty%C3%B6n+tulevaisuuteen+09092014.pdf>

3.5 Change in the social importance of work

If work is no longer the main channel for attachment to society and work no longer means what it has traditionally meant

People are attached to society through shared goals and meaningful activities; the creation of meanings retains its value and is left for people to do

The widest and most fundamental change in the transformation of work is that work as the main channel for attachment to society is severed, and work – as it is usually understood – no longer serves as the natural mechanism for the distribution and levelling of income⁶⁸.

The relationship between the individual and society traditionally becomes concrete first in school and then at work. A person's life is determined by finding one's own place on the education and labour markets. Joining society's task and role structure has occurred in a relatively straightforward and clear-cut manner.

In the transformation of work, the finding of one's own place or life path – and thereby being positioned in and attached to the surrounding society – has become clearly more challenging. Coloured by transitions and breaks, the fragmented courses of life also involve a growing risk of social exclusion. The situation becomes problematic if there are few opportunities for attachment – or reattachment in the case of a break, if they are very vague or if the individual is poorly equipped to seize them.

Often transformation is also seen as a kind of brief transitional period, a disturbance or part of an economic cycle. Recovery from the disturbance requires revival of the economy, and return to the growth path is both hoped for and expected.

However, it is possible and even foreseen that the current recession and recovery from it will take considerably longer than the crises experienced in the 1970s and 1990s. Prolonged high unemployment was already envisioned in the 1980s by using the concept of hysteresis⁶⁹. Similarly, a transformation and recession extending over a whole generation

68 ILO. 2015. The Future of Work Centenary Initiative. Report of the Director-General. ILC.104/DG/1. http://www.ilo.org/wcmsp5/groups/public/@ed_norm/@relconf/documents/meetingdocument/wcms_369026.pdf

69 Alho, K. & Kiander, J. 2010. Työmarkkinat kriisissä ja sen jälkeen. In: Rouvinen, P. & Ylä-Anttila, P. 2010. Kriisin jälkeen. Sitra Publications 288, Helsinki, p. 217–244.

is also forecast now⁷⁰. According to some assessments, industrialised countries have even reached a permanent state of stagnation, i.e. a period when economic growth will remain markedly lower than in past decades⁷¹. At the same time, inequality may consume the fruits of modest growth⁷².

When work understood in the traditional way shrinks sufficiently, sooner or later we shall have to reconsider the concept of work and its place in people's lives thoroughly so that everyone would have the opportunity for a good life⁷³. The thought is in part frightening but in part extremely positive. The underlying optimistic idea is the observation that technology will soon reach all work, including that requiring specialised skills, and will replace a large part of human labour so cost-effectively that sustainable economic growth and wellbeing are possible without work done by humans⁷⁴. Of course, this does not mean that there would be no more work in the world⁷⁵. New work and jobs will definitely be generated, but the fundamental character of work will change. If an individual's place in society's task and role structure is no longer associated with productive activities through the education and labour markets, the relationship with society must be defined in some other way.

After the transformation of work, people are attached to society through shared goals and meaningful activity. In an ideal vision, people work at things that they experience as meaningful and to which they want to be committed. People can be attached to various networks, communities and the surrounding society through shared meanings, goals and meaningful activity, and all this is possible in terms of income distribution. In this picture of the future, the main stress is on utilising new ways of attachment brought by development and on the minimisation of uncertainties relating to income and global inequality so that people can concentrate on doing meaningful things together.

Since it is increasingly difficult to promote the economy merely by intensifying and optimising production, the centre stage will be taken by visionary value creation that concen-

70 Mokka, R. 2017. Entä jos lamasta toivutaan vasta 2050-luvulla? Column, 28 February 2017, <http://yle.fi/uutiset/3-9481664>

71 Kasvio, A. 2017. Ratkaiseeko talouskasvun nopeutuminen hyvinvointimme ongelmat? 22 March 2017, <http://anttijuhankasvio.puheenvuoro.uusisuomi.fi/233988-ratkaiseeko-talouskasvun-nopeutuminen-hyvinvointimme-ongelmat>

72 Saari, J. (ed.) 2013. Suomen sillat tulevaisuuteen. Kuluttajatutkimuskeskuksen kirjoja 8.

73 Kilpi, E. (ed.). 2016. Perspectives on new work. Exploring emerging conceptualizations. Sitra Studies 114. <https://www.sitra.fi/julkaisut/perspectives-new-work/>

74 Brynjolfsson, E. & McAfee, A. 2014: The second machine age. Work, progress and prosperity in a time of brilliant technologies. London: W.W. Norton & Company; Millennium Project. 2015. Future Work/Technology 2050 Real-Time Delphi Study Excerpt from the 2015-16 State of the Future report. <http://www.millennium-project.org>

75 See e.g. Olli Hietasen lista – tulevaisuuden kasvavat ja uudet toimialat. <http://jarkilehti.fi/2014/02/hietasen-lista-tulevaisuuden-kasvat-ja-uudet-toimialat/>

trates on identifying and creating what people need the most now and in the future⁷⁶. For some time already, one starting point and goal has been extensive innovation – in practice, research, development and innovation, and the environments supporting them – and the consequent growth. Intellectual capital, such as creativity and know-how, is a factor of production that will keep strengthening in the future. It will also attract an increasing share of investments⁷⁷. When work and operations are organised in an innovation-oriented way and through intellectual capital, it is noticed that the efficiency and impact of working arise largely from the meaningfulness and significance of the work and that the innovation of organisations is communal⁷⁸. For individuals, operating in a new kind of innovative and learning organisation requires new skills and the development of oneself and the organisation (see section 3.4 above).

The question is, what is work and meaningful activity. Basically, work is about value creation and, to put it simply, the value of work has come from the production of things and services. The more cost-effectively the work is done, the greater is the value obtained on the initial investment, because efficiency adds to production. For the most part, innovation focuses on making products and processes more efficient, but also on improving well-being and finding solutions to social issues. In this situation, if there are no investments in creativity, the creation of meaningful work and the supporting structures, the rise in productivity will depend mainly on automation and the amount of work will be reduced.

Let's go a little further. For some time, there have been signs that the value and importance of work are also becoming separated from innovation. It is not enough that products or services are innovative or new; instead, activities and outputs must be significant for people and they must provide tools for instance for the building of a sustainable lifestyle and a significant life, for taking care of the immediate environment, for learning new things or for the acquisition of experiences. Creation of meanings can also be considered to be an area of human activity that technology cannot replace and that therefore will retain its value and will be left for people to do. The problem that remains is how to define what type of activity is valuable and for whom should work be meaningful.

76 Kiiski Kataja, E. 2016. Megatrendit 2016. Tulevaisuus tapahtuu nyt. Sitra: Muistio 14.1.2016. https://www.sitra.fi/julkaisut/Muut/Megatrendit_2016.pdf

77 Ministry of Education and Culture. 2017. Promoting the creative economy and intangible value creation as spearheading growth sectors Report of the working group on recognising the creative sectors as a driver of Finnish economy and employment Publications of the Ministry of Education and Culture 2017:18

78 Heinonen, S., Ruotsalainen, J. & Kurki, S. 2012. Creative Foresight Space and Foresight of Future Skills FFRC eBooks 4/2012. https://www.utu.fi/fi/yksikot/ffrc/julkaisut/e-tutu/Documents/eTutu_2012-4.pdf; Alasoini, T., Lyly-Yrjänäinen, M., Ramstad, E., Heikkilä, A. 2014. Innovatiivisuus Suomen työpaikoilla: menestys versoo työelämää uudistamalla. Tekes: Katsaus 311/2014. http://www.tekes.fi/globalassets/julkaisut/innovatiivisuus-suomen_tyopaikoilla.pdf

4 Conclusion

In this report we have given a broad description of the transformation of work and the changes outlining the future of work. The impacts of the changes are far-reaching and challenge the welfare society. Finally, we summarise the changes and the most critical questions arising from them (Figure 2). Some of the questions are already being resolved in many key projects, working groups and studies. Whenever appropriate, the Report on the Future is linked to the work carried out, and in Part 2 will focus more deeply on the policy issues, decision-making needs and alternative solutions in the transformation of work.

With respect to many of the questions in Figure 4.1, much work has already been done and is being done. Despite the time span extending far into the future, the report and its impacts are linked with political decisions made already now. The policy decision on the comprehensive reform of social security, made during the Government's mid-term policy review⁷⁹ in spring 2017, is a good example that the report work, for its own part, can prepare and support. The possibilities of the new economy and work are strengthened, for instance, through Finland's artificial intelligence programme and closer cooperation among the Nordic and Baltic countries in developing the digital single market, utilising experimental technology and providing test platforms⁸⁰.

79 Hallitus linjasi strategiaansa loppukaudelle. http://valtioneuvosto.fi/artikkeli/-/asset_publisher/10616/hallitus-linjasi-strategiaansa-loppukaudelle

80 The Nordic-Baltic region: a digital frontrunner. <http://www.norden.org/fi/pohjoismaiden-ministerineuvosto/yhteistyoeinisterit-mr-sam/julkilausumat/pohjoismaiden-ja-baltian-alue-digitaalinen-edellaekaevijae>

Figure 2. The transformation of work and its consequences



In part, the transformation of work appears as threatening, but when understood correctly it includes huge potential. It is clear that digitalisation and automation are replacing traditional human labour at an accelerating pace, and work is done increasingly often on global platforms. However, all the technology and applications needed must be invented, developed, manufactured, marketed, sold, used, maintained and, finally, recycled.

All this requires human curiosity and inventiveness, social interactions, human sensuality, ethical, moral and political solutions, motivation, learning, unlearning and relearning. Even in the future, people's role is to identify opportunities and problems, to decide when to seize them and to modify and further process them together with machines. Digitalisation and technological advancements also free work more for communal activities and for helping others, and offer solutions to how all people could be included in empowering communities.

In future work, a network-like mode of operation can make it possible, more than at present, for each of us to concentrate on the work, or part of work, that we know how to do best or that is otherwise the most meaningful to us. There will also be new professions that help people to build bigger and meaningful work entities from fragments, possibly so that the former employer is now the provider of such service for the employee.

In order to cope with and manage transformation, we need to identify the big picture, which also includes jumping outside the box; that is, altering the perspective and approach to arrive at something fundamentally new.

The programme of the present Government is a strategic government programme, which replaced detailed, really long government programmes. All of the Government's goals and reform programme are guided by a clear vision. The future strategic building always starts with a clearly defined vision of the direction in which our society is developed.

In the Report on the Future, drawing up the vision must be a genuinely future-oriented and long-lasting process that paves the way for the government negotiations of the next term and will carry even further than that. In this first part of the Report on the Future, we have been building a shared view of the future of work. In the second part, it would likewise be interesting to try to find shared understanding at the level of vision; in other words, to reach a common vision of the future of Finnish work as well as the means to attain that vision.

APPENDIX 1: Participants in the preparation of the report

Part 1 of the Report on the Future and the shared understanding of the future of work has been built openly and in a network-like manner from March 2016 to June 2017. The work has been done in several dozens of workshops, events, discussions and expert meetings. Many thanks to everyone who has participated in and contributed to the work in one way or another.

The authors of the Report on the Future, the experts on the future of work and the contributors to the building of shared understanding

Prime Minister Juha Sipilä's Government

The report was discussed at the Government strategy sessions on 7 March 2016 and 22 May 2017.

Preparation of the report was led by State Secretary Paula Lehtomäki

Economic Council

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Editor and author of the report, Senior Specialist Kaisa Oksanen, Prime Minister's Office

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SuomiAreena 2016 and discussions on the future of work

Everyone who has participated in and contributed to the events and discussions and commented on the drafts of the report

Sources and references appear as footnotes in the text.



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